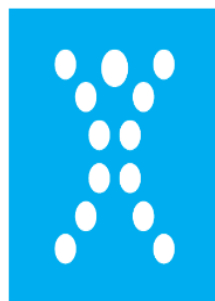


ESTeSC – Coimbra Health School

Poster Week 11/2019

Abstract Book



ESTeSC

Escola Superior de
Tecnologia da Saúde de Coimbra

May 13th – 17th, 2019

SCIENTIFIC COMITEE

Ana Filipa Gonçalves Carvalho
Ana Lúcia Baltazar Santos
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Berta Isabel Ribeiro Martins da Cunha
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Célia Margarida Alcobia Gomes
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SOCIAL INTEGRATION OF DEAF PEOPLE

Alexandra Carvalho, Ana Correia, Joana Silvestre, Joana Lourenço

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Introduction: Deaf people are being talked about more everyday but not all of them are well integrated because the hearing society considers them to be incapable of conducting the majority of tasks. The necessity to be integrated in the job market reveals itself to be a decisive agent when it comes to social inclusion, autonomy and personal realization. Objective: To analyse the inclusion of deaf people in society in both a professional and school level, while trying to understand what measures that are left to be adopted. Methodology: The database B-on was used, between the days of 4 and 6 of March, with the key words being: “deaf people”, “social integration” and “job”. 14 articles were found and 4 were excluded because they didn’t match the objective in mind for this revision. Results: Family and close friends of deaf children should be involved in their lives, learning news ways of communication, in order for these people to be integrated in the family environment and in society. During adulthood, because of the difficulty in completing certain tasks, it’s important to have the understanding of their work colleagues, in order to maintain a job to support themselves and their families. These strategies are fundamental for their professional and psychological well-being.

Discussion/conclusion: In the past, deafness was devalued due to the lack knowledge of society. This and the lack of funding for institutions to get the necessary equipment, are barriers that deaf people need to live with and fight against, every day.

Keywords: deaf people, social integration, job

ACCESS TO EDUCATION IN THE DEAF COMMUNITY

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Introduction: Education in the deaf community has been one of the issues of concern, mainly due to the difficulties and limitations it imposes. In the 21st century, it is essential that we all have the same rights, including the access to education, and that in this type of community we, sometimes, see inadequate teaching methods as well as decisions made by family members.

Objective: Through the literature review, it is intended to address the difficulties that the deaf community presents in access to education.

Methodology: A survey was carried out in the databases, B-on and Google Scholar, with the keywords: education and deaf community, between March 10 and 19, where a total of 9 articles were obtained.

Results: It was verified, by the authors of the articles, that the portuguese deaf community, for the most part, shows a low level of development of learning, specifically reading and writing.

Discussion/Conclusion: It has been found that there are still many barriers to access to education in deaf community, given that everything is based, fundamentally, on the decision of the parents/family of the child. It is essential to ensure that the deaf children have the same educational opportunities as regular children.

Keywords: education, deaf community, inclusion, bilingualism, oralism

ART IN THE DEAF COMMUNITY

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Introduction: Art is the way for an artist to communicate and express to the rest of the world which can be portrayed in many forms. It helps us in our communication and its extremely important in the growth of a community, it does this by integrating people with different personalities and physical characteristics. Deaf community is the linguistic and cultural sharing present in thousands of cities around the world, it gathers deaf people and normal listeners, which use sign language as a way of communication.

Objective: Through a revision of literature, to analyse the way that the deaf community integrates itself in art.

Methodologies: A literature analysis was done using electronic data bases such as b-on and Google Academic. A total of 6 articles were obtained, however after reading their abstracts, 3 were excluded for not meeting our objective.

Results: The deaf community has different ways of appreciating art comparatively to the normal listeners community. Dancing, theater and music are examples of different types of art. In dancing a number of vibro tactile stimuli is used while in theater deaf actors use Sign Language in an intense and expressive form, a mix of light games and sound is also used. The deaf community believes that music doesn't belong to its culture, however, there are some individuals that enjoy music and even compose it by feeling its vibrations.

Conclusion: Art is accessible to all independently of any physical or mental impairment, it should be adapted to every community.

Keywords: Art, Community, Deafness, Communication, Education.

INCLUSION OF DEAF STUDENTS IN SCHOOLS

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Introduction: In Portugal the inclusion of deaf students in schools is a process still in development, since the company is not prepared to communicate with children who are carriers of this type of disability. Children with hearing loss can have access to different types of education, from regular to specialized and bilingual.

Objective: Through literature review, we intend to realize how does the inclusion of deaf children in Portugal, in schools.

Methods: We performed a literature search between February 11 to March 14, 2019, on the basis of b-on data and academic google with keywords, inclusion, student, school environment, bilingualism, deaf, sign language, in Portuguese and English. After reading the title, abstract and using the exclusion criteria, we obtained a total of 9 articles for analysis.

Results: It was found that most authors state that there is a lack of interest from academic and government institutions as well as a lack of training of educators, and these show a carelessness in learning new ways to deal with students with special educational needs as is the case with deaf students.

Conclusion: In Portugal most deaf children are placed in specialized schools, developing Portuguese sign language (LGP) or Bilingualism, however, it was found that there is a lack of training of educators working in these establishments.

Keywords: inclusion, student, school environment, bilingualism, deaf

THE IMPORTANCE OF THE FAMILY IN THE DEVELOPMENT OF DEAF CHILD***Isabel Abreu, Laura Santos, Mariana Moura, Mariana Rodrigues, Teresa Silva****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Audiologia, Coimbra, Portugal*

Introduction: the family has a fundamental role in the development of the child, their parents should be aware of the importance of offering to their son or daughter a favorable environment that would guarantee them a total cognitive, linguistic, emotional and social development, enjoying a good access to information that equips them for the challenge of educating a deaf child. Objective: through a review of literature, was intended to identify the difficulties of living with the listener family of the deaf child. Methodology: The articles search was carried out in databases such as b-on and Google academic, in day 4 of March. A total of 6 articles were obtained, being deleted 2 because the title and abstract does not contain relevant information. Results: The reactions of the parents to the hearing loss of the children were observed, distinguishing those who accept and seek to help them of those who do not. We also analyzed the parents' point of view about their children's schooling, where some are apologists for regular education and others opt for special education. Discussion/Conclusion: the families who live with the deaf children undergo a process of change and adaptation and be able to give up your job or from your residence, thereby changing the style of your life. These dictate be complicated and psychologically exhausting dealing with the changes that requires, causing rebellion and neglect before the family. Therefore, sign language is the main form of communication between the family and the children, for being of easy visual access.

Keywords: deafness, family, Portuguese sign language, child.

SOAPS

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Sanitization consists in turning a surface cleaner and disinfected through the use of water, soaps and enzymatic or chemical products in order to get the removal of dirtiness.

This way soaps are widely used as cleaning products and as vehicles to active substance's and therefore are designed as medical soaps since they result from the addition of drugs with therapeutic purpose. They may be presented in bar, powder, liquid and scales.

These ensure the skin cleanliness once they present the ability to interact either with hydrophobic and hydrophilic molecules. They origin a foam which extract and ease the elimination of particles and also because they decrease the superficial tension, therefore named surfactant agent.

At the time the application of the soap, the superficial tension is reduced and the liquid gets easy to spread out through the surface of the skin making it easily and effectively wet while occur the dissolution of the dirtiness and subsequently the formation of soluble micelles in water that enable its elimination.

The chemical reaction which is at the origin of soap's production is saponification, designed as such due to the combination of a fatty acid with a strong base, being the product of the reaction a salt that has a basic characteristic, for this reason it does not act quite well in acidic environments. Reagents are fats, sodium hydroxide or potassium.

The soap's production process includes the following steps: division, mixture, milling and by-products.

Soap is a biodegradable product however, it does not necessarily means the product does not pollute the environment, and it means that it is decomposed usually by aerobical bacteria's.

To sum up, we can prevent and heal certain diseases that might be related to skin's sanitization, since soaps have the ability to interact with hydrophobic and hydrophilic particles.

Keywords: Soaps, sanitization, saponification

CONTROLLED DRUG DELIVERY SYSTEM

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The controlled drug delivery system has as main objective the temporal and spatial control, in vivo, concentration of drugs, maximizing clinical benefit and minimizing adverse effects.

The controlled release involves the chemical or physical association of drugs with biocompatible materials in systems that have the ability to control, in a predetermined manner, the rate of release the drug from that same system, and / or to conduct the drug to the specific place in which it should act. The placement of these drugs can be done by means of emulsions, liposomes and nanoparticles biodegradable. The drug can be released by two different mechanisms: diffusion or erosion.

The controlled release systems are classified according to many criteria, including the class of materials used, the type of therapeutic agent incorporated, the physical state, route of administration, how the drug is immobilized in the system and the nature of the mechanism that controls the release thereof.

Regarding the benefits, it is mentioned the need for a lower frequency of administration significantly reduces the rate of administration and less amount of drug that is administered, thus reducing the cost of this drug. However, there are some disadvantages, for example, the drug may remain intact in some inappropriate place and no release occurs. There is also the impossibility of interrupting the pharmacological action in case of irritation or intolerance by the patient. Finally, costs higher than that of conventional pharmaceutical formulas, which occur in function of the materials and microencapsulation processes used.

Despite all the benefits of controlled drug release, there is still much research to be done to further develop this technology.

Keywords: Drug delivery system, Control, Pharmaceuticals delivery

PLASTERS

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The plasters are designated by pharmaceutical forms destined to external use, with firm consistence, that are not liquefied to 37°C but that become soft, creating plastic, flexible and adhesive masses. They are applied with the protection purpose or as active excipients that carry out their functions inside the skin.

This way, it is possible to consider that exist three types of plasters: epidermal, endothermic and diathermic. The epidermal plasters have a protecting and immobilizing action, and can be antiseptics, keratolytic or revulsive. The endothermic plasters causes a sedative, stimulant, astringent and anodyne effect. Finally, the diathermic plasters are destined to provoke a systemic action. In the therapeutic purpose, the plasters also stand out for their presentation: plasters properly said under the shape of cylinders, that the adhesive mass can be linked to elastic materials, or as adhesive plasters, preparations that their constitution understands thick tissues. The plasters as road of topical administration presents certain advantages as: avoids the effect of first passage, easy administration, make possible the end of the therapeutics when necessary, contain less risks associated, produce a larger effectiveness with smaller dosage and better adhesion of the patient to the therapeutics.

However, they also have certain associated disadvantages as the possibility of irritation, allergic reactions in the skin and restrictions of the physiochemical properties of the drugs.

In conclusion, the plasters have minimal disadvantages and for that reason they are a great form of administration of medicines and help in the relief of the inflammations.

Keywords: Plasters, External use, Protecting action, systemic action

COLLOIDAL DISPERSIONS

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Colloidal dispersion is a heterogeneous system consisting of two or more substances, in which the dispersed or discontinuous phase lies within the dispersing or continuous phase, in the form of small particles formed by aggregates of molecules (colloids). In colloidal dispersions the dispersion is the equivalent of the solute and the dispersant is equivalent to the solvent and its phases may be solid, liquid or gaseous. Colloids have some intrinsic properties such as the Tyndall effect, Brownian movement and their instability, as colloidal dispersions tend to aggregate or coalesce to decrease their surface energy. There are various types of colloids such as gel, sun, foam, emulsion and aerosol. The classification of these dispersions is made according to the physical state in which the dispersed and dispersing phase are found, the nature of the particles of the dispersed phase and can still be classifiable as to the affinity with the continuous phase, distinguishing themselves in liophobes and lyophils. The colloids' classification as to the nature of the particles of the dispersed phase is subdivided into molecular and charged micellar colloids. As for the preparation of the colloidal dispersions, it is possible to obtain by dispersion / fragmentation methods or by condensation / agglomeration methods. The first methods are implemented so that the particles decrease in size by grinding to the size of the colloid, for example by peptizing or dispersing precipitates in a slightly acidified or alkalized alkaline aqueous medium, and the second methods are implemented in a way that the particles increase in size by aggregation to reach the size of the colloid, it includes the decrease in solubility of the solute or the recurrence to chemical reactions such as hydrolysis and reduction and oxidation reactions.

Keywords: Colloidal dispersion, Tyndall effect, Brownian movement

EXTRACTS

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Extracts are solid pharmaceutical preparations obtained by concentration to a certain degree of solutions resulting from the depletion of drugs by a solvent: water, alcohol, acetone, etc.

In the preparation of an extract we can distinguish 2 main phases: the extraction of the solution and its concentration. Another phase can be added, the debugging.

The most common extractive operations are maceration, leaching, infusion, among others.

The extracts may be concentrated under normal pressure or under reduced pressure. When it occurs at normal pressure, it is done with the aid of heat, using a water or steam bath.

When the concentration of the extracts occurs under reduced pressure, there is no need to use such high temperatures as the solvent's boiling point decreases. Less change of colour and constituents occurs.

It is common to eliminate substances without therapeutic interest and whose presence can diminish its stability, in a process called purification. These substances can be fats, albumins, resins, mucilage, and / or pigments.

The extracts can be classified as to their consistency and the extractive liquid. There are dry extracts (water content of 2 to 5%), firm extracts (moisture content 10%) and soft extracts (with water percentage between 20 to 25%). In relation to the extractive liquid, they are classified as: aqueous extracts, alcoholic extracts, stereo extracts and acetone extracts.

Tests, which may be related to color, density, solubility, ash, moisture, dosage and identification of the active ingredients, are carried out in the finished product or else during the process.

Keywords: Extracts, Solid preparation, Extractive solution, Concentration

ENEMAS

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An enema, also known as rectal injection or clyster, is the injection of a liquid, usually a saline cleaning solution, in the rectum and large bowel through the anus, by a rectal probe. It can be administered from a few millilitres to 3 litres.

These can be divided into three types according to their reaction mode: Evacuators, which stimulate evacuation; Carminatives, which help the expulsion of gases from the colon; Sedatives, which soothe possible spasms.

In addition, it's possible to make another distinction between two types of enemas: cleaning/evacuation, used for the treatment of constipation, by the administration of a liquid with rapid action, generating a response in less than 20 minutes; Retention: designed so that the liquid introduced into the body can be retained for at least 30 minutes. This liquid allows the visualization of images of the lower gastrointestinal tract with X-rays, in order to perform a diagnosis.

Enemas can have a local effect - reducing inflammation, stimulating defecation, promoting the elimination of parasites and bacteria - or systemic - reducing fever, providing nutrition and hydration or promoting sedation.

Normally, the enemas' mechanism consists of a volume of fluid that causes a rapid expansion of the gastrointestinal tract, sometimes associated with irritation of the mucosa, resulting in increased peristaltic movements and a sense of extreme faecal urgency. Therefore, it's important to highlight certain contraindications: people who suffer from peritonitis, appendicitis, colitis, intestinal inflammation or abdominal trauma shouldn't resort to this treatment.

Enemas present several actions and applications, one of them being in the surgical practice, for example, in examination performed at the colon, or to clarify the image, improving the quality of surgical intervention.

Keywords: Enema, Rectal injection, Clyster, Gastrointestinal

VAGINAL TABLETS

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Vaginal tablets are designed to promote a local action, which is usually microbicidal or epithelial regenerator. They are astringent, anti-infectious, keratoplastic and healing. Most of tablets contain soluble excipients such as lactose, glucose and sucrose.

The shape of these tablets is generally oval or round and has a genitourinary route of administration.

The most commonly used active substances are misoprostol, clotrimazole and tioconazole, having the latter two drugs an imidazole structure.

Misoprostol is a synthetic prostaglandin E1 analog that has been previously developed for the treatment and prevention of gastric ulcer. Nowadays is used as an abortive.

Clotrimazole is an antifungal, which has a wide spectrum of activity, allowing it to effectively eliminate several fungi, responsible for infections on the skin and genitals.

Tioconazole is an antifungal imidazole derivative. It has fungicidal action against yeasts and dermatophytes and shows activity against *Trichomonas vaginalis*, *Gardnerella vaginalis*, *Bacteroides* sp and some Gram-positive bacteria. It acts by attacking the integrity of the cell membrane of the fungus leading to its death.

This galenic form allows an ingestion of smaller dosages that diminish the side effects; has good absorption since the site of administration has large blood irrigation; the drug does not undergo liver metabolism and administration is done by the patient himself. However, it presents some disadvantages as they are not indicated for the systemic use, since they lead to an influence of the menstrual cycle on the vaginal tissue. This galenic form can be uncomfortable in its administration.

Currently, vaginal tablets are the most used galenic form for vaginal route, having replaced the vaginal ovules that have been losing interest over time.

Keywords: Vaginal tablets, Genitourinary route, Misoprostol, Clotrimazole, Tioconazole

AEROSOLS

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An aerosol is a colloidal dispersion made of divided solid or liquid particles dispersed in a gas, this being the continuous phase and the particles the dispersed phase. If the gas contains a dispersion of solids, it's called smoke and, if it contains a dispersion of liquid substances, it's called "fog". The diameter of the particles should be between 10-50 μ m.

There are different types of aerosol dispensing devices such as: atomizers, nebulizers, insufflators and vaporizers. Nebulizers release a constant amount of aerosol during inspiration and expiration, which may result in excessive exposure of the patient's skin and eyes to the drug. The atomizers are essentially T-tubes in which the air injected into one of the branches creates partial vacuum in the T-rod, which remains immersed in the drug solution. Insufflators are built to disperse solid particles in the respiratory tract. Vaporizers are used to moisten the atmosphere by dispersing water or volatile liquids in the gaseous form.

Aerosols can be topically applied in a cutaneous area, or administered to the nasal, tracheopulmonary, vaginal, rectal mucosa, among others. Cutaneous applications are aimed at obtaining topical actions, they are less irritating and don't require manual assistance to diffuse into the skin, and their distribution is more uniform. They can be used in antiseptic aerosols, deodorants, antihistamines, astringents, fungicides, etc. However, inhalation is the most frequently performed therapy with aerosols, with more frequent use of mucolytic, bronchodilator, anti-inflammatory and anti-infective drugs.

In the preparation of the aerosols, we have to consider the preparation of the drug itself, the choice of the propellant and the filling of the containers.

Medicated aerosols have some advantages: they cause less irritation of the skin or mucous membranes; can be prepared and kept sterile; are susceptible to be applied to infected wounds; and the medication can be applied in a restricted area.

Keywords: Aerosols, Colloidal Dispersions, Dispensers

RECTAL CAPSULES

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The Rectal Route is an administration form where the medicine is applied on Gastrointestinal Tract's (GIT) rectal zone. The medicines used there may produce local or systemic effects. This type of route is most used in cases of unconscious patients or unable to swallow patients; on pre-surgical or diagnosis; such as to relieve the intestine in obstipation's cases.

Rectal Capsules are soft gelatin, which composition is identical with the oral use's capsules. About their form, they present long form like suppositories and pear-shaped. Contain active principle (AP) dispersed on viscous or liquid excipient. The excipient is often of oily nature or constituted by polyethylene glycols. Sometimes is added a surfactant like Spans or polysorbates in order to suspense or emulsify the medicine.

Finishing, actually, rectal capsules had become a preference of administration's form in comparison with suppositories, once that confers a large number of advantages regarding is application.

Keywords: Rectal Capsules, Capsules, Rectal Administration, Gastrointestinal Tract

MICRO ENEMAS

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Enema or clyster is a liquid drug for rectal administration, this means, that it is introduced in the organism through the anus and is used to clean the intestine. It consists in a very important technique in detoxification programs.

Micro enemas or micro clysters were designed to be administered at home due to their easy administration and low risk. It's application would be the first recommendation before a more sophisticated enema, since in much cases an obstipation problem can be solved with a micro enema.

The liquid solution has about 1-10ml and can be in a suspension form, solution or emulsion. It has a lubricated applicator barrel with a protection cover and disposable gloves for an easy self-administration.

Micro enemas are meant to have a topic effect on the rectal mucosa or a general effect. They present some advantages such as: drugs absorption is not hampered by the presence of solid excipients; easy conservation, even in hot climates.

There are several contraindications to the use of micro enemas. People who suffer from peritonitis, appendicitis, colitis, intestinal inflammation or abdominal trauma should not use this type of treatment.

By their presentation they differ in microcatheters, clismatenas and rectioles.

Microcatheters are small rectal catheters which apply to a hypodermic injection syringe. There may be administered anticonvulsive, antiallergic and anti-emetic drugs.

Clismatenas are little polyethylene bottles with ability to contract. They have the advantage of dissolving most drugs.

Rectioles are small vials of plastic material containing liquid drugs. Their use allows to obtain different rates of absorption for the same drug.

Keywords: Rectal administration, Micro, Self-administration

ALCOHOLATURES

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The alcoholature are dosage forms that belong to the class of alcohols and which result from the solvent and extractive action of alcohol on fresh herbal drugs.

The extraction can be performed cold or by boiling it respectively, ordinary alcohol and stabilized alcohol.

The common alcoholature are obtained by the maceration of fresh chopped drugs in 90° alcohol for 10 days. In some cases resorts to alcohol 80 or 75° depending on the type of drug used.

The relative amount between the drug and the alcohol is 1: 1 or 1: 2.

The extraction can be improved in the presence of 0.5% polysorbate 80.

Stabilized alcoholates are prepared by pouring the cut drug into a flask of boiling ethanol to which adapts a reflux condenser, with the operation lasting 40 to 60 minutes.

In some cases it is advantageous to add calcium carbonate to neutralize the present acids, this helps with the anti-hydrolytic effect of the alcohol to the boiling point (destruction of drug enzymes).

The common alcoholature may contain enzymes, amino acids and other extremely fragile or labile products. This indicates that there may be a certain instability because the cold alcohol does not allow certain fermentations, which causes increased consistency of the alcohol oxidations, which may be reflected in the appearance of colors, etc.

The dosage of the active ingredients should done if in the alcoholatures that are considered pharmacologically potent.

The active ingredient content depends on the water content and this varies with the time of harvest and the weather conditions (dry or wet), it can be said that the percentage is very variable, at least in the ordinary alcoholatures.

Keywords: Alcohols; Extraction; Fresh herbal drugs

TINCTURES

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The tinctures are extractive alcoholic solutions, obtained from plants, animals and minerals drugs, in the dry state, being included in the alcohols. These solutions are stained, due to the fact that they have pigments and tannins.

The drugs used should be divided in order to facilitate the preparation of the dye and the extraction method, and there must be relationship between the amount of alcohol and drugs. For materials rich in water soluble substances it uses the low-alcohol graduation. According to the Pharmacopoeia IV alcohol to 65° is used for drugs dry tinctures, the 70° to drug tinctures of high pharmacological activity and 85° to tinctures with balms and resinous substances.

There are four main extraction methods: leaching, maceration, the dissolution of the dry extract and digestion. Leaching is the most usual, containing five crucial steps for the preparation of the tinctures: drug spraying; wetting of powder; this packaging in leachate; period of maceration and leaching itself.

The tinctures must be preserved to use glass bottles, of ground glass stopper and protected from light. Even with all the security and conservation, the dyes can suffer a number of chemical processes such as Precipitations, oxidations, and hydrolysis reactions with the glass container.

The tinctures have several therapeutic applications are divided into two groups: internal use which includes the tinctures expectorants, antiseptic and analgesic; and external use containing antiseptic dyes, local anesthetic and emollients. The dyes can also be part of the pharmacological treatment of various pathologies, such as poor digestion, cough, urinary infections, insomnia, etc. Because they are pharmaceutical forms that contain high levels of alcohol are contraindicated in children, during pregnancy, in breastfeeding period and in patients with liver problems.

Keywords: Extractive alcoholic solutions, Pharmaceutical forms, Therapeutic applications

QUALITY OF ACADEMIC LIFE OF THE UNIVERSITY STUDENTS

Ana Parreira; Sara Vilão

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During the transition to higher education attendance, there are several factors that can influence the physical and mental health of the student. These factors are related to major changes and adaptations to new roles, responsibilities and routines that may threaten good adaptation to higher education.

This study aimed to evaluate the quality of life of students attending higher education and the identification of the problems they face. As a methodology a bibliographic review was done on the subject and later a validated questionnaire about the quality of academic life of the students of higher education was applied.

Of the 301 individuals, 49.8% believe that they are in good shape and with a good rhythm of work and a great part of them feel difficult to make friends (43.9%). Being that 44.2% acknowledges that sometimes makes a bad time management, however 33.6% do not believe that poor management of tempo influences the bad grades. It was also observed that 6.2% do not feel difficult to make decisions.

It is concluded that in this universe of respondents, there is, in most cases, a good relationship with the rest of the academic community and a satisfaction related to the choice of the chosen training area, thus allowing an emotional stability, which can be reflected positively in obtaining good academic results.

Keywords: university, quality of life, health, good results

INFECTIONS ASSOCIATED WITH HEALTH CARE-ASSESSMENT OF HAND HYGIENE

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Healthcare-Associated Infection (HAIS) is an infection acquired by patients, as a consequence of the care and health procedures provided and that can, also, affect health professionals, during the course of their activity.

Hands hygiene is considered one of the simplest and most effective practices in reducing HAIS, thus contributing to the reduction of patient morbidity and mortality.

The objective of this study was to evaluate the good hygienization practices of the professionals, that work in the health area.

A bibliographical review was made and a questionnaire was applied to professionals from a nursing home and a day care center.

From the application of the questionnaire to 30 professionals, it was verified that 87% don't use varnish in the workplace and also that, all the individuals affirmed that the hygiene of the hands is important. Was also noticed that, all the staff knew what antiseptic friction is. All of the professionals, mention practicing the " 5 moments " of hand washing, however when evaluated on the knowledge of these " 5 moments " 47% of them don't recognize them.

In conclusion, it's essential to work towards reducing the incidence of HAIS, to improve patient outcomes, and to minimize the health costs associated to these infections.

Keywords: Infection,health care, hand hygiene

CLIMATE CHANGE AND ITS IMPLICATIONS FOR HEALTH AND THE ENVIRONMENT***Diana Figueiredo; Inês Gregório; Rafaela Rodrigues****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Saúde Ambiental, Coimbra, Portugal*

Climate change is understood by any change in the climate over time, whether by natural variability or as a result of human activity. The origin of global warming observed since the second half of the 20th century has been associated with the intensification of the greenhouse effect.

Faced with this situation has been common occurrence of extreme climatic events, whose consequences have been the most diverse. Continued increase in temperature, increased risk of flooding, retreat of glaciers in mountainous regions, and reduction of areas covered by snow are expected.

This study aimed to evaluate the knowledge and good practices of the population on climate change and its implications on health and the environment.

A bibliographical research on the subject of the work was carried out and a questionnaire was applied to the population.

From the questionnaire applied to 141 individuals, it was verified that most of the individuals (92.9%) are aware of the problem of climate change and its implications for the environment and health. A considerable part of the population (48.2%) say that the most frequent climate change in their region is fires. Similarly, a large proportion of individuals (97.2%) consider humans to be a major contributor to climate change.

It was concluded that the impacts resulting from natural disasters are associated with the unsustainable lifestyle of modern society. It is up to all of us to question our living standards to adopt sustainable behavior not only for the environment but also for human survival.

Keywords: Changes, health, environment, climate, temperature

SCHOOL DROP-OUTS OF STUDENTS IN HIGHER EDUCATION

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School drop-out in higher education is a topic that continues to emerge immensely today, something that shouldn't have an evolution, but an increasingly low drop-out rate, since education is a factor increasingly more important in the long run in an individual's life.

With the aim of developing the theme "School drop-outs of students in higher education", a bibliographical review was conducted through a research of other scientific articles on the subject, in order to analyze and evidence the factors that influence it in a more deep and cared for manner. It was decided to apply an online survey to individuals who were in this situation where there were obtained 8 responses. Data analysis showed that most of the participants (55.6%) dropped out of higher education due to lack of interest in the course, and the remaining 44.4% dropped out due to disappointment with the course, difficulties of the distance residence / school or even due to the family incompatibility.

One of the current challenges to fight drop-outs in higher education is to encourage them to continue their education even when something is failing in the course they aren't happy with. This incentive can be realized in several ways, and a psychologist connected to the school matter is one of them. The distance between residence and school is one of the factors that influences a student to drop out of school, and for that reason, to make transportation available from residence to school and from school to residence, as well as the provision of scholarships for those with financial difficulties are two other incentives that may end up influencing positively the decision to abandon or not school.

Keywords: School drop-outs, Higher education, Students

HEALTHY LIFESTYLES IN COIMBRA

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Health is a state of complete physical, mental and social well-being and not only the absence of affections and infirmities.

A healthy city is one that is continually creating and developing its physical and social environments and expanding community resources that allow people to support each other in the various dimensions of their lives and in the development of their full potential.

In this work, a bibliographical review on the subject was carried out and an online questionnaire about the lifestyle of each one was applied to the inhabitants of the Coimbra' district . Activities and projects to promote healthy lifestyles were analyzed and the factors that influence the development of these activities and projects were understood.

Later, some projects promoting healthy lifestyles in Figueira da Foz and Lousã were described. Regarding the results of the questionnaire, it was obtained that 54.1% of the respondents eat breakfast. We can also observe that 65.9% of people don't practice sport. However 34.1% practice some activity daily and 84.5% consume water at meals. The population surveyed 42.4% consumed alcohol once a week and 74.8% never smoked tobacco.

It was concluded, therefore, that although there are still strong percentages that demonstrate bad habits of life. On the other hand, the percentages with respect to the good habits are also quite considerable.

Keywords: Lifestyles; Determinants of Helth; Population life

WATER FOOTPRINT

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Nowadays we have been faced with a reduction in the amount of water resources, so it is necessary to know where there is a greater waste , and to know where it is possible to save. According to the Water Footprint report, water scarcity affects more than 2.7 billion people worldwide and the United Nations estimates that by 2025, two-thirds of the world's population will suffer from water shortages.

The objectives of this study were to identify the amount of water used by the population of Coimbra and to sensitize the community to minimize its consumption and to find alternatives that could help to save.

For the accomplishment of the work was carried out a bibliographical review on the subject and applied a questionnaire to evaluate the Water Footprint of the population of the city of Coimbra. From the questionnaire applied to 36 individuals we were able to understand that the use of water is more accentuated in our personal needs, in terms of hygiene, and in terms of tasks in our day to day life.

Among the several issues that revealed most worrying values was regarding the dishwasher and its weekly use, where 25% of individuals use 3 or 4 times, we should try to reduce these numbers to two weekly washes, so there is not a so much waste of water.

However we can not simply not to do certain tasks because these are necessary for the human being, we have to create certain ways to save water.

Keywords: waste, save, water

SECURITY CONDITIONS FOR THE HOUSING OF THE ELDERLY

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Aging is a biological, progressive and universal process that requires a constant review of socioeconomic measures of countries, specifically in relation to health.

With this study, we attempted to verify living spaces, namely location, conditions (inside the house as balconies, or access to it bring more risks for the elderly).

The most worrying cases of domestic accidents are falls, burns and cuts, tallying more than 50% of total accidents, with primary causes being stairways, kitchen equipment, and tools, respectively. The lack of handrails, insufficient lighting and the presence of obstacles in the stairs (potted plants) are the factors that cause the falls analyzed in this article.

The fact that in the vast majority of homes there are no ramps, will make it difficult for people with reduced mobility to access.

It concluded that there are several risk factors in the dwellings affecting the health and quality of life of the elderly is concluded that there are several risk factors in the dwellings affecting the health and quality of life of the elderly.

Keywords: Aging; accident; safety; living space; elderly

DOMESTIC AND LEISURE ACCIDENTS IN CHILDREN

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According to the World Health Organization and the United Nations Children's Fund (UNICEF) over 2000 children die everyday due to accidents, in particular, the major cause is the falls.

The main goal is to determine what are the causes of these domestic accidents and recreation that happen with these children and how to prevent these accidents.

In a way to amplify this study, a quiz was performed online with these matters for various parents with kids between the age of 0-12. Therefore, to prevent these accidents we elaborated a guide of preventive actions to sensitize people.

After all, we verified that (57.1%) of these children has already been through a domestic accident, therefore, falls are on the top of the list (72,7%), afterwards, cuts (22,7%), burns (20,5%) and others (2,3%). With regard to the prevention quiz it was estimated that (30%) of the caretakers leave their kids alone at home.

In summary, this study allows us to realize that, the main accidents at home are falls whereas, children between the ages of 3-6 are more prone to this (45%) and the main cause of these accidents is the lack of security measures, such as, protection on the handrail and stairs and the lack of non-slip mats. The urgency to create preventive manners is primordial to minimize the number of accidents that occur.

Keywords: Domestic accidents, children, child safety

RACISM IN HIGHER EDUCATION***Dibel Pais; Eulicina Cabral; Marco Filipe****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Saúde Ambiental, Coimbra, Portugal*

Although racism has been faced since the beginning of man's modernity, candidates of the study of its causes, dynamics and consequences still face methodological and theoretical obstacles at different levels, and in institutions of Higher Education it is no different. Addressing the theme of racism, the objective of this study is to comprehend and evaluate racism in Institutions of Higher Education, specifically between natives of two countries that have a historical/cultural connection (Portugal and Cape Verde). A Google questionnaire was distributed through social media networks on a bibliographical basis, aimed mainly at students attending institutions of Higher Education who are natives to the above mentioned countries in order to obtain a better idea of the reality. A total of 68 responses were received, of which (77.9%) was from participants of Portuguese origin and (22.1%) from participants of Cape Verde origin. 66.2% of the respondents did not experience racism in the institutions where they study. The majority, (29.4%) suffered racism as a result of their naturality or country of origin. The black race is a target of racism (23.5%) and as having been mention (58.3%) this is where exists the largest instances of racism. Two participants that experienced racism (34%) it was from their colleagues. Participants mentioned having feelings of sadness (26.3%), of indifference (23.7%), and being mentally affected (26%). Also as a result of racism, persons mentioned feeling isolated (69.2%) and having depression (23.1%), but even so (72.4%) did not think to seek help even though (67.4%) of the respondents knew where to find help.

Racism can be harmful to the mental health of an individual, which makes it difficult for them to follow through and learn in institutions of Higher Education. In addition to lectures, local communities should come together in combating racism, taking into account that it has a devastating and psychological effect on those who suffer from it.

Keywords: Racism, Higher Education, Migrations, Public Health

THE DEPENDENCE OF THE INTERNET AND VIDEO GAMES OF HIGHER EDUCATION STUDENTS

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The great explosion of the Internet was from 1995. It counts on approximately more than two billions of users of Internet, a number that is in constant growth. With this work we intend to determine the level of dependence of the internet, as well as video games and how it affects the personal and professional life of students. For the accomplishment of this work a bibliographical revision on the subject was done and a questionnaire was applied to the students of the ESTeSC on the level of dependence of the new technologies.

According to the questionnaire to 70 students, it was verified that 98.6% use mobile phones; 22.9% of the population often feels anxiety when they realize that they are without the mobile phone; 42.9% rarely lose sleep due to being on the internet late and that 12.9% report having difficulty falling asleep after using the mobile phone. Finally 72.9% assume to be dependent on the mobile phone. The Technological Evolution is something that has always been present in the life of man. It ranges from the beginnings to the present day. Each time his relationship with man increases, and his pace of evolution increases more and more. It ranges from simple tools to complex devices to explore the universe.

Keywords: Dependence, Internet, video games, students

RISK BEHAVIORS IN STUDENTS OF HIGHER EDUCATION

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The risk behaviors such as alcoholism, smoking and other illicit substances are of concern in college students, making us consider the changes that occur in the process of transition from secondary education to higher education.

The students of higher education have shown little behaviors consistent with adopt a healthy lifestyle.

This work was to evaluate risk behaviour of students in higher education, having been conducted a literature review and applied a validated questionnaire on risk behaviour in higher education.

It was found that the consumption of tobacco in the last 30 days was 55.7% of the population in study of which 36.7% smoke 4 or more days per week, 3.9% smoked 2 to 4 days and other 3.8% smoked only 1 day a week, the rest, not smoked during the 55.7% 30 days.

In the last 30 days, 16.5 percent consumed alcoholic beverages, 10.1% ingested alcoholic beverages 1 day, 32.9% 2 to 4 days and ingested 40.5% ingested alcohol 4 or more days.

The use of protection in sexual activity in the last 12 months it has been found that 40.5% used always, 29.1% used sometimes, 11.4% never used and 19% have no sexual partner.

You can't find any cocaine consumption in the population under study, and these days there is a lot of supply of this type of illicit substances.

It concluded that the risk behavior in college students is worrying, there is still a large part of this population under study that have lack of such risks, having some concern not to be exposed to some risk factors.

Keywords: Students, Risk behaviour, Prevention

THE IMPORTANCE OF HEARING TRAINING IN AUDITIVE REHABILITATION

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Introduction: Auditory training is a technique that can be used in auditory rehabilitation, and can be applied in any age group, aiming to stimulate hearing abilities in deaf individuals, intervening in auditory stimulation and behaviour through synaptic activity. Auditory rehabilitation allows, through devices such as hearing aids or cochlear implants, to aid in the ability to listen, while auditory training will promote the improvement of the individual's hearing abilities with deafness, as well as discrimination and understanding of speech.

Objective: To verify the importance of auditory training in the auditory rehabilitation process.

Method: The research of articles for this work was carried out through the b-on and google academic platforms, as well as in scientific journals, obtaining 7 articles of which 5 were used because two of them were excluded because they contained irrelevant information.

Results: Auditory rehabilitation presents better results when integrated with the auditory training since it tries to minimize the functional deficits presented by the individual. It was verified that for the effectiveness of the auditory training could be used tests like the one of filtered speech, speech with noise and of sentences with competitive message ipsi-lateral.

Conclusion: We can conclude that the auditory training should be something to bet, because although it is a little known method, still with few technological resources in Portugal and need some time spent by the audiologist and the patient, its benefits are proven by the studies developed.

Keywords: auditory training; auditory rehabilitation; benefits

AUDITORY RE(H)ABILITATION IN CASES OF PEOPLE WITH AGENESIS OF THE EXTERNAL AUDITORY CANAL.

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Introduction: Agnesis is a malformation of the ear and ear canal. This condition occurs during embryonic development due to changes in cell growth and differentiation. One of the consequences of this defect is conductive hearing loss, and this loss should be re (h)abilitada early in order to avoid complications in cognitive and social development of the individual.

Objective: To understand the different forms of re(h)abilitation in individuals with hearing enabling agnesis of the external auditory canal.

Methodology: The survey of the articles was held from February 12 to March 6, 2019, through electronic databases such as b-on, academic google and pubmed, obtaining after reading the title and abstract one total of 11 items for this literature review.

Results: In most articles analyzed it was found that the authors had a common solution, passing this through BAHA. However, some articles refer to other solutions such as the bone conduction aids.

Conclusion: According to the results of the selected articles, we conclude that the re(h)abilitation solution most used in adults is the BAHA, while in the case of children and do not yet have the mastoid developed the best option is the prosthesis bone conduction.

Keywords: agnesis, rehabilitation, malformation, external auditory canal, BAHA, microtia, bone conduction.

HEARING REHABILITATION IN CEREBRAL PALSY

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Introduction: Cerebral Palsy is a syndrome that belongs to a group responsible for the loss of movement, which appears in the beginning of childhood. The more common symptoms are muscle stiffness and lack of motor and coordination skills, in addition, some senses could be affected such as hearing. Hearing Rehabilitation has the benefit of improving the perception of speech sounds, which allows children to recognize and acquire oral language quicker and easily.

Objectives: To verify the benefits of hearing re(h)abilitation in children with cerebral palsy.

Methods: Research was conducted on the 22 of March using electronic databases such as B-on, PubMed and google academic. A total of 10 articles were obtained however 3 were excluded due to its contents not being of relevance to the objective of this study,

Results: In the articles found, most authors refer the cochlear implant as the most effective method of hearing re(h)abilitation however the use of hearing aids is referred by just one author. The cochlear implant has the benefit of making the perception of speech sounds in high frequencies easier, offering important hearing information for the acquisition of communicative skills

Conclusion: The main method of re(h)abilitation in children with Cerebral Palsy is the cochlear implant, research shows a positive development of language and hearing in children implanted around 12 months which previously used hearing aids.

Keywords: Cerebral Palsy, Children, Hearing Rehabilitation

ADVANCED OTOSCLEROSIS AND THE COCHLEAR IMPLANT

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Introduction: Otosclerosis is a hereditary disease that affects women more, being bilateral in 80% of the cases. Otosclerosis is characterized by the fixation of the stapes of the stirrup in the oval window interfering with the transmission of the sound wave to the inner ear. In advanced cases, otosclerosis can extend to the cochlea, causing sensorineural hearing loss.

Objective: To study the application of cochlear implants in patients with advanced otosclerosis.

Methodology: The research was carried out in Google academic, obtaining a total of 8 articles. ,. After reading the abstract, 3 were excluded because they did not meet our objective.

Results: This pathology presents histological changes that lead to changes in cochlear implant programming, but the effects of the speech test and auditory thresholds were not significant, confirming good results regarding implant placement. As for the perception of post-implant speech, it resembles after the first six months without changes. The presence of tinnitus and complications of facial nerve stimulation were observed. Rama-Lopes published an article about 30 patients with advanced otosclerosis submitted to surgery, and there were no reports of postoperative complications, but 78% of the patients underwent a stapedotomy beforehand.

Conclusion: Although otosclerosis is a middle ear condition, it can also affect the inner ear. Cochlear implantation may be a good option for the treatment of the pathology, although there are complications in the facial nerve stimulus. The results are satisfactory and identical to those of individuals with hearing loss originated by other pathologies.

Keywords: Otosclerosis, Advanced, Cochlear Implant, Deafness.

EARLY REHABILITATION OF CHILDREN WITH SEVERE TO PROFOUND HEARING LOSS**Alexandra Carvalho; Ana Correia; Joana Silvestre; Joana Lourenço; Juliana Pinho***Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Audiologia, Coimbra, Portugal*

Introduction: Hearing is a fundamental element for the acquisition and development of language. Severe/profound hearing loss limits social, linguistic and cognitive development of children, making the rehabilitation an urgent matter. Grupo de Rastreio e Intervenção da Surdez Infantil (GRISI) recommends the implementation of universal screening programs in the first days of life and, in cases of hearing loss, an early and adequate intervention, until six months. Objective: To compare the impact of early rehabilitation in children with severe to profound hearing loss, before and after six months of age. Methodology: The article research was made using the databases PubMed and B-On, using the key words: “severe/profound bilateral hearing loss”, “rehabilitation”, “infants” and “new born”, in Portuguese and English. The inclusive criteria were: children with no more than three years and severe/profound hearing loss. Of a total of 16 articles, 10 were select for use. Results: According to some of the authors of articles used in this revision, children rehabilitated before six months had a better global development, especially in the cognitive and language processes. After three years, the oral language acquisition process is more difficult. As such, it is argued that the diagnosis should be made until three months of age and therapeutic intervention until six months of age. It’s fundamental that the neonate diagnosis program functions correctly to make sure every hearing impairment is discovered as early as possible. Conclusion: Early rehabilitation minimizes the impact of hearing loss in children, making their global development similar to a normal child’s.

Keywords: severe/profound bilateral hearing loss, rehabilitation, infants, new born

ASTHMA MECANISM

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Asthma is an inflammatory disease of the airways, in which the airways diameter's is decreased through, bronchoconstriction and difficult air transition.

Bronchial inflammation is the most important asthma pathophysiological mechanism and it results from complex interactions between inflammatory cells, cytokines, mediators and structural cells from the airways.

There are two types of asthma: allergic asthma, related with the inhalation of allergenic substances, and non-allergic asthma, related with non-allergic situations and substances. T-helper lymphocytes (Th2) are the prevailing cells in allergic asthma and lymphoid innate cells (ILC) in non-allergic asthma.

On the asthmatic airways, many inflammatory cells are activated, including mast cells and dendritic cells, and there is infiltration of activated lymphocytes and eosinophils.

B lymphocytes are important in IgE production, which is an antibody that attracts eosinophils, on the immunity against parasites, and whose levels are high in people with allergic asthma. T lymphocytes discharge an important part in inflammatory response's coordination through specific patterns of cytokines T2 release, which results in recruiting and surviving from eosinophils and maintenance of a population of mast cells in the airways.

Th2 lymphocytes produce IL-4, IL-5, IL-6 and IL-13 to stimulate B lymphocytes production of IgE and in eosinophils reactions against allergens. T-regulatory cells suppress the inflammation and inhibit the autoimmunity, controlling Th2 function in asthma. ILC-2 also release Th2 cytokines and are controlled by epithelial cytokines, which may be important in the immune responses against non-allergic asthma.

Keywords: Bronchial inflammation, allergic, non-allergic, inflammatory cells

PULMONARY FUNCTION TESTS

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Pulmonary Function Tests (PFT's) are non-invasive tests that evaluate lung efficiency. Measure lung volume, capacity, rates of flow, and gas exchange. This information enables the structuring of a diagnose and the exposure of certain lung disorders, assessment of severity, monitoring treatment and the evaluation of prognosis.

Pulmonary pathologies, those being restrictive (lung tissue and/or chest muscles can't expand enough, creating problems with air flow) and/or obstructive (air has trouble flowing out of the lungs due to airway resistance, causing a decreased flow of air) are, therefore, diagnosed through PTF's. In other words, obstructive diseases such as Asthma, Bronchiectasis, emphysema, etc. and restrictive diseases such as tuberculosis and pneumonia are to be diagnosed.

Two well-known tests used by most specialists include: Spirometry (a spirometer is a device with a mouthpiece hooked up to a small electronic machine) and Plethysmography (you sit or stand inside an air-tight box that looks like a short, square telephone booth to do the tests). Those enable to collect data on parameters such as Tidal Volume, Minute volume, Vital capacity, Functional residual capacity, Residual volume, Total lung capacity, Forced vital capacity, Forced expiratory volume, Forced expiratory flow and others.

There are various advantages on conducting a Pulmonary Function Test. It's simple and of straightforward understanding. Has no contra-indications and is risk-free.

All in all, Pulmonary Function Test is of utmost importance, as it enables a healthcare provider to elaborate a well-founded diagnosis and to work in pulmonary pathology prevention.

Keywords: Pulmonary Function Test

ERYTHROPEITIN - PHYSIOLOGY AND PATHOPHYSIOLOGY OF ABUSE***Hugo Henriques; Lília Costa; Pedro Alexandre; Rúben Pais; Rúben Salteiro****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Fisioterapia, Coimbra, Portugal*

The Erythropoietin (EPO) is produced mostly by the kidney (about 90%, the remaining 10% are produced in the liver), having the function of controlling the erythropoiesis. EPO is synthesized in the renal cortex, more specifically by interstitial fibroblasts. The secretion of this glycoprotein is stimulated under low concentration of oxygen in the blood, i.e. the low partial pressure of oxygen derived from the reduction in the number of red blood cells, caused by bleeding, as well as the increased need for oxygen by the tissues.

The effect of erythropoietin is to increase the production of erythrocytes in the blood, thereby improving the oxygen transport capacity. Because of that it can be used to improve performance in endurance sports through the injection of synthetic protein or tranflights (autologous or heterologous), which is considered dopping, or in medical issues like treatment of certain anemias. The raise of the circulating mass of erythrocytes, can improve anemia and reducing the frequency of blood transfusions. Its use is only defined for certain forms of anemia, where clinical studies have demonstrated its effectiveness.

However, erythropoietin has side effects associate with it. It may increase the hematocrit to values above 60% of blood volume, in these cases, blood becomes thicker. As a consequence, the blood circulates more slowly in blood vessels and there is a potential danger of forming blood clots and consequent thrombosis and embolisms. It can also cause allergic reactions like rash, anxiety, nervousness, breathing problems, vision problems, confusion, heart problems.

Keywords: Erythropoietin, kidney, oxygen, erythrocytes

HEMOPHILIA

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Hemophilia is a genetic disease where blood coagulation is deficient or even non-existent, which is associated with the X chromosome and occurs mostly in males.

There are two types of hemophilia: hemophilia A, which is the most common and corresponds to a factor VIII deficiency / antihemophilic globulin, and hemophilia B, which corresponds to a factor IX deficiency / plasma thromboplastin component. Both factor VIII and factor IX are essential plasma proteins for the intrinsic pathway of blood coagulation to occur.

The blood clot is formed by a network of protein fibers that retains blood cells, platelets and fluids. The formation of this network only occurs when the protein factors are activated due to the appearance of a wound. Thus, the genetic deficiency or non-existence of some of the proteins necessary for coagulation makes the latter inefficient. This situation is treatable through injections with the factor that is compromised.

There are several tests to assess the effectiveness of the coagulation cascade. To test the extrinsic pathway, Prothrombin Time (PT) is used. For the intrinsic pathway test, Active Partial Thromboplastin Time (APTT) is used, which consists of the addition of calcium, negatively charged phospholipids and a particulate substance, such as aluminum silicate, to the blood sample. Activation of factors XII and XI by these substances should occur, making it possible to determine the APTT. This test is used to diagnose anomalies of coagulation factors XII, XI, IX, VIII, X, prothrombin and fibrinogen.

Keywords: hemophilia, factor VIII, factor IX, blood coagulation, activated partial thromboplastin time

AUTOIMUNE DISEASES

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The immune system protects our body against invading agents, by the production of antibodies. Autoimmune diseases occur when these antibodies attack cells, endocrine glands, connective tissues, blood components, and the body's own organs. The cause of this mechanism is still unknown.

They are classified into organ-specific which means one organ is affected and non-organ-specific disorder when several organs are attacked. Inflammation, fatigue and fever are some of the symptoms, but these depend on the disease and affected region.

Among the most frequent autoimmune diseases are Diabetes Mellitus Type I, Multiple Sclerosis and Systemic Lupus Erythematosus (SLE). Type 1 Diabetes Mellitus is an specific autoimmune disease. It is characterized by our body's inability to produce insulin thanks to autoimmune destruction of pancreatic B cells (insulin-producing cells), resulting in the inability to absorb glucose, which is excreted in the urine. Multiple sclerosis is a chronic and demyelinating disease that strikes the central nervous system and interferes with its ability to control functions such as vision, balance and locomotion. SLE is a nonspecific autoimmune disease that occurs most often in young women and can target several organs. The skin, joints, heart and kidney are affected very often. The treatments are based on inflammation's control, hereupon, a combination of anti-inflammatories and corticosteroids is used in conjunction with immunosuppressants.

However, these medicines provide nonspecific suppression of the immune system, so suppressing the autoimmune reaction also suppresses the body's ability to defend against invasive substances. Therefore, the risk of the patient contracting infections increases.

Keywords: Autoimmune, diseases, immune system

CUSHING DISEASE

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Cushing's syndrome results from chronic exposure to excessive levels of glucocorticoids. It is a rare condition, with a broad clinical spectrum, including nonspecific symptoms such as obesity, depression and muscular weakness, with a high prevalence in the general population, which makes diagnosis difficult.

Cushing's syndrome can be caused by a wide variety of rare conditions, which can be grouped into Cushing's syndrome ACTH dependent- Cushing's disease- and independent adrenocorticotrophic hormone (ACTH). ACTH is a polypeptide with thirty nine amino acids produced by the adenohypophysis corticotrophic cells. ACTH mainly acts on the adrenal cortex. The independent Cushing ACTH syndrome is the least frequent, accounting for only 15% of the cases.

Cushing's disease is caused by a benign tumor in the pituitary gland (adenoma) that produces excessive levels of a hormone called adrenocorticotrophic (ACTH). In response, our body continually releases another hormone, cortisol, which leads to hypercortisolism and the symptoms of Cushing's disease. As the signs of Cushing's disease change greatly between patients, there is no consistent pattern of symptoms.

It is important for physiotherapy to know this type of pathologies since it works with many patients who use corticosteroids. Physiotherapy can help improve the quality of life of these patients through kinesiotherapy methods (Kabat) that for example improve the blood supply of bones and muscles, restore muscle tone and consequently increase metabolism and fat burning.

Keywords: ACTH, hypercortisolism, glucocorticoids, Cushing disease

WHITE AND BROWN ADIPOSE TISSUE

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Adipose tissue is a loose connective tissue composed mostly of adipocytes. It's spread throughout the body and normally represents between 20 - 25% of the body weight in the woman and 15 - 20% in the man.

Adipose tissue's main role is to store energy in the form triglycerides (accumulated in adipocytes), being also responsible for thermal insulation, filling of spaces between tissues, protection against mechanical shocks and secretion of hormones.

There are two types of adipose tissue, which differ in body distribution, structure and physiologies. There is the white adipose tissue, located in the visceral and subcutaneous region, formed by cells that have a single lipid droplet that occupies almost the entire cytoplasm. It performs the functions of body temperature preservation, energy storage and adipokine production. And there is also the brown adipose tissue, found in small amounts near the neck and upper chest, formed by adipocytes with an abundant cytoplasm, spherical nucleus, and numerous mitochondria. It is responsible for producing warm and has a high metabolic activity that will influence the percentage of fat mass.

Although it's not possible to transform cells from white in to brown adipose tissue, it's possible to convert white adipocytes into an intermediate phenotype, resulting in "BRITE" cells. This "browning" process is induced by cold, adrenaline or muscle hormones, which act on adipose tissue and play an important role in the fight against metabolic diseases.

It allows a greater capacity to dissipate energy, increasing, not only the metabolism, but also the energy expenditure.

Keywords: White and Brown adipose tissue; adipocytes; triglycerides

COMPLICATIONS OF DIABETES: NEPHROPATHY AND DIABETIC FOOT

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Glucose is necessary for the metabolism of all cells. For its capture of the bloodstream, our pancreas will produce a hormone (insulin), taking it to all the cells of the body so that it enters the intracellular environment, where it will be used as energy. Any disruption in this process will cause high glucose levels that may lead to developing diabetes and other associated conditions, such as Nephropathy and diabetic foot.

Diabetes is a chronic metabolic disease, which can have several causes and is characterized by increased blood glucose levels.

Diabetic Nephropathy is the kidney disease associated with diabetes characterized by the elimination of proteins through the urine. This is because the structures responsible for filtering the kidneys (glomeruli) are damaged. Having as cause a high level of blood glucose associated with high blood pressure - caused by stiffening of blood vessels caused by excess circulating glucose.

In relation to diabetic foot, it occurs in areas where there is a nerve injury, called neuropathy, which reduces the sensitivity of the foot. This sensitivity to minor trauma is greatly reduced, allowing the skin to become damaged and infection may occur. Changes in circulation and changes in the shape of the foot or nails are other causes.

In short, having diabetic glucose levels high in the blood, if they are not being properly followed up may lead to developing associated nephropathy and the occurrence of foot injuries associated with the disease.

Keywords: Diabetes, glucose, diabetic foot, nephropathy

HEALTHY LIFESTYLES IN THE UNIVERSITY POPULATION

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Introduction: University students have an alimentation represented by a large consumption food rich in fat, sugar and poor in micronutrients. At the early adulthood is fundamental for development eating habits which will affect, directly, life quality.

Objective: To evaluate the lifestyle in the university population pointing out the alimentation. Observe the differences between the students and understand why they eat what they eat it is fundamental.

Methods: It was conducted an article review and the research was performed in the databases such as B-on, PubMed e Sciencedirect, using as keywords: "Alimentation", "Lifestyle" and "University students". At first the criteria were the title and, posteriorly, the articles abstract.

Results: When analyzed the students alimentation it is possible to infer that processed food are overconsumed opposed water which should be ingested more often. Still exists, the necessity of special attention to alcoholic drinks consume by university students.

Conclusion: University students don't have an exemplary alimentation where the universities are the link to the student's future and a healthy life.

Keywords: "Alimentation", "Lifestyle", "University students"

ANOREXIA NERVOSA: EATING BEHAVIOR DISORDER

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Anorexia nervosa (AN) is a behavioral eating disorder among the three most common, along with bulimia and binge eating disorder.

It is a complex psychiatric illness, involving psychological, physiological and social factors that in its most severe form can determine a fatal outcome.

Epidemiological studies conducted in Portugal since the 1990s point to an estimated prevalence of the disease of 0.4% in young women, highest in the 15-19 age groups. It's more frequent in women than in men in a ratio that can range from 7:3 to 9:1.

AN does not have a well-defined etiology and there are innumerable factors that contribute to the development of this disease. This diversity of etiological factors presupposes that the therapeutic approaches must be also multidisciplinary.

The objective of this work is to present several aspects of this disease, such as epidemiology, risk factors, diagnosis, prognosis and treatment, among others.

Keywords: Anorexia nervosa, eating disorder, psychiatric illness

HEALTHY LIFESTYLES IN THE UNIVERSITY POPULATION: FOOD

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The articles that we explored are based on a study made in 4 Portuguese universities and gather information on healthy lifestyle in the nutrition of students of the same.

In recent decades there have been changes in eating habits leading to an unbalanced eating pattern, that associated with a sedentary lifestyle can have significant impact on the nutritional status and health of populations.

The beginning of adulthood is crucial to the development of eating habits that will be decisive in the quality of life.

In Portugal, the number of University students has been increasing, which makes them an important target to implement education programs.

Keywords: Food, University, Students, Habits

HEALTHY LIFESTYLE IN THE UNIVERSITY POPULATION - SPORTS

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Nowadays, the development of technologies, like transportation, computers, television, and others is notorious. This evolution leads people, especially students, to reduce sports activity, that reflects an increase in a sedentary lifestyle and that leads to several pathologies. Due this problematic of recent times, this article has sought to study the levels of sports practice in students attending higher education and, to relate it to their lifestyles, considering the various variables associated with it. To do so, a number of studies were carried out, including one carried out at the University of Porto, with a sample of 2284 undergraduate, graduate, master's and doctoral students, one at the university of Lisboa, with a composite sample by 3327 undergraduate and graduate students and the other study was conducted at the Federal University of Paraíba do Brasil, with a sample of 1447 university students.

Initially, Porto and Lisboa studies were compared in order to see if there were differences in relation to the area of the country in which the students were. Later, it was decided to evaluate a study carried out in another continent, more properly in Brazil, with the same objective.

When analyzing the results, it was verified that the male was the one that had the highest percentage of physical exercise performed, both in Porto and Lisboa, a result that has been reversed over the years. It was also noticed that as the years of studies passed the practice of sport was greater, a situation that contrasted with the one that happened in Brazil, which revealed a decrease in the practice of physical activity in both genres.

Keywords: University Students, physical activity/ sports activity, healthy lifestyles.

OBESITY IN ADOLESCENCE: INTERVENTIONS

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Introduction: Obesity is a serious public health issue with high prevalence among teenagers. Adolescence is a vulnerable period in life, with high risk for development of unhealthy behaviors. These, in turn, if maintained throughout adult life can lead to serious consequences for both individuals and society.

Objective: The present work aims to identify and evaluate the main interventions applied to adolescents in order to prevent/treat obesity, without considering the prescription of drugs and/or surgery.

Methods: A literature review was conducted, considering articles published between 2000 and 2019, on the platforms Pubmed, Science Direct, Scopus and b-on, using combinations of the following main keywords: Obesity, adolescence, behavior, intervention. Articles published on the national and international health reference platforms Direção Geral de Saúde and World Health Organization were also considered.

Results: Although the prescription of hypocaloric diets was shown to be the most common method applied for weight control in obese adolescents, studies have suggested these should be implemented in association with behavior change. In this sense, the use of information and communication technologies to modulate eating and exercising habits of adolescents have been emerging. In addition to individual interventions, the roles of family, community and government seem to be extremely relevant to prevent/treat this pathology.

Keywords: Obesity, adolescence, intervention, behavior

HEALTHY LIFESTYLE IN THE UNIVERSITY POPULATION - SPORTS

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In this article, we propose the study of healthy habits, such as Sports, on college population. It is through a revision and analysis of various base articles of different universities, regions and locations, that it was elaborated a compilation and discussion about these same subjects. Throughout the article, the locations of Bragança, Coimbra, Porto, Sevilha, Turkey and the USA are used as references with hopes of analysing and comparing nationally and worldwide, the obtained results. The purpose of the study is to verify if college students practice physical activity, considering factors such as regularity, gender and the degree in which students are in. It has been stated worldwide that sports practice has been growing amongst portuguese college students. Most of the studies reveal that male college students tend to practice physical activity more frequently than female college students. Also, the degrees that have a higher tendency of adhering to physical activity are the ones tied to health.

Keywords:

POOR WEIGHT PROGRESSION IN PEDIATRIC - APPROACH AND NUTRITIONAL INFLUENCE

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The poor weight progression is a current problem, with complications for the health of the child/adolescent. The difficulties encountered in the definition of this entity and the different approaches of this situation make it difficult to homogenize the criteria.

To understand and relate the different causes of poor weight progression in children with different age groups, with the degree of nutrition, and also with social, cultural and economic factors.

Analysis of pertinent articles published on the designation of ponderal bad evolution, as well as official health and pediatrics websites.

The influencing factors of weight malevolvement involve malnutrition based on organic and non-organic causes. However, the poor weight progression will be more associated with non-organic causes, with a higher percentage of cases. Thus, each case has its specificities, which makes the approach not be strictly systematized. The multidisciplinary follow-up of these children and their families, associated with an adequate dietary intake proved to be effective in the weight gain due and aimed to improve the relationship of the child with their relatives.

The early diagnosis of a bad weight evolution is aimed at optimizing caloric management and thus minimizing the long-term consequences. This situation should be associated with a multidisciplinary intervention.

Keywords:

FAILURE TO THRIVE IN THE FIRST YEAR OF LIFE

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Introduction: Failure to thrive (FTT) is one of the main topics in pediatric consultation and it shouldn't be viewed as a pathology. Furthermore, there is a certain difficulty in defining it.

The objective of this review was to define FTT as well as its origin, diagnosis and treatment.

Methodology: Analysis of several relevant articles published on the topic of "poor weight evolution", "failure to thrive" and "poor ponderal progression".

Results/Discussion: Most of the causes of FTT involves an inadequate caloric intake due to psychosocial and behavioral disorders and eating disorders are mainly responsible for the lack of weight in young children. Diagnosis takes in consideration biomedical and psychosocial data to find the causes of FTT and age is an important factor for the diagnosis orientation. On the other hand, complementary diagnostical exams contribute very little to the diagnosis of these children and are not usually recommended. Most of the time, treatment consists of setting up an ideal weight-for-age diet. It is also important to treat the underlying disorder in order to create an healthy approach to child nutrition.

Keywords: poor weight progression, failure to thrive, poor weight evolution

VESTIBULAR REHABILITATION IN PATIENTS WITH MULTIPLE SCLEROSIS

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Introduction: Multiple Sclerosis is demyelinating disease that affects the Central Nervous System (CNS), being considered an autoimmune disease in which occurs progressive destruction of the myelin sheaths. Vertigo, balance issues and nystagmus are frequently found in people with this disease. Vestibular Rehabilitation (VR) acts physiologically on the vestibular system, basing itself on central mechanisms of neuroplasticity. **Objectives:** Based on a review of the literature we intend to study the advantages of VR in people with Multiple Sclerosis. **Methods:** We conducted a research on the research engines B-on and Google Academic using the key-words: Multiple Sclerosis, Vestibular Rehabilitation and Autoimmune diseases, in English and Portuguese. Having in account the following inclusion criteria: published articles in Portuguese or English during the time period between 2005 and 2019, in our search we obtained a total of 6 articles. **Results:** Two articles performed exercises in Balance Rehabilitation Unit, two applied the protocol of Cawthorne and Cooksey in conjunction with Dizziness Handicap Inventory scale and the remaining two articles one only applied the Dizziness Handicap Inventory scale and the other only applied the protocol of Cawthorne and Cooksey. Being the age group of the sample between the ages of 22 and 64 it is to refer that there were improvements in all the evaluation materials that were used. **Discussion:** The efficacy of Vestibular Rehabilitation is determined by the functional recovery of VOR and VSR and by the positive psychological effect that follows the patient with the recovery of physical and psychic security. Another factor observed was the increase of motivation improving the conviviality and social integration. **Conclusion:** It is a complex disease characterized by commitments that vary from person to person. The acquisition of independence and life's quality are the main goals of Vestibular Rehabilitation.

Keywords: Multiple Sclerosis, Vestibular Rehabilitation, Autoimmune Diseases

MÉNIÈRE'S DISEASE – FROM DIAGNOSIS TO REHABILITATION

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Ménière's disease is a pathology of peripheral origin, characterized by symptoms such as dizziness, fluctuating hearing loss, tinnitus and the feeling of full ear.

Vestibular rehabilitation acts on the vestibular system in order to restore balance and postural control of the individual, accelerating the natural processes of compensation. It is based on a set of specific physical maneuvers for the eyes, head and body.

The main objective, through literature review, is to understand if vestibular rehabilitation improves the quality of life of an individual affected by Ménière's disease.

We used the search engines Scielo, PubMed and B-On, through the keywords: vestibular system, Ménière's disease and vestibular rehabilitation. Of the 24 articles found, 10 were excluded because they did not address the topic of interest, resulting in a total of 14.

This condition is diagnosed when the patient experiences at least two dizzying seizures, has a hearing loss that has been proven at least once, and has complains of tinnitus or atrial pressure. People report improvements after vestibular rehabilitation, although it is not a definitive treatment. Rehabilitation consists on exercises of optokinetic stimulation, with the aid of the Computerized Posturography platform and exercises with rotating chair at low frequencies.

Vestibular rehabilitation is performed during inter-seizures where there is unbalance and can still be associated with other treatments simultaneously.

Keywords: Vestibular Sistem; Ménière's Disease; Vestibular Rehabilitation;

VESTIBULAR LABYRINTHINE FROM DIAGNOSIS TO REHABILITATION

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Introduction: Labyrinthitis is a change in the postural balance due an inflammatory process that affects the labyrinths, located at vestibular system, which is responsible for body balance, posture and orientation. This is a peripheral pathology that manifests with hypoacusis and intense vertigo. Objectives: Based on a literature review we intend to study labyrinthitis from its diagnosis to rehabilitation. Methodology: The research was support in electronic databases as ScienceDirect, pubmed, scielo, b-on using the following keywords: vestibular labyrinthitis, sensorineural hearing loss, vertigo, diagnosis and rehabilitation. After a rigorous selection, a total of 14 articles were obtained. Results: After a careful clinical evaluation and specific exams to evaluate auditory and vestibular function we diagnose labyrinthitis. Through articles analysis, it was verified that the VNG shows spontaneous nystagmus of opposite direction to the side of the injury and areflexia in the caloric test. The treatment, through medication and rehabilitation exercises, which aim to accelerate vestibular compensation and stabilization of vision through the rotating chair at high frequency and exercises to increase the gain of the VOR. Discussion / Conclusion: Sooner the diagnosis and treatment are reached, lower the impact will be on the lives of these people. The rehabilitation of vestibular labyrinthitis consists of assisting the central nervous system of patients with balance and/or dizziness alterations to perform vestibular compensation. So, rehabilitation exercises play an important role, being effective in reducing the symptoms of this pathology.

Keywords: Vestibular labyrinthitis, Sensorineural hearing loss, Vertigo, Diagnosis, Rehabilitation

BENEFITS OF VESTIBULAR REHABILITATION IN ELDERLY

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Introduction: Postural imbalance and dizziness are some of the symptoms of vestibular disfunctions that occur when there are conflicts of visual and vestibular information. Vestibular alterations in the elderly affect not only the balance, but also their daily income, communication and their psychological state. It's important to highlight the role of vestibular rehabilitation in the life of the elderly with vestibular dysfunctions. **Objective:** Verify the influence of unilateral pathologies in the elderly population, as well as to understand the mode of action of vestibular rehabilitation and its benefits. **Methodology:** A research was done on unilateral vestibular pathologies in the elderly and on the benefits of vestibular rehabilitation. The research was based on the review and analysis of online scientific articles taken from the b-on and PubMed search engines, using keywords such as "Unilateral Vestibular Pathologies", "Vestibular Rehabilitation" and "Elderly". **Results:** Based on the review of the articles it was found that rehabilitation improves patient balance, helps to restore self-confidence, greatly reduces anxiety and improves interpersonal relationships. **Conclusion:** Through the analysis and review of selected scientific articles, it was possible to perceive the importance of vestibular rehabilitation, as well as its benefits in the life of the elderly, and to understand how unilateral pathologies can affect the individual's daily life.

Keywords: Unilateral Vestibular Pathologies, Vestibular Rehabilitation, Elderly and Impact of Vestibular Rehabilitation

VESTIBULAR REHABILITATION MANEUVERS IN BPPV

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Introduction: Benign Paroxysmal Positional Vertigo (BPPV) is considered one of the most common pathologies of the peripheral vestibular system. This pathology is responsible for 45% of the causes of vertigo, with a higher incidence in female adults. BPPV occurs as a consequence of the pathophysiological mechanism, caused by the displacement of the otoliths of the utricle to the semicircular canals. The treatment consists in rehabilitation maneuvers, such as Semont, Epley, Barbecue, Zuma Maia, Gufoni and Vannuchi-Asprella. Objective: Through a review of the literature, we intend to identify the different vestibular rehabilitation maneuvers in the treatment of BPPV in all semicircular canals. Methodology: The research methods used were based on different databases, such as Google Scholar, Pubmed, B-On and SciELO, using as search engines the words "maneuvers", "vestibular rehabilitation" and "VPPB", obtaining a total of 8 articles. Results: The maneuvers of Semont, Epley and Vannuchi-Asprella are used for the rehabilitation of vertical semicircular canal BPPV, while the maneuvers of Barbecue, Gufoni and Zuma Maia are used for the rehabilitation of horizontal semicircular canal BPPV. Of the eight articles obtained, seven mentioned the Epley maneuver and the Semont maneuver and two referred to the Barbecue maneuver. The maneuvers of Vannuchi-Asprella, Gufoni and Zuma Maia are mentioned only once, in different articles. Conclusion: VPPB rehabilitation maneuvers most referenced by the authors are, Epley and Semont for the vertical channels and Barbecue for the horizontal CSC canal, all of them aim to cause a decrease of the symptoms.

Keywords: Vestibular rehabilitation, maneuvers, BPPV

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES.***Beatriz Moita; Ana Cristina; Ana Lourenço; Catarina Camacho; Inês Ribeiro****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Ciências Biomédicas Laboratoriais, Coimbra, Portugal*

Daratumumab (DARA) is an IgG monoclonal antibody that reacts with the CD38 antigen of multiple myeloma (MM) cells. This antigen is a glycoprotein that can be found on the surface of many immune cells, including plasma B cells. It contributes to cell adhesion and calcium signaling. However, CD38 is also weakly expressed on red blood cells (RBC), meaning that this drug can also attach itself to RBCs, although it does not destroy them.

The Indirect Coombs Test/Indirect Antiglobulin Test (IAT) is routinely performed to detect RBCs alloantibodies in plasma for compatibility before a transfusion. The attachment between DARA and the CD38 of RBCs can interfere with pretransfusion testing causing false positives. In normal situations, positive results mean that the transfusion cannot occur; however, in this case, the result doesn't reflect the truth, meaning that the transfusion could occur (if every other compatibility tests were satisfactory).

This interference can be neutralized by: denaturation of CD38 on RBCs with dithiothreitol (DTT), addition of an anti-idiotypic antibody or soluble CD38 to patient serum samples to disrupt the interaction between Daratumumab and RBCs, enabling the safe supply of blood to DARA-treated patients.

Keywords: Daratumumab; CD38; multiple myeloma; transfusions.

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES

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Daratumumab (DARA) is a human IgG1 subtype monoclonal antibody against the antigen CD38 (a transmembrane glycoprotein that combines adhesion, receptor and enzymatic functions). It's mechanism of action includes a high specificity for antigens on the surface of the neoplastic cell and it's utilized in cases of treatment-refractory pure red-cell aplasia after AB0-mismatched allogeneic stem-cell transplantation such as multiple myeloma, a type of cancer that compromises plasma cells, who are responsible for the production of antibodies.

This drug causes a deficiency in the immune system which leads to opportunistic infections and interferes with the tests required for blood transfusion by clinically masking alloantibodies on red blood cells and causing panagglutination – false-positive - on the Indirect Antiglobulin Test (IAT) due to the fact that CD38 is weakly expressed on red blood cells.

The binding of daratumumab to CD38 on red cells can difficult the measuring of IgG anti-A antibody titers, thereby complicating the identification of the antibody and interfering with some transfusion medicine testing procedures or when conducting reliable blood compatibility testing, causing unnecessary delays in transfusions. Anti-CD38 antibodies do not affect AB0 and Rh(D) typing.

There are some strategies to overcome that interference: the denaturation of cell surface CD38 with the reducing agent dithiothreitol (DTT) and the addition of an excess of soluble CD38 or neutralizing anti-idiotypes antibodies, this way there's a level certainty when measuring and identifying the antibody, allowing for reliable tests and making for fast and safe transfusions.

Keywords: Daratumumab, Multiple Myelom, Indirect Antiglobulin Test, CD38

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES

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These days, monoclonal antibody therapy has largely increased in cancer treatment. Daratumumab is a human monoclonal antibody (anti-CD38 IgG1κ) used to treat multiple myeloma, a plasma cell cancer. These abnormal plasma cells express high levels of CD38 unlike regular lymphoid and myeloid cells.

Daratumumab will target CD38+ cells and induce their destruction via antibody/complement mediation, cross-link with anti-human IgG antibody and Fc receptors on effector cells and phagocytosis.

Low levels of CD38 are also expressed in regular RBC, which means that can cause an interaction with Daratumumab that will coat their membrane with IgG antibodies, causing panagglutination in antibody screens, antibody panels and altered results in Coombs Test – Indirect Coombs Test will present false positives due to the presence of antibodies in the patient's plasma that will react with the commercial cells.

This will interfere with immunohematological tests in individuals submitted to this treatment and in need of transfusions.

It is of most importance to find new ways of resolving this issue, as DTT is currently the best available choice world wide.

DTT (dithiothreitol) is known to dissolve disulfide bond between cysteine amino acids, removing CD38 from RBC membrane and allowing accurate alloantibody screening to occur. Although, Kell antigens are held together by disulfide bonds, therefore the use of DTT will also remove them from RBC and affect antigens from others blood groups.

Keywords: Daratumumab; Multiple myeloma; Antibodies; Dithiothreitol; CD38

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES***Inês Cunha, Inês Murça, José Machado, Sofia Cordeiro****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Ciências Biomédicas Laboratoriais, Coimbra, Portugal*

The CD38 is a transmembrane glycoprotein that has multiple receptor and enzymatic functions. It is expressed in immune and red blood cells, among others, and numerous diseases. For instance, Multiple Myeloma, HIV infection, systemic lupus erythematosus and type II diabetes. High expression levels in combination with its role in cell signaling points to CD38 as an attractive therapeutic antibody target.

Daratumumab is a human monoclonal antibody – immunoglobulin G1 kappa – that specifically binds to a unique epitope present on the CD38 molecule. Because it targets CD38, it has been used to treat Multiple Myeloma patients, since this particular receptor is highly expressed on Myeloma cells.

Although in lower quantities, red blood cells also express CD38 on their surfaces, this way, Daratumumab may also bind to red blood cells.

There are several blood tests which are performed for compatibility before transfusing red blood cells from one person to another. Daratumumab may interfere in the Indirect Antiglobulin Test by binding to the CD38 present in red blood cells and consequently making it turn positive. Daratumumab can delay a red blood cells transfusion to a patient who requires it due to unnecessary additional testing, which can be harmful to the patient.

Several methods were developed to try and exclude Daratumumab interference, such as: red blood cell genotyping and phenotyping performed before the Daratumumab treatment; treating reagent red blood cells with dithiothreitol (DTT), which cleaves the CD38 disulfide bonds (one downside with this treatment is that it can destroy some red blood cell antigens).

Keywords: Daratumumab; Transfusion; Sciences

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES

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Daratumumab (DARA) is an innovating therapy for Multiple Myeloma (MM). It's an immunoglobulin G1 kappa (IgG1κ) monoclonal antibody with a killing spectrum that recognizes CD38 on myeloma cells which shows an over expression of this protein.

DARA targets CD38-expressing myeloma cells through a diverse of immune-mediated mechanisms such as: complement-dependent cytotoxicity, antibody-dependent cell-mediated cytotoxicity, antibody-dependent cellular phagocytosis and direct apoptosis with crosslinking. Was also shown to minimize the immune-suppressive functions of CD38+ myeloid-derived suppressor cells, regulatory T cells, and regulatory B cells, and increase T-cell clonality. These mechanisms may also target nonplasma cells that express CD38, which induce evaluation of daratumumab's effects on CD38-positive immune subpopulations.

Since CD38 is expressed on human red blood cells (RBCs), Indirect Antiglobulin Test (IAT) might be affected by daratumumab, once it binds to endogenous CD38 present on the surface of RBCs. When treating MM patients who are frequently anemic and often require RBC transfusions, daratumumab interference with IAT may lead to unnecessary additional testing, also leading to misinterpretations of test results and delay in blood transfusions

Therefore, the main goal is to describe the problems of daratumumab in clinically laboratories test and it's repercussions in transfusions sciences and some of the solutions that can be made.

Keywords: Daratumumab; transfusions; CD38; IAT; Multiple Myeloma

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES***Gonçalo Alves, Helena Figueiredo, Margarida Silva, Maria João Martins, Mariana Ribeiro****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Ciências Biomédicas Laboratoriais, Coimbra, Portugal*

In the past few years, transfusional medicine has evolved rapidly. Although, its fundament is still simple, specifically based on the antigen-antibody interaction. Daratumumab (DARA) is an anti-CD38 monoclonal antibody which was developed to treat refractory Multiple Myeloma. Besides interfering in cell adhesion, signal transduction and calcium signaling, CD38 is a protein universally expressed on myeloma and lymphoma cells. It is also expressed at low levels on normal lymphoid, myeloid cells and red blood cells (RBC). Therefore, DARA not only binds to the CD38 portion of malignant cells but also to RBC, interfering with the indirect antiglobulin testing, thereby masking alloantibodies. This can lead to redundant testing and significant delays in patient care. Due to this, it's highly important to acknowledge the nature of this reaction. In order to dissolve the effects of the panreactivity caused by DARA, several strategies have been developed: Provision of blood for such patients is feasible by Dithiothreitol (DTT) treated RBCs for pretransfusion testing; Serologic phenotyping of patients and antigen-matched transfusions; Genotyping and antigen-matched transfusions; Antibody screening with cord blood; Neutralizing the antibody with soluble CD38 or anti-daratumumab; We can also use a combination of all these techniques.

With this poster, we aim to provide further considerations about the use of DARA in daily practice and the repercussions in transfusions field.

Keywords: Daratumumab, antibody, transfusion, RBC, panreactivity

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES

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Daratumumab is a monoclonal antibody IgG1 designed to recognize and bind to the membrane glycoprotein of CD38 (a glycoprotein present on the surface of immune cells that works in cell adhesion, signal transduction and calcium signal), which is present in great quantity in tumoral cells, like multiple myeloma. Thus it's used as treatment for this pathology through mechanisms of direct apoptosis, complement dependent cytotoxicity, antibody dependent cellular cytotoxicity and/or phagocytosis and by immunomodulation. Depending on how many therapies and the stage of the disease, Daratumumab is used in combination with other drugs.

Although, CD38 is present in red blood cells membrane and using the Daratumumab can interfere with laboratories procedures like indirect antiglobulin test, causing positive self-control, leading false positive tests.

The treatment with dithiothreitol, a small redox reagent molecule, will prevent the connection of daratumumab and CD38 of the red blood cells through the inactivation/destruction of many red blood cells antigens by the rupture of disulfide bridges. The system Kell is sensitive to DTT treatment so Kell negative units must be provided to patients unless they are known to be Kell positive.

Since the presence of this monoclonal antibody is present in a patient's serum who is under this therapy, up to six months after its interruption and its presence causes weak agglutinations, it must be taken special measures in pre transfusion tests to avoid incompatibility mistakes or avoid the possibility to not detect an alloantibody, in the plasma of the patient, whose action is masked by the drug.

Keywords: Daratumumab; pre-transfusional tests; multiple myeloma; alloantibody

USE OF DARATUMUMAB AND ITS REPERCUSSIONS IN TRANSFUSION SCIENCES

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Daratumumab (DARA) is a monoclonal antibody (MoAb), which when is used is related to complications on the antibody identification. DARA is commonly used in Relapsed Refractory Multiple Myeloma (RRMM) and in cases of transfusion refractory aplasia of Red Blood Cells (RBC). This antibody attaches to the reagents used in RBC transfusions and have an action over CD38 cells by identifying their pathologic portion.

The action mechanisms of this MoAb include complement dependent cytotoxicity, antibody-dependent cellular cytotoxicity, antibody dependent cellular phagocytosis and apoptotic signaling in tumors expressing CD38. The Daratumumab maximum response has an action on CD38 RBC when three half-lives are reached, knowing that an IgM half-life has a 5 days' duration.

The compatibility with ABO/RhD in cases of blood transfusion may be done by the practices of the blood-bank but in some cases like patients with DARA utilization, their RBC phenotype have to be extended. His effects can be panagglutination in compatibility test, complications on the measurement of IgG antibody in blood transfusions and it can convert the patient's blood type with no expression of initial antibody type.

When we introduce the DARA in patients with red cells aplasia, they developed reticulocytes increasing the number of RBC and consequently increasing the hematocrit, no longer needs of transfusion.

Dithiothreitol (DTT), which is a reagent used in blood banks, was the solution for an inexpensive and practical way to dissolve panreactivity caused by DARA. However, DTT destroys the Kell antigen blood group and other less frequently found blood group antigens.

Keywords: Daratumumab; Tranfusions; Daratumumab; Relapsed Refractory Multiple Myeloma; Dithiothreitol

VITAMIN K, ANTICOAGULANTS AND ANTIPLATELET AGENTS

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Homeostasis is the name of the defense mechanism that, in case of injury, allows the tissues to be repaired, preventing the excessive loss of blood. This phenomenon is regulated by different phases including constriction of the injured vessel, formation of the platelet thrombus, coagulation, followed by dissolution of the clot (fibrinolysis).

The anticoagulant treatment inhibit the appearance of thrombi and its extension. Anticoagulant therapy aims to prevent the formation of fibrin and consequently the clot, through the inhibition of coagulation factors, without increasing the risk of bleeding complications.

Antiplatelet agents are drugs that are used to prevent platelet activation and aggregation and also to prevent thromboembolic events in patients suffering from myocardial infarction, ischemic stroke, or angina.

Vitamin K is a lipid soluble protein that promotes coagulation as it helps in the formation of proteins that participate in blood clotting. Its deficiency results from an inadequate intake and a malabsorption of fat that impairs coagulation. Thus, a deficiency in vitamin K decreases the levels of prothrombin and other coagulation factors, causing a defective coagulation and bleeding.

To conclude, Vitamin K is an antagonist of anticoagulants and antiplatelet agents, because instead of inhibiting the formation of the clot it promotes it.

Keywords: Coagulation, Platelet aggregation, Anticoagulants, Vitamin K

BIOLOGY OF HIV VIRUS – AIDS: ANTIRETROVIRALS

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HIV, Human Immunodeficiency Virus, is classified as retrovirus and lentivirus. A retrovirus is a virus whose genes are encoded in RNA rather than DNA and is a lentivirus because its manifestation may be quite late. HIV multiplication process requires an additional step, which consists on the conversion of RNA into DNA by the reverse transcriptase. From this, the concept of AIDS arises, being this pathology a late consequence of an infection caused by HIV and being characterized by a list of precise pathologies that appear in seropositive people. The immune system and blood system will be attacked causing an autoimmune disease, in other words, T-cell lymphocytes recognize themselves as an antigen, destroying the body's own defenses. AIDS has no cure, but there are some antiretroviral treatments that can control its proliferation, such as integrase inhibitors, reverse transcriptase inhibitors that are subdivided into nucleosides (prevent the virus from making copies of its own genes) and not nucleosides (affect the HIV replication process, by adhering to the enzyme that controls the process), protease inhibitors and fusion inhibitors. HIV transmission can occur through unprotected sex, needle and syringe exchange, and vertical transmission of the virus from mother to child during pregnancy, delivery and/or breastfeeding can also occur. HIV can take on different types, HIV-1 and HIV-2, being the 1 most common worldwide. The virus is mutant, that is, it has no enzymes that can correct mutation errors, this causes it to produce new viruses, which makes it difficult to cure the disease.

Keywords: HIV, retrovirus, anti-retroviral, auto immune disease, lymphocytes T.

RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM/ ECA AND AT1 RECEPTORS INHIBITORS

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Among the various enzymatic control systems responsible for cardiovascular regulation, one of the most important is the renin-angiotensin-aldosterone system.

Renin, a synthesized proteolytic enzyme, stored and secreted by the glomerular juxta cells of the kidney, cleaves the angiotensinogen produced in the liver. When there is a decrease in blood pressure, renin enters in the circulation and cleaves the angiotensinogen to angiotensin I which is later converted by ECA to angiotensin II, its main effect being to act on the adrenal glands and induce the release of aldosterone. Therefore, sodium reabsorption is increased allowing the consequent resorption of water, thus increasing blood pressure.

There are two types of blockers of this system. One of them has action on ECA and others on angiotensin II. ECA inhibitors are the angiotensin I converting blockers in angiotensin II producing peripheral vasodilation and consequently lowering blood pressure.

Angiotensin II receptor blockers are drugs that act on AT1 receptors. The AT1 are proteins that constitute the cell membrane responsible for triggering a set of reactions, when chemically linked to angiotensin II, among these are: vasoconstriction, increased concentration of aldosterone in the blood and decreased renin concentration.

Keywords: Renin, Angiotensin, Aldosterone

HORMONAL FUNCTION OF GONADS: TREATMENTS BASED ON SEXUAL HORMONES

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The gonads are glands of the endocrine system, responsible for the production of sexual hormones: testicles (male) and ovaries (female). Sexual hormones are testosterone in the testicles (in males) and progesterone and estrogen in the ovaries (in females). The production of these occurs due to stimuli emitted by the hypothalamus (region of the brain with regulating function of metabolic processes), releasing gonadotrophic hormonal factors, with action in the pituitary gland that releases FSH (follicle stimulating hormone) and LH (luteinizing hormone), acting on the gonads.

The goals of our poster are the treatment of depression and osteoporosis using these sexual hormones.

Because hormones play a modulating role in various psychic functions, particularly on mood and cognition, which may help in depression, and bone fragility in women is caused by the absence of the female hormone, estrogen, which makes them porous as a sponge, being the major cause of fractures and falls in the elderly. Two of the most commonly used treatments are the use of pills in which each tablet contains synthetic hormones similar to those produced by women ovaries (estrogen and progesterone), the released hormones cause the ovaries to go to rest, inhibit ovulation, so the woman taking the pill does not have a fertile period, so she does not become pregnant, and taking estrogen and progesterone after menopause reduces the intensity of some of the problems associated with the end of female reproductive life, such as hot flashes and prevents the onset of osteoporosis.

Keywords: gonads, sexual hormones, treatments, depression and osteoporosis

HORMONAL FUNCTION OF THE ADIPOSE TISSUE: ADIPOKINES

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The adipose tissue, also known as fat tissue, is a major site for metabolism of sex steroids and production of adipokine, an endocrine factor that is markedly down-regulated in obesity. The subsequent identification and characterization of leptin firmly established adipose tissue as an endocrine organ. There are two types of adipose tissue, the unilocular and multilocular adipose tissue.

It is now clear that white adipose tissue releases a large amount of bioactive peptides called adipokines (which are proteins synthesized and released by adipose tissue).

Adipokines are proteins that may or may not be cytokines, that manifest their effects through endocrine and paracrine mechanisms. They act as immunomodulators, altering the balance between pro and anti-inflammatory cytokines.

Among the several adipokines the main are leptin, responsible for the endocrine functions, interleukin 6 (IL-6) and tumor necrosis factor- α (TNF- α) which are associated with immune function (inflammation), angiotensinogen and plasminogen-1activation inhibitor related with cardiovascular function (coagulation, blood pressure) and adiponectin and resistin responsible for metabolic function.

Keywords: Adipose tissue, Adipokines, Unilocular and Multilocular Tissue.

DISEASES OF NON-ALCOHOLIC FATTY LIVER, METABOLISM OF CHOLESTEROL AND STATINS

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The liver performs many functions in both digestion and utilization of nutrients, as in the removal of harmful substances and good regulation of our coagulation.

Fatty liver is a term that means the accumulation of fat in liver cells (steatosis). Can be a very simple situation, which does not cause liver injury, or can develop into more serious forms, cirrhosis, with permanent liver damage.

One of the important causes of fatty liver is alcohol consumption. However, he also appears in people without alcohol consumption to become in this case for non-alcoholic fatty liver. These non-alcoholic forms occur in patients with overweight/obesity, diabetes, and increased cholesterol and/or triglycerides.

Cholesterol is transported in the blood by lipoproteins and can be of two main types:

LDL (bad cholesterol) transports cholesterol from the liver to the cells of the tissues and promotes your accumulation on the inner walls of the arteries, reducing blood flow, being directly related to heart disease; HDL (good cholesterol) takes cholesterol deposited on the walls of the arteries back to the liver, where it is processed and eliminated, thereby avoiding the accumulation of cholesterol in the blood vessels.

Statins are agents that exert their effects through inhibition of HMG-CoA reductase (enzyme in cholesterol synthesis) leading to a reduction of cholesterol. If fail in your function leads to an increase of HDL.

Keywords: Cirrhosis, Cholesterol, Fat liver, Statins

MECHANISMS OF INSULIN RESISTANCE: ORAL ANTIDIABETICS AND SGLT2 INHIBITORS

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The mechanism of action of insulin begins by binding of insulin to the recipient of the plasmatic membrane, causing conformational changes that trigger modifier reactions of metabolism of the target cell, thus constituting a cellular response.

The insulin resistance results in this area to circulate in the blood and does not perform its function properly. Insulin is responsible for entry of glucose in various organs and tissues to be used as a source of energy. When an individual is resistant to insulin, you can give two different cases: The body ends up releasing a greater quantity of this hormone, making it enough to regularise the situation, or in another case, leading to a concentration of insulin and glucose is too high in the blood, which may give rise to the appearance of diabetes.

The oral antidiabetics are substances which, when ingested, have the function to reduce blood glucose levels and keep it in normal values (between 70 and 110 mg/dl in fasting and below 140 mg/dl, two hours after meals). These can be divided into: those that increase the pancreatic secretion of insulin; those that reduce the rate of absorption of carbohydrates; that decrease hepatic glucose production; and/or that increase the peripheral utilization of glucose.

The SglT2 inhibitors are used for the treatment of type 2 diabetes and act by blocking the action of the sglT2 protein in the kidneys, which is responsible for the absorption of glucose from the urine into the bloodstream. By inhibiting the action of the sglT2, these drugs increase the elimination of glucose in the urine, and consequently, reduce the levels of glycemia.

However, in this work we will go deeper into this topic so as to briefly detail these two mechanisms of insulin resistance.

Keywords: mechanism of action of insulin; resistance to insulin; Insulin; oral antidiabetics; SGLT2 inhibitors.

BARIATRIC SURGERY AND SATIETY MECHANISMS

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Obesity is not a linear response of increment of normal food intake and increment on the weight gain; body fat mass increases when energy intakes exceeds energy expenditure. Instead it is a complex and still unsolved mechanism involving at least Central Nervous System (CNS), Gut and Adipose Tissue.

Bariatric surgery is the most efficient treatment of obesity and related metabolic diseases such as diabetes type 2. The different procedures of bariatric surgery are sleeve gastrectomy (SG), Roux-en-Y gastric bypass (RYGB) and adjustable gastric banding (AGB), anastomosis gastric bypass and biliopancreatic diversion/duodenal. The majority of these procedures combine restrictive, hormonal and malabsorptive mechanisms. The hormonal mechanisms involved in the gut-brain regulation of food intake and eating behaviour (peptide YY-PYY, cholecystokinin-CCK, insulin, amylin, ghrelin, gastric inhibitory polypeptide, GLP-1 and pancreatic polypeptide). After bariatric surgery these gastro-intestinal hormones change in an opposite way. Therefore, the increase of CCK, PYY, GLP-1 and 2, and the consensual decrease of ghrelin contribute to the success of bariatric weight loss, creating a hormonal milieu that tend to favour weight maintenance by leaving patients less hungry even after they have lost substantial amount of weight. With RYGB there is a decreased activation in feeding regulating areas of the CNS in response to food stimuli. The white adipose tissue hormone-leptin- is correlated with fat mass and body storing of fat. In the hypothalamus, leptin mediates most of its actions.

The key for this surgery success is both caloric reduction and modification of different metabolic regulators acting at gastrointestinal and central levels.

Keywords: Bariatric Surgery; Gut hormones; Obesity; CNS; Leptin;

INCRETIN DPP4 INHIBITORS AND GLP-1 ANALOGUES

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Incretins (GLP-1 and GIP) are hormones released in certain parts of the intestine. These have properties that cause increased insulin release due to the presence of food in the gastrointestinal tract. GLP-1 (Glucagon-like-peptide-1) is produced by the enteroendocrine L cells of the intestinal mucosa, mainly located in the ileum and colon, and the GIP (Glucose-dependent-insulinotropic polypeptide) is synthesized by the endocrine K cells that Located in the proximal part of the jejunum and duodenum.

In patients with DMT2, there is a reduction in the effect of incretin due to the existence of a reduction in insulin response to glucose. This event is due to a decrease in the concentration of GLP-1, because when it is produced rapidly it is degraded by the enzyme DPP4.

DPP4 inhibitors are drugs that inhibit the enzyme DPP4 thus increasing the activity of the incretins. Thus, insulin secretion increases and glucagon decreases reducing glycaemia levels. Therefore, Incretins are seen as a source for DMT2 therapy, because it is characterized by the resistance that cells offer to the action of insulin.

The GLP-1 peptide analogues are another form of DMT2 therapy, because they regulate the glucose values from the stimulation of insulin release in the β cells of the pancreas, becoming more sensitive to the recognition of glucose. Thus, they decrease the secretion of GLP-1, delay gastric emptying and cause satiety.

In Short, GLP-1 analogues and DPP4 enzyme inhibitors which benefit the function of cells causing them to have low risk of hypoglycaemia.

Keywords: GLP-1, DPP4, DMT2, Incretins

LEVODOPA AND HIGH-PROTEIN DIET

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Introduction: Parkinson's disease (PD) is a progressive neurodegenerative disorder characterised by some significant symptoms such as resting tremor, rigidity, postural instability and bradykinesia. This condition results in the reduction of dopamine concentration of as much as 80%. This neurotransmitter plays an essential role in the command centres of movement. In cases of PD, there is a need for exogenous substitution with a dopamine agonist or a prodrug of dopamine, such as Levodopa which is the most effective symptomatic drug for PD.

Objective: Analyze the possible interactions between Levodopa and a high-protein diet in patients with PD.

Methods: The present revision work was conducted using the scientific databases Science Direct and PubMed, using as search expressions “protein diet AND levodopa” OR “levodopa AND protein intake”. Fourteen articles were first selected by title and afterwards by abstract analysis, only ten articles were examined for this revision. Published papers before 2009 were excluded.

Results: Levodopa competes with the large neutral amino acids (LNAA) for the same saturable carrier in the gut and the blood-brain barrier. These amino acids result from the degradation of the dietetic protein. Therefore, studies suggest that drug bioavailability is influenced by this macronutrient. PD patients following a protein redistribution diet seem to show motor function improvement.

Conclusion: Patients following a high-protein diet require higher doses of Levodopa to achieve the ideal motor control. Literature suggests there are benefits in the administration of levodopa 20 to 30 minutes before each meal, in order to avoid possible LNAA and drug interaction.

Keywords: levodopa; Parkinson's disease; protein intake; pharmacokinetics.

INTERACTION BETWEEN FOODS RICH IN TYRAMINE AND ANTIDEPRESSANTS

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Introduction: Monoamine oxidase enzymes (MAOs) are responsible for the metabolism of serotonin, noradrenaline and dopamine. They are present in the nervous system, in the liver, gastrointestinal tract and mitochondrial membranes. The monoamine oxidase inhibitor (MAOIs) is an oral ingested antidepressant that is absorbed in the gastrointestinal tract and is metabolized in the liver, and it acts on the MAOs found in the nervous system.

Objective: The objective of this review is to understand the interaction between foods rich in tyramine and antidepressants.

Methods: This revision article is based on several articles related to the subject we are studying, it will be based on scientific evidence. It was conducted a literature review, using the database ScienceDirect and PubMed with the keywords interaction tyramine AND MAOIs food. The selected studies were published from 1970 until this year. We choose 20 articles and used about 11 on our article.

Results: Because it is ingested orally, the monoamine oxidase inhibitor will act in the MAOs of the gastrointestinal tract, preventing the degradation of tyramine in amino acids. It goes into the bloodstream acting as norepinephrine that will act in the nervous system, increasing the concentration of the monoamines in the neurons excessively. Tyramine has a vasodilatory effect similar to norepinephrine is so depending on the amount of tyramine present in a food, it is expected an increase in blood pressure and consequently a hypertensive crisis.

Tyramine is highly found in fermented and old foods like cheese, wine, beer, homemade bread, old meats and fish.

Conclusions

The patients taking MAOIs are required to restrict their intake of tyramine-rich foods.

Keywords: interaction tyramine and MAOIs food

INFLUENCE OF CALCIUM ON THE ABSORPTION OF TETRACYCLINE

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Tetracycline is a broad-spectrum antibiotic, effective in combating infectious diseases caused by bacteria (gram-negative and gram-positive). This antibiotic binds to the 30S subunit of the bacterial ribosome, preventing tRNA binding and thus inhibiting bacterial protein synthesis.

The intestinal absorption of tetracycline is rapid but incomplete. During therapy the serum tetracycline concentration should be maintained between 0.5 and 1.5 µg / ml.

Tetracycline has great interaction potential with metallic cations. In this way we will investigate if the increase of the presence of calcium in the organism interferes with the absorption of this medicine.

Studies were found through the association between tetracycline, absorption, calcium, milk, pharmaco-nutrient interaction, bioavailability by searching the PubMed and Science Direct databases for studies published since 1976 to 2018. We found 245 703 articles. After this research, we sort the studies by the title and abstract and select 15 articles.

Tetracycline can obtain "extended conformation" or "twisted conformation". The conformation depends on the characteristics of the environment, such as pH and the presence of metal ions.

The binding to Ca²⁺ stabilizes the extended conformation. When tetracycline binds to an ion (i.g.Ca²⁺), it forms chelates of difficult gastrointestinal absorption, resulting in decreased bioavailability.

This decrease is different depending on the type of tetracycline, being the most marked the interaction of milk with metacycline or demeclocycline. Given that calcium-rich foods have a negative effect on the absorption of this antibiotic, they should be consumed approximately 3 hours before or after the administration of tetracycline.

Keywords: Tetracycline, absorption, calcium, milk, pharmaco-nutrient interaction, bioavailability

DYSLIPIDEMIA AND ITS PHARMACOLOGICAL AND NUTRITIONAL TREATMENT

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Background: Dyslipidemia is a risk factor for cardiovascular diseases, the leading cause of death in developed countries, including Portugal. It is characterised by changes in blood lipids, through increased triglycerides, cholesterol and reduced HDL.

Aim: This bibliographical review article has as its primary objective, to evaluate the impact of nutrition and pharmaceuticals in the treatment of Dyslipidemia.

Material & Methods: In this bibliographical review article, we resorted to PubMed and Science Direct databases and the site of the Portuguese Foundation of Cardiology and the Portuguese Association of Dietitians, it were selected 270 articles and were analyzed 12, from 2013 to 2019.

Results: In pharmacological treatment are used the Fibrates, Nicotinic Acid, Statins, which are considered the "gold standard", showing a better efficacy when combined with Omega-3. It was found that moderate exercise during treatment with Statins, is safe and beneficial, compared to the sedentary lifestyle, but in intensive exercise causes muscle pain.

Discussion: Some of the benefits of pharmacological treatment are: prevention of cardiovascular events and reduction of mortality, reduction of acute myocardial infarction and stroke. The treatment of dyslipidemias changes lifestyle, exercise and nutrition, using Omega-3 rich foods and fiber, low-lipidic and green tea.

Conclusion: Nutraceuticals in combination with a healthy diet can be used as an alternative approach, before the start of pharmacological treatment. Also, this approach may be beneficial in avoiding the adverse effects of treatment with high doses of drugs.

Keywords: Dyslipidemia, Nutrition, pharmacological treatment, Statins

GASTRIC ULCER: PHARMACOLOGICAL AND NUTRITIONAL APPROACH

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INTRODUCTION: Gastric ulcer is an injury that occurs in the lining of the stomach. Among the most common causes for gastric ulcer are *Helicobacter pylori* infection, excessive intake of nonsteroidal anti-inflammatory drugs and acetylsalicylic acid, present in aspirin.

AIM: Deliberate the identification of the cause of gastric ulcer and its pharmacological and dietary treatment.

METHODS: It was conducted a literature review using PubMed and ScienceDirect databases, using the key words “gastric ulcer”, “*Helicobacter pylori*”, “nonsteroidal anti-inflammatory drugs”, “proton-pump inhibitors”, “antacids”. The selection of articles was performed considering the period between 2010 and 2019. There were obtained 3976 results, of which 12 were selected and 4 were actually used.

RESULTS: Proton pump inhibitors (PPIs), H₂ receptor antagonists (antacids) and acid suppression therapy for *H. pylori* are used for the treatment of gastric ulcer. With regard to dietary treatment, consumption of high-fiber foods such as fruits and vegetables helps in the recovery and prevention of gastric ulcers. Spicy foods tend to aggravate the disease and should be avoided. Tobacco, alcohol, coffee and carbonated beverages should also be reduced because they increase acid production in the stomach.

CONCLUSIONS: In general, with proper treatment, most ulcers heal in 6 to 8 months. However, relapses may occur, especially if *H. pylori* is not eliminated, increasing the risk of stomach cancer, which reinforces the importance of early diagnosis and treatment.

Keywords: “gastric ulcer”, “*Helicobacter pylori*”, “nonsteroidal anti-inflammatory drugs”, “proton-pump inhibitors”, “antacids”.

DIFFERENCES AMONG ANTIDEPRESSANTS AND FOOD-DRUG INTERACTIONS

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Introduction: Depression is a neurologic disorder regularly defined by lower physiological levels of serotonin, noradrenaline and dopamine. Antidepressants have been adopted to block the recapture of these monoamines. Additionally, four well-known types of antidepressants are used to increase the levels of neurotransmitters: selective serotonin reuptake inhibitors (SSRIs), selective noradrenaline reuptake inhibitors (SNRIs), selective serotonin and noradrenaline reuptake inhibitors (SSNRIs) and, finally, monoamine oxidase inhibitors (MAOIs). The current research examines the action mechanisms of each particular antidepressant and their interactions with food.

Methods: This is a revision study. Electronic searching, with no restriction on year of publication, was realised across PubMed database. Key terms included on the search were “antidepressants AND function” “antidepressants AND food”. 88 451 results were found, and 17 were used in this study.

Results: Globally, the antidepressants presented a similar function that involved an interruption of monoamines reabsorption in the presynaptic cleft. However, they act in different compounds, particularly selective serotonin and noradrenaline reuptake inhibitors operate in neurotransmitters, whereas monoamine oxidase inhibitors act on an enzyme. Generally, alcohol, caffeine, St.John's Wort and grapefruit should not be consumed when serotonin and noradrenaline reuptake inhibitors are administrated. Moreover, MAOIs should not be ingested simultaneously with thiamine-rich foods such as aged cheese, soy and tofu.

Conclusion: Two different cellular mechanisms between antidepressants were noted. Food seems to be important when these antidepressants are taken into account because it can affect their metabolism and action.

Keywords: Antidepressants, Food-drug Interactions, Function, Food

MERCAPTOPURINE AND ITS INTERACTION WITH COW'S MILK

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Background: Mercaptopurine is a purine, analogous to hypoxanthine and guanine. As an antineoplastic substance, mercaptopurine is associated with acute lymphoblastic leukemia and chronic myeloid leukemias. The absorption of mercaptopurine is incomplete and highly variable, primarily due to passage through the liver during metabolism.

Aim: Evaluate the influence of cow's milk on the action of the mercaptopurine.

Material and Methods: We carried out a review of the literature on the PubMed, ScienceDirect and Scopus platforms, including only articles since 2000. With the initial keywords, a total of 600 articles were obtained, of which 9 articles adapted to the subject in question were selected. This is due to the fact that it's a topic still under study and for which there is still no solid database.

Results: After extensive research, mercaptopurine is converted into inactive metabolites upon enzyme action. In the presence of xanthine oxidase (XO), 6-thiouric acid is obtained, and when thiopurine methyltransferase acts, 6-methylthiopurine is obtained.

Discussion: Thus, an inhibitor of XO may increase the bioavailability of mercaptopurine and, on the other hand, frequent ingestion of foods containing XO may potentially reduce it. It is known that cow's milk contains high levels of XO, which are sufficient to inactivate the effects of the drug.

Conclusion: In conclusion, in order to guarantee the good performance of mercaptopurine, there must be a time-consuming intake when taking medicine and the consumption of milk. One of the solutions proposed by health professionals is the intake of soy drink as an alternative to cow's milk.

Keywords: Mercaptopurine; Cow Milk; Xanthine oxidase

INTERACTION BETWEEN ORAL ANTICOAGULANTS AND VITAMIN K

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INTRODUCTION: Vitamin K works as a coenzyme during the synthesis of biology active of a series of proteins on the blood coagulation.¹ Vitamin K Antagonists (AVKs) are derivatives of coumarin and are therefore referred to as anticoagulants. They exercise their effect at the level of the hepatocyte, inhibiting the performance of vitamin K.¹

OBJECTIVE: To evaluate the interaction of Vitamin K intake with its Anticoagulants antagonists.

METHODS: It was conducted an article review, and the research was performed in PubMed and B-On databases, using as key-words: "Vitamin K", "Coagulation". The articles were selected by title and abstract. The research was restricted to articles published after 2004.

DISCUSSION: The carboxylation reaction, performed through vitamin K, allows the binding between coagulation proteins and calcium, allowing interaction with the phospholipids of platelet membranes and endothelial cells. These interactions will allow the normal coagulation process. There are seven proteins involved in the coagulation process that require activation by vitamin K. AVKs inhibit the reduction of vitamin K, in order to inhibit the enzyme vitamin K epoxide reductase (VKOR), which results in a decrease in the synthesis of coagulation factors II, VII, IX and X, and natural anticoagulants, proteins C and S. As a result, blood clotting is compromised.^{1,2,3,4,5,6,7}

CONCLUSION: To conclude, in treatment with oral anticoagulants, the patient should have a balanced and constant intake of vitamin k, since foods rich in vitamin k reduces the action of the anticoagulant. Therefore, a sudden change in food must be avoided, maintaining a constant, safe and adequate consumption of these foods.^{8,9}

Keywords: Vitamin K, Coagulation, Anticoagulation

PROTEIN DIET AND THE USE OF L-DOPA (LEVODOPA)

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Introduction: L-Dopa is the natural form of dihydroxyphenylalanine and precursor of dopamine. Studies have shown that absorption of L-Dopa can be reduced by protein diets due to competition between the two competing substances to be absorbed, broken and assimilated in the body.

Objective: To understand the interactions between protein intake and the use of L-Dopa

Methodology: A bibliographic review using the Pubmed and Science Direct databases was carried out using Levodopa AND Protein Diet as a search phrase. The articles were selected first by title and abstract and later it was made integral reading. Articles were selected for the last 5 years.

Results: According to some studies, high protein intake in the diet will reduce the bioavailability of L-Dopa. In cases where this type of medication is administered it is advised that there is a decrease in the intake of the amount of protein as well as a distribution of this consumption throughout the day. In addition there should be care with time before and after the meals in which the medicine is administered, this time will influence its absorption. This time allows for better absorption of the drug before the amino acids "occupy" the transport mechanisms.

Conclusion: According to the different studies, the control of the time of administration of the drug and the intake of the diet seem to guarantee a better absorption of the drug. The orientation of the doctor and the nutritionist is fundamental in complying with the appropriate times for feeding and ingestion of medicines.

Keywords: Protein diet, Levodopa, drug interaction

INTERACTION BETWEEN NUTRIENTS AND ANTINEOPLASTICS

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Introduction: In Portugal, the percentage of cancer patients increases massively every year. In the year 2016, more than 27,000 people died in the national context, which makes the neoplastic disease the second largest cause of death in the world.

Proteins such as phosphoglycoprotein and P-glycoprotein have a vital role in the bioavailability of drugs in our body, through their induction or inhibition that have their pathologies and vitamins, e.g. K, allicin, curcumin and omega 3 interact with these.

Dietary therapy has to be improved.

Objective: To evaluate, with a current scientific basis, that it can interact with antineoplastic drugs;

Methods: A research was done on the digital databases "PubMed" and "ScienceDirect" with the keywords "Antineoplastics and nutrients" "nutrient and cancer" "drugs and foods". The articles of the base in public summary and finalisation in abstracts.

Results: After the literature review, it was found that omega-3, some vitamins and minerals, curcumin and caffeine may have beneficial effects, not only in the antineoplastic treatment, but also in the side effects caused by it

Conclusion: The nutrients studied seem to interact with antineoplastic drugs, so the patient's diet should be thought based on current and valid studies so that foods do not impair the absorption and metabolism of medications.

Keywords: Nutrients", "antineoplastics", "vitamins", "omegas", "gp-P"

PAPILLARY THYROID CARCINOMA.FROM DIAGNOSIS TO MACROSCOPY TABLE***Raquel Costa; Tânia Cruz****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Ciências Biomédicas Laboratoriais, Coimbra, Portugal*

Papillary carcinoma of the thyroid is a malignant epithelial neoplasia that derives from the follicular epithelium of the gland. Changes in these cells are a consequence of exposure to ionizing radiations, iodine deficiency or associated with familial syndromes. Papillary carcinoma develops slowly and clinically indolent, usually associated to a good prognosis.

This is the most frequent thyroid carcinoma, accounting for approximately 80% of all thyroid carcinomas. It is usually diagnosed between 20 and 50 years old, with a predominance of females.

Clinically, Papillary Carcinoma presents mostly as an asymptomatic nodule detected by palpation or imaging exams, but some may exhibit symptoms that incite suspicion of malignancy. Thus, a fine needle aspiration (FNA) is performed to measure the benignity or malignancy of the nodule. As a malignant neoplasia, the papillary carcinoma of the thyroid presents typical cellular characteristics such as abundant cellularity, cells with high nucleus/cytoplasm ratio, cellular and nuclear pleomorphism and dispersed chromatin. It is common to present an architecture in the form of papillae with fibrovascular axes, pseudo intranuclear inclusions and psammomatous bodies.

Whenever the FNA presents these cytomorphological characteristics, a thyroidectomy is performed. The thyroid is anatomically oriented, weighed, measured, painted and sectioned on the macroscopy table, to allow a correct description of the macroscopic aspects, such as well-defined white-rosy nodules with fibroelastic consistency. It is important to perform the section of representative fragments to be histologically evaluated.

Keywords: FNA, macroscopy, papillary carcinoma, thyroid

NEOPLASMS OF THE CERVIX

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Cancer of the cervix uteri, more commonly known as cervical cancer, is an imperative public health concern. According to the World Health Organization (WHO), it's the 4th most common cancer in women with an estimated 570,000 new cases in 2018, representing 6.6% of all female cancers. In Europe, an estimated 58,373 women are diagnosed annually with cervical cancer, and 24,404 of those die from this illness. The incidence and mortality of cervical cancer, however, have been declining in developed countries due to the discovery of the Pap test in the 1940s, which enabled the prompt identification of morphological changes in the cervical epithelium. With the implementation of cervical cancer screening programs every three to five years, the incidence of cervical cancer can be reduced by, at least, 80% in women between the ages of 35 and 64 years.

Nowadays, the cervix-vaginal cytology contributes unquestionably to detect pre-neoplastic lesions, hence a significant decrease in the prevalence of cervical carcinoma. The classification of pre-neoplastic lesions and their terminology have undergone several revisions, from the initial proposal by Papanicolaou to the current Bethesda System.

The human papillomavirus (HPV) is the main etiological agent of all the cervical cancers. As a result, it can lead to different malignant tumors such as Epidermoid Carcinoma (keratinized or non-keratinized); Adenocarcinoma *in situ* (AIS) and Endocervical Adenocarcinoma; Endometrial Adenocarcinoma and also Extrauterine Adenocarcinoma.

Keywords: Epidermoid Carcinoma, Adenocarcinoma *in situ*, Endocervical Adenocarcinoma, Endometrial Adenocarcinoma, Extrauterine Adenocarcinoma

EVOLUTION OF CLASSIFICATION IN CERVICAL CYTOLOGY

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The evolution of the classification in Cervical-Vaginal Cytology allowed a greater uniformity in the diagnostic process, guaranteeing a better understanding in the reading of the cervical-vaginal smears.

George Papanicolaou (1883-1962) was the pioneer, evidencing the physiological and gynecological characteristics of the female reproductive system. He was the creator of the "Pap Smear", a cytology test that was adopted as an initial screening test for pre-invasive and invasive cervical cancer. In 1941, he created a numerical system to classify normal cells and different types of cytological changes in the vaginal scrubs, in which they were classified from Class I to Class V.

James Reagan, in 1953, introduced the term "dysplasia" or "atypical hyperplasia", leading to important changes in Papanicolaou classification.

In 1967, Ralph Richart proposed the terminology "Cervical Intraepithelial Neoplasia" (NIC). This classification was divided in grades I, II and III, histologically.

In 1988, the Classification of the Bethesda Cytology was created in a convention, where about three dozen of cytotechnicians, pathologists, researchers and clinicians had gathered. This classification is a system of interpretation of cervical-vaginal smears subdivided into several categories, with the aim of reducing the number of incorrect and subjective diagnosis. The classification is currently used, being reviewed several times over the years.

All the evolution and knowledge of the natural history of cervical cancer contributed to the improvement of the quality of diagnosis and treatment for cervicovaginal lesions.

Keywords: Cervical-Vaginal Cytology; Papanicolaou; Pap Smear; Classification of the Bethesda Cytology

GYNECOLOGICAL CYTOLOGY LESIONS**Cláudio Gaspar, Cristiana Gaião**

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Globally, cervical cancer is the fourth most common in women, and is also the fourth most deadly cancer. The identification of early lesions through the Pap smear test and the clinical history of the patients may prevent the late detection of more serious pathologies and consequently more aggressive treatments.

According to the Bethesda System, squamous cell atypies are subdivided into two categories: ASC-US or atypical squamous cells with undetermined significance, possibly non-neoplastic; and ASC-H or atypical squamous cells, but can not ward off high grade injury. Intraepithelial squamous lesions also encompass the precursor spectrum of cervical carcinomas. These are divided into low-grade squamous intraepithelial lesion (LSIL), which includes changes caused by HPV and mild dysplasia / CIN 1; and high grade intraepithelial squamous lesion (HSIL), which includes moderate dysplasia / CIN 2, severe dysplasia / CIN 3 and carcinoma in situ / CIN 3.

Morphologically, usually in HSIL the increased size of the nucleus is similar to that of LSIL cells, however the nucleus / cytoplasm ratio is higher because the cells are more immature. Also, HSIL shows a greater hyperchromasia, irregular distribution of chromatin and irregular outline of the nuclear membrane.

It is up to the health professionals to know the morphological characteristics of the different atypies and lesions for a correct diagnosis.

Keywords: Atypical squamous cell; Squamous intraepithelial lesion; Cervical cancer

CANCER OF THE UTERINE CERVIX AND HUMAN PAPILLOMA VIRUS (HPV)***Carla Ferreira; Joana Carrapiço; Maria Pereira****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Ciências Biomédicas Laboratoriais, Coimbra, Portugal*

Cervical Cancer is one of the cancers with the highest prevalence worldwide. Every year, about 527.600 cases of cervical cancer are diagnosed globally, dying near of 265.700 women as consequence. The main risk factors go through a high number of sexual partners, early initiation of sexual activity, age, oral contraceptives, smoking, and others. However, there are consistent epidemiological evidence that Human Papillomavirus (HPV) is the main cause of cervical cancer. Early diagnosis is possible by the realization of the Pap Smear, a procedure that involves scraping a sample of cells from the cervix. Normally, it is a painless procedure that has an extremely important impact on the screening of Cervical Cancer.

HPV can infect the basal layers of the epithelium. The genetic material of the virus has the ability to integrate the genome of the host cell, causing a neoplastic transformation, being the most common in the cervix uteri. More than 200 types of HPV are currently identified. However, neoplastic lesions are mainly caused by genotypes 16 and 18. In Portugal, the National Plan of Vaccination includes the 9-valent vaccine against nine HPV genotypes for girls with ages between 10-13 years old. To all women between 25-60 years old, every 5 years it is performed the Cervical-vaginal Cytology.

Keywords: Cervical Cancer; HPV; 9-valent vaccine

LESIONS OF THE UTERINE CERVIX: MACROSCOPIC ASPECTS AND RELATIONSHIP WITH THE CYTOLOGY

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The cervix is the lower portion of the uterus being responsible for connecting the uterus and the vagina. The cervix is covered by two types of cells, the squamous cells which are present in the exocolo and glandular cells in the endocolo. Most of the lesions and the squamous carcinoma of the colon are developed in the transformation zone that are where the two types of cells meet. The squamous cell carcinoma comprises approximately 75% of malignant tumors of the cervix and its precursor lesions, according to the Bethesda System, are classified as low-grade squamous intraepithelial lesion (LSIL) and high-grade squamous intraepithelial lesion (HSIL). Depending on the lesion of the cervix, it can lead to hysterectomy or conization. These two are the most commonly received pieces in the laboratory of Pathological Anatomy due to lesions on the cervix.

Keywords: Cervix, LSIL, HSIL, conization, hysterectomy

SEXUALLY TRANSMITTED DISEASES***Isabel Silva, Mariana Trino****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Ciências Biomédicas Laboratoriais, Coimbra, Portugal*

According to the World Health Organization (WHO), 8 pathogens have been identified as being connected to a higher incidence of Sexually Transmitted Diseases (STD), in which include bacteria, viruses and parasites. The STDs are disseminated mainly by: sexual contact, including vaginal, anal and oral sex, non-sexual methods, and vertical transmission. Although the infection by these pathogens can often be asymptomatic, it can also present typical symptomatology, leading sometimes to irreversible damage. For this reason it becomes necessary to make it known. The diagnosis of these diseases is essential since it may lead to a decrease in the damage caused by them. The diagnosis is based on several laboratory areas, that can go from biochemistry, cytopathology to molecular biology. It is known that a higher incidence is associated to individuals with lower socioeconomic conditions and lower literacy. In an attempt to reduce the incidence and prevalence, the WHO established several objectives to reduce it: through the development of new technology and treatments, promotion of vaccination, awareness campaigns and numerous prevention strategies.

Keywords: Sexually Transmitted Diseases; Cytopathology; Diagnoses; Prevention

THE DIAGNOSIS OF FIBROADENOMA

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Fibroadenoma (FA), is the most common benign entity in young women, between 20 and 30 years. It results from stromal and glandular proliferation of the mammary tissue presenting as palpable, mobile, firm consistency, well circumscribed, lobulated and slow-growing nodules. The evolution to malignant tumor is very rare, nevertheless a malignant entity camouflaged in the mass of the FA may appear. Given the characteristics of breast tissue and features of other lesions, mammography does not detect or distinguish lesions since radiological images are similar. For this reason, fine needle aspiration is used for diagnosis, since it has specific cytological findings that allow the identification of the lesion. They are cytologically characterized by providing hypercellular blades, presenting cohesive groups with large sheets configuration or antler-like, when presented in three-dimensions clusters, both with loss of epithelial cohesion. It is possible to identify bipolar cells, nude nuclei, nuclear atypia, finely granular chromatin, small and covered nucleoli even fragments of fibrillar stroma. In the cytological analysis it is necessary to keep in mind the differential diagnosis for: ductal proliferation with or without atypia, phylloid tumor and ductal carcinoma. After diagnosis of FA, women will be subject to periodic follow-up and if necessary surgically remove the lesion. The surgical specimen will be analyzed macroscopically providing the morphological characteristics and the exact size of the lesion. From this process the fragments will be collected and histologically analyzed, whose objective is the confirmation of diagnosis. (1-4)

Keywords: Fibroadenoma; Breast; Cytology; Fine-Needle Aspiration; Macroscopy;

IMPACT OF CHEESE TECHNOLOGICAL PROCESSES ON THE CONSUMER'S HEALTH

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Background: Nowadays, dairy products have been increasingly related to food intolerance which led the industry to develop new products in order to satisfy the consumers' needs.

Aim: Identify the relationship between the technological processes involved in cheese production and its impact on the consumer's health.

Materials and methods: It was conducted a scientific review, recurring to Science Direct and PubMed using the terms "cheese", "health", "production" and "technological processes". Then the most relevant articles were selected after reading the title and abstract. It was also applied an online questionnaire that intends to evaluate the consumption of several types of cheese among the participants and its impact on their health, in the adult population (N=187).

Results: The cheese production is composed by pasteurization or ultra-pasteurization of the milk, bacterial cultures addition, natural milk fermentation, salting, ripening or maturation and packaging. Among the responders, about 90% of individuals reported to consume cheese and the most frequently consumed types were the fresh cheese and the flemish. Fresh cheese has low sodium and fat content, making the consumers consider it as a healthier option. The reason the lead the industry to invest in the production of fresh cheese probiotic versions, to improve its nutritional value and to increase even more its consumption. This study also showed that individuals who consumed more frequently fresh cheese were associated with a lower prevalence of cardiovascular diseases.

Conclusion: The development of new cheese manufacture processes has transformed it into one of the most versatile dairy products.

Keywords: "Cheese", "health", "production", "technological processes".

EFFECTS OF THE TECHNOLOGICAL PROCESS IN WINE QUALITY AND IT'S CONSUMPTION BY UNIVERSITY

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Introduction: Wine consumption stands out as a concern for public health, due to unconscious and excessive intake. Although in moderate consumption can be beneficial, thanks to the antioxidant properties in it's phenolic compounds.

Aim: To describe the wine's technological process as well as it's knowledge by university students and characterize its consumption and health impact in this population. Methodology: A literature review was carried out in the online databases Pubmed and Google Scholar under the terms "production" OR "technological process" AND "wine". Applied an online questionnaire about wine consumption and the knowledge of its technological process Results: Wine production can be divided into viticulture, winemaking and bottling. The process is the same for all types until the stage of destemming. The process of producing white wine is characterized by the use of clear grapes and malolactic fermentation, does not occur naturally. Red wines have a higher concentration of phenolic compounds because the type of maceration that it's subjected. In the studied population, about 70% consumed wine, 82% for taste and 67% on a monthly basis, giving preference to white wine (83%). As for its processing 82% of the participants reported having some knowledge and about half would have participated in the process. Conclusion: University students had a preference for wines with less alcohol content, namely white wine. This is against the recommendations of the Mediterranean diet that refer to wine only in the main meals preferably red wine as it's technological process allows to have higher concentrations of phenolic compounds.

Keywords: "production", "technological process", "wine"

CONSUMPTION, TECHNOLOGICAL PROCESSING AND HEALTH: FRIED POTATO VS FRIED SWEET POTATO

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Introduction: One of the most important groups of the Portuguese food wheel is “Cereals and Tubers”, which includes potatoes and sweet potatoes. To improve the sensory properties of potatoes, the food industry started to fry them as a processing technique using oil/fat.

Potatoes are mainly constituted by carbohydrates, have low calories and fat, high fibre, vitamins, minerals and antioxidants. The main difference between sweet and white potato is that the 1st have a lower glycaemic index.

Methods: This review was based on scientific articles from the last 15 years, from databases like Science Direct and Google Scholar using keywords such as potatoes, sweet potatoes, chips, frying process and nutritional composition. The obtained articles were selected according to their titles, then abstracts and finally integral text.

The consumption assessment was carried out through a questionnaire on Google Forms targeted to people aged between 18 and 25.

Results: The survey showed that most of the population consumes “normal” chips due to its flavor and low price (59,1%). Sweet potato chips consumption is mainly due to their taste and nutritional value. Several attempts have been made to alter the frying process to decrease fat and salt content in chips. However, technical operations still cause nutrient physicochemical and structural changes. Also, high temperatures exposure (>180°C) leads to the reduction of phenolic compounds stability, anthocyanin and antioxidant levels.

Discussion/Conclusion: Potatoes have a great nutritional value. However consumption after the frying process may lead to a higher risk of several diseases, making it an unhealthy snack.

Keywords: Potatoes, Sweet Potatoes, Chips, Frying Process and Nutritional Composition.

CONSUMPTION, TECHNOLOGICAL PROCESS AND HEALTH: OLIVE OIL

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Introduction: Olive oil is a fat that should be part of a healthy diet. It has a high content of monounsaturated fatty acids, especially extra virgin olive oil, which contains 80% of oleic acid in its composition.

Aim: Characterize the consumption of olive oil in the portuguese population, to understand its technological process and impact on health

Methodology: An online questionnaire was applied to characterize the consumption of olive oil in Portuguese population. A scientific review was conducted on Google Scholar and Pubmed using the terms "olive oil", "technological process" or "production"; "extra virgin olive oil" and "health". These terms were present in the title. We limit to articles published after 2007.

Results: The most consumed olive oil is the extra virgin olive oil. The steps of the olive extraction process are the removal and washing, grinding, mixing, oil extraction and lubrication, storage and bottling. The healthy properties of Extra Virgin Olive Oil are due to the high content of monounsaturated fatty acids. In addition to this bioactive compound, the oil presents unsaponifiable compounds and hydrophilic compounds.

The healthy properties of olive oil provide a protective role against the overall impact and occurrence of breast cancer, cardiovascular disease risk and better glycemic control.

Conclusion: Olive oil has been used since antiquity. It presents a technological process with several steps that influence its final nutritional value. This fat shows healthy properties, especially extra-virgin olive oil.

Keywords: olive oil, technological process, production, extra virgin olive oil

EGGSHELL CALCIUM IN THE PREVENTION AND TREATMENT OF OSTEOPOROSIS

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Introduction: Osteoporosis is a disease characterized by bone mineral density decrease and risk of fractures' increase. Eggshell is frequently used as by-product in food mixtures preparation, essentially constituted by CaCO_3 , MgCO_3 , and $\text{Ca}_3(\text{PO}_4)_2$, being calcium the most abundant and bioavailable mineral.

Aim: To evaluate and characterize the knowledge about and eggshell powder consumption, describe the technological process behind manufacturing and the relation between eggshell intake and bone mineral density.

Methods: A questionnaire was developed and disseminated online in order to obtain data about eggshell consumption in adult population (N=205). A scientific review was conducted in the "Google Scholar" database with the keywords osteoporosis, calcium and "eggshell powder". Articles were selected between 2014-2019, concluding the research with 4 articles analyzed.

Results: The technological process of the eggshell to human consumption involves hygiene and disinfection techniques: washing in running water, immersion in sodium hypochlorite solution and boiling. Afterwards, they are dried in hothouse, crushed and sifted. In spite of its consumption was associated to an adequate and affordable source of calcium, and when used in fortified foods contributed to bone mineralization increase, in our results, only 38,5% identifies the eggshell as a source of calcium, 1,5% consume this supplement and 60,6% do not consider include eggshell in daily intake due to physical or microbiological risks.

Conclusion: Eggshell consumption is reduced, namely due to physical or microbiological issues, however the inherent technological process is innocuous and the consumption represents an important benefit in the prevention of osteoporosis.

Keywords: "Eggshell powder", calcium, osteoporosis, "bone mineral density"

THE CONSUMPTION AND TECNOLOGICAL PROCESS OF MILK

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Introduction: Milk is a nutritionally rich food, without additives or chemicals. This food is critical throughout the entire life cycle, providing an appreciable amount of essential nutrients to the body that can preserve health and prevent disease.

Aim: To evaluate the consumption of milk and its determinants, as well as to relate its technological process and its impacts on the population's health.

Methods: A scientific review was performed in "PubMed" and "ScienceDirect" databases with the keywords "milk", "tecnological process", "health impact" since 2008 to present. The articles were selected according to relevance to the theme after reading their abstracts. Then, an online questionnaire was developed and shared to access milk consumption and its determinants in the population aged between 18 and 29 years.

Results: Milk may be classified taking into account its heat treatment and the fat content. 76% of the population aged 18-29 years consume milk, which is more consumed by female subjects. The main determinants of consumption were taste and nutritional characteristics. Taking into account the various types of milk, the most consumed is the Ultrapasteurized Milk (UHT) Medium Fat, whose fat content is 2%. As for the heat treatment, it is subjected to 140°C for 4 seconds, then cooled to a temperature below 32°C, being nutritional losses negligent. As regards the fat content, it is reduced through the centrifugation process. Filling is carried out in sterile containers and under aseptic conditions, which ensures the product's safety, allowing an extension of the shelf life.

Conclusion: The milk is mainly consumed by its flavor and nutritional value, being the type more consumed the half-fat UHT milk. UHT processing contributes to the elimination of potential microbial agents, which allows increased shelf life.

Keywords: "milk", "tecnological process", "health impact"

COCONUT-SUGAR: TENDENCY OR HEALTH

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Introduction: Coconut sugar, is widely consumed by Asian cultures for several centuries, however, with the evolution of the international market this product has been pursued in Western cultures for its nutritional interest and sustainability comparing to traditional sugar.

Objectives: To understand the technological processes of coconut sugar production and its potential health benefits. It is also intended to, carry out an analysis on the consumption of this product in the Portuguese adult population and the benefits of replacing traditional sugar.

Methods: The research was conducted using the keywords "Coconut sugar"," Palm sugar "and" human health "in the Science Direct, Pubmed and Google Scholar databases. An online questionnaire was applied in the period of one month, to analyse the consumption of coconut sugar.

Results: The processing of coconut sugar is done by the extraction of the sap from the Palm flower, which subsequently goes through a heating followed by cooling and is manually stirred until it forms granules.

Although 52.4% of participants know this product, only 11.1% consume it weekly and 83.3% with a frequency of 1-3 times a month.

Due to its processing, without the addition of chemicals and little refined, this product presents several health benefits, such as low glycemic index and rich in minerals and vitamins.

Conclusion: Coconut sugar is a new product in the market, which goes through a simple processing, preserving the nutritional value and adapting better to the modern population, as this is more concerned with food, however, we have obtained a large percentage of people who do not know this product.

Keywords: "palm sugar ", "coconut sugar" and "human health"

HOW TRENDY IS BREAD CONSUMPTION IN YOUNG POPULATION AND HEALTH IMPACT OF BEHIND TECHNOLOGICAL PROCESS

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Introduction: At nutritional level, the quality and amount of nutrients of bread depends on the extraction rate of flours, the selected cereals and process used.

Aim: To summarize the existing scientific literature to understand the impact of the technological process of bread on human health and to describe bread consumption in young population.

Methods: Literature review was conducted using the scientific data bases Science Direct and Pubmed, using search expressions “bread consumption”, “unitary operations OR technological process AND bread” and “health impact AND bread technological process”. The articles were select first by title, abstract and integral reading respectively, until 2018. To describe bread consumption was performed a online questionnaire.

Results: Bread technological process consists of mixing and kneading, fermenting, kneading, breeding, moulding, cooking and cooling; what implicate that sensorial expression of bread could be greatly influenced by the operating conditions adopted during baking as well as nutritional losses due to high temperatures. Bread is really a stamp food, due to 96,4% of individuals eat bread regularly. The most consumed was mixture bread, being that the healthy one attending the technological process behind production. However, the inclusion of ingredients such as oleaginous fruits, oilseeds and aromatic herbs allows the improvement of the nutritional content of the bread.

Conclusion: Attending the higher consumption of bread and the impact of the technological process on it nutritional quality, it's important improve healthy bread options and developed the technological process to reduce nutritional losses, being that the step where more losses occur is in cooking.

Keywords: “consumption”; “unitary operations”; “bread” and “impact on the health of the technological process of bread”

CONSUMPTION, TECHNOLOGICAL PROCESS AND HEALTH: RICE

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Introduction: Rice is one of the most produced and consumed cereals in the world. Historians point Asia as the place of its origin. In Portugal, rice comes mainly from Tejo's Valley, Sado and Mondego. It represents the third largest producer and the largest consumer of rice in Europe.

Aim: The goal of this work was to explore rice consumption, its technological process and its health implications.

Methods: A research was done in Portuguese and English in Google Academic and Science Direct using the keywords: Rice, Basmati, Parboiled, Nutritional Composition and Industrial Process, resulting in 10 references.

Results: It was observed that the most consumed rice in Portugal is Carolino, however, in recent years, Agulha rice consumption increased, also as Basmati rice, due to its flavour. High literacy enhances awareness of glycemic index (GI) of rice, as well as greater awareness of its technological process. This process consists of drying and cleaning the rice, debarking, polishing and optical selection.

Polished rice is distinguished by low nutrient content, except for starch, and has a higher GI. Brown rice is richer in fiber, lipids, proteins, minerals and vitamins of B complex and has the lowest GI. In the parboiled rice, there is a concentration of nutrients inside the grain, preserving B vitamins and resistant starch, therefore, has lower GI when compared to polished rice.

Conclusion: Brown and parboiled rice have more health benefits, such as increasing satiety, as well as improving diabetes, preventing cardiovascular diseases, reducing risk of gut dysfunctions and control obesity.

Keywords: Brown Rice, Polished Rice, Parboiled Rice, Nutrition Composition, Technological Process

THE TECHNOLOGICAL PROCESS OF CANNED TUNA AND ITS CONSUMPTION IN UNIVERSITY STUDENTS

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Introduction: Tuna is rich in protein of high biological value, it also contains some vitamins, minerals and polyunsaturated fatty acids like omega 3. From the moment the fish is caught until it arrives at the consumer, as a canned product, the raw product is submitted to a variety of manufacturing steps.

Aim: Characterize the technological processing of canned tuna, the influence in the choice by university students and how processing affect the consumer health.

Methods: Literature review was conducted using the scientific databases Science Direct and PubMed, using search expressions as “canned tuna”, “consumption in students”, “technological process”, “nutritional composition”. Papers (between 2000-2019) were first selected by title and after by abstract analysis. We also conducted an online questionnaire to access tuna consumption and its determinants in university students (N=157).

Results: Canning is a multistep process that influences the nutritional value of tuna. Beneficial constituents (proteins, unsaturated fatty acids, vitamins) can break down during such pre-treatments and be lost in final product. Additionally, sterilization and storage can occur the formation of vast full number of metabolites leading to quality losses. It also observed that 49% of individuals consumed canned tuna weekly and that the main determinants for tuna consumption were convenience and cost.

Conclusion: Considering the higher consumption of canned tuna, its determinants, related to accessibility, and the nutritional losses involved in the technological process, the development of new technologies might improve sensorial and nutritional quality in the final product.

Keywords: canned tuna; university students, food consumption, technological process; nutritional losses.

PROCESSED TOMATO, WASTED TOMATO: MYTH OR REALITY?

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Introduction: Tomato is the second most cultivated vegetable worldwide, especially in Mediterranean countries. It's consumed as fresh fruit, tomato juice, paste, sauce, puree and ketchup. They have health-related properties, being rich in minerals, acids, phenolic compounds and carotenoids such as lycopene, their colouring pigments, with vitamin A, C and antioxidants, decreasing the risk of various chronic diseases and certain types of cancer.

Aim: Understand the technological processes inherent to the various forms of tomato presentation, their nutritional/organoleptic properties losses or gains, and evaluate tomato consumption in the Portuguese adult population.

Methods: Was applied a questionnaire through "Google Forms" to evaluate frequency, the most common form of tomato consumption, supported by researches in Pubmed, ScienceDirect and Scholar Google, using the keywords "tomato", "processing", "nutrients", "bioavailability" and "lycopene", resulting in 12 articles, from 1996 to 2016.

Results: Lycopene, and consequently antioxidant activity, is amplified by tomato processing. However, occur a decrease in vitamin C content with technological process. From inquiry individuals, 96,2% consume tomato regularly. The most usual form of consumption is in nature (65.6%), followed by tomato pulp (22.9%). 84.7% considers there are nutritional losses with tomato processing. About 93% believes that tomato intake results in a benefit for health.

Conclusion: Across this study we understand that they're increase the micronutrients bioavailability and maintain their safety and nutritional/organoleptic properties.

There's a greater consumption of the fresh tomato, followed by pulp. There's a benefit in the levels of lycopene, without adding fat.

We must encourage tomato consumption, due to their health benefits.

Keywords: tomato, proccessing, nutrientes, bioavailability, lycopene

THE GRAINS CONSUMPTION IN ESTeSC COMMUNITY

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Introduction: The legumes can be divided in grains, such as beans and peas, and oleaginous. Nutritionally, grains are sources of carbohydrates, proteins, fibres, vitamins and minerals. In spite of Portuguese food guide to recommend 80g of grains already cooked per day, adult Portuguese population consumes just about 18g.

Aim: To analyse the technological process behind grains production, characterize grains consumption and access their health benefits.

Methods: Literature review was conducted in Science Direct and Scholar Google databases using the following terms: "Legumes", "Processing", "Technology", "Human Health" and "Nutritional Value". The grains consumption in ESTeSC community was determined by a inquiry and a simple descriptive test was used to sensorial evaluation of chick peas and peas.

Results: In market grains are sold in several ways: dried, fresh, frozen and canned, what implies different technological processes and, in canned, the addiction of sodium is very common. It was observed that there was a discrepancy between the type of legumes most consumed and the most appreciated in the sensory test, reflecting that the flavour is not the main reason at the time of the choice ($P>0,001$). Regarding the health benefits, grains without sodium addiction are associated with health promotion, particularly in cardiovascular and metabolic diseases prevention.

Conclusion: Grains consumption was low, but canned grains are the most consumed, although the sensorial evaluation show that people prefers the flavour of dried and frozen grains. In this way, attending to their health benefits, the development of new technological processes should be developed to promote grains consumption in an easy way.

Keywords: Legumes; Processing; Technology; Human Health; Nutritional Value

IMPACT OF HIGH SUGAR VALUES OF FRUIT IN SYRUP

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Introduction: Fruit is extremely important in food because of the nutritional support it provides. However when consumed as a processed product, such as fruit in syrup, it has too high sugar and sodium values that have a negative impact on health.

Objectives: Evaluate the high sugar values and the consumption of canned fruit.

Methodology: Was made a literature review using the data bases Scielo, Pubmed e Science Direct, using the keywords processed fruit, sugar, nutritional profile, to evaluate the impact on health, and applied a online questionnaire to evaluate their consumption.

Results: The fruit in syrup is the result of industrial processes that allow ready consumption and prolonged preservation by synthesizing organic materials such as colorings, flavorings and other additives, such as derivatives of food constituents and substances extracted from food. The indicators point to an increase in the consumption of processed fruit, which determines important nutritional changes, such as higher energy density and higher free sugar content compared to in natura fruit. Through on-line questionnaire it was obtained 362 responses, 72.9% of people do not consume fruit in syrup. The main cause of not consuming is the preference by fresh fruit and the reason that leads people to consume is also the taste of the fruit in syrup. 95.7% have notion that the fruit in syrup has a high sugar content and 84.5% of individuals reported that reduced their consumption for the same reason.

Conclusion: After evaluating the results of the questionnaires we verified that the majority consume less than once a month the canned fruit, and that they are aware of the high values of sugar that it contains. The nutritional profile of the processed fruit presents as unfavourable for the eating quality, being verified that it provides a high energy density that compromises the capacity of the human body to regulate the energy balance, with the consequent increase in the risk of obesity.

Keywords: processed fruit, sugar, nutritional profile

THE TRUTH BEHIND CHOCOLATE

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Introduction: Chocolate is the product of cocoa with added sugar and contains at least 35% of the total of dry cocoa, including 18% of cocoa butter and 14% cocoa dry matter fat-free.

Aim: Understand the technological process of chocolate manufacturing, associated nutritional losses and gains, and evaluate its consumption and its health impact.

Methods: The search was carried out at the Google Academic database, from 2010 to 2019, using the following expression: "technological process AND chocolate" and created a chocolate consumption questionnaire that was shared in social media to the students of Coimbra Health School (N=162).

Results: Production of chocolate is divided in two stages. The pre-process that covers the harvesting phases of cocoa, fermentation and drying of the almonds. The main-process includes: roasting, fragmentation and crushing the almonds; as well as the grinding, hydraulic pressing and sieving are included. The process is concluded with the actual manufacture of chocolate - mixing, refining, shelling, tempering and modeling; what implies phenolic compounds losses. Chocolate is considered a "nutritious" food that, besides tasty, acts as a source of fats and various minerals and vitamins. In fact, the great majority of inquired individuals (93.2%) reported consuming chocolate; however, chocolate milk is the elected one. "Non-consumption" is higher in Nutrition students than in other students.

Conclusion: The higher consumption of chocolate, most of time not the nutritional best options, and attending the loss of nutritional value comparing to cocoa during processing, the nutritionist have an important role in the development of new technological processes.

Keywords: Chocolate; Technological process; Health; Questionnaire.

FOOD CONSUMPTION OF "FRANKFURT" CANNED SAUSAGES IN COLLEGE STUDENTS

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Introduction: Frankfurt sausages are cooked from a homogeneous paste consisting of meat and pork fat, optionally beef, chicken and turkey, and condiments and additives authorized by the legislation.

Aim: To analyse the influence of the consumption of sausages and the determinants of their intake. Characterize the technological process and verify its impact on nutritional value of sausages.

Methods: A questionnaire was applied to College students, aged 18 to 25 years, about their sausage consumption frequency, and the reasons for consuming them. The technological process was obtained through a visit to a factory near Coimbra. Through literature review, we used the databases Science Direct and Scholar Google. Articles published before 2014 were excluded and were chosen by title, abstract and then extensive reading.

Results: In a total of 806 students, 725 consume sausages. The main determinants of consumption are easy preparation (76%) and low cost (54%). The technological process of sausages begins with the production of a paste involving all ingredients, which is going to be baked and then cooled. The sausages are placed in cans, proceeding to a sterilization process, being ready for distribution. It was verified the possible loss of some minerals, namely potassium and phosphorus.

Conclusion: In College students, the consumption of sausages is high and essentially related to the fact of easy preparation. The technological process impacts the nutritional value negatively, so canned sausages shouldn't be a protein source of choice.

Keywords: "canned sausages", "technological process", "micronutrients", "determinants of food consumption", "nutritional composition".

INDUSTRIAL FRUIT JUICE CONSUMPTION AND ITS TECHNOLOGICAL PROCESS

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Introduction: The World Health Organization recommends consumption of 400g of fruit and vegetables per day in its consumption associated with a healthy lifestyle, ensuring the supply of essential nutrients, such as vitamins, minerals and fibres.

Aim: Understand the manufacture technological process of fruit juice, its consumption in the Portuguese adult population and its contribution to the daily fruit intake.

Methodologies: Literature review was conducted in Scholar Google and Pubmed, using terms "natural juices" and "processing", considering articles since 2005. It was also applied an online survey concerning the frequency of fruit and by products consumption.

Results: The technological process behind the production of 100% natural fruit juice involves washing the fruits, selecting, disinfecting, extracting the juice, purifying it, pasteurizing and finally, archiving and storing the final product. It is not used added sugars, colourings and preservatives. The filling method is aseptic, and its bottling is done at high temperatures in a vacuum. Then the packages are stored in cold rooms where they remain until they reach the final consumer.

We found that the majority of respondents, 58.2%, consume less than 3 pieces of fruit a day, and only 6.7% consume fruit through alternatives, but those who do choose 100% natural juices.

In spite of juice consumption could contribute to the achievement of fruit intake recommendations, due to their high fructose content, when consumed in excess it can lead to overweight and risk of type 2 diabetes.

Conclusion: There is a consumption of fruit below the recommendations and that putting fruit to technological processes like turning it into juice seems not to be a good option because people do not prefer them and because they do not contribute to the promotion of health.

Keywords: Fruits, juice, technologic process, consumption

INFLUENCE OF WARFARIN AND COFFEE CONSUMPTION AT THE ASSESSMENT OF THE NUTRITIONAL RISK

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Background: Warfarin is a known anticoagulant drug, frequently used in order to prevent thrombosis and thromboembolism. In the organism, this drug binds to serum albumin, the most abundant protein in the human body. Diterpenes are substances present in non-filtered coffee that interact with the albumin structure. Seric albumin is known as a nutritional risk indicator used frequently in clinical context. However its accuracy has been questioned several times throughout the last decade.

Aim: This study aims to understand how the relationship between warfarin and diterpenes influences the nutritional diagnosis.

Materials and methods: It was conducted a review process, recurring to scientific the databases PubMed and Scholar Google until March 28, 2019, using the terms: "diterpenes", "malnutrition", "seric albumin" and "warfarin". Then the articles were selected taking into account the filters "FreeFullText" and "Humans".

Results: Diterpenes are substances responsible for changes in the secondary albumin structure, that increase its affinity for drugs that bind to the site of ligation sudlow I, in this case, warfarin. The conformational modification of the albumin structure may cause the alteration of the warfarin's pharmacokinetic profile and lead to the decrease of the serum albumin levels, resulting in hypoalbuminemia. This state of hypoalbuminemia indicates that the patient might be in nutritional risk. However, in these situations it might be considered a false positive.

Conclusion: The combined intake of diterpenes and warfarin may culminate in a nutritional diagnosis error, due to hypoalbuminemia status caused. Therefore, seric albumin cannot be considered an accurate nutritional risk indicator in these cases.

Keywords: "Diterpenes", "malnutrition", "seric albumin", "warfarin".

INFLUENCE OF PROTEIN DIET ON THE ABSORPTION OF LEVODOPA IN ELDERLY PATIENTS WITH PARKINSON'S DISEASE

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Introduction: Parkinson's disease, chronic and progressive, is the second most common neurodegenerative disease affecting the motor skills of individuals. The origin lies in the degeneration and loss of dopaminergic neurons, thus a depletion of the neurotransmitter dopamine. Of antiparkinsonian drugs, levodopa corresponds to the immediate precursor of dopamine and, unlike it, crosses the blood-brain barrier.

Aim: Evaluate the influence and the risks of protein diet on the absorption of levodopa in elderly people with Parkinson's disease.

Material/methods: A scientific review was conducted in the "Google Scholar" database with the keywords "low protein" "Parkinson's disease" and "levodopa". Articles were selected between 2014-2019, concluding the research with 4 articles analyzed.

Results: Levodopa has a chemical structure similar to that of neutral amino acids, sharing the same mechanism of intestinal transport and blood-brain barrier, leading to competition. In the small intestine, it has been shown that in addition to the luminal competition, the presence of amino acids on the basolateral side of enterocytes stimulates the absorption of levodopa leading to increased bioavailability. The same does not occur in the blood-brain barrier, the methylation of levodopa in 3-O-methyldopa occurring before transport and this metabolite presenting toxic effects at high levels.

Discussion/Conclusion: The bioavailability of levodopa is influenced by diet, increasing its peripheral metabolism that induces cardiovascular disease and neuronal damage, so levodopa can be redistributed in meals and with drugs that prevent its peripheral methylation. The interactions between levodopa and protein can endanger the patient's nutritional status and therapeutic responses.

Keywords: "levodopa", "protein" diet, "Parkinson", "toxicity."

TOXICOLOGICAL EFFECTS OF KETOGENIC DIET IN THE TREATMENT OF EPILEPSY

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Background: Ketogenic diet is characterized by a regimen rich in fat, low in carbohydrates and adequate protein, which aims to simulate the prolonged fasting state. It is used as a non-pharmacological treatment for epilepsy. The purpose of this review is to perceive if there are any toxicological effects inherent to this treatment.

Methods: This review was based on scientific articles from the last 15 years, from databases like PubMed and Google Scholar using keywords such as ketogenic diet, toxicological effects and toxicity and epilepsy. The obtained articles were selected according to their titles, then abstracts and finally integral text.

Results: Clinical studies have shown that ketogenic diet is effective in the treatment of epilepsy, with more than 50% of treated children achieving seizure reductions.

Some studies indicate that not all metabolites resulting from ketogenic diet contribute to epileptic seizures improvement and may even have a toxic effect on the organism. This toxicity is mainly due to accumulation, like what happens in the methylglyoxal case. Besides the associated hepatotoxicity, ketogenic diet also has other adverse effects, such as dehydration, hypoglycaemia, vomiting, hypercholesterolemia, cardiomyopathy, among others.

Discussion / Conclusion: It is proven that ketogenic diet works in the treatment of epilepsy, however the mechanisms of action involved are still unclear. The adoption of this diet does not seem to have major toxicological effects, although more studies are required since there is not much literature on this subject. It does present some adverse effects to the organism, due to the high lipid supply.

Keywords: Ketogenic diet, toxicological effects, toxicity, epilepsy

CONSUMPTION OF BEET JUICE AND SPORTS PERFORMANCE

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Physical activity requires a more intense muscular contraction, being essential an oxygen presence to allow the accomplishment of the aerobic metabolism. Beet juice is an important food source of nitrate precursor, nitric oxide precursor. The increase in nitric oxide promotes rapid vasodilation of blood flow. Our body can get nitric oxide in two ways. Endogenously through the oxidation of L-arginine or exogenously from the reduction of inorganic nitrate, present in food or dietary supplements.

The objective of this study was to correlate the consumption of beet juice with the impact on sports performance.

A bibliographical research was carried out on the impact of beet juice on sportsmen's income in the PubMed database using "beet", "juice" and sport "on 02/21/2019, limiting the articles to 2018 obtaining 12 articles.

Studies with nitrate doses of 12.9mmol, 5.6 mmol and 5.1mmol showed benefits for isometric pull of thigh pica, cycle ergometer and exercise of high and low intensity, respectively. However, nitrate doses of 0.4g, 0.8g and 8mmol showed little impact in the exercise of maximum intensity and submaximal graded, in exercise of several intensities respectively and ergometer, respectively. Finally, nitrate doses of 8 mmol presented some beneficial in cycling, however in another study, doses of 8.7mmol revealed no benefits in the same modality.

More research is suggested not only with men but also in women, bigger diversity of sports and use of different doses of Beet juice in order to establish a minimum dose with positive effect and maximum dose to avoid toxicity.

Keywords: beet juice, nitrate, nitric oxide, performance, sports

CADMIUM AND LEAD COMPOSITION IN WINE

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Introduction: Wine is an alcoholic beverage with social and economic significance, resulting from the grape juice sugars fermentation by the action of yeasts. The metals are a group of chemical elements which are in their pure state, some of which are denser, denominated heavy metals. Intoxication is one of the most common ways of causing cancer, fibromyalgia, premature ageing, autism and Alzheimer's.

Aim: To characterize the composition of cadmium and lead in wine, the subsequent toxicity and check if they are within the appropriate parameters.

Methodologies: A scientific review was conducted through the Google Scholar database with the keywords "heavy metals", "wine" and "toxicology". Articles were selected between 2014-2019 and the most relevant ones were selected considering the title and abstract.

Results: Cadmium may be bioaccumulated, especially in the kidneys and liver, causing damage and cell death. Phosphate fertilizers were altered by the contamination of this compound by agricultural soils. Humans can be exposed primarily through contaminated food. Cadmium maximum concentration is 10g/L-1. Lead can cause human malfunctions such as anaemia, high blood pressure and kidney damage. Contamination in wine can result in two sources, one natural, related to the soil, and the other resulting from human activity, related to pesticides. Its total limit value is 200 µg/L-1, by which it has been controlled.

Conclusion: The determination of heavy metals in wine is significant by oenological and toxicological interest, and the knowledge of these parameters is required by law in order to ensure food and human safety.

Keywords: "heavy metals", wine, toxicology

THE IMPACT OF PHYTATES INTAKE IN A VEGETARIAN DIET

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Introduction: Natural foods in everyday diets may contain toxic compounds, which does not necessarily represent a health hazard since a substance that is said to be toxic has a more or less pronounced capacity to induce harmful effects on the organism, depending on the dose ingested, interfering with certain nutrients metabolism. Phytate can form complexes with minerals, especially iron and zinc, and block the use of proteins and lipids. The primary form of phosphorus storage in cereals, legumes and oilseeds becomes a vegetarians concern.

Objective: To analyse phytate intake in vegetarian diet and its effects on the organism.

Methods: Literature review was conducted in Science Direct database using the terms "Vegetarianism" and "Phytates". The articles were limited to the last 10 years and were select by title, abstract and integral reading, obtaining 11 articles.

Results: Phytates amount in the diet depends on geographical location and the type of diet. Phytate intake in a day can be as high as 4500 mg. On average, the daily intake was estimated to be 2000–2600 mg for vegetarian diets and 300–1300 mg for mixed diets. Immersion, germination and fermentation of food can reduce phytates intake, by increasing phytase activity. Despite the knowledge gap on toxic dosage, literature has shown beneficial effects such as protection against some cancers, heart-related diseases, diabetes mellitus and renal diseases.

Conclusion: In a plant-based diet, individuals consume nearly more 2000 mg of phytate than in a mixed diet. Regardless of a series of researches on the positive and negative features of phytate, the information on the toxic dosage is yet to be determined.

Keywords: Vegetarianism; Vegetarian Diet; Phytates; Toxic Level

INTERACTION BETWEEN GRAPEFRUIT JUICE AND ANTIRETROVIRAL DRUGS

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Introduction: The Human Immunodeficiency Virus (HIV) is a retrovirus that attacks the immune system. In case of infection with this virus, drugs may be administered to reduce its level in the body, reducing or preventing damage to the immune system. It is commonly used herbal products, which is the case of grapefruit juice, rich in Vitamin C, used as a complementary / therapeutic additive treatment through stimulation of the immune system. The objective of this study is to understand the interaction between grapefruit juice and antiretroviral drugs.

Methods: It was conducted a literature review on scientific databases such as "PubMed" and "ScienceDirect" with the keywords ""grapefruit juice", "hiv" and "interaction" and with the time span 2000 to 2019. The articles found were selected according to relevance to the topic in question.

Results: Furanocoumarins are part of the phytochemicals present in grapefruit juice, and they inhibit the intestinal cytochrome P-450 3A4 system, responsible for the first-pass metabolism of many drugs. This leads to a reduction of the concentration of the drug in the liver before reaching the systemic circulation, not reach therapeutic levels in the viral reservoirs. By inhibiting this enzymatic system, grapefruit juice interacts, for example, with Saquinovir or Lopinavir, leading to the elevation of its serum concentrations and bioavailability. This phenomenon may lead to increased therapeutic effect, adverse effects and / or toxicity.

Discussion/Conclusion: The interaction between grapefruit juice and antiretrovirals depends on the patient's susceptibility, the type and amount of juice, as well as the dosage of the drug. Although there are no concrete results, adverse effects can occur.

Keywords: "grapefruit juice", "hiv" and "interaction"

HEAVY METALS IN BEER

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Introduction: In last decades heavy metals concentrations in ground and atmosphere have a huge amount, contributing to beverage and food contamination.

Heavy metals are normally presented in soil, with benefits to plants and animals, also where with the amount of concentration this can be toxic to other systems. Between the plants that can be affected are the barley, used in production of beer. In the other hand, in the fermentation process of the beer were used Diatomacea, that can be contaminated with Arsenic and Cadmium.

Objectives: Evaluate the beer contamination by heavy metals.

Methodology: Was made a literature review using the data bases Scielo, Pubmed e Science Direct, using the keywords heavy metals, beer and contamination.

Conclusion: The high level of heavy metals in the ground determine the contamination of plants and grains and consequently the deterioration in alimentary products and beverage.

This is a health issue that should be considered in the environmental safety, principally with the beer consumption impact in the European countries.

Keywords: "heavy metal", "beer", "contamination".

USE OF CLENBUTEROL ASSOCIATED WITH WEIGHT LOSS

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Introduction: Clenbuterol is a long-action adrenergic agonist that has several pharmacologic actions in humans. Clenbuterol in high doses can increase protein deposition and lipolysis similarly to anabolic steroids, and is thereby abused for bodybuilding and weight loss effects.

Aim: This systematic review aimed to summarize the existing scientific literature to understand the effects of clenbuterol on weight loss and muscle gain and consequently the possible side effects.

Methods: Literature review was conducted using the scientific data bases as Science Direct and Pubmed, until April 2019, using search expressions “clenbuterol”; “side effects of clenbuterol”; “clenbuterol and weight loss” and “clenbuterol and bodybuilders”. The articles were select first by title and abstract and later it was made integral reading.

Results/Discussion: From the analysis of the studies described was found that beta-3 receptors are found on adipocytes and agonism has been shown to encourage lipolysis. Clenbuterol causes lipolysis and is noted to be a nutrient partitioning agent in skeletal muscle fiber, leading to increased muscle deposition.

Conclusion: Clenbuterol toxicity is clinically similar to toxicity from other beta adrenergic agonists and may result in nausea, vomiting, palpitations, tachycardia, hypotension, hyperglycemia, hypokalemia, and a metabolic acidosis with increased lactate concentration. In addition, clenbuterol toxicity may be life threatening.

Keywords: clenbuterol, weight loss, protein deposition, lipolysis

MAGNESIUM SUPPLEMENTATION FOR ATHLETES: YES OR NO?

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Introduction: Magnesium is the 2nd most abundant mineral in the cells, a cofactor of many enzymes involving in the regulation of muscle contraction, oxygen supply and protein synthesis. The adult daily recommendations are 400-420mg (male) and 310-320mg (female). There are no specific recommendations for athletes, but it's defended that these should be 10 to 20% higher than the sedentary population.

Aim: Determinate the extent to which magnesium supplementation brings benefits for athletes.

Methods: The search was carried out at the Google Academic and PubMed database, from 2006 to 2017, using the terms "magnesium supplementation" and "sportsmen" with filters such as "humans".

Results: In a group of marathon runners supplemented with 126mg/d, it was found that there is no improvement in muscle function. In subjects supplemented with 250 mg/d, there was no gain in muscle strength. In a group of runners athletes, supplemented with 360 mg/d for 4 weeks, a low serum lactate concentration and lower oxygen consumption were observed. With 250mg/d supplementation in moderately trained adults, was an improvement in cardiorespiratory function and physical performance. Nevertheless, excessive supplementation can cause adverse effects, such as gastrointestinal disorders. The Institute of Medicine defined limit values to UL=350mg/d.

Conclusion: The same amount of magnesium supplementation may have different results regarding the modality practised. In this sense, in order to have an increase in performance and physical endurance as well as muscle strength and metabolism, supplementation values must be between 250 to 350 mg/d.

Keywords: Magnesium; Supplementation; Sportsmen; Performance;

THIAMINE DEFICIENCY IN PATIENTS WITH HEART FAILURE

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Introduction: Thiamin is a watersoluble B-vitamin that mainly functions as a cofactor in energy metabolism. Thiamine deficiency is more prevalent in heart failure patients than that in general population, also known as wet beriberi.

Some of the proposed mechanisms for thiamine deficiency in heart failure are decreased thiamine intake, its poor absorption due to cardiac cachexia, splanchnic congestion, increased urinary excretion related to use of diuretics and altered thiamine metabolism.

Aim: Identify the relationship between the thiamine deficiency and patients with heart failure.

Methods: This literary review has been oriented research on “Pubmed” until march 2019 using keywords like “thiamine deficiency” and “heart failure”. Then the most relevant articles were selected after reading the title and abstract.

Results: According to these data, thiamine supplementation should be considered as a routine in the treatment of hospitalized heart failure patients. The optimal dose for the heart failure patient with thiamine depletion has not been established. The recommended daily allowance for thiamine is 1.2 mg daily for males, 1.1 mg daily for females, and 1.4 mg daily during pregnancy and lactation.

Potentially deleterious consequences of thiamine depletion should be avoided by early and appropriate supplementation.

Conclusions: It's known that thiamine supplementation significantly improves heart failure state caused by severe thiamine deficiency, but it's not clear if thiamine supplementation will be useful in patients with heart failure at large. High-quality large sample size, long duration and randomized control studies are essential to suggest or refute the routine use of thiamine.

Keywords: “Thiamine deficiency”, “heart failure”, “beriberi”, “thiamine supplementation”.

MIGRATION OF DIOXINS FROM PLASTIC PACKAGING TO FOOD

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Currently plastic is widely used, including in the food area, however the scientific community has exposed the problem of migratory substances, such as dioxins, which are highly toxic.

In order to ensure the safety of plastic packaging, studies are being carried out with the objective of ascertaining the migration of dioxins from plastic packaging to their food contents.

This study intends to understand if the migration of dioxins to food exists, namely in heating of food in plastic containers.

The research was carried out using the keywords "dioxins", "heating", "plastic food packaging" and "human health", in the Science Direct and Google Scholar databases. To complement the information, obtain in the databases mentioned above, an investigation was made on the websites of the World Health Organization (WHO), Food and Drug Administration (FDA) and the Food and Economic Security Authority (ASAE).

There are studies and institutions such as the Food and Drug Administration (FDA) or World Health Organization (WHO) that say there is no evidence to prove the existence of migration of this substance.

This study thus points to some of the measures that the European Food Safety Authority has put in place to mitigate the exposure of consumers to dioxins as 'Special Migration Limits' to ensure the quality of plastic containers.

One of the preventive measures is the certification that plastic in contact with food is suitable for heating, avoiding excessive exposure to toxic substances.

Keywords: 'dioxins', "heating", "plastic food packaging", "human health"

CONTAMINATION OF FOOD SUPPLEMENTS BY ANDROGENS***Andreia Vieira, Francisca Magalhães, Maria Damas****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Dietética e Nutrição Coimbra, Portugal*

Introduction: Nutritional supplement are any oral substance ingested that contains elements capable of supplementing a diet. Androgenic Anabolic Steroids (AAS) are hormones that share a common mechanism of action with testosterone, advertised as having muscle growth properties can be found in nutritional supplements. According to Autoridade Antidopagem de Portugal (ADOP) rules, these AAS are part of a class of prohibited anabolizers. Aim: To understand the effects contamination of food supplements by AAS can have on human health with a focus on athletes. Methology: Research in database "Google Scholar" and "Pubmed" with the keywords "androgens" AND "nutritional supplements" AND "athletes" until 21, February 2019. Selection was made from title, abstract and full-text. Results: Non-hormonal supplements may contain undeclared prohormones, which can be metabolized in the prohibited AAS. A study found that 14.8% supplements contained 0.01-190ug / g leading to a positive result in doping results for several hours.(1) There is no mandatory regulation for their control, it is performed by third parties who evaluate them as to purity, quality and composition, but participation is voluntary. Prolonged use of adulterated supplements with AAS affects both genders, having sexual, metabolic, cardiovascular, neurological, psychiatric and dermatological consequences. Conclusion: Before supplementing, it is essential that the athlete is evaluated as to their need. If a dietary supplement is needed or desired, its use should be done with caution and only after careful evaluation as it may cause adverse effects.

Keywords: "androgens"; "nutritional supplements"; "athletes"

CALCIUM-FORTIFIED FOODS MODIFY THE ABSORPTION OF CIPROFLOXACIN- YES OR NO?

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Introduction: Patients often take antibiotics with meals or dairy products to help to swallow it. The food industry offers minerals and vitamins fortified products, creating drug-food interactions. These interactions affect drug safety and efficacy, by changing their systemic availability, which may impact their therapeutic effectiveness. One of the most widely prescribed antibiotics is ciprofloxacin, being quickly absorbed after oral administration.

Aim: Understand if there's a different absorption of ciprofloxacin when ingested with foods enriched with calcium.

Methods: Scientific research was performed using Pubmed, ScienceDirect and Google Scholar databases, with the keywords "ciprofloxacin", "calcium", "fortified foods", "interaction" and "pharmacokinetics", resulting in 14 articles, from 1991 to 2015. The articles were excluded by the abstract and by not relating the two variables.

Results: The bioavailability of ciprofloxacin is influenced by specific alimentary components with calcium, aluminium or iron. Because of their high calcium content, milk and other dairy products may impair their gastrointestinal absorption, which forms sparingly soluble chelates. Consequently, the gastrointestinal absorption of ciprofloxacin can be reduced by concomitant ingestion of calcium sources. Ciprofloxacin absorption isn't changed by food and dairy products, but it happens when ingested with calcium supplements. Certain nondairy products may contain more calcium than a dairy product and lead to potential clinical failures.

Conclusion: Food and Drug Administration states being safe to take ciprofloxacin with dietary calcium but not with calcium supplements. Because of high calcium affinity to ciprofloxacin, it increases clinical failures and antibiotic resistance. This simultaneous intake must be avoided, although it decreases gastrointestinal effects.

Keywords: ciprofloxacin, calcium, fortified foods, interaction, pharmacokinetics

ACRYLAMIDE: WILL THE GOLDEN COOKIE BE A CANCEROUS COOKIE?***Catarina Nunes, Helena Teixeira, Raquel Luís****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Dietética e Nutrição Coimbra, Portugal*

Acrylamide is one of the main food contaminants in products made at high temperatures, such as cookies. The most important route for acrylamide formation is Maillard reactions. These are complex and in many cases desirable because of the organoleptic characteristics that they confer to the food. However, due to its high presence in several foods, acrylamide is classified as a possible carcinogen, which reveals the importance of its detection, quantification and mitigation. Check the favorable conditions for the formation of acrylamide in wafers, and the associated toxicity levels.

Methods: The research was made through the databases "Google Scholar", "PubMed" and "Science Direct", scientific and review articles were searched using the keywords "Acrylamide", "Cookies", "Toxicity", "Maillard reactions" and "Asparagine". Articles published before 2014 were excluded as well as patents and citations. The selected articles were chosen by title, abstract and then extensive reading.

Through the literature review it is possible to verify that acrylamide formation is favorable at more basic pH (pH = 8), and that at lower pH, formation is not as significant in certain recipes. It is also apparent that the amount of acrylamide may increase to a certain temperature, such as 170 ° C, but after a prolonged exposure, about 20 minutes, it tends to decompose, thereby decreasing its concentration.

Although there are so many techniques to mitigate acrylamide, it should be noted that many of these strategies are also linked to possible formation of undesirable compounds. As a carcinogenic and genotoxic compound, it is not possible to establish a tolerable or safe daily intake. There are no current recommendations as the European Food Safety Authority (EFSA) acknowledges that human testing is unconscious and limited because of the results obtained from animal studies. Legislation governing the limits of acrylamide is necessary because it is a concern for the public health.

Keywords: acrylamide", "crackers", "toxicity", "Maillard reactions", "asparagine"

TETRODOTOXINA TOXIC EFFECT

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INTRODUCTION: Tetrodotoxin is a naturally occurring toxin that has been responsible for human intoxications and fatalities. Its usual route of toxicity is via the ingestion of contaminated puffer fishes which are a culinary delicacy, especially in Japan. It inhibits the neurons and muscles action potential, that is, nerve impulses. This toxin acts in a very powerful and selective way on the cellular sodium channels of neurons and muscle cells.

GOAL: The aim of this review is to collect relevant information currently available on tetrodotoxin and similar, with a special emphasis on toxicity mechanism, foods in which this toxin can be found and the doses necessary to produce toxic effects.

METHODS: Through the databases: “PubMed”, “Science Direct”, “Google Académico”, “WHO”, “FAO”, scientific and review articles were searched using the keywords: “Tetrodotoxin”, “Toxicity”, “Distribution”, “Detection”.

RESULTS: Tetrodotoxin is one of the most potent neurotoxins. It is a toxin stable to water, cooking and any other food preparation process. It blocks the sodium channels at the level of the cell membrane and therefore, reducing cell excitability, mainly affecting cardiac myocyte, skeletal muscle, and the central and peripheral nervous system. Most of the intoxication cases by this toxin are due to the direct consumption of tropical fish of the family Tetraodontidae, such as the puffer fish of the genus Takifugu and some balloonfish of the genus Lagocephalus. There are also poisoning cases of contaminated food by tetrodotoxin (for example, a dish where some part of a puffer fish has been added) or by handling of pufferfish (and then putting their hands in the mouth). The highest risk of intoxication is on the roe, 10g of them can cause mortal intoxication.

CONCLUSION: Tetrodotoxin was believed to be confined to regions of South East Asia, but recent studies have demonstrated that the toxin was spread to regions in the Pacific and the Mediterranean. There is no known antidote to TTX which is a powerful sodium channel inhibitor. The clinical picture appears from 10 minutes to 3 hours after ingesting the food with tetrodotoxin, usually occurs with numbness of tongue and mouth, vomiting, lightness, dizziness and weakness. There is no antidote and currently the main measures to follow are: gastric lavage and the use of activated charcoal in case the patient arrives in the first 30 minutes after ingesting the fish, and life support measures in advanced cases and serious. However, multiple studies are being developed in search of a valid therapy, once the symptoms are established.

Keywords: Tetrodotoxin, Toxicity, Distribution, Detection

AUDIOLOGIC ALTERATIONS BETWEEN THE AGES OF 2 AND 9 YEARS**Alexandra Carvalho, Ana Bonito, Ana Correia, Joana Silvestre, Joana Lourenço***Instituto Politécnico de Coimbra, ESTESC-Coimbra Health School, Audiologia, Coimbra, Portugal*

Introduction: A hearing loss not detected and corrected early may lead to troubling changes, compromising the overall learning process of the child. As such, immediate intervention in children with hearing loss has a higher probability of optimizing the language, literacy, academic performance and emotional and social development. Objective: To identify early audiological alterations in children so they can be forwarded to a paediatrician, ENT or a family doctor. Methodology: The audiological evaluation was made with data from 57 children with ages between 2 and 9 years old, the majority of these being female (50,9%). The data was collected in ESTESC during the years of 2014 and 2015. The evaluation could consist of otoscopy; tympanogram; reflexes both ipsi and contralateral; tonal, vocal and free field audiogram and distortion product otoacoustic emissions. Results: 61,4% of children didn't have altered otoscopies. Relating to the audiograms, 55,2% were normal. The most common type of hearing loss was conduction hearing loss. In regards to the tympanograms, 36,8% were type A, 36,8% were type B, 7% type C1 and 14% type C2. Lastly, 24,6% of otoacoustic emissions were normal. A variant number of children did not make the exams above. Conclusion: With basis on the results gathered, 35,1% of children had normal audiology exams and 61,4% had alterations. 47,4% of children were recommended to do a new audiology evaluation to check the increase or regression of the alterations encountered.

Keywords: children, audiology evaluation

THE IMPORTANCE OF THE TUBARIC DYSFUNCTION IN CHILDREN***Ingrid Rubio, Andrea Cordero, Maria Belen Moreno****Instituto Politécnico de Coimbra, ESTESC-Coimbra Health School, Audiologia, Coimbra, Portugal*

Introduction: During childhood the appearance of tubaric problems that affects hearing are frequent. Auditory tube dysfunction can cause pathological changes in the middle ear, leading to conductive hearing loss or other complications of otitis media. Its control prevents language and learning problems. Objective: To evaluate middle ear problems on children. Methodology: Extracted files of audiologic evaluations carried out in 2012 and 2013 from ESTESC data base, were used. We had analyzed 47 cases (24 girls, 23 boys), ages between 2-13 years old (mean 4,93). Data of tympanometry, degree of loss, age, referral and recommendation were crossed. Results: We have noticed greatest incidence of tubaric problems on children aged 2-5 years old. From 42 samples of right ear: 19% presents type B tympanogram (from those, 14,3% with mild hearing loss); 11,9% with type C1 tympanogram (from those, 2,4% with mild hearing loss); 11,9% with type C2 (from those, 4,8% had mild hearing loss). From 42 samples of left ear: 16,7% presents type B tympanogram (14,3% of them were affected with mild hearing loss); 11,9% with type C1 tympanogram; 16,7% with type C2 tympanogram (from those, 2,4% with mild hearing loss). From the 40,4% present alterations, 31,9% were referred to other professionals for its evaluation and 8,5% were recommended to re-examine them. Conclusion: As shown in the right ear 53% normality versus 47% altered. In the left ear 49% normality versus 51% altered, therefore we confirm the presence of tubaric problems in almost 50% of the sample.

Keywords: tympanometry, children, hearing loss

PREMATURE DIAGNOSIS OF HEARING LOSS IN INFANCY

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Introduction: A premature diagnosis and detection of hearing loss in infancy is essential for human communication, because hearing loss in this phase may cause disturbances in the acquisition of speech, language and emotional, educational and social development. Objective: Demonstrate through results of audiological exams previously done, the importance of premature diagnosis in hearing loss. Methodologies: A analysis of a clinical archive composed of diverse audiological exams that were made between november of 2016 and june of 2017 to children of both sexes with ages between 1 and 11 years old in the laboratories of Coimbra Health School. Results: Of these tests 5.6% showed otoscopy with alterations, in the right ear and left year 55.6% and 50% respectively showed tympanogram with alteration. In the right ear and left ear 9.1% and 22.2% respectively don't show otoacoustic emissions. In the right ear and left ear 15% and 12% respectively show hearing loss. Conclusion: In a total of 54 children, 20 showed audiological exams with normal results and 34 show some kind of alteration in at least one exam. Due to the difference between these two diagnostics, we can conclude that a premature diagnosis is something of great importance when it comes to prevent possible hearing problems. In addition we conclude that the premature diagnosed hearing losses will make a difference in the social and psychological development of children in the future.

Keywords: diagnosis, hearing loss, children, audiological exams

THE IMPORTANCE OF HEARING ASSESSMENT IN CHILDREN

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Introduction: The audiological evaluation of children covers tests for determining the existence of a hearing loss or normal hearing in the child. Having regard to the contribution of the individual and their age, there are subjective (as tonal audiometry) and objective tests (as acoustic impedance).

Objective: To evaluate the incidence of hearing impairment depending on the age of the child.

Methodology: A survey based on audiological clinical data collected in the laboratory Audiology ESTESC in the academic year 15/16. The sample consists of 50 children of both sexes, with an average age of 4 years.

Results: It was found that in the right ear (RE), 34.7% have type A tympanogram; 36.7% type B; 14.3 and 14.3% Type C1 C2 type. In the left ear (LE), 40.8% have type A tympanogram; 28.6% type B; 18.4% and 12.2% Type C1 C2 type. With regard to hearing loss in RE, 76.2% had normal hearing, hearing loss 21.4% and 2.4% driving sensorineural hearing loss. In LE, 74.4% have normal hearing, a hearing loss 23.3% and 2.3% of driving sensorineural hearing loss. Of the degrees of right and left ears, respectively, 76.2% and 74.4% have normal hearing; 21.4% and 23.3% mild degree; 2.4% and 2.3% moderate degree Type I.

Conclusion: The hearing and language are two important means of communication. Thus, early diagnosis, for hearing loss arising between 2 and 10 years, it is essential to be able to provide adequate follow-up, trying to avoid future complications.

Keywords: type of hearing loss, degree of hearing loss, child

AUDITORY EVALUATION IN THE CHILD

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Introduction: The early identification of a hearing loss allows an immediate intervention, so that the child's developmental conditions, such as speech, language, and social, psychic and educational level are not compromised.

Objective: To analyze the data collected from an audiological evaluation in children.

Methodology: The study was based on exams collected at Coimbra Health School between November and December of the 2017/2018 academic year, including a group of 32 children aged between 1 and 10 years (mean age 4 years). The exams performed (not in all children) were: otoscopy, audiometry, vocal audiogram, tympanometry, reflexes (ipsi and contra) and distortion product otoacoustic emissions.

Results: There are children with conductive, mixed and sensorineural hearing loss, 6.25% with a moderate degree loss and 3.13% with a mild hearing loss in both ears. In the right ear tympanograms, 41.94% of the children had type A tympanogram, 22.58% type B, 22.58% type C1 and 12.90% type C2, while in the left ear 45.16% had tympanogram type A, 35.48% type B, 12.90% type C1 and 6.45% type C2. Most of the children did not perform all the tests, and 53.13% needed to repeat tests.

Conclusion: The children need an audiological evaluation, so that some alterations can be detected in the examinations, so that the child is not deprived of hearing and consequent school and social development.

Keywords: hearing loss, audiological evaluation, children, hearing tests

RELATIONSHIP BETWEEN TIMPANOMETRY AND HEARING IN CHILDREN

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Introduction: Early audiologic assessment in children is essential because hearing loss will interfere with their normal development.

Objective: To identify auditory irregularities allowing avoiding larger complications.

Methodology: Study using an archive of exams of a group of children aged 1 to 13 years (mean age), 22 females and 50 males, who underwent audiological exams at ESTeSC in the year 2018. Otoscopy, tympanogram, acoustic reflexes, pure tone audiogram, vocal audiogram, free field audiogram, otoacoustic emissions and sound plays were performed, depending of the child.

Results: In the left ear otoscopy (LE) 63 children had no alterations and 5 presented changes. In the right ear (RE), 60 had no changes and 7 showed changes. In the tympanograms of the RE and LE, 66 children had type A, 46 had normal hearing, 47 had type B, 8 had normal hearing and 17 had a mild degree of loss, 5 had a loss of conduction, 15 had a C1 type, 9 show normal hearing and a sensorineural loss and the 8 with type C2 show normal hearing.

Conclusion: In otoscopies, the majority do not present alterations. Normally in type A and C2 tympanogram hearing is normal, in type B hearing loss is normally mild conduction and in type C1 the majority is normal hearing.

Keywords: children, audiological alterations, hearing evaluation

DIFFICULTY IN TREATING WASTEWATER DRUGS AND THEIR CONSEQUENCES

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The presence of drugs in the environment it's a growing environment problem, mainly because of the reduced efficiency of it's removal by the ETAR's. Thus, we tried to figure it out if the population has the awareness of the consequences and lack of treatment of the presence of drugs in residual waters. We based our research in already effectuated studies and interpreted the presence of the most found drugs in the water, trying to figure it out the dimension of its consumption at the population level.

For this purpose, was applied a questionnaire to a population of 100 individuals, in a random and diversified manner, with the objective of assess the knowledge about this subject. To complete this subject, we also approach it in the form of a literature review.

Was verified that a major part of the population consumes (40%), in a daily basis, controlled drugs, yet the destination of this drugs isn't correct (32%). However, the population shows the knowledge that drugs may provoke environment changes when disposed in a wrong manner, yet the major part of the population (62%) doesn't know about the existence or not, of the treatments available for the drugs that arrive at the ETAR's. The monitoring of the efficiency in the removal of those drugs by the conventional process and by the treatment of domestic effluents it's very important because, in the future, it may be necessary to adapt, or implement other processes of treatment that complement, the suitable removal of those drugs.

Keywords: waters, drugs, treatment

POPULATION PERCEPTION GIVEN THE EFFECTIVENESS AND FUNCTIONING OF WASTE WATER TREATMENT PLANT

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The substance that man most needs for survival is water, as this resource is used daily in the lives of populations, and because of this pressure, its quality is a very important factor. As human beings affect water quality, it is directly related to the management of their consumption and treatment. In this way, WWTSS (Wastewater Treatment Stations) are a vital system for the sustainable management of water consumption of populations.

With the aim of knowing the population's perception of the effectiveness and functioning of the WWTSS, an online survey was conducted in which 53 responses were obtained, complemented by a bibliographical review of scientific articles related to the subject under study, as a theoretical and descriptive foundation of the functioning of wastewater treatment stations and wastewater treatment processes.

The analysis of the data obtained showed that most of the population (62.3%) recognized as the main objective of a WWTS, the return of water to water resources with quality and safety. Some types of behaviour, such as the deposition of solids into the sewage, were also evaluated, in which 66% of the population said they were concerned about not doing so. However, 80% acknowledge that this practice is detrimental to the wastewater treatment system.

It was concluded that there is a general perception about the operation of WWTPs, this knowledge allows a concern with the wastewater treatment system and its quality.

Keywords: wastewater, quality, perception

SHORTAGE OF WATER RESOURCES – DESALINATION AS A SOLUTION

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Seawater is undoubtedly the most abundant water resource on planet Earth. Due to its high salinity, its use has always been avoided to the maximum. Today, as freshwater becomes increasingly scarce, this resource is increasingly being considered as an alternative.

With this work, we intend to mention a different alternative for the production of drinking water, to demonstrate the contribution of seawater desalination to the sustainable and integrated management of water resources, to assess their impact in economic, environmental and social terms, and to assess the level of knowledge of the population on the subject.

Our research method was based on a bibliographical review of the theme and on the analysis of results from a questionnaire applied to a random population.

From the results obtained from the evaluation of the knowledge on the scarcity of water resources, where 106 responses were obtained, it is concluded that the majority of the respondents know what desalination is (91.51%) and their greatest advantage (63.20%), as well as the significance of water scarcity (99.10%).

Although desalination is a very advantageous process, it has some environmental impacts. However, about 81.10% of the population said they would use this process.

The treatment of water through desalination allows access in abundance to the water for consumption and allows economic and social growth of the region. In the end, we are looking for the same goal, a blue planet and more habitable for future generations.

Keywords: sea water, desalination, sustainable management, water shortage

FINAL DESTINATION OF WASTEWATER IN SWIMMING POOL

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Every day, millions of liters of water are thrown away without any form of reuse. This results in high economic and environmental damage. This scenario could be avoided with more knowledge about the reuse of pool water.

When all the water in the pool is thrown out because it is unfit for consumption, the opportunity to collaborate with the environment and sustainability is lost. This is because this water could be reused watering gardens and even being reused in the pool itself. "Water reuse" is one whose reuse is made feasible for the same initial or other purpose. In the case of pool water, it is possible to reuse it in other activities as well as in the pool itself, as long as it is treated properly.

Keywords: water reuse; sustainability; pools; environment.

LEVEL OF KNOWLEDGE ABOUT THE HEALTH IMPLICATIONS OF CYANOBACTERIA

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As natural resource essential to life water represents a right essential to the maintenance of life and should be accessible to the community, and present conditions of drinking as being wholesome, clean and free of any danger to public health and the environment Cyanobacteria (or blue-green algae) are organisms that develop into surface fresh waters, estuaries and/or at sea. These release toxins in the water, changing your composition and may cause problems of public and animal health. The factors such as the increase in temperature and nutrient combinations, leading to massive proliferation of cyanobacteria.

The aim of this study was to evaluate the level of knowledge that people have about the existence of cyanobacteria and the implications on health and the environment. A literature review on the topic and applied a population survey.

The data obtained from the survey was 41% of the respondents were aware that the cyanobacteria are found in surface waters. 47.1% were found to still have a conscience that cyanobacteria are harmful to public health, in particular the death of animal species, the degradation of the environment and the water becomes unfit for consumption.

It concluded that the respondents showed some knowledge about the implications that the cyanobacteria can bring to public health and environment, however there should be more awareness and training on this issue for the population to be alert.

Keywords: human consumption, health, cyanobacteria, water

QUALITY OF BATHING WATER AND ITS IMPLICATIONS FOR PUBLIC HEALTH

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The management of water resources has been a fundamental aspect for the establishment of populations in a certain region and also for their development. The use of bathing water, in a safe way, is influenced by the accesses, infrastructures, beach safety, and also by the quality of the water. The quality of bathing water represents both a health factor and an important indicator of environmental quality and tourism development.

The concept of quality water depends on its intended use and therefore it is important to study parameters and substances in it.

A bibliographic research was done on the subject and a questionnaire was applied to the study population to have a notion of the perception of the population as to the influence that the quality of the waters has on human health. It was found that a large part of the study population assumes that public health is affected by the quality of bathing water and 82.8% argues for the accumulation of plastics and other types of pollutant residues in the bathing area.

In conclusion, the general population is aware of good practices in bathing areas and shows concern for the environment, with a notion that this affects public health.

Keywords: pollution, public health, bathing areas, environment, population

LEVEL OF KNOWLEDGE AND GOOD PRACTICES FOR *LEGIONELLA*

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World Health Organization describes *Legionella* spp. as being the only member of a population of microorganisms that can colonize man-made water channels, multiplying massively, when risk factors combine.

Legionella spp. is the etiological agent of bacterial infections and *Legionella pneumophila* is the more pathogenic species - an exposure to this can cause Legionnaires Disease.

In this article, a bibliographic research was made about the theme and a questionnaire was applied about the knowledge and the good practices of the population about *Legionella*.

In the questionnaire, it was obtained that 13% of respondents believed that *Legionella* is a "highly contagious virus", revealing a low percentage of knowledge. 40% of respondents think that the symptoms of Legionnaires Disease have late manifestation. It is important to highlight the percentage for the response "contaminated water intake", related to the form of contamination, which was 36%. It was concluded that, although *Legionella* has been widely approached, the population is not as informed as would be expected since, the percentages related to the low levels of knowledge are very considerable.

Environmental Health Technicians make a fundamental contribution in the area of prevention and control of *Legionella*, through sanitary inspections, as well as the promotion of preventive and control activities, providing all the technical support in the determination of corrective measures, essential for the minimization of the risk.

Keywords: Legionnaires' Disease, *Legionella* spp., Prevention, Treatment, Transmission

SOCIAL AND ENVIRONMENTAL PERSPECTIVE OF WASTE WATER TREATMENT PLANT

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The Waste Water Treatment Plant are infrastructures designed to reduce the pollutant load of waste water, so that the discharge of the treated effluent does not adversely affect the receiving medium. Are important instruments of environmental protection.

The objective of this study was to evaluate the level of knowledge consequences on the environment and their perception of the social and environmental impact of environment.

For the accomplishment of this work a bibliographical research was done on the subject and a survey was carried out to assess the impact of Waste Water Treatment Plant on society and the environment.

From the survey conducted there were some results that may be of concern, In other words, there is a high number of respondents who consider that a respond to the expected performance, as 70% of the respondents admit that the cases pollution caused by their poor performance will increase. On the other hand, around 91% of respondents are able to list positive aspects and negatives on Wastewater Treatment Plants points to the positive, being they water treatment, disease prevention and pollution the most mentioned. However, a negative aspect also mentioned was the fact that Waste Water Treatment Plant did not treat drugs.

It is therefore important to strengthen the quality control of water, especially in effluents to avoid contamination and other environmental problems. It is crucial that verification of compliance with legislation and revision of legislation, if necessary.

Keywords: Effluent, Environment, Social Impact, Performance, Disease, Pollution

GOOD PRACTICE IN SWIMMING POOLS

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For the use of the pools there are some easy practices to follow. This avoids the development of any harm to you and to others around you.

This study aimed to analyze and evaluate the practices performed by the population in swimming pools, as well as to sensitize the population to the risks and to the correct use of swimming pools. For this, a bibliographic review was carried out on the subject by applying a questionnaire, with an online response, to the population. It was found that 89.4% of the study population only attends swimming pools during bathing seasons. It was also found that 39.4% stated that they didn't wear a cap, 40.9% said they didn't take a shower either before or after entering the pool, and 50.7% reported entering the water with skin creams. It is concluded that most of society has bad habits, and not doing good practices in swimming pools such as, do not use burrows, do not shower before and after and apply skin creams, allows the spread of microorganisms in water. In this way, it became clear the importance of carrying out outreach and training with regard to community awareness to reduce poor swimming habits.

Keywords: Pools, Public Health, Water Quality Management

IMPORTANCE OF FOOD CERTIFICATION - CONSUMER PERCEPTION

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Nowadays, food security and certification, throughout the supply chain, have become very stringent requirements. Consumers demand quality food and reliable certificates that demonstrate and guarantee food quality and safety. This growing concern is due to the development of new technologies and also to the credibility of the organs responsible for public health.

The objective of this work is to evaluate the importance of food certification for consumers. For this, a bibliographic review was carried out on the subject and a questionnaire was applied to the population, set by the research team.

It was confirmed that of the 66 individuals, 71.2% are aware that food certification guarantees the quality of food. It was also verified that all respondents believe that food certification is important, 66.7% think it is mandatory, 69.7% do not know if the places they go to have food certification, 90.9% do not have the habit of verifying that the food has food certification and 71.2% prefer to buy more expensive products with certification, than cheaper products without it.

It is concluded that most of the individuals have knowledge of what is food certification, on the other hand, despite this knowledge, do not usually check if the food they consume daily are certificated food, as they believe it is mandatory.

Food certification is important because it gives consumers greater confidence and greater clarity about food safety. It also ensures higher quality and ensures that legislation is respected.

Keywords: Food Safety; Food Certification; Quality; Products

CERTIFICATION IN COMPANIES OF SUPERMARKET CHAINS

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Certification can be understood as a guarantee that the product meets pre-established and recognized quality specifications. When a company certifies its product, it assumes that the information provided is important to consumers and that they will respond by changing their consumption decisions. For the preparation of this work a review of bibliographic articles was carried out and a questionnaire was applied to 3 companies of supermarket chains.

The purpose of this study was to evaluate whether companies consider the food certification adopted to be advantageous.

It was verified that all the companies carry out pro-environmental activities and that they have food certification believing that with this certification they improve the food quality and safety.

It can be concluded that the certification of products should be increasingly taken to impose the current market, thus meeting the demands of consumers that aim at quality and fair price.

Keywords: Food Certification; Consumers; Companies; Food Safety; Quality.

FOOD QUALITY CERTIFICATION IN MEAL DELIVERY SERVICES

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Food Safety, not being a recent issue, since it is an integral part of the development of the human being with regard to his habits and customs is undoubtedly a subject that has always had a paramount importance. This code sets out the general and specific hygiene and control standards necessary to ensure the food safety of the transport activity from the raw materials to the finished products.

The objective of this study was to evaluate the perception of the consumers regarding the transportation and the quality of the foods that are performed by the delivery services.

For the accomplishment of this study a bibliographical revision on the subject was made and an online questionnaire was applied to the consumers.

According to the data obtained, we verified that most consumers take great care in checking the appearance, smell and conditions that the meals appear when they arrive at their final destination, corresponding to 92.3% and 90.9% respectively. Finally, about 63.6% state that the food does not have the same quality as when served in the restaurant in terms of quality, appearance, smell and temperature, although the reliability of the consumer by the delivery services is verified that most prefer the food that is served in the restaurant, and it is important to emphasize that in both processes, both meal delivery and restaurant services, redoubled care is needed.

In short, there are still some aspects to improve in the delivery services of meals so that they are more efficient and of a higher quality.

Keywords: Food safety, Meal delivery services, Consumers

ISO 22000 AND OTHER FOOD CERTIFICATION STANDARDS

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HACCP is the system internationally accepted and documented by the Codex Alimentarius, which defines the requirements for effective food safety control. ISO 22000: 2005 is an international certification standard that defines the requirements for effective Food Safety Management systems.

The objective of the study was to know ISO 22000:2005 and other certification references and to understand the distribution of these at national, European and world level, for this a bibliographic review was carried out.

In the National market, it is verified that ISO 22000 is the most representative, with a total of 104 certified companies. In percentage terms and at European level, it can be seen that there are 94% of companies certified by IFS-Food, BRC-Food represents around 70%, ISO 22000 has a 59% distribution and FSSC with 62% certified companies. At a global level, in the Africa and Middle East region there is a small advantage of ISO 22000 compared to BRC-Food. In North America there is a greater implementation of the BRC-Food standard, while in Central and South America the opposite is true. In Asia there is a small advantage of ISO over BRC-Food. In Oceania the BRC-Food standard represents about 90% of all certifications.

One of the last references to emerge was ISO 22000: 2005 and it was thought that it would be the reference that would standardize the market, with the great advantage of being able to be applied in any activity of the food chain, from primary production, through industry and logistics, until the restoration. However, ISO 22000 when compared with IFS-Food and BRC-Food does not detail the requirements of good practice and quality control.

Keywords: Food certification; ISO 22000; Certification references

THE IMPORTANCE OF CERTIFICATION IN CATERING ESTABLISHMENTS

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Food safety is one of the greatest concerns our society fears, from the dangers associated with products that are part of our nourishment and the whole process of food production until its making.

The hazard analysis in critical control points (HACCP) system aims to ensure the safety of food processes and food served in restaurant establishments, promote good handling practices, identify hazards associated with meal consumption and establish preventive measures that allow to obtain risk levels in the user's food consumption.

The objective of the study was to analyze how the certification system was implemented and the organizations recognition of its advantages. It was based on a literature review on the subject and the implementation of a survey of managers and staff in catering establishments.

From the survey applied to eight individuals (four employees and four managers), it was found that 44% referred to the existing services in the establishments, but these did not correspond to certifications and 11% did not have any type of certification. Regarding the perception of the respondents, as to why they acquired certifications, 43% stated it was for better product quality and 14% because it is mandatory.

It is concluded that, although the majority cannot identify the type of organization, they can recognize its advantages. Nevertheless, the companies should choose to give information and train their employees to realize the importance of food certification.

Keywords: Food Certification, Catering, Perception

NORMATIVE REFERENCES***António Gomes; Miguel Pinto; Rúben Cruz****Instituto Politécnico de Coimbra, ESTeSC-Coimbra Health School, Saúde Ambiental, Coimbra, Portugal*

The food safety of products presents a significant relevance for consumers, regulatory authorities and in General for all links in the food chain. Food security is one of the big-gest concerns of the food sector.

Several normative references related to food security, supporting himself on HACCP methodology, for all levels from primary production to the industry or distribution, spe-cific sectors or of more general scope were However developed and published by vari-ous countries or by certain sectors of the food chain or even a specific distribution chain (e.g. Tesco). Refer for example the BRC standards, IFS, ISO 22000, FSSC 22000, among others.

In this work, we conducted a bibliographical research on normative references in food security in Portugal, the statistical survey of the normative references to food security in Portugal and in the end the data observed were analyzed and compared.

The ISO 22000 standard defines the requirements for the implementation of food safety systems in an organization (operator). In relation to the BRC is a benchmark published by BRC (BritishRetailConsortium) made mandatory for all suppliers of retailers of the United Kingdom.

IFS (InternationalFoodStandard) was developed by German retailers aiming to establish audit requirements to suppliers of food products. The FSSC 22000 is a certification for the food supply and is the responsibility of the Foundation of FoodSafetyCertification. The HACCP system continues to be considered the best tool available to the industry for the production of safe products. With the application of the HACCP principles and the steps the industries comply with the existing legislation on food safety and have the entire manufacturing process under control.

Keywords: Safety, HACCP, Normative references

MAGNETIC RESONANCE IN CARDIOLOGY

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Cardiac magnetic resonance imaging (MRI) is a imaging diagnostic exam, without radiation (x-ray), which serves to assist the cardiologist in the diagnosis, as well as to evaluate the response to treatments in various pathologies.

This exam uses magnetic fields and radio-frequency waves to potentiate the resulting signals from the heart, which are later analyzed by computer.

Due to the fact of not using ionizing radiation or nephrotoxic contrast, it is one of the most reliable methods for cardiovascular diagnosis.

The images thus produced allow us to perform a morphological, structural and functional evaluation of the heart, being particularly useful in some pathologies, such as congenital heart diseases, pericardial diseases, ventricular dysplasia, valve diseases, ischemic heart disease, among others.

We can also compose the CMR contrast, allowing to study the vascular behavior, complementing the initial / normal evaluation without contrast. The contrast product used is gadolinium, which is administered intravenously allowing the enhancement of signal strength "of structure" as well as increased blood flow.

Keywords: diagnosis, pathologies, heart, images

KAWASAKI DISEASE***Inês Pereira****Polytechnic Institute of Coimbra. ESTeSC - Coimbra Health School - Coimbra, Portugal*

Kawasaki disease (KD) is an acute inflammatory vasculitis that is currently the leading cause of acquired heart disease in childhood, is more likely to affect boys than girls. Most cases occur in children younger than 5 years old. It has an unknown etiology, affecting mainly small and medium arteries particularly the coronary artery. Common cardiovascular manifestations of the illness include myocarditis, pericardial effusion, and coronary artery aneurysm formation and progression to ischemic heart disease. Pathophysiology seems to include an intense elaboration of cytokines, endothelin, and other vasoactive mediators resulting in the development of vascular endothelial changes that may leave a permanent impact on vascular integrity. Electrocardiogram abnormalities suggestive of carditis were encountered in 80% with Kawasaki Disease. ECG changes in patients during the acute phase of KD include flattened T waves and prolonged corrected QT intervals, long term after KD the commonest abnormalities were raised S-T segments, increased Q/R ratio and prolonged corrected Q-T interval.

Keywords: Kawasaki disease, coronary artery

EISENMENGER'S SYNDROME***Maria Natário****Polytechnic Institute of Coimbra. ESTeSC - Coimbra Health School - Coimbra, Portugal*

Eisenmenger's syndrome was first described in 1897 by an austrian doctor, Viktor Eisenmenger, and is an advanced form of pulmonary arterial hypertension associated with congenital heart defects. Those defects consist in a communication (shunt) between the systemic and pulmonary circulation due to malformations at the atrial, ventricular or aortic-pulmonary level. This condition leads to a significant increase of the Peripheral Vascular Resistance, and consequently, the inversion or bi-directionality of the shunt. This shunt between two chambers of the heart allows blood that has already picked up oxygen from the lungs to flow back into them, instead of going out to the rest of the body. As a result, the body receives oxygen-poor blood from the heart. Due to the return of the blood into the lungs, their blood vessels become stiff and narrow, increasing their pressure and being permanently damaged. The diagnosis of this syndrome includes the medical history, a physical examination and complementary diagnostic tests as electrocardiogram, chest x-ray, echocardiogram, blood tests, magnetic resonance imaging, computerized tomography and cardiac catheterization. This disease is a life-threatening condition that requires careful medical monitoring. The prognosis of the patients depends on the type of congenital heart defect and other medical conditions.

Keywords: Eisenmenger's syndrome; Pulmonary arterial hypertension; shunt; congenital heart defects

ROMANO-WARD SYNDROME (RWS)

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Romano-Ward Syndrome (RWS) is an inherited autosomal dominant heart disorder that causes a disruption of the heart's normal rhythm.

This condition is characterized by syncopal episodes, cardiac arrest or sudden death and electrocardiographic abnormalities (QT prolongation, T-wave abnormalities, Torsade de Pointes (TdP) and ventricular tachycardia). A mutation of the cardiac potassium channel or sodium channel is the adjacent physiopathology of Romano-Ward Syndrome.

I present a clinical case of Romano-Ward Syndrome in a 42 year old women who was referred for genetic evaluation due to syncope reports and 560ms QTc interval.

Keywords: Romano-Ward Syndrome, QT prolongation, mutation

DRESSLER'S SYNDROME

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Dressler's syndrome is a type of pericarditis, which occurs after traumatic, surgical, or acute myocardial infarction (AMI). It is characterized by inflammation in the pericardium and may affect the lung pleura.

It is believed that this pathology is an abnormal reaction of the immune system following injury of the cardiac or pericardial tissue. This syndrome was first characterized by William Dressler in 1956, in which the symptoms described are: chest pain, that can radiate to the left shoulder; difficulty in breathing, low fevers, fatigue, general unwellness.

If not treated it may have complications such as cardiac tamponade or constrictive pericarditis.

Differentiation of post-AMI syndrome from the extent or recurrence of infarction may be difficult.

However, in post-AMI syndrome, there is no significant increase in cardiac markers and electrocardiographic abnormalities are non-specific.

Keywords: Dressler Syndrome; changes in electrocardiogram in dressler's syndrome;

MYOCARDIAL PERFUSION IMAGING IN CORONARY ARTERY DISEASE***Estela Freitas****Polytechnic Institute of Coimbra. ESTeSC - Coimbra Health School - Coimbra, Portugal*

Coronary Artery Disease (CAD) is one of the leading causes of morbidity and mortality in the developed world. CAD is the coronary artery insufficiency manifesting itself in angina pectoris or myocardial infarction which can culminate in sudden death. So rapid diagnosis is important to a better prognosis and to reduce the number of deaths.

Myocardial Perfusion Imaging (MPI) is a nuclear cardiology procedure that is widely used to assess patients with known or suspected coronary artery disease. MPI can be also used to provide powerful prognostic information in patients with high risk for CAD, post-myocardial infarction, diabetes, advanced age, obesity, and women. Patients may be candidates to this study as well when the ECG isn't interpretable (left bundle branch block, ventricular pacing, severe baseline ST segment abnormalities) or if the patient cannot exercise.

This test is often called a nuclear stress test which is performed with exercise or pharmacologic stress (dipyridamole, adenosine, regadenoson, or dobutamine) with continuous electrocardiographic monitoring. The purpose of this technique is show us areas of the heart that aren't getting enough blood flow.

The MPI become a very important tool to the assessment of myocardial viability and to help with the diagnosis, prognosis and management of patients with coronary artery disease.

Keywords: Myocardial Perfusion Imaging; coronary disease

POSITRON EMISSION TOMOGRAPHY

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Positron emission tomography (PET) studies metabolic activity or body function. As a result, PET can detect tumors in lymph nodes, for example, even before they enlarge and are detectable with magnetic resonance imaging or computed tomography scan. In PET imaging, the patient receives a small intravenous injection of a radio-active medication . The images show areas of abnormal metabolism, helping to detect tumors and other diseases that are often not detectable by other means. Although PET is most often used in the detection and staging of cancer, there is increasing use of PET in the brain for the diagnosis of certain dementias like Alzheimer's disease and in the heart for evaluation of coronary artery disease.

Keywords: PET; Tumor; Coronary Artery Disease.

BROKEN HEART SYNDROME

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Broken heart syndrome or Takotsubo cardiomyopathy is a disease of the heart muscle that may appear suddenly after a situation of severe emotional or physical stress. Takotsubo cardiomyopathy is a cardiovascular disease with clinical symptoms like acute myocardial infarction, but with normal coronary arteries on angiography. It causes a weakening of the left ventricle, causing it to present a dilated format in which it is compared with a Japanese jug, that Japanese people used to fish octopus.

The prevalence of this syndrome is mostly in older women, and the causes remain a little unclear, the investigators aim that the excess of stress hormones can lead to a diffuse and temporary constriction of the artery, provoking a clinical condition similar to an acute myocardial infraction. The differences between them is that in Takotsubo syndrome there isn't coronary lesions neither atherosclerosis plaques, the heart works even if it has a weakening.

Keywords: syndrome, cardiomyopathy, stress, broken heart

CORONARY COMPUTED TOMOGRAPHIC ANGIOGRAPHY

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A computerized tomography (CT) coronary angiogram is an imaging test that looks at the arteries that supply blood to your heart. It might be used to diagnose the cause of chest pain, used to check for narrowed, dissection or blocked arteries or other symptoms.

A CT coronary angiogram relies on a powerful X-ray machine to produce images of your heart and its blood vessels uses an injection of iodine-containing contrast material and CT scanning to examine the arteries that supply blood to the heart and determine whether they have been narrowed. These tests are noninvasive and don't require recovery time. Coronary CT angiograms are increasingly an option for people with a variety of heart conditions.

The case that I'm going to present shows how the CT coronary angiography is the gold standard for the diagnosis of SCAD (spontaneous coronary artery dissection)

Keywords: coronary computed tomographic angiography, SCAD

TWIDDLER'S SYNDROME

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Twiddler's Syndrome is a rare cause of pacemaker malfunction due to the patient's, subconscious or deliberate, manipulation of the pulse generator within its skin pocket, which results in displacement of the electrode leads and failure of ventricular pacing with eventual diaphragmatic stimulation.

Commonly occurs in the first year following pacemaker implantation, usually reported in elderly women, with history of psychiatric illness.

Treatment involves repositioning of the dislodged leads and suture fixation of the lead and pulse generator within its pocket.

I report a clinical case of Twiddler's Syndrome in an 87 year old woman, who presented with recurrent syncopal attacks seven weeks after pacemaker implantation and admitted to repeatedly twiddling with the pacemaker pulse generator.

Keywords: Twiddler's Syndrome, Pacemaker Malfunction, Lead Dislodgement

PARAMYLOIDOSIS***Aniana Martins****Polytechnic Institute of Coimbra. ESTeSC - Coimbra Health School - Coimbra, Portugal*

Paramyloidosis, also called Familial Amyloid Polyneuropathy (FAP), is an autosomal dominant neurodegenerative disease. If the parent is a carrier, the probability of a child also being a mutation carrier is 50%. FAP is characterized by the systemic deposition of amyloidogenic variants of the transthyretin protein, especially in the peripheral nervous system, causing a progressive sensory and motor polyneuropathy. Sensitive symptoms in the feet and legs are usually the first and gradually rise to the hands, over the years. Usually manifesting itself between 20 and 40 years of age, it is characterized by pain, paresthesia, muscular weakness and autonomic dysfunction. In its terminal state, the kidneys and the heart are affected. If the person doesn't get treatment, the symptoms of the disease worsen, causing death on average 10-15 years after the onset of symptoms. Because of this, early treatment is very important, allowing to delay the evolution of the disease and preserve the quality of life of patients.

Keywords: autosomal dominant; sensitive symptoms

SUDDEN DEATH IN ATHLETES**Patricia Lóio***Polytechnic Institute of Coimbra. ESTeSC - Coimbra Health School - Coimbra, Portugal*

Sudden death occurs in young and apparently healthy athletes during the practice of physical activity. It is a sudden, fast and rare situation. The origin may be cardiac, caused by an pre-existing and not diagnosed cardiovascular disease. The cause is usually a malignant cardiac arrhythmia, however in athletes under 35 years, the main cause of sudden death is hypertrophic cardiomyopathy; In athletes over 35 years, it is coronary artery disease. There are also other cardiac alterations that predisposes athletes to sudden death as right ventricular arrhythmogenic cardiomyopathy, myocarditis, aortic aneurysm, mitral prolapse with mitral regurgitation, changes in the normal heart rhythm, among others. Medical examinations are available to detect early cardiac alterations and possible congenic diseases, however many are undetectable and its first manifestation is sudden death. I report a clinical case of a 20-year-old who had sudden syncope during a football match, and later died, at the hospital.

Keywords: Sudden death, physical activity, young athletes

BLAND-WHITE-GARLAND SYNDROME

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Bland-White-Garland Syndrome (or anomalous left coronary artery of the pulmonary artery) is a rare congenital anomaly in which the left coronary artery arises from the pulmonary trunk rather than from the aortic sinus, this occurs 1 in 300,000 births. Because of this birth defect, the heart receives "less" oxygenated blood, which results in the weakening or death of the heart muscle cells (ischemia and / or necrosis), causing myocardial infarction, heart failure, and eventually death. In this way this syndrome has a mortality rate of 90% in the first year of life, if not properly treated. However, it does not only occur in pediatric ages, it can also occur in adults, in this case being one of the causes of sudden death.

Keywords: Bland-White-Garland syndrome; myocardial infarction; heart failure

BART SYNDROME***Mariana Magalhães****Polytechnic Institute of Coimbra. ESTeSC - Coimbra Health School - Coimbra, Portugal*

Barth syndrome is a rare X-linked inherited disorder characterized by cardioskeletal myopathy, peripheral neutropenia, psychomotor and growth retardation and 3-methylglutaconic aciduria. The causative gene of this syndrome is TAZ (G4.5), located on Xq28 and the product of this gene, taffazin, seems to be involved in the early heart development. Barth syndrome is also characterized by the incapacity of mitochondria to produce adequate amounts of tetralinoleoyl-cardiolipin, an essential lipid for normal mitochondrial structure and energy production; linking the dilated cardiomyopathy in taffazin deficiency to the reactive oxygen species produced by dysfunctional mitochondria.

I will report a case of Barth syndrome, about a ten year old boy who underwent heart transplantation after bridging with an assist device at 8 months. This case is very unique, because it reports a very long follow-up after successful bridging and cardiac transplantation in a patient with Barth syndrome and left-ventricular non-compaction (LVNC) on explanted heart.

Keywords: Barth syndrome; Heart transplantation; Assist device; Left ventricular non-compaction

EVALUATION OF NUTRITIONAL LITERACY AND ITS RELATION WITH THE BMI OF EMPLOYEES FROM LISBON CITY COUNCIL

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Introduction: Portugal has a high obesity prevalence with a growing annual rate. In consequence, the high levels of morbidity and mortality, the decrement of life quality and its high costs, as well as treatment difficulties, are an actual concern to the Ministry of Health.

Pre-obesity and obesity are, therefore, important public health problems in Portugal, requiring a strategy that includes promoting healthy eating habits and a more active life. The study of the level of nutritional literacy can give conclusions on whether it can influence the dietary choices of the individuals and, consequently, if it impacts their Body Mass Index (BMI).

Propose: This main aim of this study was to evaluate the nutritional literacy and its relation with the body mass index.

Materials and methods: The sample was constituted by 248 employees from Lisbon City Council. To evaluate the nutrition knowledge of the population, the questionnaire “Development of a general nutrition knowledge questionnaire for adults” was used, originally designed by Parmenter and Wardle (1999).

Results: The results showed us that there is no correlation between nutritional literacy and the body mass index. The sample in study evidenced having a good nutritional literacy level with an average of 77,2% of correct answers in the questionnaire.

Conclusion: It's important to understand in which areas a more significant lack of knowledge is shown as well as the populational groups where this lack of knowledge is more significant. This way, future projects regarding nutrition education may act in these areas to improve health.

Keywords: Obesity, Body Mass Index, Nutritional literacy
