Poster Week 13/2020

I Virtual Poster Week

Abstract Book

Escola Superior
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da Saúde
Politécnico de Coimbra

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Politécnico de Coimbra

SCIENTIFIC COMITEE

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Calendário

Poster Week 13/2020

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11-12h	Inês Araújo Meios de Comunicação Não Oral II - 6P Audiologia		João Joaquim Farmacoterapia - 7P Dietética e Nutrição Fernandes Mendes - 9P Imunohemoterapia Clínico-Lab. I CBL		
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PLASTERS

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Plasters are very old pharmaceutical forms, of firm consistency, intended for external use. These do not liquefy at 37ºC, but they become soft, forming plastic, flexible and adhesive masses. They are used to protect the skin due to its adherence and because they work as real “supports”, susceptible to immobilize a certain area of the skin. They also act as vehicles for active substances that can perform their functions within the skin.

There are different types of plasters that differ in terms of therapeutic purpose and presentation. As for the therapeutic objective, they can be epidermal, endodermal and diadermal. Regarding their form of presentation, plasters are divided into two distinct groups, plasters themselves and plasters. In relation to the emplastic masses, these can contain several drugs of local action or of deeper action.

Modern plastic compounds are mainly composed of elastic and adhesive material, antioxidants, emollients and absorbents.

There are several dressings for other pharmaceutical purposes, such as fighting depression, smoking and relieving pain and inflammation. They are also used in hospitals in the postoperative period of asepsis and softening of surgical scars, among other applications. In the skin, plasters release the active ingredient directly into the bloodstream, preventing the passage to the digestive system.

It can be concluded that plasters can be a good way to administer medications as treatment aids and help to alleviate various clinical situations.

Keywords: Plaster; Skin; Transdermal

ELIXIRS

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Sugary alcohols, also known as elixirs, are medicated alcoholic solutions sweetened with sugars. In the preparation of an elixir, the active principle or principles are dissolved in alcohol, adding the constituent water in the form of syrup or an appropriate sucrose solution. The use of glycerin is often necessary to make the mean more viscous, avoiding precipitations.

The preparation of elixirs is governed by these general guidelines, however each elixir is obtained by a specific preparation process, according to the properties of its constituents. The advantages of elixirs are that they are more suitable for drugs insoluble in water, but soluble in hydroalcoholic mixtures, and also have some disadvantages, such as being less sweet and less viscous than syrups, and therefore less effective in masking flavor, and high alcoholic degree, with restricted use for children and adults.

These vehicles are called weak elixir and strong elixir, when mixed they constitute the iso - alcoholic elixir, which is a good way to dissolve most drugs, making it the most pleasant preparation to be administered. The Portuguese Pharmacopoeia IX Inserts a set of solutions for mouth washing, gargling solutions, gengival solutions, etc.

In conclusion, elixirs are pharmaceutical forms typical of the medieval world, very old and similar to potions, being a form currently falling into disuse.

Keywords: Elixir, solutions, sugar, sucrose, alcohol and water

AEROSOLS

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An aerosol is the colloidal dispersion of a solid or liquid in gas, which means it is a gas that contains a suspension of solid or liquid materials in the form of extremely thin particles, where the continuous phase is the gas and the disperse phase are the particles. If the gas contains a solid materials suspension, it is designated as smoke; if it contains a liquid materials suspension it is designated as mist.

Aerosols are administered primarily by inhalation and the equipment's used for its administration can be of different types: atomizers, nebulizers, blowers and vaporizers. These devices are used for the drug's deposition in the lower airway, as the air that disperses the solution or the powder in the form of aerosol is fundamental.

Each system has its own inhalation technique, as it is essential that the execution is correct in order to maximize the therapy. The prescription, whenever possible, of the same kind of inhalation device for the different drugs used by the patient is advised, as also the adequacy of the treatment to the patient's age and pathologies.

The inhalation therapy presents a lot of advantages in the fight against respiratory illnesses, as proven by its growing use and by a better obtaining over the disease, being reflected in a better quality of the patients' lives.

The health professional's role is crucial for the patient's continuous education regarding the correct use of inhalation devices, so that they can have the expected benefit. Key-Words: Aerosols; Colloidal dispersions; Dispensers, Inhalation therapy.

Keywords: Aerosols; Colloidal dispersions; Dispensers, Inhalation therapy.

TINCTURES

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The tinctures come from plants, widely used in antiquity and which now acquire a new name and a better knowledge with the scientific and technological evolution.

Tinctures are a type of alcohol that have acquired this name because of their colouring. They are alcoholic extractive solutions obtained from vegetable, animal or mineral drugs in the dry state. Their vehicle, unique or main, is ethyl alcohol. They have the advantages of being highly rich in active substances, excellent microbiological preservation and easy posology. In its preparation it is important to take into account the state of the drug, the choice of the alcohol of convenient grade and the most effective extraction method. Therefore, these are obtained essentially by four processes: maceration; leaching; dissolution of dry extract and digestion.

Regarding therapeutic indications, tinctures can be used internally as expectorants, sedatives, diuretics and externally as antiseptics, keratoplastics, local anesthetics and astringents.

They are physical-chemical and organo-mineral systems in constant evolution where plurimolecular reactions, sometimes reversible, develop.

As for their shelf life, generally it is about 6 months to 1 year or according to the instability of the active principles.

In this manner, the use of tinctures in Pharmacy is of utmost importance because they present important utilities such as vanilla tinctures (flavoring) and benzoin tinctures (antiseptic, skin healing or for inhalation).

Keywords: Tinctures; leaching; alcoholic extractive solutions; drugs in the dry state

LINIMENTS

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The administration of medicine through the skin is becoming increasingly popular due to its convenience and accessibility. In most dermatological conditions, treatment can be limited to the application of medication directly to the affected sites. Thus, topical therapy has a great advantage since it allows the direct release of the drug in the targeted organ with little risk and side effects.
Liniments are liquid or semi-liquid pharmaceutical preparations that has their composition of substances dissolved in oils, hydroalcoholic solutions or emulsions, intended for skin applications by friction. They can be differentiated from actions by their form of administration and also from actions due to a different consistency. These can have consistency between ointments and oils and are intended for emollient or soothing, revulsive or vehicular drugs that must penetrate more deeply into the epidermis.
Liniments can be oily or soapy. The oily liniments contain oils in their composition while the soapy ones contain soaps making the liniments unctuous and facilitating the skin massage. Most of the times they correspond to W/O or W/O emulsions, stabilized by the presence of alkaline earth soaps or alkaline soaps. They must be packaged in bottles, preferably of unusual colors in order to draw the patient's attention to the fact that they are medicines for external use. They must also be labeled with the indication "external use" and those consisting of suspensions or emulsions must have the indication "shake before use".

Keywords: Liniment; Topical therapy; Solutions; Emulsions

MEDICATED SOAPS

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Soap consists of a salt derived from carboxylic acids. These salts are characterized by the presence of the carboxylate anion. The mechanism of action of a soap consists of a hydrophobic, but lipophilic, nonpolar phase, which for that reason has an aversion to water, but interacts with the oily molecules keeping them inside a micelle. At the same time, the soaps have polar ends facing outwards, these ends are hydrophilic, which will cause the greasy dirt to be washed away with water. This galenic form is classified according to the type of surfactant used and the physical format. Traditional soaps use fat and vegetable oil, having more alkalinity, which is why they are more irritating to the skin, since in contact with water they release their base, increasing the skin's pH to 8.5, which makes the skin drier and more irritated. There are also glycerated soaps, in which the amount of soap is reduced and alcohol, dyes, fragrances, among other substances are added; and syndet bars, the mildest soaps due to the reduced amount of soap. In soaps, several attributes must be evaluated: color, shape, hardness, foam formed, softness, silkiness perception, hydration, among others. The main function of a medicated soap is to clean the skin, that is, remove dirt from pollution, cosmetic residues, natural secretions and flaking corneal cells and so on.

Keywords: Soap, fats, pH, alkalinity

LYOPHILIZATION

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Lyophilization is a technique in which the product is submitted to dehydration right after freezing and the ice formed changes from the solid state immediately to the gaseous one, by sublimation. This process doesn't use high temperatures and the products don't undergo heating when removing water, so the defrosting water doesn't have the possibility of dragging other substances, and nutrient degradation by increasing the temperature does not occur either.

The sublimation of the water takes place through a system of pressure and temperature regulation very well controlled. The Lyophilization process is consisted by four stages: 1st Freezing of the product, 2nd Primary dehydration, 3rd Secondary dehydration and the last stage corresponds to the end of drying before removing the product from the chamber.

This method is routinely applied in Pharmacy in the preparation of various drugs, such as serums, vaccines, antibiotics, among others.

Like any other method it has advantages and disadvantages. Among the advantages, the following stand out: the ability to maintain the nutritional properties of the food, maintain the shape and texture very similar to the original, and lyophilized products have better quality than the same products dehydrated by other methods. On the other hand, this method uses very expensive equipment, has a high energy cost and is a very time-consuming process.

Keywords: Lyophilization, Sublimation, Freeze dryer, Pharmacy

EXTEMPORANEOUS PREPARATIONS

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Extemporaneous preparations refer to instable medicinal products (aqueous solutions or suspensions of easily hydrolysable active ingredients) when reconstituted and are therefore only prepared at the time of dispensing. This situation takes place mainly with solid pharmaceutical forms (freeze-dried powders or granules that can be soluble or not) and which are suspended in predefined quantities in an appropriate vehicle or solution.

These preparations are currently used in the preparation of injectables but also in some preparations for oral, auricular and ocular use, in an aseptic environment. In the present work, we present a concrete case the application of this type of preparation: injectable drugs of extemporaneous preparation; as well as the conditions in which it should occur, focusing on the aseptic technique.

Generally, products resulting from these preparations should be used for a maximum period of fourteen days after their preparation when stored in the fridge; if stored at room temperature, their validity consists only of seven days.

Like all manipulations, this one has associated advantages and disadvantages. The main advantage is its preparation at the time it will be used, ensuring the quality of substances containing the active ingredients, associated with an appropriate dosage form, when no commercial form of medicines is available, and the possibility of adjustment to the individual treatment of patients. However, the short shelf life and instability of preparations are two drawbacks of this type of preparation.

Keywords: Extemporaneous preparation; instability; injectable medicinal product; asepsis

GALENIC FORMS OF VAGINAL APPLICATION

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The vagina is the female genital organ that is responsible for sexual function, the design, and menstruation. It is an organ that has unique characteristics in terms of pH and microflora, besides its external tunic is conjunctive nature presenting fibrous elements, elastic and smooth muscle.
Due to its characteristics, the vaginal mucosa is used for the application of topical medicines, some were still observed drug absorption via this route, which motivates interest since it avoids the first-pass effect allowing the absorbed dose is higher.
According to Portuguese Pharmacopoeia, vaginal preparations are liquid, semisolid or solid form preparations intended to be administered vaginally, with examples of such dosage forms: ovules, pills, and vaginal capsules, solutions, emulsions and vaginal suspensions, ointments, foams, and medicated vaginal tampons.
As with all drugs, vaginal drugs have application advantages and disadvantages. Advantages: circumventing the first-pass effect, reducing the incidence and severity of gastrointestinal and hepatic adverse effects. Disadvantages specific genre, the possibility of becoming convenient little influenced by the concentration of estrogen and consequent permeability of the membrane vaginal, the vaginal volume may alter absorption.
In short, the vaginal application of agents is an alternative to drugs applied in other ways, but their use is exclusive to females. It is a route that allows the application of various galenic formulations depending on the situation and the preference of each person.

Keywords: Vaginal application, Portuguese Pharmacopoeia, pharmaceuticals, first pass effect

GALENIC FORMS OF PROLONGED LIBERATION

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The release profile of a drug can be divided into pharmaceutical forms of immediate release or modified release pharmaceutical forms. It is within the pharmaceutical forms of modified release that we find the forms of prolonged release. These formulations reduce the number of administrations of a given drug, ensuring the maintenance of plasma concentration for longer.

Most of these preparations are solid galenic forms such as tablets, capsules, spheres and granules, however, we can find exceptions, as is the case with some suspensions and some liquids. For the development of oral solid pharmaceutical forms of prolonged release, it is necessary to initially select the type of pharmaceutical form and the technology to modulate the release of the drug that will be employed. Thus, there are two types of systems, the monolithic system and the multiparticle system. To sustain the release of drugs from this galenic form, high light the matrix, reservoir or osmotic systems.

This type of formulation provides greater adherence to treatment by the patient, presenting fewer side effects and an improved therapeutic action, than through conventional treatment.

Keywords: Galenic Forms of Prolonged Liberation; Monolithic system; Multiparticle system

NEW THERAPEUTIC SYSTEMS

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The development of new pharmaceutical formulations tends to change the concept of medicine. With the need to model release kinetics, improve absorption, increase drug stability or target it to a specific cell population, in recent years several drug administration systems have emerged, the "New Therapeutic Systems". In this context, liposomes, nano and microparticles, systems designed to overcome the aforementioned difficulties, emerged. Nanotechnology is a science that has emerged in recent years in several fields, including also the pharmaceutical area with the objective of designing new pharmaceutical forms. Within nanotechnology, the production of new pharmaceutical forms consisting, among others, of nanocapsules, nanospheres and liposomes has been gaining more and more interest. The main objective of these various systems is a better absorption and stability of the drug.

However, these systems have disadvantages, namely, in terms of their production, which may result from the low solubility of the drugs, which also leads to the equally low rate of incorporation of active principle, or to the incomplete release of the drug. To overcome these difficulties some authors have used cyclodextrins.

These innovative systems present themselves as drugs that promise to help take a step forward in the Pharmaceutical Industry and in the well-being and health of people.

The paths we can take using these drugs are attractive.

Keywords: Nanotechnology, liposomes, nanocapsules, nanospheres

GALENIC FORMS OF TRANSDERMAL DELIVERY

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Galenic forms of transdermal delivery are pharmaceutical forms that allow the controlled release of the drug contained therein to occur through the skin. In this way, their incorporation in these dosage forms makes them present a constant and prolonged systemic absorption rate, with resultant retention of their therapeutic effects for long periods. These forms have been developed to overcome limitations of conventional routes of administration, thus increasing the therapeutic efficacy.

The components of transdermal patches are the protective layer, the adhesive, the removable protective layer, the reservoir system or the matrix system and the semipermeable controlling membrane. The passage of the drug through the skin can occur passively or actively. The transdermal route has three major systems: reservoir type, matrix and drug-in-adhesive type.

The development phases of transdermal patch systems are: Selection of the drug and physical form; Design selection; Execution of microbiological tests and phase I, II and III tests; In vitro permeation studies; Quantification of the drug in the formulation, skin and blood; Evaluation of potential adverse effects at systemic level; Evaluation of skin toxicity; Execution of microbiological tests and phase I, II and III trials; Description of formulation specifications; Surveillance in the post-approval market. During the process, the characteristics of the drug, polymers, adhesive, absorption promoters and plasticizers must be considered.

These galenic forms, when releasing the drug in a controlled way through the skin, present themselves as an excellent alternative to other routes of administration.

Keywords: Systemic Absorption; Patches; Drugs; Transdermal Release; Skin

EXTRACTS AND COMPLEMENTARY FORMS

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Extracts are solid pharmaceutical preparations obtained by concentrating to a certain degree the solutions resulting from the depletion of medicinal substances by a solvent such as water, alcohol, ether, acetone, etc. There are two distinct phases in its preparation: obtaining the extractive solution and its concentration. In order to eliminate substances without therapeutic interest and whose presence may result in decreased stability of the extract, the purification operation can be carried out.

They are classified according to their consistency and in relation to the extractive liquid.

Thus, the extracts may constitute extractive preparations of liquid and concentrated consistency (fluid extracts and tinctures), of semi-solid consistency with a percentage of water between 20 to 25% (soft or firm extracts), of solid consistency, and whose content in water, around 2 to 5% (dry extracts), obtained from generally dry plant parts.

Regarding the classification of extracts according to the extractive liquid, aqueous extracts (prepared by maceration, infusion, percolation and digestion), alcoholic extracts (prepared by maceration or percolation), ethereal extracts (prepared by percolation) and acetone extracts stand out (prepared by maceration).

Various complementary forms of extracts appear on the market, obtained by extracting natural drugs, which are similar in appearance and form to obtain solid extracts or fluid extracts. The preparations that play a prominent role are: fluid or concentrated pseudo-extracts, physiological intracts or extracts, energetenes, autolysates, plasmolysates and hydro-lysates.

Currently, the direct application of plants in the cosmetic industry is increasingly in disuse, having been replaced by the application of its extracts which is more convenient and safer.

Keywords: Extracts; solid preparations; extractive solution; concentration; complementary forms

HISTORY OF THE DEAF

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Introduction: The deaf people have always existed, being treated as different since the beginning of time. As the society evolved, the treatment of the deaf community changed.
Objective: To acquire knowledge about the historical development of the deaf in Portugal and in the world and to realize the development of the role of the deaf community in society over time.
Methodologies: A search was carried out in "Scielo" and "Google Scholar" using the words "history", "deafness", "Portugal" and "world" as a means of obtaining the necessary information to prepare our work.
Results: 4 documents were used in order to have bases to carry out the work.
Discussion: The social treatment of deaf people has improved over time. Some people worshiped the deaf while others rejected them completely, even getting rid of them. This type of treatment has improved a lot over time, and now the deaf citizen already has much more impact on the general society.
Conclusion: The deaf community is still highly judged by society, despite the fact that they are already able to have a normal life in their daily lives, several efforts have been made so that the deaf community can compete on equal terms with the rest of the population and that accepted despite differences.

Keywords: Deafness, History, Portugal, World

INCLUSION OF DEAF CHILDREN IN SCHOOLS AND FAMILIES

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Introduction: The inclusion of deaf children in a family and school environment has been a theme in constant evolution. Communication is the biggest challenge that these families face and the school has a fundamental role in mitigating communication difficulties between the family and the child. In this sense, the school helps in the creation of self-help communication systems as an alternative to oral communication. Objective: Address inclusion strategies in school and family environment of deaf children. Methodology: A search was carried out in databases such as b-on, pubmed and Scielo. Results: We found 30 articles and we used 20 to make this work. Discussion: There are countless inclusion strategies for the deaf child in the family and at school. These strategies are based on improving the mutual interactions of family members, as well as establishing emotional bonds between them. At school, it is important to have a good adaptation in the various subjects, as well as an appropriate plan to their needs. Conclusion: Deaf children at school have many learning, emotional and social problems, which are an essential condition for their personal development. The family is a very important pillar for these children since they are the first to communicate with them and, for this reason, they have to find clear, dynamic strategies that do not cause frustration to the child in order to have the most normal life from an early age possible.

Keywords: Child deafness, cognitive development, school inclusion, family interaction.

ACQUISITION OF PORTUGUESE SIGN LANGUAGE BY THE DEAF CHILD

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Introduction: The Portuguese Sign Language (PSL) is a right of the Portuguese deaf child. It is through language acquisition that the child develops its characteristic features and this is decisive in accessing knowledge and culture, in interaction in society, in school success and in the full exercise of citizenship. PSL is a visual-motor language that allows deaf children to develop similarly to normal hearing children. Goals: Acquire knowledge about the early acquisition of PSL by the deaf child. Methodologies: Through research platforms, Google academic and b-on. Results: We selected three articles and three master's theses. Discussion: Defenders of oralism and practitioners argue that cognitive development is conditioned by the greater or lesser mastery of the oral language, arguing that language acquisition should not include structured gestural systems, only natural gestures. In bilingual education, we have as a basic idea that the deaf should have the sign language as their mother tongue, considered the natural language of the deaf, and, as a second language, the official language of their country. Since, the sign language is a medium used in all cultural and social contexts. Conclusion: It was found that the child should be exposed as early as possible to that which is his natural language, the PSL, so that he can develop his communicative skills as well as the official language in order to facilitate his contact with the society where he is inserted.

Keywords: PSL, Deaf child, Bilingualism, Language acquisition, Communication.

DEAF PERSON'S DIFFICULTIES IN THE PORTUGAL'S NATIONAL HEALTH SYSTEM

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In today's society, there is an attempt to reach social, educational and health equality to the deaf community. There is a problem of interpersonal communication, when there is a need for interaction between a deaf person and the hearing people, because people still cannot communicate correctly and in a universal language. The PHS (Portuguese Health System) is not prepared to interact with the deaf person, because they do not have the domain of PSL (Portuguese Sign Language).

To analyse the strategies that the PHS is adopting to discuss the difficulties of communicating deaf people.

A survey was conducted in the b-on and scielo database with the keywords "Deafness", "Health", "Portuguese Health System", "Communication" and "Strategies".

In the total of 11 articles, we came up with a strategy for the deaf community to be able to properly enjoy the PHS would be the presence of an interpreter, to improve communication between health professional and user.

The strategy found to improve communication between health professionals and non-listening users has its disadvantage, since it can exclude the deaf from the dialogue due to the presence of the interpreter, hindering their relationship.

Over time, deaf people are increasingly achieving greater equality with society. The difficulties that a deaf person encounters in the PHS are mainly in terms of communication between patient and health professional, since the PHS is not adapted to the needs of non-hearing users. PSL is not yet present in the care of users in the PHS, making communication difficult.

Keywords: "Deafness"; "Health"; "National Health System"; "Communication"; "Strategies"

SING LANGUAGE AROUND WORLD

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Introduction: Sign language is a visual language used by deaf people to communicate. This language isn't universal, since different countries can present different languages. There is Gestuno, an auxiliary language, universal, used in international events. To better understand the development of the several sign languages it's necessary to acknowledge their origins, similarities and differences.

Objective: To analyze different sign languages in the world.

Methodologies: A search was carried out on "Google" and "Google Scholar" databases, where the words "sign language", "origins", "history" and "actuality" were used to obtain information, such as articles and online pages, according to the chosen theme.

Results: 24 web pages were used (which includes pages of deaf communities' associations and journal articles) and 3 scientific articles that were in agreement with the 10 countries under study.

Discussion: It was verified that 144 sign languages are cataloged, but it's estimated to exist more. Their route was similar, and most of them originated from French Sign Language. Others, emerged from different Linguistic Families of Sign Languages.

Conclusion: Some spoken languages can be similar and their sign languages different, since sign languages have common origins, different from spoken language. Despite being used since the XVI century, only recently, in general, has been verified its acceptance, in the community, of Sign Language as the country's official language.

Keywords: Sign language, origin, actuality, history, world

COMMUNICATION STRATEGIES FOR THE DEAF

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Introduction: Communication is a human need and is defined by the process by which a person comes into contact with another, through the exchange of messages, feelings, ideas, facts, thoughts or behaviors. There are many ways to communicate and we can separate them into categories: Oral, Non-Oral Communication, Verbal Communication (speaking and writing) and Non-Verbal Communication (miming, gestures and lip reading). Objective: To identify and analyze the communication strategies of the deaf person. Methods: A search was carried out in the following electronic databases: Google Scholar, Scielo, B-on, Rcaap and Researchgate, using the keywords, communication strategies, deaf person, verbal and non-verbal communication. Results: A total of twenty articles were obtained, after reading the abstract, six were excluded because they were not directed to the intended theme. Discussion: Despite the various communication techniques (Portuguese Sign Language (LGP); mimicry; writing; interpreter; lip reading; software, as an example the app MAI112 that allows a better integration of the deaf person in today's society, most are still not fully effective, as dependence on third parties persists. Conclusion: To eliminate social inequalities between listeners and non-listeners, the LGP should be inserted in school education from the beginning of the path of the listening community, so that communication between them is possible. Thus, we verify the need to change the rules currently implemented, leading to improved communication and interaction with the deaf.

Keywords: Communication strategies; Deaf Person; Verbal and non-verbal communication

HEARING REHABILITATION IN THE ELDERLY WITH DEMENTIA

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Introduction: In last years, there has been an increase in studies on the implications that dementia and hearing loss have on elderly people's communication. Objective: Based on a literature review, it is possible to evaluate the process of hearing rehabilitation in the elderly with dementia. Methodology: The search for the articles was carried out through electronic databases such as b-on and Pubmed, with the following keywords: "elderly", "hearing loss", "hearing rehabilitation", "dementia", "cochlear implant" and “auditory training” in English and Portuguese. It was also requested a search to the library of the School of Health Technology of Coimbra, obtaining a total of 30 articles. The inclusion criteria were applied: age of participants between 60 and 85 years and diagnosis of dementia, 7 articles were selected for the present study. Results: It was observed that Alzheimer's has no association with hearing loss however, patients with Parkinson's have bilateral sensorineural hearing loss report greater difficulty in perceiving / understanding words, especially in noisy environments. In most cases, the hearing rehabilitation plan is done with behind the ear aids however, in cases where no benefits were observed with the use of the prostheses, the cochlear implant was used. Several authors defend that the inclusion of auditory training in the auditory rehabilitation process optimizes the communication skills of the elderly. Conclusion: Hearing rehabilitation results in improvement of speech perception and cognitive skills, positively influencing social activity and quality of life of elderly people with dementia.

Keywords: Elderly, Hearing loss, Hearing rehabilitation, Dementia, Cochlear implant, Auditory training

THE ROLE OF THE AUDIOLOGIST IN HEARING REHABILITATION WITH COCLEAR IMPLANT

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Introduction: Hearing rehabilitation includes the assessment, adjustment, verification and validation of technologies that assist in the individual's hearing rehabilitation process. The cochlear implant (CI) is one of these technologies and represents the greatest advance in the treatment of individuals with severe to profound bilateral sensorineural hearing loss, who don't have benefits with hearing aids. The Audiologist provides intervention, it means that, it helps the individual to take better advantage of appropriate communication, directed at the hearing, speech and language deficits that are frequent in individuals with cochlear implant.

Objective: Determine the role of the Audiologist in the hearing rehabilitation team with Cochlear Implant.

Methodologies: Through a literature review, in the databases b-on and Scielo, we obtained 6 scientific articles, which we used to carry out this work. We used the words "Cochlear Implant", "Audiologist", "Auditory Rehabilitation" and "Communication" as search engines.

Results: In the operating room, the Audiologist performs neural response telemetry (NRT) to check the correct position of the CI electrodes, and to see if they are all working properly. During the follow-up process, the CI programming is adjusted according to the needs of the individual, being responsible for checking the daily functionalities and solving problems of the CI as well as guiding the family in the correct use of it.

Conclusion: The role of the Audiologist in the hearing rehabilitation team is fundamental during and after the surgery, making it possible to obtain auditory thresholds that allow efficient communication, contributing to the success of the individual's rehabilitation process.

Keywords: Hearing Rehabilitation; Cochlear Implant; Audiologist

DIRECTIONAL MICROPHONES IN HEARING AIDS

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Introduction: Since the first hearing aids, there has been an improvement of the technology and components used, from mechanical hearing aids made of animal horns to avant-garde ones with Bluetooth and Wi-Fi. One of the mandatory components of a hearing aid is the microphone. The microphone captures the sound waves and transforms them into electric waves for processing inside the hearing aid. In aural rehabilitation, one of the most commonly used microphones is the directional microphone.

Objective: Approach the use of directional microphones in hearing aids, its operating method and its advantages using a revision of literature as basis.

Methodology: Several articles were collected using the keywords “microphone”, “directional microphone” and “hearing aids” in search engines such as PubMed and B-on, where we obtained 116 results. Several articles were excluded for not having a connection to the objective of the work or not having free access. We ended up with the 7 articles which are present in the literature review.

Results: The technology of directional microphone is composed of two omnidirectional microphones located in an almost horizontal plane. When the hearing aid is programmed to be omnidirectional, only one microphone is activated (front side of the microphone) and collects sound from every place to be amplified with no relative delay. Studies show a tendency to directional microphones being better with noise, but more research is needed.

Conclusion: Directional microphones allows a better speech recognition in noise, therefore the constant development of the technology to improve its functions is important.

Keywords: Microphones, Directional Microphones, Hearing Aids

COCHLEAR IMPLANT IN CHILDREN WITH CEREBRAL PALSY

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Introduction: Cerebral Palsy (CP) is a non-progressive neuromotor disorder as a consequence of brain damage, which occurs in the early stages of child development. It is a global disorder of postural control, and this motor dysfunction can be the source of other associated disorders such as severe to profound bilateral sensorineural hearing loss. Hearing rehabilitation aims at improving the perception of speech sounds, allowing the acquisition of oral language more quickly. The CI is one of the devices used in hearing rehabilitation of children with this type of pathology. Objective: Based on a review of the literature, it is intended to verify the benefits of CI as a method of hearing rehabilitation in children with CP. Methods: A search was conducted in the electronic databases, B-on, pubmed and google scholar with the keywords Cerebral Palsy, Children, Hearing Rehabilitation and Cochlear Implant. A total of ten articles were obtained, two of which were excluded for not discussing hearing rehabilitation plan. Only, children aged up to six years with severe to profound bilateral sensorineural losses, related studies were included in this review. Results: From the analyzed articles, it was found that children with CI presented satisfactory auditory and language development, essential for the acquisition of communicative skills. Conclusion: The CI is a viable option for children with hearing impairment associated with cerebral palsy, as it allows children to take more advanced steps in terms of hearing and language skills.

Keywords: Cerebral Palsy; Children; Hearing Rehabilitation, Cochlear Implant

SENSORINEURAL DEAFNESS IN CHILDREN: PROSTHETIC ADAPTATION VS COCHLEAR IMPLANT

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Introduction: Sensorineural hearing loss in children may be hereditary, congenital or acquired, unilateral or bilateral, mild to profound. Universal neonatal auditory screening ensures that all babies are identified as early as possible to start an intervention no later than 3 to 6 months of age. In this type of deafness there is no medical-surgical treatment, requiring forwarding to auditory rehabilitation.

Objective: To verify which auditory rehabilitation protocol should be followed, in severe to profound sensorineural hearing loss, in pre-lingual children.

Methodology: A research was carried out in the databases "b-on", "Researchgate", "Joint Committee on Infant Hearing" and "Scielo", with the keywords "prosthetic adaptation", "child", "sensorineural deafness" and "cochlear implant", obtaining a total of twelve articles. Ten articles were excluded due to incompatibility with the objective of the study, namely another types of losses and children in the post-lingual phase.

Results: It was found that cochlear implant (CI) provides a superior speech development to hearing aids. However, the same will depend on the age of placement. “Food and Drugs Administration (FDA)” approves that it must be implanted before 12 months of age, showing more benefits when placed bilaterally and sequentially.

Conclusion: In bilateral average losses greater than 90 dB, CI is recommended. In lower losses it is necessary to use retro auricular hearing aids (3 to 6 months). If there is no benefit adapted with CI, in relation to hearing aids, it shows better results in speech acquisition when placed in the prelingual phase (age <2 years).

Keywords: Sensorineural hearing loss; children; hearing aid; cochlear implant

NATURAL LIGHT - BENEFITS FOR THE WORKER

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Natural light provides numerous benefits to humans. It has been associated with users satisfaction and well-being, influencing their mental state, mood, psychological aspects and their general health. In addition to these factors, we can mention their influence on increasing productivity in work environments, reducing energy consumption and their contribution to the sustainability of buildings.

The light reveals the shape, the space, the texture and the color - all elements considered fundamental in the architecture, therefore the experience lived by the people in the spaces has an intrinsic relationship with the quantitative and qualitative aspects of the light that interfere in the better or worse visualization of the environments, objects in the surroundings and tasks to be performed affecting comfort, safety, psychological sensations and productivity at work spaces.

The influence of lighting on health is related to the following issues: visual effort and non-visual aspects of light. Visual stress caused by inadequate lighting has the following consequences: visual disturbances, visual tiredness, glare, headaches, variations in the nervous system, accidents and errors at work and decreased productivity.

This work aimed to study the influence and advantages of natural lighting for the worker, conducting a bibliographic research on the topic.

Good lighting quality helps to improve the visual performance of tasks, helps in interpersonal communication and improves the feeling of well-being, while poor lighting can cause discomfort, be confusing and impair visual performance.

Keywords: Work Hygiene, Natural Light, Advantages of Natural Lighting

COLOR PSYCHODYNAMICS

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Color is one of the elements that can induce sensations and promote emotional well-being, however it's not enough to "color" the work spaces, it's necessary that the choice of colors is appropriate to the function of the space and the characteristics of the task and the users. It's essential to have knowledge about several aspects inherent to color, which, if properly explored, can help to achieve more pleasant and functional environments. The main legal and normative provisions are: Decreto-Lei No. 243/86 (general regulation of Health and Safety at work in establishments); Portaria No. 987/93 (minimum safety and health requirements in the workplace.); Lei No. 102/2009 (legal regime for the promotion of Health and Safety at work) and European standards (DIN 5035: 1990; EN 12464: 2002; ISO 8995: 2002). Several studies suggest that color can be used to help people to feel physically and emotionally more comfortable in work environments, as it provides feelings of comfort, well-being, dynamism and contentment. The actions of the Superior Technicians of Safety and Hygiene at Work, appear to be quite opportune in this scope, in the sense of contributing to the adequacy of the environments, controlling certain variables to obtain adequate lighting, providing a good physical and work environment, not placing at risk to workers' health, safety and productivity.

Keywords: color, Occupational Hygiene, Environmental Health, Health promotion

BIOLOGICAL RISK IN HOSPITAL ENVIRONMENT-PREVENT DISEASE IN HEALTH PROFESSIONALS, PROTECT THE HEALTH OF USERS

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Biological risks are one of the most worrisome in a hospital environment, being found in abundance. Biological risks are viruses, bacteria, fungi, protozoa, parasites, among others. The contact of these agents with humans, depending on the harmfulness of the agent, can cause numerous and serious diseases, and in the hospital environment, professionals are intermittently exposed to these risks, as they have contact with blood and body fluids. This type of risk comprises communicable diseases, and for this reason control and caution are of great importance.

Health professionals working in a hospital environment are exposed to diverse risks, among them, those caused by biological, chemical, physical, ergonomic agents, among others. With this we can notice that hospitals are considered unhealthy because they receive patients with various infectious diseases and group them in the same place, which causes a high degree of biological risks for professionals.

The main objective was to analyze the measures adopted by the hospital in order to promote health prevention of the spread of microbiological beings considered biological risk.

To achieve the objectives, a literature review was carried out on the subject and taking into account the current pandemic, an approach was made to how the prevention of the disease is done, in hospital environment, of users and health professionals.

To achieve the objectives, a literature review was carried out on the subject and taking into account the current pandemic, an approach was made to how the prevention of the disease is done, in hospital environment, of users and health professionals.

Health institutions need to establish a program of Occupational Health Care where it can be cared for correctly, thus increasing their quality of life and also bring benefits to the company that hires them, increasing the quality of the services provided where health service users are satisfied and recommend them.

Keywords: risk, biological, covid-19, professional

LIGHTING AND WORKER AGE

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Adequate lighting in the workplace is an important factor that contributes to the safety, health and comfort of the worker. Lighting conditions limit the perception of visual comfort, which translates into visual fatigue, stress and physical effort.

The objective of the work was then to identify the main needs of the worker's visual field according to age and to relate it to the importance of lighting in the workplace. To carry out what was proposed, a bibliographic search was performed.

Thus, visual needs change over time, that is, as the age of the worker increases, he will need more light in the workplace so that, reading documents is made easier, he will experience difficulty in reading and carry out close jobs because the materials may become less clear due to the fact that the eyes become less flexible. Thus, it will be necessary to adapt the light of the workplace to the needs of each one and it must be sufficient, constant and uniformly distributed in order to avoid eye fatigue, resulting from successive accommodations due to variations in light intensity.

Finally, there is an obvious link between lighting and safety in the workplace and it is necessary to ensure that the levels of lighting in the workplace are adequate, contributing to better performance, which increases and satisfaction in the workplace what will, therefore, reduce the risks and accidents in it.

Keywords: Lighting, Safety, Age, Efficiency, Risks, Health and Workplace.

ASBESTOS - WHICH DIRECTION?

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Asbestos has several physical properties, such as resistance to mechanical shock, which consists of bundles of fibers and only becomes dangerous if it is segmented and dispersed in the air, it has several applications associated with it, however, all varieties of asbestos are susceptible to causing cancer, leading to the creation of measures by several countries in order to forbid its use. This work had as main objective the perception of diseases for workers and their families associated with exposure to asbestos and what preventive measures were applied and for that purpose a bibliographic review was carried out on the theme and the role of the Environmental Health Technician.

Domestic exposure to asbestos occurs when workers transport asbestos fibers from their workplace to their homes, thus leading to the appearance of diseases due to the transport of asbestos to the family environment, such as lung cancer and benign diseases related to asbestos. Although the use of asbestos was banned in several countries, it is possible to verify that currently there are still several consequences for the health of all workers who have been exposed to these fibers.

Portugal is one of the countries where asbestos was banned, however the presence of it in civil construction continues, leading to the main exposure group being workers in the cleaning and maintenance of buildings and consequently their families.

Keywords: Asbestos; Fibers; Domestic Exposure; Diseases; Civil Construction.

PROFESSIONAL RISK MANAGEMENT IN CATERING

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In order to be able to assess the risks to which workers are exposed, an identification of existing dangers in an organization's workplaces must first be carried out.

The objective of this work is to understand what are the main professional risks for workers associated with the catering industry and for that we resort to several scientific articles.

Risk analysis consists of three stages: hazard identification; identification of exposed workers; risk estimation. Risk assessment is nothing more than a careful examination carried out in the workplace.

The catering sector has a specificity and complexity that is important to understand and analyze, with regard to the safety and health of workers. The hazard identification step, as the basis for risk assessment, should consist of identifying hazards likely to cause injury to workers.

Risk control should allow the risk to be taken to acceptable levels and promote the analysis of the need and functionality of the measures implemented.

In conclusion, the area of restoration entails biological, physical, psychosocial and ergonomic risks in which it is understood that risk assessment is central to the reduction of accidents at work and occupational diseases.

Keywords: Restoration; Professional Risks; Occupational Safety and Hygiene; Risk assessment; Risk Control.

PROFESSIONAL RISK MANAGEMENT IN VETERINARY CLINICS

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Veterinarians and their staff are exposed to many health and safety risks in the clinical environment. Psychological health and safety must also be considered. Not creating a biosafety plan is to contribute to an “occurrence of nosocomial infections and/or disease outbreaks.

With this work we intend to study and make known to the population the risks associated with veterinary clinics, to identify the measures that can and should be implemented in order to reduce those same risks and to analyze the professional risks that the Veterinarians and the professionals that with them collaborate are exposed.

According to the case study presented, the risk factors stand out: contact with immunoallergic products, stress, handling of chemical products and biological risk in contact with animals. It should be noted that respondents have generally shown that they value their occupational risks. The existence of a personal history of occupational accidents is very common, with injuries inflicted by animals being very prevalent, followed by bites or cuts with potentially contaminated sharp objects.

Thus, it is possible to see that the various activities to which veterinarians are exposed daily, bring several risks due to the wide variety of animal species. Therefore, further investigations on risk prevention in the workplace and more measures aimed at preventing injuries should be carried out, so that the number of occupational diseases in this profession is reduced.

Keywords: Veterinary Doctors; Professional Risks; Biosafety

RISK ASSESSMENT AND CONTROL IN CIVIL CONSTRUCTION

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The civil construction sector is quite distinct from the others, essentially due to its specificities, since the production process takes place according to the dynamics of the project and not around a machine or process. Based on this, it's essential to have methods capable of identifying and treating risks, so that it's possible to predict and act. It's pertinent to implement solid models of professional risk management in this area, because they make possible to understand their effects and consequences. The main legal and normative provisions are: Decree-Law nº 273/2003 (general rules of planning, organization and coordination to promote safety, hygiene and health at work in shipyards); Ordinance No. 101/1996 (minimum safety and health requirements in the locations and workstations of shipyards); Decree-Law nº46427 / 1965 (Regulation of Provisional Social Installations for personnel employed in the works); Decree nº 41821/58 (regulation of safety in the work of the civil construction). The intervection of the Environmental Health Technician is crucial, not only with regard to Public Health and Hygiene and Safety, but also for the development of the activity and operation of the facilities, with the objective of promote the life quality of users, as well as the environment in general.

Keywords: Professional Risks, Civil Construction, Environmental Health, Health Promotion.

MANAGEMENT OF PROFESSIONAL RISKS IN THE HOSPITAL ENVIRONMENT

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A Professional Risk is the possibility of a worker suffering damage caused by the work he/she does. To quantify a risk, the probability of damage and its severity are valued together. In Portugal, according to data from the Central Administration of the Health System, hospitals are the institutions with the highest number of recorded work accidents.

Our goal was to analyze the knowledge of ESTeSC students about the risks to which they may be exposed in the future and risk assessment at a hospital job.

To this end, as a first step, a questionnaire was applied to the and then analyzed the data and finally, taking into account the chosen location, risk assessment and suggestion of improvements were made.

Within the study population, most individuals are female and aged between 18 and 20 years, inclusive. Students from all courses in the student community answered the questionnaire, emphasizing environmental health courses and laboratory biomedical sciences. Overall, most students know how to identify the risks to which they will be exposed in the future in their profession, but not everyone knows how to protect themselves.

In view of the answers to the questionnaire, a clinical analysis laboratory was chosen to identify hazards and assess risks. However, it was found that most of the identified risks are acceptable.

A close relationship with institutions and health professionals, which does not refer to their collective and individual needs, has a constant challenge for a multidisciplinary team in search of the most necessary solutions, which guarantees the improvement of local work conditions and, consequently, health and well-being, motivation, increased decrease and decreased absenteeism.

Keywords: risk; danger; hospital environment; protection

PROFESSIONAL RISK MANAGEMENT IN CIVIL CONSTRUCTION

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Currently, companies are increasingly faced with the emergence of new risks, thus, risk management has been attracting increasing attention in the construction sector as there are numerous risks associated with it. This process has been recognized as an important management mechanism for construction projects in order to analyze the project's objectives in terms of time, costs, quality, safety and sustainability. Although risk management presents itself as an important tool in the management of any construction project, it is not used systematically by construction companies.

Risk assessment is the basis for effective health and safety management and is essential to reduce occupational diseases and accidents at work. This way, if done well, it can improve the health and safety of workers, as well as the performance of companies.

This work aimed to promote a critical and constructive view on laws, regulations and standards as well as interventional and participatory attitudes, through a bibliographic review on the topic.

In order to prevent the occurrence of accidents, proper methodologies must be developed, based on a careful risk assessment, taking into account the working and worker conditions, as the elimination of these risks is an impossible task, which leads companies to try achieve and improve the maximum possible security.

Keywords: Risk Management, Professional Risks, Risk Assessment, Civil Construction

APPLICATION OF THE COSHH ESSENTIALS METHOD IN THE CHEMICAL INDUSTRY - SULFURIC ACID MANUFACTURING PROCESS

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In the chemical industry, sulfuric acid has several applications - solution of batteries used in automobiles, production of fertilizers and also as a catalyst in various chemical processes. However, it also carries several risks as it is a potent irritant of the respiratory tract, skin and eyes. It produces severe burns on the skin with intense scarring fibrosis and functional limitations. In accidents with the eyes, it can cause severe ulcerative lesions, cataracts and glaucoma.

Therefore, the objective of the work was then to apply the Coshh Essentials methodology to the sulfuric acid manufacturing process to find out what control measures we would apply to the process. This methodology consists of four stages: identification of the group of hazards, identification of physical and chemical properties, identification of control measures and, finally, control guidance sheets.

Thus, it was possible to ascertain that sulfuric acid belongs to the hazard group C and S, has low volatility and, in relation to the third and fourth stages, it can be concluded, respectively, that the control measures to be applied would be: general ventilation, engineering control and personal protective equipment.

Finally, it is then possible to recognize that, in view of the various dangers that sulfuric acid presents, it is of utmost importance that the employer ensures surveillance of the worker's health according to the risks to which he is potentially exposed in the workplace.

Keywords: Sulfuric Acid; Scratchs; Chemical industry; Cosh Essentials; Control Measures

HIDDEN WOLF-PARKINSON-WHITE SYNDROME

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Wolf Parkinson White (WPW) syndrome is a congenital heart conduction disease characterized by the presence of one or more accessory pathways, between the auricles and the ventricles, that predispose the patient to frequent episodes of arrhythmias, the most common being orthodromic tachycardia (classic reentry model), atrial fibrillation and, less frequently, antidromic tachycardia.

There are several types of accessory pathways that cause these arrhythmias, being classified based on their location in relation to the A-V nodule, because they cause such supraventricular tachycardias. Among them are the auriculoventricular and the noduloventricular accessory pathways.

There is often an electrocardiographic variability in this syndrome because of the speed of each accessory pathway that marks the degree of pre-excitation.

A hidden accessory pathway leads only backwards, continuing with the ability to produce tachycardia for orthodontic reentry. Since there is no anterograde conduction, the typical pre-excitation changes on the electrocardiogram will not occur.

I will report a case of Wolf Parkinson White Syndrome, about 40 years old woman, without significant medical illnesses, presented palpitations associated with mild shortness of breath and low tolerance to exertion. She had similar episodes 3 years ago, in which she had a transient loss of consciousness. The cardiac monitor revealed a narrow complex tachycardia of approximately 160 bmp. This case is interesting to differentiate two types of tachycardias common in this syndrome.

Keywords: Wolf Parkinson White; Heart Conduction; Accessory Pathways

TILT TEST AND VASO-VAGAL SYNCOPE

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Syncope is a very common symptom that often leads those affected to seek medical evaluation. Neurally mediated reflexes such as vaso-vagal syncopes are the most frequent cause of syncopal cases.

Vaso-vagal episodes usually occur when the person is exposed to certain triggers such as fatigue, hunger, being in overpopulated/overheated places or emocional stress. All typical triggering factors of a response, in this case exacerbated, of the vagus nerve.

To confirm the diagnosis of vaso-vagal syncopes there is a procedure known as Tilt testing. This test revolves around trying to artificially reproduce syncopes by using a reclining table, since prolonged inclination represents an intense ortostatic stimulus capable of promoting a venous 'pooling' in the lower limbs. Basically, it's based both on fisiopatological knowledge and on the physiological mechanism of adaptation to postural changes.

This work is intended to shed light on these concepts by diving more deeply into each one and will also be presenting a real patient's case showing a vaso-vagal syncope that presents itself as an atrioventricular block.

Keywords: Syncope; Vaso-vagal Syncopes; Tilt Testing

WANDERING PACEMAKER

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Wandering atrial pacemaker (WAP) – commonly known as Wandering Pacemaker – it's a supraventricular arrhythmia that occurs when the physiologic pacemaker site shifts back and forth between the sinus node and ectopic atrial sites.

The ECG reveals a normal heart rate, rhythm regular or irregular, different P wave morphologies that varies as the electrical site "wanders" between the multiple ectopic foci; this also changes PR interval.

WAP is usually seen as a result of increased vagal effects on the SA node, in very young or old people, athletes and during a person's normal sleep cycle – considered a variation of the normal. It may also be caused by the administration of digitalis.

This rhythm isn't clinically significant and, in most cases, doesn't need treatment unless the patient is symptomatic.

The Clinical Case that – next – illustrates this arrhythmia talks about epinephrine overdosing in a 3-year-old toddler that develops to persistent WAP for at least a year and a half after the acute episode. It is, in assumption, an iatrogenic wandering pacemaker, which starts being a multifocal atrial tachycardia, a similar but quicker rhythm.

Keywords: Wandering Atrial Pacemaker; Supraventricular Arrythmia

BRUGADA SYNDROME

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Brugada Syndrome is an inherited cardiac disorder which causes a disruption to the heart's normal rhythm. This disorder is associated with an increase risk of ventricular fibrillation and sudden cardiac death in individuals without apparent structural heart disease, but with frequent episodes of syncope.

Was described by the Brugada brothers, in 1992. It is transmitted by an autosomal dominant gene and is considered a channelopathy, predisposing the heart to ventricular arrhythmias.

The ECG is characterized by ST segment elevation in the right precordial leads (V1-V2) with right bundle branch block aspect.

We present a case of middle-aged woman with family history of sudden cardiac death. The patient presented to the Emergency Department in cardiac arrest (ventricular fibrillation) that was successfully reversed. The diagnosis was done by ECG and she received a cardioverter-defibrillator (ICD) as treatment.

Keywords: Brugada syndrome, Sudden cardiac death, Ventricular fibrillation, Hereditary arrhythmias

ROSENBAUM SYNDROME

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The Rosenbaum Syndrome is a rare condition characterized by the total interruption of the electrical conduction in the right bundle branch and the intermittent disruption in the anterior and posterior divisions of the left bundle branch, which means it is a type of alternant block, being also one of the many possibilities of intraventricular trifascicular blocks. This particular syndrome has a high probability of turning into a complete heart block since the three fascicles are injured, thus, patients suffering from this condition have a high risk of imminent death. Therefore, it is important to better study this syndrome and to treat it correctly. In the present work, the basics of this rare pathology are covered and it is also introduced and analyzed a case of a diagnosed patient. This clinical case shows the inherent complications of this syndrome, as well as the importance of the implantation of a permanent pacemaker as adequate medical treatment, in order to improve the prognostic.

Keywords: Rosenbaum syndrome; Alternant block; Trifascicular block

PRESENCE OF ARRHYTHMIAS IN THE NORMAL POPULATION

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The term arrhythmia can be defined as disturbances in the rhythmic contraction of the atria and ventricles due to a disturbance in the production or conduction of the electric motor.
Running away from what is normal considered, in an arrhythmia, the heart rate that should be between 60bpm and 100bpm is altered, and the patient at rest may have an HR below 60 bpm with bradycardia or above 100bpm with tachycardia. And all this due to changes in the characteristics of some myocardial cells, such as automation, which is the ability of cardiac cells to generate a pulse and transmit it to neighboring cells, the excitation that is the ability of all myocardial cells to respond to a stimulus, and the conductivity, which is the ability of myocardial cells to conduct the stimuli that reach them to neighboring cells.
The presence of arrythmias does not always suggest the presence of pathologies.
Since, there are benign arrhythmias and whose carriers do not have underlying pathologies, so the causes relate more to the bad lifestyle habits, the consumption of certain substances, such as caffeine, alcohol, illicit drugs and situations that increase the amount of adrenaline in the body, such as stress or physical exercise. Therefore, the best way to prevent an arrhythmia is to have good habits and maintain a healthy life.
It will be reporting a case of a 20-year-old boy who went to the health services, complaining of irregular heartbeat, but when performed an ECG and chest X-ray, despite the irregularity of the pulse, his heart was clinically normal.

Keywords: Arrhythmia, Heart rate, Healthy population.

TORSADES OF POINTES

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Torsades de Pointes, a French term that means 'twisting of the points', is a specific form of polymorphic ventricular tachycardia characterized by irregular QRS complexes that are associated with a prolonged QT interval, a syndrome that can be congenital or acquired.
This uncommon condition is known for the twisting of the QRS complexes around the isoelectric line. The tachycardia frequently initiates with an early extrasystole and the 'R-on-T' phenomenon. Further investigation has shown that the risk factors for this type of tachycardia are mainly the variables that cause a long QT interval, and that women are more predisposed to this condition.
Torsades de Pointes often terminates spontaneously, however, this distinctive form of polymorphic ventricular tachycardia, in more severe cases, can develop into ventricular fibrillation, which might be fatal as it may progress to cardiac arrest. As such, it becomes relevant to understand the etiology, means of diagnosis, and available treatment.

Keywords: Torsades de Pointes, Long QT Syndrome, Polymorphic Ventricular Tachycardia, Ventricular Fibrillation

ARTERIAL HYPERTENSION AND PHEOCHROMOCYTOMA

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Pheocromocytomas are rare tumors derived from cromaffin cells of the adrenal medulla. They make, store, metabolize and usually, but not always, release catecholamines, such as norepinephrine and epinephrine. This type of tumor requires surgical intervention because it rarely responds to chemotherapy or radiotherapy.

There are several signs and symptoms of pheochromocytoma such as diaphoresis (excessive sweating), headaches, anxiety and elevated blood pressure, the latter being the most common sign of these tumors, found in approximately 80-90% of patients and related to cathecolamine excess.

Clinical characteristics of hypertension vary and may show either a sustained or paroxysmal pattern. About half of the patients with pheochromocytoma develop sustained hypertension, which is strongly related with high levels of plasma norepinephrine continuously released from the tumor, another 45% present with paroxysmal hypertension (occurres normally in patients with high levels of plasma epinephrine and is typical for multiple endocrine neoplasia type 2 related pheochromocytoma), while 5-15% are normotensive (normotension happens in patients with familial pheochromocytoma, tumors that may be too small to secrete high levels of cathecolamines, or tumors that secrate dopamine).

Pheochromocytoma may go undiagnosed/undetected for various reasons. The main reason is the fact that the tumors are rare. Hypertension may not clinically present itself right away due to the fact that catecholamines can convert into their biologically inactive forms in the tumor, suppressing symptoms and , lastly, the symptoms of the disease are non-specific.

Keywords: Arterial hypertension, Pheochromocytoma, Cathecolamines

WOLFF-PARKINSON-WHITE SYNDROME WITH EBSTEIN ANOMALY

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Wolff-Parkinson-White Syndrome is the most common form of ventricular pre-excitation caused by the presence of an anaurysicle-ventricular conduction pathway. When another conduction pathway is present, this pathway is called an accessory pathway, the impulses bypass in relation to the AV nodule and His-Purkinje system. This accessory pathway conditions the activation of the ventricular muscle earlier than expected if the impulse followed the normal pathway of the cardiac conduction system.

The electrocardiographic pattern of this syndrome is characterized by a short PR interval <0,12 seconds, long QRS complex >0,12 seconds, slow progression of the initial segment of the QRS complex (delta wave), and secondary repolarization changes reflected in the ST segment and T wave.

WPW syndrome appears most often in people without structural cardiac changes, however, check the association with certain congenital heart diseases, particularly with Ebstein's abnormality of the tricuspid valve.

I will present a case of a 9-year-old patient with Wolff-Parkinson-White Syndrome with Ebstein anomaly, who was successfully submitted to radiofrequency ablation of a medioseptal accessory pathway and another right posteroseptal pathway.

Keywords: Wolff-Parkinson-White syndrome, Ebstein's anomaly, Radiofrequency ablation

COMMOTIO CORDIS VS CONTUSIO CORDIS

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Commotio Cordis, which in Latin means “agitation of the heart” is a syndrome of sudden death caused by an arrhythmia, without structural damage to the heart. It’s prevalent in young males and athletes, being the second most common cause of sudden death.

The arrhythmia is provoked by an impact on the chest and can be generated, ventricular fibrillation (a severe one) being the most frequent. In addition, ventricular tachycardias, ST-segment elevations or even complete heart block can be brought up. For this to happen it must occur in a specific short time window of the cardiac cycle (15-30 ms before the peak of the T wave).

Immediate assistance (CPR) and defibrillation are crucial for the individual's survival, as arrhythmias are immediate and life-threatening.

Contusio cordis happens when there is structural damage to the heart (sometimes to the thorax too), caused by the violent impact, very common in road accidents, affecting the myocardium muscle, cardiac chambers or even the valves.

The arrhythmias provoked are diverse and likewise depend on the severity of the trauma. The most frequent being: sinus tachycardia/bradycardia, atrial fibrillation, RBBB, AV blocks. Ventricular Tachycardias and ventricular fibrillations are rare, as they only occur in severe cases. Some may even be secondary to hemorrhage or ischemia provoked by the trauma. Any patients who suffer less drastic injuries may be asymptomatic and will only generate an arrhythmia or conduction disturbance later.

Keywords: Commotio cordis, Ventricular arrhythmia, Contusio cordis

ARRHYTHMIAS AND RE-ENTRY

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Cardiac arrhythmias are electrical changes that cause changes in the heart's rhythm.

The mechanisms responsible for cardiac arrhythmias are generally divided into two broad categories: abnormalities in the formation of the electrical impulse (automatism and triggered focal activity) and anomaly in the conduction of the impulse (blockage and reentry) and can affect the heart rate causing tachycardias or bradycardia.

The most common pathophysiological mechanism for the production of arrhythmias is the phenomenon of reentry, characteristic of Wolff-Parkinson White Syndrome, atrial flutter and other types of tachycardias. Reentry can occur due to the existence of an anatomical, functional obstacle, by anisotropy or reflection.

The electrocardiogram analysis reveals a relationship between abnormal P and QRS, which may or may not be associated with other changes.

The clinical picture is varied and the symptoms most frequently observed are palpitation, syncope, presyncope and precordial pain, the first being the most common.

The diagnosis of the underlying cause and treatment are based mainly on the electrocardiogram and electrophysiological study.

The objective of this work is to understand the reentry mechanism as well as all types of arrhythmias that accompany it, without forgetting to mention the electrocardiographic and electrophysiological data.

Keywords: Cardiac arrhythmias; Reentry mechanisms; Atrial flutter; Electrocardiogram.

DRUG-INDUCED EFFECTS ON THE ELECTROCARDIOGRAM

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There are numerous of toxins and drugs that can cause, electrocardiogram changes, even in patients without history of cardiac pathology. The prevalence of hypertension estimated in the Portuguese population is 36%, but the more elderly's groups reach 71.3%.

Hypertension is much more common in the elderly, and in this age–group (≥ 55 years), isolated systolic hypertension is particularly common. Several placebo-controlled studies showed the efficacy of diuretics in reducing cardiovascular morbidity and mortality in the elderly.

Lowering blood pressure has been shown to reduce the risk of cardiovascular morbidity and mortality. In many trials in which a reduction in cardiovascular events was documented, antihypertensive therapy was diuretic-based. Potassium sparing drugs are often combined with other diuretics in the management of chronic cardiovascular diseases.

The most common cause of hyperkalemia in older patients is that of iatrogenic medication-related etiology due to associated polymorbidity, polypharmacy and reduced reserve metabolic capacity. Potassium imbalance represent the most common electrolyte disturbance in older patients.

If we take in consideration that the hyperkalemia, is a potentially life-threatening electrolyte imbalance that can be difficult to diagnose due to the paucity of specific signs and symptoms, and is known to be associated with increased hospitalization and mortality in patients with cardiovascular diseases, any clinical suspicion requires an immediate 12-lead electrocardiogram to ascertain whether electrocardiographic manifestations of electrolyte imbalance are present.

The case report is of a person with hyperkalemia ≥ 9.0 mmol/L induced by potassium sparing drugs.

Keywords: Toxins and drugs ;Electrocardiogram changes

ST-T AND PSEUDONORMALIZATION

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Pseudo normalization or absence of alteration in the st segment is a nonspecific change that occurs in people with changes in the resting electrocardiogram or stress test, in these people when pseudo normalization occurs the changes that were present disappear, presenting a normal morphological aspect during crises.

Pseudo normalization of the negative T-wave during a stress test is rare. When this ECG pattern is observed without evidence of other pathology, the possibility of apical hypertrophic cardiomyopathy should be a possibility.

Apical hypertrophic cardiomyopathy is a rare subtype of hypertrophic cardiomyopathy that is characterized by thickening of the myocardial wall at the apex of the left ventricle without an associated disease that explains this change, this disease usually shows no symptoms. Some patients with apical hypertrophic cardiomyopathy have only negative T-waves on the electrocardiogram and have no diagnostic evidence on echocardiogram, and for this reason the diagnosis of apical hypertrophic cardiomyopathy is often not confirmed or diagnosed in many cases.

In this way, I will present a case of a 50-year-old male patient who had no cardiac symptoms (such as dyspnea, palpitations, chest pain) and had no family history of heart disease or sudden cardiac death. This patient for several years received no diagnosis for the presentation of negative T waves in the pre-remembered electrocardiogram leads. Just years later he was diagnosed with apical hypertrophic cardiomyopathy.

Keywords: ST-T Pseudo-normalization, Negative T-wave, Apical hypertrophic cardiomyopathy

LONG QT IN PEDIATRIC AGE

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The QT interval represents the duration of the electrical ventricular systole, which may be prolonged due to genetic factors or secondary to an underlying cause, therefore called congenital long QT syndrome or acquired long QT syndrome, respectively. Both scenarios have the same clinical manifestations, cardiac arrhythmias that culminate in palpitations, convulsions, recurrent syncope, cardiac arrest and, ultimately, sudden death caused by torsades de pointes, a polymorphic ventricular tachycardia.

The development of the acquired form of this disease may be triggered by medications, thyroid-related imbalances, diabetes, bulimia and other electrolyte changes (hypokalemia, hypocalcemia, hypomagnesaemia). Its therapy involves correcting the precipitating factor.

Although the acquired form is prevalent, when the theme is applied to a child, it's viewed from a congenital perspective, since the predisposing conditions of an acquired syndrome are of greater potential in adult life.

There are two forms of congenital long QT syndrome: Romano-Ward syndrome, an autosomal dominant form with a purely cardiac phenotype, and Jervell and Lange-Nielsen syndrome, a recessive form and associated with sensorineural deafness. About 15 genetic types of LQTS have been identified, and these mutations affect cardiac ion channels, associated membrane proteins and proteins that circulate in myocytes.

More favorable prognosis depend on an early diagnosis. The genotype influences the clinical course of the disease. Beta-blockers, implantable cardiodefibrillators, left sympathetic denervation and pacemakers are used to prevent ventricular tachycardia.

Keywords: Congenital long QT syndrome, Torsades de Pointes, Romano-Ward syndrome, Jervell and Lange-Nielsen syndrome.

CABRERA'S SIGN

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The Cabrera's sign is not a pathology but as the name implies it's an electrocardiographic characteristic caused by abnormalities / cardiac changes. Cabrera's sign is defined as a notch of duration ≥40 milliseconds in the upslope of the S wave in leads V3, V4 and V5. It is used to diagnose acute myocardial infarction in the presence of left bundle branch block (LBBB) or pace rhythm. This criterion is used for the diagnosis of Acute Myocardial Infarction because it has a strong specificity. This means that in a high number of infarcts a large part of the electrocardiogram shows the Cabrera's sign. However, in the absence of the sign, the acute myocardial infarction cannot be excluded (low sensitivity). The Cabrera's sign is identified immediately before the acute myocardial infarction because the notch occurs in an ST depression, thus in the endocardial cell injury phase, this is due to the lack of irrigation of antero-lateral location. The caused electrical vectors are reflected in the electrocardiogram identifying the signal in leads V3, V4 and V5, concluding that the main coronary artery in danger is the left anterior descending artery. This injury together with left bundle branch block or pace rhythm causes an electrical change with a notch of ≥40 milliseconds appearing in the upward phase of the S wave.

Keywords: Cabrera's Sign; Notch upslope S wave; ST depression; Myocardial Infarction

PROCESSED FOODS AND THE STATE OF HEALTH IN PORTUGAL

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Introduction: Processed foods have high levels of energy, saturated fats, simple sugars, and salt, which can be a factor in the onset of chronic diseases, such as diabetes mellitus (DM), dyslipidemia, hypertension (HT) and obesity. By adding additives, preservatives, flavorings, foods become hyper-palatable, creating a repetition of ingestion, even if the individual is already satiated. They are preferably consumed because they are easy to transport and do not require any type of preparation.

Objective: Correlate the consumption of processed foods in Portugal with the prevalence of each of the aforementioned chronic diseases, by age group. And, still, compare the current food consumption with the guidelines of the Mediterranean Diet.

Methods: A literature review was carried out in the Scielo, B-on databases, in some national entities, such as the General Directorate of Health, National Institute of Health Dr. Ricardo Jorge, Portuguese Foundation of Cardiology and National Food and Activity Survey Physics.

Results/Discussion: The elderly are the age group with the highest prevalence of DM, hypertension, and obesity, and together with adults, dyslipidemia. As a result, adolescents consume more sugars and savory snacks, the elderly eat more margarine and added salt, and finally, adults consume more butter.

Conclusion: The objectives initially proposed were accomplished with success, observing a possible correlation between the excessive consumption of processed foods with the prevalence and incidence of several pathologies such as DM, dyslipidemias, HT, and obesity.

Keywords: Processed foods; Food consumption in Portugal; Health in Portugal

LAB-GROWN MEAT

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With the growing world population, the increase in meat consumption and its consequences for health, environment and animal welfare, alternatives to conventional meat are needed. Therefore, this review aims to understand the process of manufacturing lab-grown meat, its nutritional value and addressed topics related to health, safety, environmental impact and consumer acceptance. A literature review was carried out on the scientific bases "Scholar Google" and "ScienceDirect", resulting in 20 articles between 2011 and 2020.

Lab-grown meat has advantages such as time efficiency, saving natural resources, lower greenhouse gas emissions, greater animal welfare, stricter hygiene control and the ability to manipulate its nutritional composition. However, there are obstacles to its commercialization, such as price, ethical and cultural issues, consumer acceptance and the limited diversity of muscles and cuts of meat.

Keywords: Cultured; in vitro; meat

IRRADIATION, A METHOD OF EXCELLENCE OR TECHNOLOGICALLY OUTDATED?

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Introduction: Irradiation is a method used in food processing to extend the shelf life of foods. Wide dissemination of this method and its repercussions from the macroeconomic point of view justify a bibliographic review.

Objectives: Analyze the use of irradiation in fresh food, like fruit and vegetables, as a global conservation technique.

Methods: Were looked at keywords like "irradiation" and "food processing" on NCBI, particularly on PubMed, PMC and PubChem databases on the last 20 years. Simultaneously, were analyzed official reports from U.S. Food and Drug Administration and World Health Organization.

Results : This technology has been registered a reduction in its application in Europe and the United States of America and a significant increase in emerging economies. It promotes an increase in their macroeconomic potential, with a positive impact in reducing the microbial load and increasing the time of shelf life of food. Irradiation is therefore highly recommended for inactivation of pathogenic microorganisms and if combined with other methods, it can increase the food quality of the products.

Conclusion: Today, the scientific community have important pieces of evidence that a nonthermal procedure like irradiation have a vital role in the shelf-life increase of fruits and vegetables. This is conservation technic used at a global level.

Keywords: irradiation, food processing, non-thermal methods, conservation techniques, food quality

NUTRITIONAL AND ORGANOLEPTIC CONTRAST OF PRODUCTS WITH AND WITHOUT LACTOSE

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Introduction: Lactose is a reducing sugar, composed of glucose and galactose joined by a glycosidic bond. Lactose intolerance is characterized by the deficiency/absence of the enzyme lactase, and lactose is extracted from food by two methods: enzymatic and chemical.

Objective: Nutritional and organoleptic comparison between products with and without lactose. It is also intended to understand the future directions for the expansion of this segment of the food industry.

Methods: A market study was carried out on dairy products with and without lactoses considering their content in macronutrients, calcium and salt on online supermarket chain platforms and on specific brands of gamma products.

Results / Discussion: It was found, in the literature, higher values of carbohydrates registering disagreement with the lower values obtained in the market study, by comparative analysis, however the energy values are concordant. According to most authors, these products are nutritionally similar, being the biggest difference the taste. The growth of commercialization of products without lactose is noticeable since currently the purchase of dairy products without lactose already exceeds dairy products in general by 5%.

Conclusion: Products with and without lactose are nutritionally similar, but organoleptically different, especially regarding the taste. It is perceived that the dairy market continues to expand, once it is the fastest-growing segment in this food industry.

Keywords: “Lactose-free products”, “lactose hydrolyzation”, “lactose”, “dairy products”

QUERCETIN: A POTENTIONAL SOLUTION FOR OBESITY TREATMENT?

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Introduction: The onion (Allium cepa L.) is the second-largest horticultural crop in the world. Consequently, there are large amounts of solid waste, thus representing an environmental concern. Therefore, it is crucial to make use of its by-products, namely its peel, rich in quercetin. This article aims to understand the anti-obesogenic effect of this flavonoid as well as its mechanisms of action and the respective dose/effect relationship.

Methodology: This research was based on a literature review using the scientific research bases "ScienceDirect" and "PubMed", using "quercetin", "onion peel", "health" and "supplement" as keywords from 2015 to 2020.

Results / Discussion: The result of the 64 articles analyzed, reinsures that quercetin is associated with the regulation of several mechanisms and genes in the adipose tissue, is a promising component in the prevention of lifestyle-related disorders and a potential nutraceutical agent with limited toxicity.

Conclusion: This compound has aroused great interest in the food industries, as it can be used in food fortification, as a way to improve its nutritional value without compromising organoleptic properties.

Keywords: onion peel; flavonoid; health; anti-obesogenic

THE BROAD BEAN FLOUR – THE FUTURE OF SUSTAINABLE FOOD

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The broad bean is one of the most important legumes worldwide. From it, it's possible to obtain fava flour, and, as several studies show, it has proven to be a valuable ingredient for a vast variety of food formulas.

The goal of this project is to evaluate the legume's potential as a new sustainable, and nutritionally self-sufficient product to complement protein needs.

This article is based on literature review, since 2000, from scientific sources as "Pubmed", "Science Direct" and "Google Scholar".

When it comes to results, the authors report the bean as a sustainable product, with the ability to replace meat. It also shows to be promising in the creation of new products. The preparation will be the critical point for the elimination of anti-nutrients.

In short, the objectives of this work were achieved by proving that the inclusion of broad beans in dietary patterns contributes positively both to human health and to sustainability.

Keywords: “broad bean”;” sustainable product”; “Food fortification”; “broad bean flour”

IMPACT OF BLACK GARLIC IN HEALTH

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Introduction: Black garlic is produced by subjecting fresh garlic to processes with controlled temperature and humidity. During the processing of garlic, Maillard reactions occur, changing its colour, flavour, odour and texture, which can lead to changes in its components and possible effects on human health.
Objectives: Verify the consumption of black garlic' benefits to human health.
Methods: Research was carried out on several scientific platforms, taking into account the last five years.
Results: Eighteen articles were used to perform the literature review. Black garlic has several health benefits due to its antioxidant, anti-inflammatory and immune-shaping properties
Discussion: The beneficial effects evidenced come from the substances formed during processing, namely phenolic compounds, flavonoids, 5-allyl-cysteine, 5-hydroxymethylfurfural and DL-lactic acid.
Conclusions: The consumption of black garlic is an asset in oxidative stress, cancer prevention and intestinal motility; its ingestion may be beneficial in these conditions. Black garlic obtained through processing techniques can be considered a promising product that can be explored by the nutraceutical industry as a functional food.

Keywords: "black garlic", "allium nigrum", "nutrition" and "antioxidant"

AÇAI: NUTRITIONAL HEALTH BENEFITS AND MARKETED PRODUCTS

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INTRODUCTION: Açai (Euterpe oleracea) is a tropical palm, from the Arecaceae family, found in the Amazon region. Its berries are considered a good source of vitamins, minerals and bioactive components such as pigments, flavonoids, sugars, sterols and fatty acids. It's also a source of anthocyanins and phenolic acids.

AIM: The purpose of this article is to identify the nutritional properties of açai, as well as its health benefits, taking into account the products available on the market.

METHODS: This literature review was carried out through bibliographic research in the scientific databases "Science direct" and "Pubmed", using the following keywords: "Euterpe oleracea", "nutritional properties", "supplements", "health benefits" and considering the period between 2007 and 2019.

RESULTS: The studies included in this article have shown that açai has several properties, with an emphasis on its antioxidant, anti-inflammatory, anti-lipidemic, hypocholesterolemic, anti-diabetic and anti-cancer properties.

DISCUSSION: The bibliographic review carried out, despite including studies with different objectives, methodologies and target populations, demonstrated agreement between the various authors regarding the subject under investigation.

CONCLUSIONS: This article reached the intended purposes, demonstrating that açai has several beneficial properties for human health.

Keywords: "Euterpe oleracea", "nutritional properties", "supplements", "health benefits"

COMPARATIVE STUDY OF THE NUTRITIONAL VALUE OF THE FLAVOURED WATERS COMMERCIALIZED IN PORTUGAL

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Introduction: In the last years, we witnessed an increase in both the flavoured waters available in Portugal and their consumption.

Objective: Compare the composition and the nutritional value of flavoured waters produced by five different brands.

Methodology: Websites from various hypermarkets and specific companies were consulted to access the information regarding ingredients and nutritional value. Five different flavoured water brands available in Portugal were analysed. Waters were named from A to E, and specifically C was divided into two groups, C1 and C2, since both options are quite different in composition.

Results: In general, the percentage of water from different brands varies between 82 and 98%, which is related to the amount of juice used, which goes from 0 to 12%. Besides these two ingredients, flavoured waters have many food additives, like citric acid, present in all waters, sweeteners (nutritive or non-nutritive) and preservatives. These different compositions have an impact on their nutritional value. The main differences are related to the energy density, which varies between 4 and 26kcal/100mL, and sugars, which vary between 0 and 5.3g/100mL. Moreover, some waters have a considerable amount of salt, up to 0.17g/100mL.

Discussion: Despite being perceived as an excellent alternative, flavoured waters are, in fact, sodas that have many food additives in their composition. Moreover, their consumption may contribute to a significant increase in the daily intake of calories and sugar.

Conclusion: Flavoured waters should be consumed occasionally and never as a substitute for water.

Keywords: Soda, food additives, processed food, hydration.

INSECTS, THE NEW FOOD SOURCE

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Introduction: Insects consumption can be a solution to an increasing lack of food resources.
Goals: Outline the information about this food source and its production processes, and determine the difficulties when entering the European markets.
Methods: Research in the scientific database “Pubmed”, with the keywords “insect flour” and “edible insects” (1259 results), from 2010 to 2020.
Results: Insects present an excellent protein source, and they can be prepared and sold in many different forms (as flour, added fresh to other foods or as a primary source for nutrient extraction intended for supplementation).
Discussion: The low insect consumption in western countries, especially Europe, comes from emotional and cultural beliefs as well as their sensory characteristics.
Conclusion: The use of insects in the form of flours or mixed with other foods could be an excellent strategy to surpass the problems when introducing this food in the European market.

Keywords: Insects;Entomophagy; Incresing population; Food resources;

FODMAPS- DAIRY NUTRITION LABELLING

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FODMAP is the English acronym for “Fermentable Oligo-, Di-, Mono-saccharides And Polyols” that represent a set of short-chain carbohydrates and sugar alcohols, slowly absorbed or indigested at the level of the small intestine. For that reason, when it reaches the colon, it is fermented by intestinal bacteria, which can cause symptoms of abdominal discomfort such as bloating, flatulence, among others. In the case of inadequate malabsorption of FODMAPs at the intestinal level, individual dietary adaptation is vital to reduce symptoms and promote well-being. Thus, it becomes crucial to restrict the consumption of foods that aggravate this situation.

Information to the consumer is essential because it allows the consumer, through nutritional labelling, to check and adjust the use of a particular food according to their clinical condition and objective. Thus, to allow better nutritional information to the consumer, there is a need to develop dietary labels more complete and easy to interpret. The aim of this work was the elaboration of nutritional traffic lights and labelling related to the content of FODMAPs in foods of the dairy group, more specifically to discriminate the lactose content. In this way, a line corresponding to the lactose content added to the group concerning carbohydrates and a colour system used to assist the consumer better. With this system, it’s believed that consumers can check whether the value shown in the nutritional table should consume or not.

Keywords: FODMAPs, dairy products, FODMAPs diet, labelling

WILL GLUTAMATE, AS A FOOD ADDITIVE, HAVE AN IMPACT ON HEALTH?

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Introduction: Food additives are substances that are intentionally added to foods to preserve, intensify or modify their properties. One of the most studied today is monosodium glutamate.
Objectives: The general review of the literature aims to characterize glutamate and study it as a food additive, namely its potential effects on human health.
Materials and Methods: The research was carried out on the “Science Direct”, “Pubmed” and “Google Scholar” platforms, including articles from the last twenty years, from which the most relevant articles were selected, given the theme.
Results and Discussion: The results support that the glutamate is used principally to intensify flavours. Studies show an association with increased risk of overweight or obesity and other adverse effects such as "Chinese restaurant syndrome".
Conclusion: The objectives were achieved. However, the studies show results, sometimes contradictory, being necessary to carry out more investigations on the theme.

Keywords: Glutamate, Food Additive, Health, Food Consumption, Nutrition.

USE OF CHITOSAN IN FOOD PRESERVATION SYSTEMS

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Introduction: Chitosan is a biopolymer chemically similar to chitin, it has several biological activities, from antioxidante, antiallergic, anti-inflammatory, antimicrobial capacity and has inibitory effects on matrix metallproteinases. It is used in the development of biomaterials, as a food preservative and for the preparation of nutricional supplements.

Objective: The present study aims to understand how chitosan is used as a means of preserving food in the food industry, analyzing its advantages as a natural food preservative.

Methodology: The scientific research was carried out on the bases “Google Scholar”, “Science Direct” and “PubMed”, using as search phrases: “Chitosan proprieties and applications”, “application of chitosan in the food industry”, “effect of chitosan on conservation of food”. The articles werw selected first by title and abstract and later read in full. Only articles referring to the last thirteen years were selected, with a total of 13 articles selected.

Results: Several studies have successfully reported the application of chitosan as an edible cover in fruits and vegetables both fresh and minimally processed, since chitosan showed antimicrobial activity against molds and yeasts. Chitosan is considered a beneficial and safe substance for human consumption because it has less toxity than glucose or sucrose, and its use is quite safe. The application of chitosan coatings incorporated with essential oils to foods can contribute to the extension of their shelf life.

Conclusion: Chitosan has chemical characteristics that enable its use in various areas of activity, namely in the food industry, its use has been an asset in food conservation, environmental protection and food safety.

Keywords: Chitosan, edible coating, barrier properties, antimicrobial activity, food conservation.

DISCRIMINATION OF GLUTEN VS GLUTEN-FREE PRODUCTS BY NUTRICIONAL COMPOSITION AND COST

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The benefits of gluten-free food associated with celiac disease are well described in the literature. However, the gluten-free food is frequently consumed by general population because it is described with a positive impact in well-being and loss weight programs. The aim of current study is to analyze nutritional components and food cost of products with gluten and gluten-free (n=57). Ten main categories of products were considered and their nutritional composition was derived from labels and available information provided by commercial superficies. Mann-Whitney test was used to test the differences between groups. The results showed no significant differences in different parameters. Note, that the gluten products presented higher content of protein than gluten-free food (with gluten: 9.01±1.03; gluten-free: 3.6±0.32, $p < 0.05$). The cost of gluten-free food was, on average, higher than products with gluten in their composition. The results were consistent with data from Italian market. The current study suggests that there are no meaningful effects of non-gluten-free food in general population.

Keywords: glúten-free, celiac disease, nutritional composition, cost

ANATOMY OF THE MALE REPRODUCTIVE SYSTEM

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The male reproductive anatomy provide a several important functions. This system is located in the small pelvic cavity and it's responsible for producing mantaining and transporting sperm, the male reproductive cells and protective fluid the semen. It includes internal and external structures, but we will be focusing on the internal ones.

Internal organs of this system are composed for some structures that contribut for the reprodutive functions. The main organs are testicles, epididymis, deferens ducts, ejeculatory duct, uretra ans acessory glands. Each of this parts of the male reproductive anatomy contribut for the function of the all system. Very important are testicles, that is an oval organs that lie in the scrotum , responsible for producing testosterone and sperm, epididymis that is a long coiled tube that rests on the backside of each testicle, carries and storages the sperm cells and leads sperm to maturity and the scrotum is a very important although it is not an internal organ but it involves and acts as a temperature control system for the testicles.

In this system some pathologies with a precose prevention and precise diagnosis can prevent the evolution of the pathologies and to be better the quality life of the patients. The Biomedical Sciences with pathologic anatomy and a biochemical analysis has an important role in the diagnosis of the patologies

Keywords: Testicles; Epididymis; Anatomy; Physiopathology

ENDOCRINE SYSTEM - SALIVARY GLANDS AND PANCREAS

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The specificity of cells and tissues requires the presence of mechanisms that can regulate and integrate processes for the organism, as a whole. The endocrine system performs these tasks of integration and regulation through the action of hormones. The digestive system is constituted by 8 specialized glands and their respective hormones. Two of those are the salivary glands and the pancreas.

The salivary glands scattered throughout the oral cavity, whose main function is to produce saliva, which is a set of serous and mucous secretions from these glands. The existing salivary glands are the parotid, submandibular, and the sublingual, It is these secretions that help keep the oral cavity moist and initiate the digestive process.

The pancreas is a complex organ composed of endocrine and exocrine tissue. It is exocrine as it secretes pancreatic juice whose enzymes produced by the cells of the pancreatic acini, play an important role in the digestion of all major food groups. Without the enzymes produced by the pancreas the lipids proteins and carbohydrates are not properly digested. It is endocrine, as it produces hormones such as insulin and glucagon.

The knowledge of these structures are importance for Biomedical Laboratory Scientist, a it is an asset in the fields of pathological anatomy, hematology and other areas of in-depth knowledge of organs and tissues for futured analyzes and for a more correct identification of human pathologies and an earlier diagnosis taking into account the normal and abnormal functioning of organs and their respective hormones.

Keywords: Salivary Glands, Pancreas, Anatomy, Physiology

ANATOMY AND PHYSIOLOGY OF THE LIVER

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The liver is the largest gland and the second biggest organ in the human body, as it comprises around 2.5% of an adult's body weight. The liver is in the upper abdomen and occupies the right hypochondrium and part of the epigastrium; depending of the person's biotype, it may extend to the left hypochondrium. Anteriorly is convex, and it is protected by the rib cage as it is located below the diaphragm, roughly between the 7th and 11th ribs.

We can distinguish two surfaces, the visceral and the diaphragmatic, and anatomically, it can be divided in four anatomical lobes or into eight independent functional segments based on third-order portal vein distribution.

It is covered by peritoneum.

The liver is considered an unique organ due to its dual blood supply from the portal vein (approximately 75%) and the hepatic artery (approximately 25%). It plays an essential role in nutrient metabolism; body detoxification; synthesis of most plasma proteins; digestion through production and bile secretion and vitamin storage.

A large number of serious liver disorders affect millions of people worldwide, which highlights the importance of laboratory testing as an important tool in the diagnosis of these diseases. General laboratory tests measure the levels of specific enzymes, bilirubin, and protein that may be abnormal when liver injury is present. Serum aminotransferase levels—ALT and AST—are two of the most useful measures of liver cell injury. Hepatitis serology tests are routinely performed in all patients with suspected acute or chronic hepatitis.

Keywords: Liver; Anatomy; Physiology; Pathology

ANATOMY OF THE URINARY SYSTEM

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The urinary system comprises the uropoetic organs, meaning that they are responsible for elaborating the urine and storing it temporarily until the opportunity to be released to the exterior. They are also in charge of regulating the volume and chemical composition of blood, assisting in the production and regulation of red blood cells, and establishing a balance of minerals. In this system elements os the degradation are eliminated and metabolites, electrolytes and water are conserved.

Urinary organs contain between others the kidneys, which produce urine, ureters which carry urine to the bladder, where it is retained for some time, and the urethra, through which it is expelled from the body.

The urinary system extends from the abdominal cavity between the peritoneum and the posterior wall of the abdomen where the kidney is located, to the pelvic cavity where the bladder is situated, however when it is full rises to the abdominal cavity.

In order to be an excellent Healthcare Professional, it is mandatory to learn, understand and interpret human anatomy. From the application of laboratory methods to the study of tissues, Pathological Anatomy detects and identifies changes and establishes its relationship with possible causes.

The pathological diagnosis is fundamental to plan the strategy to be applied to each patient and the quickness with which it is obtained has increased importance in cases of oncological pathology.

Keywords: Kidneys; Anatomy; Fisiology, Functional Anatomy

ANATOMY OF THE FEMALE REPRODUCTIVE SYSTEM

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The female reproductive anatomy provide a several important functions. That includes external and internal structures which are located on the pelvis cavity. Its function is to enable reproduction of the species. sexual maturation is the process that this system undergoes in order to carry out its role in the process pregnancy and birth.

This system contains two main internal parts: the uterus and the ovaries. The uterus hosts the developing fetus, produces vaginal and uterine secretions and passes the anatomically male sperm through to the fallopian tubes. The ovaries produce the anatomically female egg cells and produce and secrete estrogen and progesterone.

The vagina is attached to the uterus through the cervix, while the uterus is attached to the ovaries via the fallopian tubes. At certain intervals, the ovaries release an ovum, which passes through the fallopian tube into the uterus. If in this transit. the fertilization usually occurs in the oviducts, but can happen in the uterus itself. The zygote then implants itself in the wall of the uterus where it begins the process of embryogenesis and morphogenesis.

The complexity of this system may alter the healthy growth of the essential tissues, organs and hormonal messaging pathways. Alterations may be result of genetic abnormalities from external factors that may change the normal development of specific tissues.

Pathological anatomy is an essential method for the study of the tissues of this system, making the diagnosis more accurate, helping with a precocious result, not allowing the evolutionary processes of diseases.

Keywords: Uterus; Ovary; Anatomy; Physiology; Pathology

ANATOMY OF THE DIGESTIVE SYSTEM - STOMACH AND DUODENUM

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The stomach is one of the main organs of the digestive system of the human body and has specific functions and characteristics. In humans, the stomach is covered and connected to other organs by the peritoneum, located on the abdominal cavity, connects the esophagus to the small intestine (duodenum).

This organ plays an important role as it stores food. Due to peristaltic movements and the action of gastric acid it performs partial digestion of food by transforming the food bolus into a chemosy. The Stomach also absorbs small amounts of water and transfers the food to the duodenum in order to continue the digestive process. The duodenum receives that partially digested food from the stomach and continues the process. . This is responsible for extracting nutrients necessary for the proper functioning of the body from what is ingested.

The stomach is composed of two gastric systems or units the proximal gastric unit and the distal gastric unit. Its wall consists of several layers, the serous, submucose mucous membrane that covers the stomach internally and the gastric glands produce the gastric acid.

Biomedical Sciences with pathologic anatomy has an important role in the diagnosis a of pretty much all the diseases that affect the stomach and its surrounding areas The analysis of the microbial flora present on the walls of the stomach tissue can give a lot of information about health. The diagnosis is usually done through biopsies, fecal occult blood tests (FOBT), serological, histological and cultural exams, hemograms and such.

Keywords: Stomach; Duodenum; Anatomy; Physiology; Pathology

INTERACTION BETWEEN VITAMIN K INTAKE AND ANTICOAGULATION BY VITAMIN K ANTAGONISTS

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BACKGROUND: The most commonly prescribed oral anticoagulants worldwide are the vitamin k antagonists (VKAs) such as warfarin. The common belief is that a vitamin k rich foods/diet could have an interaction with VKAs and this belief led to the creation of non-vitamin k antagonist oral anticoagulants. Although, VKAs continue to be commonly used nowadays.
AIM: To characterize the group of drugs known as “vitamin k antagonists”, the role that vitamin k plays on the body, the interaction between these two components as well as the effects created by the interaction itself.
MATERIAL &METHODS: Data collection was carried out through scientific databases such as pubmed, scielo,b-on and science direct. Were used as research expression “vitamin k” or “phylloquinone” and “anticoagulants” and “interaction” and “diet” and “vitamin k antagonists”. Papers were collected between 2005 and 2017. The results were first analyzed by title, then abstract and finally full text reading.
RESULTS: The studies analyzed provided inconsistent evidence. Some found a negative correlation between vitamin k intake and coagulations stability, while others argue that a minimum amount of daily vitamin K intake is necessary to proper coagulation. However it’s also suggested that vitamin K content of foods it’s not sufficient to influence significantly long-term anticoagulation stability.
CONCLUSION: The current evidence it’s not enough to lead to the modification of dietary habits when starting pharmacological therapy with VKAs. It is advised to maintain a stable vitamin k intake trough diet while more studies on this matter are developed.

Keywords: Vitamin K; Phylloquinone; anticoagulants; interaction; vitamin k antagonists

ANALYSIS OF NUTRIENT AND DRUG INTERACTIONS - OMEPRAZOL AND VITAMIN B12

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Introduction:Omeprazole is a drug belonging to the proton pump inhibitor class which is responsible for inhibit the secretion of gastric acid and block,irreversibly, the proton pump. This drug is currently being used for many medical uses, such as gastrointestinal tract pathologies, and is considered a safe and effective medicine. In contrast, vitamin B12 is extracted solely from the diet, and adverse effects may be observed when it combines with omeprazole.
Aim:To examine the literature surrounding the long-term use of omeprazole and its impact on vitamins B12 absorption.
Methods:A literature review based in the key-words proton-pump inhibitors, omeprazole, vitamin B12, interaction was conducted using the Science Direct and PubMed search databases limiting our selection from 2010 to 2020 based on the title, the abstract analysis and full reading of the article.
Results:The findings demonstrated theextended use of omeprazole with noclinical supervision can have adverse effects, including vitamin B12 (cobalamin) deficiency. The administration should be performed one hour before or two hours after ingestion of vitamin B12-rich food patients for the benefit of their absorption where greater regulation of vitamin B12 plasma levels is needed, with the elderly population being most affected.
Conclusion:Prolonged omeprazole administration can affect vitamin B12 uptake. Since the effects of themedication have a significantimpact on the body, it is crucial to try to minimize them wherever possible, so it is best to increase the consumption of foods containing this vitamin and conduct analyzes to monitor some related parameters.

Keywords: proton-pump inhibitors, omeprazole, vitamin B12

PROTEIN INTAKE AND LEVODOPA INTERACTION

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Introduction: Parkinson disease (PD) is a pathology characterized by the reduction of the dopamine neurotransmitter in the central nervous system that affect movements and promote tremors. Levodopa is one of the most popular drugs used in this pathology. The reduction of the levodopa effect in Parkinson's disease patients (Pdp) due to the amino acids and high levels of protein intake was firstly documented in 1967. Were tested different diet proposal with reported problems to keep new protein intake pattern.

Aim: Understand the interaction between the use of levodopa with protein meals in patients with Parkinson's disease.

Methods: Literature review was limited to the last 10 years. Initially, searched was made to Portuguese and English studies about levodopa and protein intake in PD. Using key words levodopa, protein intake, drug-food interaction and Parkinson disease. Seven references from Google, Google Academic and Scientific Electronic Library Online database with results from 3 different studies were selected.

Results: In all studies, it was reported a weight loss reduction. More than this, a relation between protein intake and levodopa action was documented, 50% of them showed a reduction in its effect or an inactivation of the drug. Another study showed that 75% of the Pdp made a protein intake outside the recommended range.

Conclusion: Clinical significant protein interaction with levodopa was documented in Parkinson disease patients. Clinical and nutritional recommendation are determinants to ensure appropriate times for food and medication intake. However, all studies reported until now the same limitation, small populations with heterogeneous data.

Keywords: protein intake, levodopa, drug-food interaction, Parkinson disease

TETRACYCLINE-MILK INTERACTION

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BACKGROUND: Tetracyclines, a family composed of eight antimicrobials, some of which are natural and some semi-synthetic. They are used for the treatment of infections and other diseases, such as rheumatoid arthritis. These have several favorable properties, such as broad spectrum of action, low toxicity, low cost, and can be administered orally in most cases. Its absorption is compromised when administered in conjunction with certain foods, such as milk.
AIM: Acquire knowledge about the group of tetracyclines, the effect of those on our body and the influence of milk on its absorption and mode of action. Also understand the mode of prevention and how best to administer it, so that its absorption is not compromised.
MATERIAL & METHODS: The literature analyses was done using electronic data bases such as Google Academic and Pubmed. For a selection of more filtered articles, we focused on which were released less than 10 years ago.
RESULTS: Since milk contains a lot of calcium (Ca+2), when mixed with tetracycline, it forms a chelate, which is insoluble in the gastrointestinal tract. Subsequently, it undergoes a chemical inactivation, decreasing the absorption of the antibiotic by about 50% to 90%. In addition, milk stimulates the production of digestive juices, which have a low pH and therefore degrade the medications, causing them to lose their therapeutic effect.
CONCLUSION: The intake of mineral supplements, multivitamins and calcium-rich foods should be done with a minimum of 2h before or after antibiotic administration, so the absorption is not compromised.

Keywords: Tetracyclines, milk, Ca+2, antibiotic

INTERACTION OF PARACETAMOL WITH DIETARY FIBERS

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Introduction: Paracetamol is one of the most commonly used analgesics and antipyretics for having a wide therapeutic window with few adverse effects. Dietary fiber refers to plant polysaccharides that are resistant to digestion and absorption in the human small intestine. Despite the multiple benefits they bring to health, they may interact with other substances and compromise their absorption and vice versa, especially when it comes to the oral route of administration.

Objective: Highlight the interaction of paracetamol/dietary fibers, within the scope of pharmacokinetics.

Methodology: Analysis of scientific articles published in several databases such as Pubmed and Scielo, searching for the keyword "paracetamol", "fibers", "interaction of paracetamol with food, "interactions of medicines and food/nutrients" in the period from 2001 to 2019.

Results: Several articles show that fiber intake decreases the absorption of paracetamol and others reveal that this drug is a good method of evaluation of gastric emptying, due to its characteristics such as its absorption zone being in the proximal area of the small intestine and its rapid absorption.

Conclusion: Considering the effect of fibers on the body, it is perceived the influence they have on the pharmacokinetics of paracetamol. Intestinal absorption of the drug ends up being compromised by the decreasing of intestinal transit. Also, the delay in gastric emptying will retard the absorption and consequent therapeutic effect desired by the maximum elevation of its serum concentration. This means that at all stages of pharmacokinetics, the respective speed will impact the concentration of the drug in the body.

Keywords: "paracetamol"; "dietary fibers"; "interaction of paracetamol with food"; "interactions of medicines and food/nutrients".

A FOLLOW-UP REPORT ON POTENTIAL DRUG INTERACTIONS WITH CLEMENTINES AND MIDAZOLAM

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INTRODUCTION: Midazolam is a drug that belongs to the "benzodiazepine" drug group, which aims to cause drowsiness or quickly fall asleep, making the individual feel calm and his muscles relaxed. Consumption of certain foods together with certain drugs leads to reactions in the organism of the human being.
AIM: To test the drug interaction of the drug, Midazolam, with the consumption of citrus fruits.
METHODS: The research was carried out on PubMed, B-on and Science Direct using as key-words: "Midazolam" AND “Citrus fruits” OR “Clementines” OR “Mandarim” OR “Grapefruit”. The title was read and subsequently the abstract and the full text to choose the most relevant article. Research was restricted for articles from 2014 until today.
RESULTS: In this article we compared the effect of clementine intake on CYP3A activity in a renal transplant patient and the effect in a healthy volunteer. According to the first experience it didn't show any clinical changes on the levels of eCL(met) during the exposure to the clementines juice, however after 24h it did show small growth. In the second experience, the eCL(met) at the beginning of the study was 552 mL/min. During the consumption of clementine juice, the eCL(met) increased progressively up to 24h after ingestion of the last juice. This correspond to a 44% reduction in midazolam AUC.
CONCLUSIONS: It is not proven that happens a potential drug interaction due to the clementines. Attending the constituents of CYP3A and, consequently, the effects on drug metabolism, Midazolam, vary from batch to batch, more clinical data is needed to prove anything about it.

Keywords: "Midazolam", “Citrus fruits”, “Clementines”, “Mandarim”, “Grapefruit”

INTERACTION BETWEEN PROTON PUMP INHIBITORS AND VITAMIN B12

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Background: Proton pump inhibitors (PPIs) are currently the most prescribed drug for suppressing gastric acidity. Several different studies have revealed that the prolonged consumption of PPIs may be related to a deficiency of vitamin B12. The initial symptoms of vitamin B12 include fatigue, shortness of breath and memory damage, which can progress into more severe manifestations such as megaloblastic anaemia, leukopenia and neurological problems.

Aim: Understand the interaction between the consumption of PPIs and the impact on the absorption of vitamin B12.

Methods: The literature review was carried out based on the keywords “Deficit of Vitamin B12” and “Proton Pump Inhibitors”. We searched in PubMed, Science Direct and Scielo, limiting our research from the year 2000 until 2019 always keeping present the title, analysis of the abstract and the full reading of the scientific articles.

Results: PPIs are considered a safe drug due to the fact of having a low number of side effects. Since they are highly effective, easy access and simple to administrate their intake has been uncontrollable, and the prolonged use of them can lead to a slight deficit of vitamin B12 (serum levels <200 pg/mL). It was also found that the decrease of serum vitamin B12 levels doesn’t depend on the age, gender, type of PPI or the dose used of PPI.

Conclusion: More studies are required to understand better the interaction between PPI’s and vitamin B12 since the deficit of this vitamin can translate into severe consequences.

Keywords: “Proton pump inhibitors” and “Deficit of Vitamin B12”

MNS BLOOD SYSTEM AND IT'S RELEVANCE IN SCIENCE TRANSFUSION

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The blood components transfusion is always restricted and complex due to the possible incompatibility between receiver and donor, especially in multi-transfused and transfusion-dependent patients. These patients are tested for antigens (Ag) from clinically relevant blood groups (such as Kell, Kidd, Duffy and MNS), to ensure compatibility. MNS blood group Ag (ISBT002) are expressed on the erythrocyte membrane through proteins, glycophorin A (GPA), glycophorin B (GPB), or combinations from both, and glycophorin E (GPE). GPA carries the M and N Ag, while the GPB carries the S, s and U Ag. Both glycophorin genes (GYPA and GYPB) are located on the q region of chromosome 4. GPA and GPB, in addition to transporting the MNS system Ag, also function as receptors for cytokines and pathogens, being an example, the malaria parasite (78% Caucasians; 74% black race). Some of the Ag in this system are encoded by highly polymorphic genes and therefore present a challenge in finding suitable donors to specific patients. Incompatible Ag becomes targets for the receiver's immune system. The most common antibodies (Ab) are anti-M and anti-N (mainly IgM), having no clinical significance. On the other hand, anti-S, anti-s and anti-U are IgG Ab, formed as a response to erythrocyte stimulation and associated with Haemolytic Transfusion Reaction and Perinatal Haemolytic Disease.

Keywords: Transfusion; Multitransfused patients; MNS blood system; haemolytic transfusional reaction; perinatal haemolytic disease; malaria

KIDD BLOOD GROUP AND ITS RELEVANCE IN TRANSFUSION SCIENCE

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The Kidd blood group assumes a preponderant role within the field of Transfusion Science. It was in 1951, in a patient, Mrs Kidd, that this system was discovered. She was pregnant and eventually lost her baby due to haemolytic disease of the foetus and new-born (HDFN). There are three Kidd antigens (Ag), encoded by the gene HUT11 on chromosome 18: Jka, Jkb and Jk3. They are situated within a glycoprotein located in the red blood cell (RBC) membrane that is responsible for transporting urea into and out of the erythrocytes and for contributing to their constitutional integrity. There are four possible phenotypes. The most common is Jk (a+,b+), followed by Jk(a+,b-), Jk(a-,b+) and, the rarest, Jk(a-,b-), known as Kidd null. Anti-Jka is the antibody (Ab) with the foremost clinical significance, because of its predisposition to decline to undetectable levels after a transfusion and also because of its low affinity for RBC that express the Jka Ag. This Ab can cause both immediate and delayed hemolytic transfusion reactions (HTR) and, rarely, HDFN. Anti-Jkb can cause immediate and delayed HTR although less severe reactions compared to those with Anti-Jka, as well as mild HDFN. Anti-Jk3 is mainly produced by Kidd null phenotype individuals after alloimmunization because their RBC do not express the Jk3 Ag. This Ab will react against Jka and/or Jkb positive cells.

Keywords: HDFN, HTR, Kidd, Antibodies, Transfusion

DUFFY BLOOD SYSTEM AND ITS RELEVANCE IN SCIENCE TRANSFUSION

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There are six Ag in the Duffy blood group system: Fya, Fyb, Fy3, Fy4, Fy5 and Fy6. Fya and Fyb are the most frequently encountered ones in transfusion sciences, and they can originate four phenotypes: Fy(a+,b-), Fy(a-,b+), Fy(a+,b+), and Fy(a-,b-). The Duffy Ag are encoded by the FY gene, which is found on chromosome 1 and consists of two exons.

The Duffy glycoprotein is a receptor for chemokines, playing an important role in inflammation. It is also Plasmodium vivax receptor; hence, the omission of this molecule seems to give protection against this malarial parasite. Therefore, the Fy(a-b-) phenotype is highly frequent in people with African ancestry.

Ab against Duffy Ag are usually of IgG class. Anti-Fyb is about 20 times less common than Ab anti-Fya and it is usually present in sera alongside other Ab. Anti-Fya rarely occurs naturally; it can be found after transfusions and pregnancy, although less often. These Ab cause immediate and delayed hemolytic transfusion reactions and, rarely, hemolytic disease of the fetus and the newborn.

Fya and Fyb are expressed on both erythroid and non-erythroid cells, and they are minor histocompatibility Ag. Thus, this system has an important role in allograft rejection.

Keywords: Duffy blood system; chemokine receptor; malarial infection; transfusion incompatibilities.

RH SYSTEM

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Rh system, discovered 60 years ago, is one of the most complex blood systems, composed of 46 antigen (Ag), and one of the most important in transfusion and obstetrics medicine. Its complexity is derived from the presence of highly polymorphic coding genes.

This Ag is expressed on red cells since 8 weeks of gestation. D Ag is highly immunogenic given that its antibody (Ab) lasts for several years, having the potential to cause severe haemolytic transfusion reactions. In the past, Ab D was the most frequently unexpected and clinically significant Ab seen in pretransfusion testing. Although RhAG doesn't carry any Rh Ags, it's closely associated with the Rh membrane protein making its presence essential for this Ag expression, therefore in its absence Rh Ag aren't expressed.

Rh Ab are clinically significant and the best results are provided by Rh Ab screening, performed accompanying AB0 tests and using two different anti-D serums. They're reactive at 37ºC and in the anti-human globulin test (AHG). Weak D Ag are a weakened expression of D Ag and are detected with enzymatic treatments and Indirect antiglobulin test. Differentiation between weak D and partial D by serological methods is a difficult task, possibly resulting in miscegenation.

Two of the most common Rh factor related diseases are Haemolytic Disease of the Foetus and Newborn, caused by Ab's responding to red cell transfusion or exposure to foetal red cells during a prior or current pregnancy and Autoimmune Haemolytic Anaemia, due to Ab's directed against an individual's own RBCs.

Keywords: Rh system, D antigen (Ag), Haemolytic Disease of the Foetus and Newborn (HDFN), Autoimmune Haemolytic Anaemia (AIHA)

P BLOOD SYSTEM AND ITS RELEVANCE IN SCIENCE TRANSFUSION

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The P blood group system is a precursor to lactosylceramide, based on three antigens (Ag) - P, P1 and Pk, located on the surfaces of red blood cells.

The B3GALNT1 gene, originates the P and P1 Ag, while the A4GALT gene originates the Pk antigen. These three Ag give rise to five different phenotypes – P1, P, p (previously called Tja-), P1k and P2k.

For phenotype P1, this is the only one that is characterized by the presence of the three Ag, unlike phenotype p where the absence of them is observed, which is also a designation of null phenotype. In addition to these, the P2 phenotype expresses the P and Pk Ag on the surface of its cells. Pk Ag is expressed in both phenotypes, P1k and P2k. However, what sets them apart is the presence of the P1 Ag in P1k.

Considering the phenotype of each individual, that is, the presence of certain Ag, they will be assigned the corresponding antibodies (Ab) - anti-P1, anti-P and anti-Pk.

Not all existing Ab has a relevant meaning in transfusions, such as Anti-P1. In contrast, Ab against P and Pk antigens have a major clinical impact and are associated with acute hemolytic transfusion reactions and miscarriages.

Keywords: P blood system, antibodies, transfusion, phenotype, lactosylceramide, antigens.

LUTHERAN BLOOD SYSTEM AND ITS RELEVANCE IN SCIENCE TRANSFUSION

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The first antigen (Ag) described within the Lutheran blood system, Lua, was defined in 1945. The Ag Lub, and its cognate antibody (Ab) were defined in 1956.

This blood group system is situated on chromosome 19. The phenotypes of the system are defined by Lua and Lub but have in total 24 Ag's, with two declared obsolete (Lu5 and Lu10). The Lu(a-b-) phenotype or Lunull has three modes of inheritance: recessive, dominant, X-linked.

Lutheran Ag's are situated on two red cell membrane glycoproteins, they are involved in cell adhesion and intracellular signaling.

The antibodies may be stimulated by pregnancy or transfusion and react with papain-treated red blood cells, but not with trypsin- or α-chymotrypsin-treated red blood cells.

Lua Ab may be naturally occurring or immune and are often IgM and Ab to Lub are often IgG. They both react by indirect antiglobulin test, but the Lua rarely causes a problem in the crossmatching laboratory as compatible blood.

Lutheran Ab's neither causes a hemolytic transfusion reaction nor Hemolytic disease of the fetus and newborn (HDFN) since they are only weakly expressed on cord red cells. Moreover, maternal Lutheran Ab's are supposed to be adsorbed onto fetal Lutheran carrier molecules expressed on the distal side of the placental tissue, in partiality to fetal red cells.

Keywords: Lutheran system; antigens; antibodies; transfusion; crossmatching.

LEWIS BLOOD SYSTEM AND ITS RELEVANCE IN SCIENCE TRANSFUSION

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The Lewis blood system is number 7 on the International Society of Blood Transfusion (ISBT). Its antigens (Ag), produced in the exocrine epithelial cells (with endodermal origin) and present in the plasma and saliva, are adsorbed by the erythroid cells. The ABH secretor status influences the Lewis phenotype, due to the FUT2 enzyme. The product of the Lewis genes on chromosome 19 is the FUT3 enzyme.

This system has two main antigens, Lea and Leb. People with Le(a+b-) phenotype are non-secretors and have Lea in erythroid membrane, while Le(a-b+) individuals are secretors and have Leb and few Lea. Le(a-b-) lack an active FUT3 enzyme and can be secretors or non-secretors. Le(a+b+) subjects have weak secretor allele.

Lewis antibodies (Ab) are essentially IgM type (generally not active at body temperature). As Lewis Ag are highly secreted, donor plasma Ag neutralizes receptor Ab. Furthermore, transfused erythroid cells easily shed their Lewis Ag, changing from donor to recipient Lewis type. This means these Ab are rarely associated with haemolytic transfusion reactions (HTRs). However, if a patient has potent anti-Lea antibodies, Le(a-b+) red cells should be transfused.

Lewis Ab are not usually associated with haemolytic disease of the foetus and newborn (HDFN), as they are unable to cross the placenta. Besides, Lewis Ag are not expressed on foetal or neonatal erythrocytes.

Few Lewis Ab are IgG type (mostly anti-Lea), explaining reported cases of HTRs. These have been implicated in cases of HDFN. In induced hypothermia conditions, Ab with higher thermal range can cause haemolysis.

Keywords: Phenotype, FUT2, FUT3, antigen, antibody

FORSSMAN BLOOD SYSTEM AND ITS RELEVANCE IN SCIENCE TRANSFUSION

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The FORS system is a red blood cells (RBC) system, formed by a single antigen (Ag) named FORS1, which was discovered in 1911, by the Swedish Pathologist John F. Forssman. It was recognized as the 31st blood group system, in 2012, by the International Society of Blood Transfusion.

In 1987 three families were identified with a supposed AB0 subgroup named Apae. After biochemical studies, Forssman Ag was found in the RBC of these individuals. This can be explained by the reactivation of the human Fs synthesis, resulting from a change of an arginine to glutamine at residue 296, codified by GBGT1 gene, located on chromosome 9.

The Forssman Ag is a low-frequency glycolipid and it´s expressed essentially on RBC of some mammals like sheep or dogs, but other mammals like rabbits or pigs don't express this antigen, identifying those species as Fs-positive and Fs-negative, respectively.

Usually, in humans, Fs Ag can be found in other body fluids, cells and several tissues and organs, but it's not normally found in RBC.

Individuals without the Fs Ag contain natural and regular antibodies (Ab) anti-Fs, predominantly of IgM class, but can be IgG, reacting strongly against Forssman-positive cells. Aside from this reaction, these Ab may also have implication transfusion medicine, organ transplantation and during pregnancy, since they can be related to perinatal haemolytic disease.

Keywords: Forssman, Antigen, Blood Groups, Transfusion Medicine

KELL BLOOD SYSTEM AND ITS RELEVANCE IN SCIENCE TRANSFUSION

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The Kell system is located on chromosome 7, was the first to be discovered by the anti-human globulin (AGH) test, it's constituted by 38 antigens. It has clinical importance because can cause haemolytic transfusion reaction (HTR) and haemolytic disease of the foetus and the new-born (HDFN).

The antigens (Ag) of this system are expressed in red blood cells since the 10th week of life. The Ag with higher incidence is Cellano and the one with the least is Kell. There's a null phenotype (K0) and a Kmod phenotype that lead to changes in the expression of the Kell system.

The antibodies (Ab) in this system are mostly IgG, reacting well at 37°C in indirect antiglobulin test (IAT) and in albuminous medium. Anti-K is the most frequent and immunogenic (after the Rh and ABO systems), the remaining Ab have characteristics and clinical significance similar to anti-K but are rarer.

McLeod's syndrome is caused by mutations in the X chromosome. In these individuals, the cells don't have Kx or Km Ag so they can immunize to these. When associated with type II granulomatous disease it's difficult to find compatible donors. The anti-K Ab may cause HTR due to incompatibility with the donor, leading to immediate or delayed reactions. Autoantibodies from this system can be formed in autoimmune haemolytic anaemia.

HDFN is often caused by anti-K, once this system is expressed at birth and most Ab are IgG (cross the placental barrier), they can destroy erythropoiesis precursors causing fetal anaemia and hemolysis.

Keywords: Kell system; Haemolytic transfusion reaction; Haemolytic diseases of the foetus and the new-born; McLeod's syndrome; Science transfusion.

MICROBIOLOGICAL ANALYSIS OF SALAD SERVED IN A CANTEEN

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Introduction: The microorganisms present in food can contribute beneficially to the processing and quality of certain food products. However, other microorganisms are involved in processes that cause changes in the food itself or diseases or intoxications in the consumer. Ready-to-eat foods, such as raw vegetable salads, which does not suffer any thermal process in their production, the presence of these microorganisms requires increased vigilance.

Aim: Check if the salads served in a canteen are served according to recommended microbiological parameters.

Methods: We analyzed salad (lettuce (sample 1) and carrot (sample 2 and 3)) served in the canteen of a higher education institution, included in group 3 of ready-to-eat foods, according to the INSA classification, Portugal, 2005. The presence of total coliforms in food was evaluated by plating in VRB (Red Violet Bile Agar) according to Davidson et al 2004.

Results: The results obtained were:34.5 x 102 cfu/g, 80.0 x 102 cfu/g and 55.0 x 102 cfu/g, respectively.

Discussion: As the values of total coliforms obtained by plating in VRB are in the range> 103≤104, the microbiological quality is acceptable and these foods in group 3 are suitable for consumption.

Conclusion: We conclude that the salads served in the canteen of this higher education institution, namely lettuce and carrots, are in adequate conditions for consumption.

We also suggest, in order to improve the microbiological quality of these foods, to increase the time taken to disinfect salads and invest in the training of professionals.

Keywords: Food security, microorganisms, salads, food quality

MICROBIOLOGICAL ANALYSIS OF WATER SAMPLES

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Introduction: Water intended for human consumption is often subject to direct or indirect contamination. Thus, its quality is evaluated using a diverse number of techniques, such as the filtering membrane technique, which is the most common for the evaluation of its bacteriological quality, based on the search for bacteria indicating fecal contamination.
Objective: Assessment for microorganisms indicating contamination in water samples from public sources and a school drinking fountain.
Methodology: The experimental procedure consisted in the analysis of four water samples. Three of them were taken from public sources and lastly one from a school drinking fountain. The microorganisms indicators of contamination were searched according to the norms described in D.L. nº 236/98.
Results: Samples from public sources are inappropriate for human consumption because the values obtained exceed the upper limit established by D.L. nº 236/98. The water of the school drinking fountain is propriate for consumption, since the value of indicator microorganisms were within the limit values!
Discussion: Samples 1, 2 and 3 were considered unfit for human consumption, since at least one of the contamination indicator microorganisms presented exceeds the upper limit established by D.L. nº 236/98. Only sample 4 was found to be suitable for human consumption since no such indicator microorganisms were found.
Conclusion: Thereby, it was concluded that public water sources must be subject to regular microbiological assessment. Furthermore, when the water is verified as improper for human consumption, it should be properly signaled.

Keywords: water, microorganisms, contamination, analysis

MICROBIOLOGICAL CHARACTERIZATION OF THE AZOREAN CHEESE “O MORRO”

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Cheese is a solid food made from fermented milk that goes through three stages: coagulation, draining and maturation. In the cheese industry it is possible to obtain several types of this food due to variations such as the origin of the milk (cow, goat, sheep, buffalo), the clotting agent (heat, enzymes, lactic bacteria or both), moisture, consistency (soft, semi-hard, hard and very hard) and maturation. Bacteria also play a role in defining the texture and taste of most cheeses.

In the cheese making process, dairy yeast is added which acts during its maturation. The dairy yeast used is composed of lactic acid bacteria (BAL) such as *Lactococcus lactis* and *Leuconostoc*. These bacteria play an important role in the manufacture of cheese because they contribute to the development of sensory characteristics and their conservation.

Morro cheese acquires its characteristics due to the raw material, the milk of cows from the large Azorean pastures and also by the set of bacteria involved in the process.

Lactococcus lactis is a Gram-positive, catalase-negative, non-mobile and homofermentative bacterium. It is of great importance in the manufacture of cheese due to its high fermentation capacity of glucose, resulting as a by-product of lactic acid.

Leuconostoc is also a gram-positive, negative catalase, non-mobile and non-spore-forming bacterium. It is facultative and heterofermentative anaerobic and is often used to modify the texture of cheese.

This work aims at the microbiological characterization of the buttery cured cheese "O Morro", produced on the island of Faial, Azores.

Keywords: “O Morro” cheese, *Lactococcus, Leuconostoc*, dairy yeast.

PHYTATE AND IRON BIOAVAILABILITY IN LEGUMES

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Legumes are rich in proteins, carbohydrates, phytochemicals, vitamins, minerals and antinutrients. The antinutrients compounds reduce vitamin and mineral bioavailability. Phytate is a dominant inhibitor of the bioavailability of minerals, such as iron. Iron has a crucial role in several metabolic processes. Thus, the presence of phytate could cause iron deficiency and several consequences for the organism.

The aim of this review is to understand the phytate metabolization, effects and doses. In addition, another aim is to mention strategies that reduce the effects of phytate, to improve iron bioavailability and prevent this micronutrient deficiency.

To do that, it was made a review of 22 articles from 2002 to 2020, on the scientific bases "Scholar Google" and "ScienceDirect", with the keywords “legumes”, “iron”, “absorption”, “bioavailability”, “antinutrients” and “phytate”.

Phytate, the complex of phytic acid and mineral elements, is a chelating agent that reduces mineral bioavailability. Phytate has an inhibitory effect on iron when the molar ratio phytate/Fe is higher than 1. The consequences of iron deficiency include decreased physical and cognitive performance, depression and fatigue. Soaking, germination, fermentation and heat treatment reduce phytate content, therefore increasing iron bioavailability. Biofortification improves iron status and seems to improve the consequences of iron deficiency, such as physical ability and cognitive function.

Future research is necessary for other populations at risk and to study other varieties of legumes and in combination with various biofortified foods, like cereals. Besides that, more studies are needed to assess physical and cognitive performance, to develop biofortification and improve the health of populations.

Keywords: legumes; iron; absorption; bioavailability; antinutrients; phytate

EVALUATE THE EFFECT OF LACTOBACILLUS ACIDOPHILUS SUPPLEMENTATION ON ATHLETES IN PHYSICAL EXERCISE

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Probiotics are defined as microorganisms, which when administered in adequate amounts confer benefits to the host. The interest in the sports field has been increasing, due to the effect that the supplementation of Lactobacillus Acidophilus can have on the intestinal microbiome, and the possible benefits in regard to the promotion of health associated with it.

Evaluate the effect of Lactobacillus Acidophilus supplementation on performance during physical exercise and on athlete's health. It is also intended to identify the dose-response and the process by which this species of probiotics act in the body.

A search of articles was carried out, and respective review in the databases of PubMed and B-On, using as keywords: “Probiotics”, “Lactobacillus Acidophilus”, “Supplementation” and “Sports”. The research was based on the title, and the abstracts were subsequently analyzed and finally the most relevant ones were selected for full analysis. The search was restricted to articles published after 2010.

The results show that the supplementation of probiotics, namely Lactobacillus Acidophilus, brings several benefits to the health and performance of athletes, due to its impact on the intestinal mucosa barrier, improving its integrity and thus strengthening the gastrointestinal immune response, another benefit is the increased defenses against upper respiratory tract infections (URTI).

Supplementation with probiotics and their effect has been increasingly studied revealing positive results, although it has to be subject of further investigation to conclude with greater certainty. The recommended dose is between 109 and 1010 colony forming units (UFC).

Keywords: “Probiotics”, “Lactobacillus Acidophilus”, “Supplementation” and “Physical Exercise"

TRIHALOMETHANES PRESENCE IN WATER: POTENTIAL RISKS

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Introduction: Chlorine is the most used chemical to disinfect water. Nevertheless, the reaction is not complete, and the remaining chlorine reacts with organic compounds present in the water leading to the formation of trihalomethanes (THMs). The legal limits for these compounds in drinking water vary from country to country, but guidelines from the European Union established 80 µg/L as the maximum accepted concentration.

Objective: Assess the possible risks of THMs intake related with water consumption.

Methods: A literature review performed in scientific databases “Pubmed” and “ScienceDirect” between 1978 and 2020, using “trihalomethanes” and “water” as main keywords.

Results/Discussion: Several epidemiological studies have reported an association between long-time exposure to higher THMs levels and cancer. Despite conflicting data, the stronger associations were for bladder, rectal and pancreatic cancer. One of the limitations of these studies is related to the difficulty in controlling confounding factors. In this sense, although the usual focus is THMs ingestion through drinking water, there are other forms of exposure, specifically dermic and inhalation. The first is particularly relevant during shower, due to the heated water, and the second when attending swimming pools. Studies reported that THMs’ exposure, through both pathways, increases THMs levels in blood and urine. Other reported health problems due to THMs exposure include infertility and pregnancy complications, but these require additional research.

Conclusions: Many factors are still unknown regarding the impact of THMs on human health. Future investigations should take into consideration the cumulative exposure through different routes to obtain comprehensive and relevant conclusions.

Keywords: Chlorine, chlorination, swimming pools, cancer.

BIOPLASTIC PACKAGING: A CHALLENGE FOR THE FUTURE

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Introduction: In recent years, plastics have been widely used in the production of packaging due to its practicality. However, its manufacture involves a high expenditure of non-renewable resources, and its use causes problems for organisms. Thus, there are alternatives such as bioplastics that are produced from agricultural raw materials that would be wasted.

Aim: Analyze the body impact of toxins released by plastic and bioplastic food packaging, as well as the advantages and disadvantages of their use.

Methods: The research was carried out on several scientific platforms, considering the last five years.

Results: 14 articles were used to review the literature. It was found that, during the use and degradation of plastic packaging, substances such as bisphenol A and dioxins (chemical endocrine disrupters) are released, causing problems in terms of fertility and metabolism. Bioplastics, made from renewable products and recognized as safe, are an excellent alternative to conventional packaging.

Discussion: Bio packaging for food appear as a sustainable alternative to conventional plastic packaging and, with the addition of specific bioactive additives, it is possible to modulate their functional properties, improving the quality and safety of food products during storage.

Conclusion: Despite the limitations of bioplastics, these, when compared to plastic, are more advantageous, since they reduce pollution and exposure to harmful substances such as bisphenol A, being therefore beneficial to humans.

Keywords: “bioplastics”, “bioplastics packaging”, “bioplastics and health” and “bioplastics degradation”

KOMBUCHA - THE POWER OF FERMENTED TEA

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Kombucha is a drink originating in China that appeared thousands of years ago. It has spread to several regions of the world and is now recognized as a functional drink with several health benefits.

The objectives of this review article are to describe the main advantages of kombucha for human health and to point out some of its toxic effects.

In this follow-up, a review of 25 scientific articles was made in scientific databases, “Scholar Google” and “ScienceDirect”.

It’s a drink made by fermenting tea (green or black) and sugar, with a symbiotic culture of bacteria and yeasts (SCOBY). Kombucha contains a combination of bioactive chemical components, such as polyphenols, organic acids, amino acids, minerals such as Cu, Fe, Mn and Zc, and vitamins C and B complex, which result from the metabolic activity of microorganisms. This drink has gained popularity due to the multiple benefits that have been attributed to it, including its anti-inflammatory and antioxidant properties, its role in regulating the intestinal microbiome and in strengthening the immune system. However, many authors report that the consumption of kombucha is not recommended for some groups of the population, namely pregnant women and individuals with severe renal pathology. There have also been some toxic effects associated with excessive consumption and the fermentation process itself.

Thus, it will be important to make a complete assessment of this drink in order to understand how it can contribute to a better state of health.

Keywords: Fermented tea, kombucha, probiotic

ARSENIC: A TOXIC POTENTIAL OF NORI SEAWEED?

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Introduction: Seaweed is a source of new bioactive compounds, such as some polysaccharides, which are not found in terrestrial plants and can confer beneficial health properties. Seaweed is known to contain high levels of arsenic in different chemical forms.

Objectives: The main aim of this literature review is to assess the levels of toxicity of arsenic, a constituent of Nori seaweed, to consumers.

Methodology: The preparation of this article was base on a literature review on the scientific research bases "Science Direct" and "Google Scholar".

Results: Inorganic arsenic, which has toxicity, was detected in high concentrations only in Hijiki algae, and Nori did not present significant values for this element.

Discussion: In Nori algae, the arsenic concentration, is within the tolerable daily intake level established by the World Health Organization.

Conclusion: Nori seaweed when consumed in moderation are beneficial for health, since in these the concentration of inorganic arsenic is not very high, so it is not considered toxic for consumers.

Keywords: Seaweed, Nori, Arsenic, Toxicity

INTESTINAL DYSBIOSIS AND IRRITABLE BOWEL SYNDROME: EFFECT OF LOW-FODMAP DIET

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Introduction: FODMAP is the acronym for "fermentable oligo-, di-monosaccharides and polyols" and designates a group of short-chain carbohydrates, osmotically active and highly fermentable in the colon since their absorption is incomplete in the small intestine. This group includes fructose, lactose, fructans, galactans and sugar alcohols. Unabsorbed FODMAPs can lead to functional gastrointestinal symptoms in individuals with visceral hypersensitivity. A diet high in FODMAPs is also associated with dysbiosis, inflammation, barrier dysfunction and visceral hypersensitivity, involved in the pathology and exacerbation of Irritable Bowel Syndrome (IBS).

Objective: This research aims to understand the effect that a diet low in FODMAPs has on the composition of the microbiota in patients with IBS.

Methodology: The studies were found through the association between FODMAPs, dysbiosis, irritable bowel syndrome, searching the PubMed, Science Direct and LILACS databases for studies published between 2014 and 2020. After this research, we ordered the articles by title and summary and selected 13 essays.

Results: Adherence to a diet low in FODMAPs reduces the fermentable substrate for intestinal flora, leading to a decrease in the absolute abundance of bacteria, with no effect on bacterial diversity. This reduction in the substrate improves up to 70% of the symptoms associated with IBS, such as bloating, flatulence, abdominal pain, urgency and altered stool output. All individuals with IBS had lower overall values of gastrointestinal symptoms when, per meal, the upper limit was 0.5g of FODMAPs (excluding lactose) in the first restriction phase.

Conclusion: Evidence suggests that a diet restricted in FODMAPs may have adverse effects, especially on the microbiota and, in the long run, may have consequences for the growth of intestinal flora.

Keywords: dysbiosis, FODMAPS, irritable bowel syndrome , intestinal microbiota, low FODMAP diet

HUMAN MILK OLIGOSSACARIDES AND MODULATION OF THE IMMUNE SISTEM

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Introduction: The human intestinal microbiome is a complex and dynamic ecosystem, playing an essential role in modulating immune responses. The first contact with microorganisms occurs during delivery, beginning the process of establishing the microbial of the newborn. This process is influenced by three factors: the type of delivery, the perinatal use of antibiotics and, especially, the breastfeeding method.

Methods: This literature review was based on scientific research in data base Pubmed, using the following keywords “gut microbiome”, “early feeding practices” and “breast milk and formula”. The articles found with these keywords were 29 311 articles, of which based on article’s title and year of publication (2010 to 2020), was selected 47 articles. Posteriorly, after reading the abstracts, were only selected 30 articles.

Results: Breast milk contains several components, oligosaccharides being the third most abundant. These compounds are prebiotics, promoting the growth of a beneficial microbiome, in addition to having inhibitory effects on the adherence of microorganisms to the intestinal mucosa, growth of pathogens and expression of genes involved in inflammation processes. Formula milk does not have these complex sugars in its composition, but due to its importance, it has already been added to certain formulas, allowing a more correct development of the Immune System in case of formula feeding.

Objective: This literature review aims to elucidate the impact of different feedings on the intestinal microbiome, whether it is breastfeeding or infant formula.

Conclusion: The difference between the type of feeding given to the baby has different repercussions on its health throughout its life.

Keywords: gut microbiome, breastfeeding, infant formula, breast milk oligosaccharides, supplements.

BENEFICIAL POTENTIAL AND TOXICITY OF KOMBU AND WAKAME SEAWEED

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INTRODUCTION: Kombu (family Laminariaceae) and Wakame (Undaria pinnatifida), brown seaweed, are low energy foods, rich in vitamins, minerals, polyunsaturated fatty acids, proteins and dietary fibers. Both have abundant bioactive components, including polyphenols, pigments, carotenoids and polysaccharides. Some studies have shown that the inclusion of seaweed in diets has potencial health benefits. However, they can impose a great risk to humans, since they have a high capacity for accumulation of toxic metals.

AIM: The purpose of this review is to identify the properties of kombu and wakame algae, as well as their beneficial effects and toxicity.

METHODS: This literature review was carried out through bibliographic research in the scientific databases "Science direct" and "Pubmed", using the following keywords: “human health”, “kombu", “prevenction of disease”, “toxic risks”, “wakame” and considering the period between 2008 and 2020.

RESULTS: The beneficial potential of seaweed is due to its antioxidant, antidiabetic, anti-allergenic, anti-inflammatory, antiviral, anticancer, anticoagulant, hypotensive, cardioprotective, hypolipidemic and immunomodulatory properties.

DISCUSSION: The bibliographic review carried out, despite including studies with different objectives, methods and target populations, showed agreement between the various authors regarding the subject under study.

CONCLUSIONS: Due to the toxic metal content present in kombu and wakame algae, their consumption should be limited to about 5g per day, thus not representing a health risk.

Keywords: “human health”, “kombu”, “prevenction of disease”, “toxic risks”, “wakame”

CONSUME FRUITOLIGOSACARIDES AND FIBER-WHY AND FOR WHAT?

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Introduction: Prebiotics are non-digestible components that stimulate the growth of desirable bactéria (probiotics) in the intestine, benefiting the host of these bacteria. Fiber, natural component of the dietary modifier of the ecosystem and intestinal transit, and frutooligosaccharides naturally exist in products of plant origin that promote the growth of probiotics in the digestive tract, thus bringing numerous benefits to the health of the individual.

Objective: The present study aims to know the benefits of the consumption of frutooligosaccharides and fiber, as well as in which foods these previotics are found and the impact of their intake on the improvement of health status.

Methodology: “Google Scholar”, “Science Direct” and “PubMed” were used as scientific research bases using as search phrases: “Prebiotics and theis benefits”, “dietary fructooligosaccharides”, “prebiotic activity”, “fiber and prebiotics effects and health benefits”. The articles were selected first by title and abstract and later read in full. Twenty articles were selected for the last eighteen years.

Results: Fructooligosaccharides have a number of interesting properties such as the fact that they are sweet and can be used as an alternative low calorie sweetener as they are calorie free and are considered as soluble dietary fiber. These prebiotics are beneficial to colon health, as they stimulate the selective growth of bifidobacteria and lactobacilli and prevent the attack of potentially pathogenic microorganisms to the intestinal cells. Ingestion of these components is associated with the prevention of dental caries, reduction in serum levels of total cholesterol and lipids and stimulating the growth of bifidobacteria in the digestive tract. Vegetables and fruits can be found in plants.

Conclusion: The benefits of consuming prebiotics such as fructooligosaccharides and fiber make them important components that must integrate a balanced and varied diet, bringing health benefits.

Keywords: Prebiotics, fiber, fructooligosaccharides, nutrition

GLYPHOSATE: THE MOST WIDELY USED HERBICIDE IN THE WORLD

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Introduction: Glyphosate [N- (phosphonomethyl) glycine] is a herbicide considered to be an active and water-soluble ingredient and, therefore, humans and animals inevitably ingest through food.
Objective: Analyse the health effects, doses and metabolism of glyphosate.
Methodologies: Scientific review through the platforms “Science Direct”, “Pubmed”, “B-on”, and “Google Scholar”, including articles from the last twenty years, from which the most relevant articles were selected, given the theme.
Results/discussion: The glyphosate’ metabolism occurs by cytochrome family P450 enzyme pathway with aromatase inhibition. The maximum glyphosate residue limit, according to a European Food Safety Authority variable, usually from 0.025 to 2 mg/kg. This limit may change according to the country or regulatory authority. Thus, exposure to glyphosate can trigger adverse effects on humans through inhalation and ingestion, such as nausea, vomiting, and general malaise, and other local symptoms in the event of skin contact. Several studies have focused on the possibility of an association between this herbicide and the development of cancer.
Conclusion: Several studies sustained glyphosate as harmful to human health when ingested in amounts higher than the maximum residue limit. More research related to this topic is essential to develop and implement strategies to combat a more significant number of problems associated with its use.

Keywords: Glyphosate; dose; adverse effects; human health; metabolization.

ARISTOLOCHIC ACID, NEPHROPATHY AND CANCER

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Introduction: Aristolochic acid (AA) is a natural toxic compound, from the family of a perennial herb, Aristolochia. It belongs to the family of nitrophenanthrole carboxylic acids and is a mixture of two structurally similar acids: aristolochic acid I and aristolochic acid II. Plant species containing AA were used primarily in traditional Chinese medicine.

Objectives: To understand the relationship between the toxic effect of aristolochic acid and the occurrence of nephropathy and cancer.

Methods: The literature review was made by the association between “aristolochic acid and cancer”, “aristolochic acid nephropathy”, “aristolochic acid” with research in the scientific research bases PubMed and Science Direct, for studies published from 2008 to 2020. After this research, we selected the studies according to the objective.

Results: Ingestion of aristolochic acid causes nephrotoxicity, genotoxicity and carcinogenicity. Aristolochic acid nephropathy (AAN) is any form of toxic interstitial nephropathy caused by AA, being the endemic nephropathy in the Balkans (BEN) derived from chronic AA food poisoning. Both pathologies are highly associated with the occurrence of urothelial carcinoma of the upper urinary tract (UTUC). AA was classified as a group I carcinogen by the International Agency for Research on Cancer (IARC).

Conclusion: The objective of this review of the literature was verified, once was observed a direct relationship between the toxic effects of AA consumption and the occurrence of AAN and UTUC and a possible association with other cancers.

Keywords: “aristolochic acid and cancer”, “aristolochic acid nephropathy”, “aristolochic acid”

MAIN APPLICATIONS AND NEGATIVE EFFECTS OF SENNA AS LAXATIVE

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Introduction: Senna is a laxative derived from leaves and fruits that presents two main forms: tablet or liquid. The main function of senna is regulatory, acting on intestine (as moderator and facilitator). Additionally, can be incorporated in some pharmaceuticals that operate on intestinal function. Constipation is a common problem in the gastrointestinal tract which in turns is related to higher rates of senna consumption. Meanwhile, the laxative seems to have some negative effects such as hypersensitivity, abdominal pain and spams.

Aim: This study aimed to examine the negative effects associated with senna intake.

Methods: Manuscripts were extracted from PUBMED which investigated the biochemicals effects, long-term effects and consequences related with senna consumption.

Results: Negative long-term effects related with senna consumption seem to be a result of extremely high doses intake which induces some problems (diarrhoea, abdominal pain, spasms and depletion of vitamins and minerals).

Discussion: Senna consumption can affect the water and electrolytes content; however, the literature is not consensual. In summary, the inter-relationship between the senna, dosage and negative effects should be considered in more detail.

Keywords: laxative, constipation, intestinal problems, colon

FUCOXANTHIN: A SOLUTION TO OBESITY?

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Introduction: Fucoxanthin is one of the most abundant carotenoids in the marine environment, and it can be found in microalgae and macroalgae. Currently, there has been an increase in studies with this compound, due to its multiple health benefits, namely its anti-obesogenic effect.
Objective: The present review article pretends to understand the mechanisms of action of fucoxanthin, in the control of obesity.
Methodology: This research was conducted in the database “PubMed” using “fucoxanthin” and “anti-inflammatory effect” as keywords. From the mentioned source, we selected 44 articles and analyzed 30, from 2015 to 2020.
Results: After administration of fucoxanthin, it is rapidly metabolized to fucoxanthinol. Part of this metabolite is subsequently dehydrogenated to amarouciaxanthin A in the liver. Studies found that fucoxanthin has therapeutic properties, with a notable role in obesity. Additionally, it was verified that fucoxanthin acts in this process, stimulating UCP1 expression, reducing white adipose tissue and inhibiting the intracellular accumulation of lipids in the pre-adipocyte.
Discussion: It was demonstrated that fucoxanthin has an important role in the control of obesity, through the expression of UCP1. One of the significant limitations of the present research was the fact that most of the studies used a non-human model and different doses. Nevertheless, there are some studies carried out on mice that demonstrate LD50 is probably higher than 2000 mg/ kg of weight.
Conclusion: Considering the previously defined objective, it was possible to comprehend the mechanisms of action of fucoxanthin, as an anti-obesogenic compound.

Keywords: fucoxanthin, obesity, UCP1, adipose tissue

PATULINE AND INFANT FEED

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Introduction: Due to the impact of the patuline in health, is important evaluate the impact of that in infant feed in Portugal.
Objectives: Evaluate the presence of the patuline in infant feed in Portugal.
Methods: We looked key words patuline, children, risk assessment and Portugal in National Institute of Health data bases on last 10 years.
Results: Patuline is an important micotoxine in infant feed because children are a particularly vulnerable population group. In Portugal was observed that daily intake of patulin in a worst exposure scenario was 0.0441 µg patulin/Kg bw/day. However, this value is below the provisional maximum tolerable daily intake (PMTDI) of 0.43 µg patulin/Kg bw/day.
Conclusion: Patuline, as a micotoxine with relevant impact in methabolic and fisiologic impact in infant is extremely important. According this literature review, in Portugal only have one study until now and show that the worst scenario was 0.0441 µg patulin/Kg bw/day, lower than PMTDI = 0.43 µg patulin/Kg bw/day.

Keywords: patuline, apple, children, risk assessment

LISBOA E VALE DO TEJO REGION: PROPOSED INTERVENTION TO REDUCE ARTERIAL HYPERTENSION

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Introduction: Diseases of the circulatory system are a major cause of death in the region of Lisboa e Vale do Tejo, which are directly related to arterial hypertension. The individuals from 25 to 74 years old has the highest prevalence of it.

Objective: To outline strategies that minimizes the prevalence of arterial hypertension and the negative effects of this pathology on the health of the population in this region.

Methodologies: Firstly, PORDATA was used to know which diseases caused the highest mortality rate in the region. After this research, strategies were outlined to address the problem, taking into account those that had been carried out according to the data at ARS from Lisboa e Vale do Tejo, the guiding documents at European and national level and the scientific evidence regarding its potential impact on similar populations.

Results: It was proposed to act in reducing salt consumption, in raising awareness of the importance of the recommended values of potassium and vitamin D and their consumption, in controlling weight and sharing experiences. Strategies include workshops, lectures and the celebration of Arterial Hypertension Day. In order to carry out the different tasks, partnerships were established with the various stakeholders, such as small and medium-sized companies in the region, supermarkets and hypermarkets, in order not only to act individually, but also to cover the entire community.

Conclusion: In short, this politics aims to appeal to the community for a theme so current nowadays and that affects on the daily lives of the population.

Keywords: Arterial Hypertension; prevalence; nutritional policies; community health

NUTRITIONAL POLICY INTERVENTIONS TO ALGARVE REGION

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Introduction: Food insecurity refers to a lack of available physical and socio-economic resources for sufficient, safe and nutritionally adequate food at the household level, constituting a serious public health problem. About 31.4% of families in the Algarve region are in a situation of food insecurity.

Objectives: To define a nutritional policy to fight food insecurity.

Methods: First of all, nutritional problems were identified through the research in reports from DGS, PNPAS, INFOFAMILIA and for definition of strategies survey of actions already implemented, not only in the Algarve region but also in other regions of the country, in databases such as PNPAS, DGS and Google Scholar were analyzed.

Results: “Programa de Educação Alimentar #Agirsemdesperdicioalimentar” and “Educar para Prevenir” projects previously implemented in Lisboa and at the national level, respectively, will be purposed and adapted to the Algarve region. Additionally, it will be considered the distribution of leftovers from school canteens and local restaurants by students and families referred, respectively.

In the other hand, it will be purpose the conception of a physical store to sell products that do not meet the parameters for its marketing in large retailers.

Finally, will be suggested the development of screening in health centers, schools and companies in order to understand the nutritional status of the population in partnership with municipalities, health centers and their respective health professionals.

Conclusion: Various activities can still be explored in this region in order to suppress food insecurity in the Algarve, focusing on food empowerment and awareness of the population towards a healthy, economical, and waste-free diet.

Keywords: Food insecurity, Algarve, Food insecurity in Algarve, Nutritional Policy

HOW TO PROMOTE WATER INTAKE AMONG CHILDREN IN THE NORTH REGION?

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Introduction: According to the National Food Survey - Physical Activity 2015/2016, the North region has the lowest water consumption at the national level, excluding Azores and Madeira, mainly in female gender. The report shows that children, aged three to nine, are the group that consumes the least water. Thus, it is relevant to apply regional policies in this area, given that they promote a better quality of life, in a more focused and centralized way.

Objective: The main objective is the development of a nutritional policy, targeted to all children in Kindergartens and Primary Schools in the Northern Region.

Methods: The elaboration of this policy was based on the review of the IAN-AF 2015/2016 and the National Health Survey 2014. Also, a snowball survey was carried out, based on the thematic review “Strategies to increase water intake”, to understand what has already been developed and applied, with positive results.

Results: Taking into account the strategies applied at the European level and the respective positive results, strategies were developed to increase water consumption, considering areas of action such as the promotion of literacy and consumption, and also the necessary resources, possible partnerships, and monitoring indicators to determine their effectiveness.

Conclusion: In short, the application of this regional policy will promote an increase in water consumption in the child population, whose age is crucial for a good development of healthy habits, both in the present and in the future.

Keywords: Water; Children; North region; Healthy eating.

ALENTEJO HEALTH PROBLEMS: A POLITICAL INTERVENTION

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Introduction: Alentejo is a specific demographic region from Portugal that presents around 93% adult and elderly population. Previously, it was identified with the highest prevalence rate (11.3%) in diabetes among adults and elderly. Additionally, obesity data reveals an increment of 5.1%, which corresponds to 25.000 obese people from 2010 to 2015. The consumption of sugars and fats seems to reinforce the need for nutritional policies among adults and elderly populations.

Aim: To create healthy policies targeted Alentejo population in order to prevent obesity and diabetes.

Methods: Metabolic complications (i.e. diabetes and obesity) were identified based on data from the Portuguese Health System and National Food and Physical Activity Survey. Afterwards, policy strategies were defined according to the guidelines from World Health Organization and U.S.

Results: Among adults, create videos regarding food shopping, preparation, and planning lunchboxes. Educate and teach volunteers or unemployed subjects to transmit the information for elderly. Produce informative material (i.e. flyers or posters) about the cost and nutritional value of most consumed food, promoting conferences and group meetings are common policies for both groups. Evaluate physical activity level and sedentary behaviour by age categories.

Conclusions: Structural food policies in parallel with physical activity promotion by age groups (adult and elderly) could have a positive effect to improve metabolic conditions in pathologies such as diabetes or obesity. Nutritional education in adults and elderly adopting actions connected with municipalities should be centered in nutrition physical activity.

Keywords: Diabetes, Obesity, Nutricional policies. Physical Activity, Health System

NUTRITIONAL POLICIES IN THE FIGHT AGAINST OBESITY AND CHILD OVERWEIGHT IN CENTRAL PORTUGAL

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INTRODUCTION: Childhood obesity is an important public health problem, which requires continued efforts to be controlled, constituting a threat to health and an important risk factor for the development and aggravation of other diseases.
OBJECTIVE: To analyse and implement nutritional policies to reduce the incidence of obesity and overweight in children in center of Portugal.
METHODS: Initially, we defined the problem by consulting the COSI Portugal 2016 report and the National Physical Activity Survery. Then, some nutritional policies developed and implemented at European level, and their success rate, related to this domain, were analysed in order to assist in the elaboration of our intervention strategies.
RESULTS: All the actions developed aim to increase the consumption of water, fruits and vegetables, decrease the consumption of soft drinks, total sugars, protein and fats, and reduce sedentary lifestyle. Targeted to parents and children, they aim to promote knowledge, increase access to food and the adequacy of the food supply, supported by food education actions. In terms of physical inactivity, you will be aware of the importance and development of the practice of physical activity. It will be essential to establish partnerships with the government, schools, municipalities and parents, to reduce child obesity rates in 20% in this region.
CONCLUSION: Raising awareness of this problem is very important and it is up to the health services and all the information and educational agents in the population to clarify the children on how they can choose, adapt and assume the healthiest options.

Keywords: obesity; overweight; children's; central region of Portugal.

STRATEGIES FOR REDUCING OBESITY AND PREVENTING RESPIRATORY DISEASES IN RAM

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INTRODUCTION: Obesity is defined as a pathology in which the excess accumulated body fat can affect health at different levels, which is a risk factor for several diseases, namely at the respiratory level, pathologies whose mortality rates in the Autonomous Region of Madeira (AMR) are twice as high as on the mainland.

OBJECTIVES: Evaluate the incidence and consequences of obesity and respiratory diseases in AMR and to develop policies to reduce them.

METHODS: A search of articles was carried out, and respective reviewed in the PubMed and B-On databases, using as keywords: “Obesity”, “Respiratory Diseases”, “Autonomous Region of Madeira” and “Epidemiology”. The research was based on the title, and subsequently the abstracts were analyzed and finally the most relevant ones were selected to fully analyze. The search was restricted to articles published after 2010.

RESULTS: The policy developed is based on 3 areas, physical exercise, Mediterranean diet and tobacco. This policy includes several strategies that will be implemented at different age groups. Three strategies will be implemented for each age group, some of which will be common among them, having as partners the Regional Government, City Councils, SESARAM and several local organizations such as traders, gyms, swimming pools, schools and IPSS’s.

CONCLUSION: In AMR, the prevalence of obesity and pre-obesity is still high and the number of deaths from respiratory diseases is alarming. In this way, the policies previously defined will have a positive impact on these diseases, improving their morbidities and consequences.

Keywords: “Obesidade”, “Doenças Respiratórias”, “RAM” e “Epidemiologia”.

DEVELOPMENT OF A NUTRITIONAL POLICY AND STRATEGIES TO PROMOTE ATLANTIC DIET AND DECREASE OBESITY IN AZORES

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Introduction: In Portugal, Azores present the highest prevalence of obesity. Although the food consumption in this region is close to the Atlantic diet, this being a cardiovascular protector, there seems to be a deviation from this diet, which may be the cause of the main pathologies in the population.

AIM: Developing a policy that allows the approximation of the population's dietary habits to the Atlantic diet, improving its overall health.

Methodologies: A research on many socio-demographics inquiries was done to analyse the main characteristics of the populations, using the Inquérito Nacional de Saúde 2014 and the IAN-AF 2015/2016. Regarding the development of the policy, it was analysed currently implemented campaigns and programs, their results and other scientific evidence.

Results: Firstly, we will evaluate the adherence of the Atlantic diet, which will serve as the baseline to measure the intervention's success; and then repeated in the end. The intervention will be occur in various ways: promoting the nutritional literacy and training the population; improve the access to food, using fiscal procedures; modifying environments and food availability in public places, schools and restaurants. The scope of these measures will be all of the population; however, it will only be possible through partnerships and established protocols with restaurants, local producers, schools, health centers and the local governments.

Conclusion: Through the implementation of this policy, we should expect an increase in the adhesion to the Atlantic diet, decreasing the obesity rates and other associated diseases in Azorean population.

Keywords: "Atlantic diet", "obesity", "Azores", "nutritional policy"

NUTRITIONAL POLICY TO MITIGATE DIABETES IN THE AZORES REGION

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Introduction: The Azores Region has a high prevalence of noncommunicable diseases, and considering its geographical dispersion, the limitations of its differentiated health services, there is an urge to develop and implement nutrition policies.

Objective: Develop a nutrition policy targeted to this region, resorting to activities in terms of prevention and treatment, in order to reduce their prevalence.

Methodology: The results of the IAN-AF, considered the Azores as a region with the highest prevalence of diabetes, were used for problem diagnosis. To define strategies it was used the data bases PubMed and Science Direct using “diabetes”, “public health”, “intervention” and “adults” as key-words; and national and international guidelines for nutritional policies.

Results: The policy was organized into three action phases. The prevention phase involves the community and the local food industry, with actions related to increased knowledge, culinary skills, physical activity and modifications of food availability. The second phase consists in diabetes risk assessment, screening of identified individuals and reference for consultation based on the level of risk. Lastly in the follow-up phase it is expected the training of health professionals andindividual and group consultations, to monitor and adjust the therapy. The concretization of these strategies implies the involvement of local stakeholders, such as the Regional Health authority, municipalities, local producers, among others. Additionally, there were defined indicators of realization and verification, in order to evaluate the effectiveness of program, after one year of implementation.

Conclusion: Implementation of this policy is essential, however, intersectoral collaboration is crucial, to achieve effective results.

Keywords: Diabetes, policy , nutrition , health

POLICY TO PROMOTE GRAIN LEGUMES PRODUCTION AND CONSUMPTION IN THE CENTER REGION OF PORTUGAL

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Introduction: Grain legumes are an excellent source of carbs, proteins, fibers and micronutrients. Nonetheless, their consumption in Portugal, namely in the center region, is significantly lower than the general recommendations. Moreover, the cultivation area used to produce these grains decreased drastically over the last decades particularly in the north and center regions. As a result, part of the product consumed in Portugal must be imported.

Objective: To implement an integrated policy to increase grain legumes production and consumption in Portugal.

Methods: It was created a working group composed of people from different fields with three main objectives: increase the cultivation area and grain legumes production in the center region of Portugal; reduce Portugal's external dependence; increase the intake of grain legumes produced in Portugal.

Results: The main challenges are related with the high production costs, low preparation by the farmers, absence of financial support and disorganized market chains. The focus was on four main spheres: research, which contributed to more efficient and sustainable cultures; farmers, providing them with the required knowhow and financial stimuli; industry, assuring that this production will be used by national companies that commercialize these foods; health, involving nutritionists that implemented a pilot project in an elementary school in Coimbra, in which a small area of the yard was converted into a garden to cultivate some grain legumes with the active participation of the students.

Conclusions: Effective nutritional policies must be inclusive and multidisciplinary in order to target simultaneously multiple aspects that contribute to the specific challenge.

Keywords: Grain legumes, sustainable agriculture, Mediterranean diet.

LOW CONSUMPTION OF CERTAIN FOOD GROUPS IN THE ALGARVE REGION

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Introduction: Algarve presents itself as one of the Portuguese regions with the lesser consumption of “vegetables and fruits“ (309,9g/person/day) and of “cereals, derivatives and tubers” (284,5g/person/day). The implementation of nutritional policies on a regional level, allows the changing of food consumption patterns, with an expected improvement of the nutritional and health states of the population.

Goal: Develop a nutritional policy on a regional level, as a way to achieve the goal of increasing the consumption of these foods, by 10 %, in the region.

Methods: The problematic addressed in this policy was identified through the analysis of statistical data found in databases such as IAN AF (National Food and Physical Activity Inquiry), Balança Alimentar Portuguesa (2012 to 2016) and PORDATA.

The review of already implemented efforts and their results, together with a market research of national and regional commercial surfaces, helped define the strategies outlined for this nutritional policy.

Results: This policy includes three types of measures: two of incentive, with the goal of increasing local food production and consumption; two of support, which promote food education and ease of access to the foods; and one of protection, that aims to create accords to price control these products. To determine the efficiency and effectiveness of the efforts, several indicators were defined.

Conclusion: With the implementation of this policy in the Algarve population it is expected an increase of consumption of these foods, an improvement of food habits and, consequently, the health of the population.

Keywords: Nutritional policy; Food policy; Low consumption; Algarve region;

NUTRITIONAL POLICY IN THE ALENTEJO REGION

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INTRODUCTION: The implementation of nutritional policies at the regional level is essential to act more effectively in the nutritional problems identified in specific areas of the country. Aiming the development of a nutritional policy in the Alentejo region, problems such as diabetes, high blood pressure and overweight were identified. Thus, in order to reduce the prevalence of these health conditions, it is intended to act preventively in the age group of 18-65 years.

AIM: To build a nutritional policy that contributes to the resolution of the recognized problems.

METHODS: The identification of the problems in the Alentejo region was supported by research in databases such as PORDATA, Inquérito Nacional de Saúde 2014, IAN-AF 2015-2016, SPCNA 2009, COSI 2019 and PNPAS 2019. Taking into account the nutritional problems identified, the development of the strategies was based on the largely implementation of local strategies previously used in retail stores.

RESULTS: The main areas involved in the elaboration of this nutritional policy were knowledge, availability and food consumption. In this sense, five strategies were developed in order to address the identified problems, establishing partnerships with the industrial, educational, food and sports sectors. These strategies are intended to be implemented in places such as commercial surfaces, charcuterie industry and public spaces made available by the municipal councils of the municipalities of the Alentejo region.

CONCLUSION: The implementation of the nutritional policy will contribute to the resolution of the identified problems.

Keywords: “Alentejo”, “diabetes”, “high blood pressure”, “overweight”, “nutritional policy”

HIGH PREVALENCE OF OBESITY IN THE ELDERLY IN THE CENTER OF THE COUNTRY

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INTRODUCTION: Within the curricular unit of nutritional policy, it was developed a nutritional intervention policy to be implemented in the central region of the country to fight the high prevalence of obesity in the elderly population.

OBJECTIVE: To make a nutritional intervention policy, to reduce the prevalence and incidence of obesity in the elderly in the central region, by raising awareness to the importance of healthy eating and regular physical activity.

METHODS: To identify the problem, it was used the data provided by the National Food and Physical Activity Survey 2015-2016 and the National Health Survey 2014. For the development of strategies, it were analyzed articles and actions already implemented in order to understand its effectiveness.

RESULTS: The proposed policy involves two projects, one centered on promoting healthy eating and other on promoting physical activity, with several strategies and actions that were designed to the resolution or mitigation of the problem found.

Thus, the first project aims to implement actions, during the year 2021, to comply with the following objectives: prevent disease and promote health; promote healthy eating; decrease alcoholic beverages consumption; decrease the sugar and sugary drinks consumption; decrease the intake of fat from food and addition; and increase vegetables and legumes intake. The second project aims to develop actions, in the same time interval, to implement the objective of promoting regular physical activity, oriented or unstructured.

CONCLUSION: Through the implementation of the strategies and actions defined, it's expected to meet the objectives for this nutritional intervention policy.

Keywords: Obesity, elderly, nutritional intervention policy

TAY-SACHS DISEASE

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Tay-Sachs disease (TSD) is a rare autosomal recessive disorder that affects the central nervous system. It's a type of lipid metabolism disorder with a Ganglioside (GM2) increase, caused by the absence of a vital enzyme called hexosaminidase-A (Hex-A). This causes an accumulation of GM2 in nerve cells, inducing deterioration of cognitive and motor skills.

The majority TSD cases occur in Ashkenazi Jewish people (AJP) from Central/East Europe and North America. Approximately 1:30 AJP and 1:3600 Jewish people carry the altered gene. The world prevalence of the disease is 1:320 000 live births.

There are 3 types: Classic TSD - children don't produce Hex-A, symptoms begin to develop between 3 and 6 months and progress until dead around 2-5 y/o; Juvenile TSD, lower amounts of Hex-A cause late symptoms starting between 2-10 y/o; Chronic TSD, symptoms develop in any age group and in a slower way.

Genetic counselling helps to understand and prevent the possibility of transmission. Depending on the situation can be done a prenatal test.

Standard diagnosis test for TSD includes a set of ophthalmologic and quantification of Hex-A test in samples like blood, fibroblasts and leukocytes. After the result of both tests, as a form as increase the confidence in diagnosis, it can be done genetic tests like NGS and PCR. The follow-up is made by complementary tests like flow cytometry and radiologic tests. There's still no cure for Tay-Sachs disease, so the treatments performed only control the symptoms and provide a better quality of life.

Keywords: Tay-Sachs disease, neurodegenerative rare disorder; hexosaminidase A; Ashkenazi Jewish people, Ganglioside (GM2)

FAMILIAR AMYLOIDE POLYNEUROPATHY

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Familial amyloid polyneuropathy (FAP) is an autosomal dominant inherited disease that derives from mutations of the transthyretin (TTR) gene coding for the corresponding protein. This gene is located on chromosome 18q. There are more than 100 different mutations currently known, however, the Val30Met mutation is the most prevalent cause of FAP. Amyloidogenic mutations of the TTR gene are responsible for a decreased stability of the corresponding protein, leading to extracellular deposition of amyloid in multiple tissues. Clinically, the most prevalent manifestations involve gastrointestinal and central nervous systems. Both histopathology and genetic are the two fields that contribute to TTR-FAP diagnosis. Currently, the most effective treatment is liver transplantation, since TTR is majorly produced in this organ. However, the disease is not contained but its evolution is delayed. Such treatment should be implemented as soon as the first symptoms appear because it won't revert previously induced lesions. Recently, there have been reports of a few pharmacologic approaches that successfully stabilized the protein's structure, constituting a possible alternative therapeutic.

Keywords: TTR-FAP, transthyretin, amyloid, diagnosis, treatment

GALACTOSEMIA

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Galactosemia is a genetic autosomal recessive disease, characterized by the disruption of carbohydrate metabolism which leads to the accumulation of galactose due to an enzyme deficit, affecting our body. Based on a study, the incidence in the west European people is from 1:23000 to 1:44000, while it seems to be rather lower among people from Africa and Asia.

Galactose can be ingested in the free form or through lactose, being metabolized, resulting in the formation of Glucose-1-phosphate, producing Glucose-6-phosphate, glucose and therefore energy. Essential enzymes are involved in this pathway such as GALM, GALK, GALT and GALE. A deficiency in one of these enzymes (as in galactosemia) affects the progression in the pathway, leading to the characteristic manifestations of the disease.

There are 3 types: Classic (GALT enzyme deficit and its Classic Variant (Duarte)), Type 2 (GALK deficit) and Type 3 (GALE deficit).

Diagnosis is made in children and adults through blood and urine, analyzing the levels of galactose and enzyme activity (the diagnosis may be confirmed by genetic screening). In newborns or prenatal period, the Guthrie test and amniocentesis are performed, respectively.

The disease can also present in the newborn period as a life-threatening disease, resolved by a galactose-restricted diet. The dietary treatment proves, however, to be insufficient in preventing severe long-term complications, such as cognitive, social and reproductive impairments. Guidelines for the treatment and follow-up of Galactosemia are currently lacking, however they have been demonstrated to vary worldwide.

Keywords: Galactosemia, Galactose, Galactose-1-phosphate uridyl transferase

RHEUMATHOID ARTHRITIS

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Rheumatoid Arthritis is a chronic systemic autoimmune disease, associated with inflammatory changes in connective tissue, leading to its dysregulation and joint destruction. It is characterized by hot, swollen, painful and stiff joints, which can lead to progressive destruction of the joints, loss of function and even affect other organs.

This pathology is associated with synovial vascular inflammation leading to the development of “pannus” - connective tissue with an inflammatory character, newly formed from the synovial membrane.

The cartilage invasion by the pannus leads to type II collagen degradation and an agrecane decrease, which may extend to ligaments, tendons and bone.

The rheumatoid arthritis diagnosis is based on a combined approach that includes clinical history, symptoms, radiographs and some biomarkers (serological, inflammatory, endothelial and cellular).

Histologically, it is possible to see lymphoplasmocytic infiltrate, as well as synovial cells hyperplasia and hypertrophy, increased vascularization and fibrosis deposition.

Treatment is based on the administration of disease-modifying antirheumatic drugs (DMARDs), biological agents that inhibit the action of inflammatory cytokines (biological DMARDs), anti-inflammatory drugs and analgesics. The use of methotrexate as a first-line treatment is recommended to achieve remission or the least disease activity as possible.

Keywords: rheumatoid arthritis, inflamatory disease, autoimmune disease, biomarkers, pannus

JOSEPH MACHADO DISEASE

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The Joseph Machado disease, also known as spinocerebellar ataxia type 3 (SCA3), is an incurable neurodegenerative disease. It is considered as the most common form of spinocerebellar ataxia. Its prevalence is estimated to be between 1-2 in 100000 all over the world with considerable geographic fluctuations. SCA3 is associated with death of neurons in the brain area responsible for coordinating movements. The loss of these cells cause the signs and symptoms characteristic of Joseph Machado disease such as loss of balance and coordination accompanied by slurred speech, pyramidal syndrome (neuromuscular disfunction caused by compression of the sciatic nerve), peripheral neuropathy (affects hand and feet nerves) , oculomotor abnormalities, extrapyramidal signs (associated with tonus and posture control) and sleep disorders.

SCA3 is an inheritable autosomal dominant disease, caused by a mutation in the ATXN3 gene that increases the length of the repeated CAG segment and leads to production of the non-functional ataxin-3 protein. This protein cannot remove ubiquitin form unwanted proteins, resulting in ubiquitin, ataxin-3 and other protein aggregates inside nucleus cells.

Mutation in the ATXN3 gene (located in the long arm of chromosome 14) affect neurons and other types of brain cells.

The identification of pathogenic variant in ATXN3 is based on molecular genetic testing

There is no treatment for this fatal disorder. However periodic administration of mesenchymal stromal cells (MSCs) increases the levels of GABA and glutamate, and decreases the levels of Myo-inositol promoting neuropathology alleviation and motor improvements.

Keywords: Neurodegenerative disease, spinocerebellar ataxia type 3, ATXN3, brain cells, mutation

POMPE DISEASE

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Pompe disease is an autosomal recessive disorder caused by a deficiency of the lysosomal enzyme acid α-glucosidase (GAA), which is essential for the breakdown of glycogen. More than 450 mutations have been identified in the GAA gene resulting in mRNA instability and/or in a severely truncated protein or an enzyme with decreased activity. As a result, lysosomal glycogen accumulates in many tissues such as skeletal, cardiac, smooth muscle and nervous tissue. Based on the age, this disease can be classified as infantile onset (IOPD) when it presents in the first months of life and late onset (LOPD) when it presents later in childhood, or adulthood. The infantile onset can be divided in classic Pompe disease or non-classic Pompe disease based on the presence or absence of cardiomyopathy respectively. The combined incidence of all forms of Pompe disease is estimated to be 1:40,000 worldwide. Diagnosis of individuals as well as screening in newborns consists in demonstrating low GAA enzyme activity in dried blood samples complemented by DNA mutation analysis. The main treatment consists of Enzyme replacement therapy (ERT) for all Pompe patients since 2006. It envolves the intravenous administration of recombinant human acid α-glucosidase (alglucosidase alfa) and is instrumental for improving and guaranteeing the survival of infants with classical Pompe disease. The sooner the treatment begins, the more significant the results will be. Finally, to better demonstrate the characteristics of this disease, a clinical case of a 58-year-old woman will be approached.

Keywords: Acid α-glucosidase; lysosomal glycogen; mutations; infantile onset; late onset; cardiomyopathy; enzyme replacement therapy

CROHN'S DEISEASE

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Cronh's disease, or CD, is an incurable chronic inflammatory condition, affecting the gastrointestinal (GI) tract, which can cause lesions from the mouth to the anus. CD manifests as general irregular/discontinuous inflammation of the mucosal wall as well as ulcer formation. Patients report abdominal pain, diarrhea, nodular erythema, sclerosing cholangitis, fever, arthritis, etc.

During the last decades, its incidence has risen, especially in first world countries/industrialized. It has no age or gender preference, being that the prevalence in Ashkenazi Jews is higher than on any other ethnic group.

The causes are not determined, suggesting that a combination of factors like smoking habits, environmental factors, immune function, diet and exercise, genetic susceptibility and intestinal flora, contribute to this disease.

Investigators believe that these factors associated with an unknown trigger activate an immune response against several areas of the GI tract, thus the inflammation and all the related lesions. There are remission periods with recurrent inflammation cycles, causing serious injuries due to scarring tissue.

CD diagnosis results from clinical assessment, followed by biochemical and hematological testing and confirmation by endoscopic, histological and radiological analysis.

Treatment varies with age, symptoms, degree of inflammation, location and extent of the disease. It consists of corticosteroids, immunomodulators and monoclonal antibodies, and some patients may need surgery. Bearing in mind that cigarette smoking and a high fat and protein dietary regime are risk factors, quitting smoking, regular exercise and controlled dieting can also improve prognosis.

Keywords: Cronh's Disease, Inflammation, Ulcers, Gastrointestinal Tract, Immune response

RAYNAUD'S PHENOMENON

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Raynaud's phenomenon is characterized by sudden and recurring episodes that can be manifested by vasospasm of the arteries and reduced blood flow to the digits, affecting blood circulation. This reaction can occur from exposure to cold environment, emotional or physical stimuli or medication exposures. It is described as a three-phased color change. The ischemic phase characterized by the paleness of the digits, the deoxygenation phase, in which cyanosis is observed and the reperfusion phase in where erythema occurs.

The Raynaud's phenomenon affects men (4-14%) and mainly women (5-20%). Climatic variations also play a role in the occurrence of this condition (that prefers wet and cold climates).

Most cases (around 90%) are due to primary cause, where there is no associated pathology and tissue damage is not observed. While Raynaud's phenomenon secondary cause is related to a multitude of pathologies (such as scleroderma and other autoimmune diseases), being the most serious, and may even cause digital ulcers that cause pain and discomfort, resulting in a decrease in quality of life.

It is mandatory to perform immunoserological screening and capillaroscopy to all patients with Raynaud's phenomenon. Capillaroscopy is a cheap, fast and non-invasive examination technique that can help to differentiate between primary and secondary cause Raynaud's phenomenon.

Faced with the complications of this disease, it is important to have a vast knowledge and understanding of its natural history, as well as its pathogenesis, diagnosis and the various treatments available, from medications to surgeries.

Keywords: Raynaud's phenomenon; Vasospasm; Digital ulcers

HYPERTHROPHIC CARDIOMYOPATHY

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Hypertrophic cardiomyopathy (HCM) affects around 1 in 500 people, although its incidence is considered underestimated: most cases are asymptomatic and consequently undiagnosed. It's the cause for almost a third of all sudden cardiac deaths (SCD) in athletes under the age of 35, and it rarely manifests before adolescence.

HCM is an autosomal dominant genetic disorder that results from mutations in cardiac sarcomere protein genes, the most commonly affected being β-myosin heavy chain and myosin binding protein C.

It is characterized by left ventricular hypertrophy with anomalies in the mitral valve, which causes irregular blood flow due to the increased thickness of the heart wall. It commonly affects the interventricular septum, and it can also manifest in the right ventricle and papillary muscles. The patients demonstrate diastolic disfunction, one of the most important consequences of the disease, because the myocardium does not relax.

Myocardial ischemia and systolic disfunction can also occur.

Diagnosis is based on medical history, family history and physical exams. Additional exams can be performed to support the diagnosis, such as: echocardiogram, transoesophageal echo, electrocardiogram, cardiac magnetic resonance imaging, stress tests, holter and genetic testing.

The treatment aims to relieve symptoms and prevent further complications of the disease. It includes beta-blockers, calcium-channel blockers, disopyramide (antiarrhythmic), diuretics and anticoagulants. Invasive treatments might be needed, such as septal myectomy and septal ablation. An implantable cardioverter-defibrillator is placed to prevent SCD. Cardiac transplantation might also be considered.

Gene therapy is being tested as a potential novel therapy for this disease.

Keywords: hypertrophic cardiomyopathy, genetics, diagnosis, arrhytmias, sudden death

HUMAN PAPILLOMA VIRUS

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The Human Papillomavirus (HPV) is a virus which DNA belongs to the Papilomaviridae family.
So far have been described over 170 types of HPV that present tropism for stratifies squamous epithelium infecting the skin, oral mucosa and/or anogenital tract. Based on its potential oncogenic activity, HPV subtypes were divided in high risk virus or oncogenic and low risk or non-oncogenic.
Ninety per cent of HPV infections are solved by the immune system in a 2-year period, however the infection persistency is required for pre neoplastic and neoplastic infections development such as Cervical Cancer (CC).
Cytologically HPV presents specific alterations like koilocytosis, binucleation, parakeratosis and disquesatosis. In case of persistent infections, they can mainly lead to low squamous intraepithelial lesion (LSIL) and high squamous intraepithelial lesion (HSIL).
In Portugal it's estimated that 720 new cases of CC are diagnosed annually, and 390 deaths are accounted.
Usually when cervix cells grow old or get damaged, they suffer apoptosis. When this control mechanism isn't verified an alteration occurs in the cell genome, forming neoplastic cells. Contrarily to ordinary cells, CC cells don't respect organ borders and may invade surrounding tissues and metastasize.
CC has a slow growth and it's preceded by dysplasia where cells with altered genome begin to appear in cervix tissue.

Keywords: Human Papillomavirus; Gynecologic Cytology; Cervix Cancer; Cytopathology; Neoplasm.

FROM PRENEOPLASTIC LESIONS TO SQUAMOUS CELL CARCINOMA

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The World Health Organization (WHO) classifies hyperplasia, squamous metaplasia, dysplasia, and carcinoma “in situ” as preneoplastic lesions of squamous cell carcinoma. Squamous cell carcinoma of the lung is an identity within non-small cell carcinoma, being characterized as a malignant tumor capable of invasion to adjacent tissues and with metastatic capacity. It is one of the most common neoplasms of the lung, appearing in most cases in the central area of this organ, more properly bronchi.

Preneoplastic lesions develop over through a series of progressive morphological and molecular changes in the normal epithelium. The WHO classification assumes that lesions progress orderly from hyperplasia to invasive carcinoma, however, a small minority of neoplasms do not follow this histological course. Depending on the degree of squamous differentiation, squamous cell carcinoma can be classified as keratinizing squamous cell carcinoma (well-differentiated) or nonkeratinizing squamous cell carcinoma (moderate or poorly differentiated).

Smoking is the main risk factor for this type of carcinoma, being responsible for about 85% of cases. Squamous cell carcinoma of the lung is a very aggressive condition with small life expectancy (only about 16% survives over 5 years).

Keywords: Lung; squamous cell carcinoma; carcinoma *in situ*

SQUAMOUS CELL CARCINOMA OF CERVIX, CLINICAL CASE

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The authors present the clinical case of 69-year-old, woman with HPV 53 positive, symptoms of abdominal pain and abnormal vaginal bleeding.

After a pap smear test, a gynecological examination of cervico-vaginal cytology, the result in the same and the subsequent clinical condition led to the diagnosis of a squamous cell carcinoma due to the cellular changes observed in the cytological slide. The diagnosis was later confirmed by histology.

On average, around 569,847 cases of cervical cancer are diagnosed worldwide and 331,000 resulting in deaths. Squamous cell carcinoma of the uterine cervix is the main malignant neoplasm of this organ. It is caused, with rare exceptions, by the high-risk Human Papillomavirus (HPV). HPV can be classified as high risk, intermediate risk or low risk, is mostly transmitted through sexual contact. High-risk HPV cause an infection in the genital tract and cellular mutations that lead to malignant neoplasms due to its oncogenic capacity.

Keywords: HPV, Squamous cell carcinoma, Cervix, Cytology

PRE-SCHOOL HEARING SCREENING

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Introduction: Hearing loss has a great impact on cognitive development and school and social skills as well as language acquisition. The development of language and speech is associated with the communication difficulties that are consequences of this deficit. Hearing screening at preschool age contributes to early diagnosis and correction of sensorineural or transmission hearing loss, which can be caused by infections, the appearance of silent genetic deafness until now, head injuries and silent otitis without symptoms that have occurred after the perinatal period.
Objective: To study the Preschool Hearing Screening to detect hearing disorders that have not been diagnosed early and may compromise children's learning and school performance, this screening is essential and should be done regularly, in children without complaints at 3 and 6 years old.
Methodology: Through the consulted bibliography it was intended to gather information about the various exams performed in the screening, they being otoscopy, tympanogram and pure-tone screening (pass/fail criteria) in the frequencies of 1000 Hz, 2000 Hz and 4000 Hz.
Results:There may be flaws in screening when otoscopy changes such as perforations and obliterating cerumen, type B tympanogram and existence of auditory thresholds above 20 dB HL in one frequency or more in the same ear, requiring referral to the Otorhinolaryngologist.
Conclusion: In Portugal, this screening is still not very prevalent, although it is extremely important. However, there are some institutions that aim to screen all children of preschool age.

Keywords: Hearing; Screening; Preschool; Child; Hypoacusis

HEARING SCREENING IN ELDELY

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Introduction: Average life expectancy is gradually increasing, and with it pathologies associated with aging also increase, such as presbycusis. Aging is characterized by a set of physiological, biological and psychological changes associated with advancing age. Presbycusis influences the auditory perception, with repercussions on quality of life. The difficulty in perceiving speech in the elderly is quite common. Thus, it is important to perform an auditory screening.

Objective: To analyze the importance and effect of hearing screening and presbycusis in the elderly.

Methodology: A search was made on the electronic platforms “SciELO” and “Google” using the words “elderly”, “auditory screening”, “presbycusis” and “auditory perception”, and in the book “Audiologia, Som e Audição das Bases à Clínica” as a means of obtaining information regarding our work.

Results: Presbycusis is related to ototoxic medication, exposure to noise, ear pathologies or even a genetic cause. Communication is most affected in noisy places. Screening helps to understand how aging influences the auditory skills, which allows us to refer these individuals to an auditory training plan, in order to provide them with a better quality of life, even though the elderly are dependent on family members.

Conclusion: As presbycusis is irreversible, it is important to make a personal, social and family investment, establishing behaviors of independence and autonomy in the patient, instead of imposing a process of auditory rehabilitation. However, this action can assist the hearing and health of the elderly, allowing them to communicate more effectively.

Keywords: Hearing Screening, Elderly, Presbycusis, Auditory Processing Disorders

SCHOOL HEARING SCREENING

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Introduction: Children with learning disabilities have a prevalence of about 30% to 50% of changes in the auditory system, therefore, hearing screening must be a quick and succinct specialized examination that contributes to get a better diagnosis and a better monitoring of the child. Objective: To highlight the methods of school auditory screening, as well as their importance, in order to prevent and identify children who may have hearing disorders that interfere with learning. Methodology: We based our work on information gathered from the following online platforms, b-on, Google Scholar and Scielo using the following keywords “school auditory screening”, “auditory screening techniques”, “children with hearing impairments” both in English and in Portuguese, as well as some informative sites. Results/Conclusion: Hearing screening should be performed as early as possible and be part of primary health care. This requires a careful clinical history and an adequate objective examination, covering the general characteristics of the child.

Keywords: School hearing screening, hearing screening techniques, Children with hearing impairments

NEONATAL SCREENING: IMPORTANCE, SCREENING, INTERVENTION

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Introduction: Hearing loss is responsible for one of the most common congenital disorders. Congenital hearing loss occurs in about 1-3 per 1000 healthy newborns and 2-4 per 100 newborns at risk of hearing loss. Neonatal hearing screening is performed to achieve early detection of congenital hearing impairment, in order to provide early intervention for better development of speech, language and cognition. The neonatal hearing screening program can be broadly divided into targeted / high risk neonatal hearing screening and universal neonatal hearing screening (UNHS). The two recommended methods for the National Health Service (NHS) are acoustic otoemissions (OAE) and auditory brainstem evoked potentials, or automatic auditory evoked potentials. Objective: To study the importance, program and intervention of neonatal hearing screening

Methodology: Based on a literary research, in the B-on and Pubmed databases, we obtained 15 articles for this work. The words "Hearing", "Hearing loss", "Neonatal", "Neonatal screening" were used as a search engine.

Results: In Portugal, it is recommended to implement UNHS programs (RANU), following all the standards and guidelines however it can vary from hospital to hospital or from region to region. Even so, all children should be tested within 30 days of birth.

Conclusion: The neonatal hearing screening program is crucial for the identification of children with congenital hearing loss, in order to provide an early intervention. The ideal protocol for carrying out the NHS has not yet been defined, so it must be appropriate for the individual and their needs.

Keywords: Newborn Hearing Screening, Intervention, OAE

HEARING SCREENING IN WORKERS EXPOSED TO NOISE

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Introduction: The hearing limit can be influenced by several factors intrinsic / extrinsic to the individual. Noise is one of the most frequent problems either at work or outside. In order to prevent / control noise, personal protective equipment is used, equipment and materials used in the production environment are maintained. Audiometry is the procedure guaranteed by law in screening workers exposed to noise, however it does not identify any hearing impairment early.
Objective: The importance of using otoacoustic emissions to prevent NIHL (noise-induced hearing loss).
Methodology: A search was carried out in the B-on and Asha databases. A total of 8 articles were obtained, excluding 4 because they are not compatible with the theme.
Results: The results show that prevention in companies and individuals is effective in combating NIHL. DPOAE stand out for their effectiveness in the early diagnosis of NIHL, capturing responses at high frequencies, the first to be affected. The TOEA and DPOAE capture frequencies up to 4 and 8 kHz, respectively. Therefore, DPOAE are the type of OAE indicated for the diagnosis of NIHL.
Conclusion: By law, screening is performed only with audiometry. In order to prevent workers' hearing loss, OAE must be carried out, personal protective equipment, active noise reduction devices should be used and, in some countries, hearing rest periods are being introduced. It is also postulated that some drugs may increase the resistance of the cochlea to noise, however this form of prevention has not yet been established.

Keywords: Hearing Screening; Hearing Loss; Exposure to Noise

INTRODUCTION OF FOOD IN THE FIRST YEAR OF LIFE: BABY-LEAD WEANING OR TRADITIONAL SPOON-FEEDING

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Introduction: The first year of life is characterized by rapid growth and development, so World Health Organization recommends the promotion of exclusive breastfeeding up to six months of age and then the introduction of nutritionally adequate complementary foods. This introduction has always been discussed, raising many questions for parents.

Objectives: To compare the food groups and nutrients intakes of infants following baby-led weaning (BLW) or a more traditional spoon-feeding (TSF); their advantages and disadvantages.

Methods: Literature review was conducted through PubMed and Science Direct databases, using the expressions “Baby-led weaning” and “Traditional spoon-feeding”. It was obtained fifty-nine articles from last five years. After reading the titles and abstracts, twenty-two articles were selected. Of these, four articles were selected for full reading.

Results: Baby-led weaning is a method of introducing solid foods to infants, which promotes the self-feeding of finger foods, completely skipping the traditional parent-led spoon-feeding stage of weaning. Infants following BLW had similar energy intakes to those following TSF, but the proportions of energy from macronutrients in food and the types of food offered were different. BLW infants were offered significantly more fat in food than TSF infants. In the studied articles, the results were different in the consumption of vegetables, sugar and baby food.

Conclusions: Even thought, no differences were observed in terms of energy intake between BLW and TSF, BLW seems to contribute to higher consumption of fat, and lower consumption of other nutrients.

Keywords: Introduction of food; Baby-led weaning; Traditional spoon-feeding

INGESTION OF FOLIC ACID IN PREGNANCY

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INTRODUCTION: Vitamin B9, commonly known as folate, is part of the water-soluble vitamins of the B complex. Folic acid is a synthetic form of this vitamin, often found in nutritional supplements and fortified foods.

OBJETIVE: To demonstrate the importance of supplementing this vitamin right from the periconceptional period and prolonging it through the first trimester of pregnancy, in order to obtain the recommended daily amount (600µ/mg) necessary for the good development of the fetus.

METHODS: Literature review was conducted through ScienceDirect database using the word combinations “folic acid OR folate AND pregnancy” and “folic acid AND supplementation” to target our research. It was selected just review articles with a publication date of the last 5 years, either in English or Portuguese. Of the 4,746 results obtained, the titles of the first 175 were read, the abstract of the 30 that seemed most relevant were analyzed and it was selected 8 articles for a full reading.

RESULTS: Folic acid is essential for the synthesis of deoxyribonucleic and ribonucleic acids. Thus, there is an increased requirement for this vitamin during pregnancy due to increasing rates of growth, DNA production and cell division. In addition, studies indicate the existence of a correlation between the deficiency of this vitamin and the increased risk of malformations in the neural tube.

CONCLUSION: It is extremely important that folic acid supplementation is done at least 3 months before conception and that it is maintained during the first trimester of pregnancy.

Keywords: folic acid; folate; pregnancy; supplementation

CONSUMPTION OF DIETARY SUPPLEMENTS IN ADULTS

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Introduction: Supplements are concentrated sources of nutrients or other substances with nutritional or physiological effect which complement the diet, therefore are not supposed to prevent, diagnose or cure diseases. The use of dietary supplements has been increasing due to health concerns and the developing interest in nutrition.

Objectives: To understand supplements consumption, its determinants in adults and to verify the association of its intake with other variables (gender, age, etc) and their side effects. It is also crucial to comprehend if their consumption is recommended by health professionals.

Methodology: Platforms such as Pubmed, Science Direct and Scielo, were used to research, using key words dietary supplements, adults, nutritional health. 210 articles were seen and selected 12 by their title, consequently, analysed each abstract. After reading each article carefully only 7 were used, dated between 2008 and 2019.

Results: The main reason to consume nutritional supplements is to maintain or improve overall health and it is more common among women. There is an increase of supplements intake, however, there is also a high prevalence of vitamin deficiencies. Even if some products were recommended by a health care provider, most were used by personal choice.

Conclusion: Supplementation is a growing subject due to the development of knowledge in recent articles along with the increase of concern about nutritional health.

However, vitamin deficiencies represent only the “tip of the iceberg” of the scale of the problem, whereas subclinical deficiencies of vitamins concealed in “healthy” adults are equally devastating.

Keywords: dietary supplements, adults, nutritional health

NUTRITIONAL NEEDS: THE IMPORTANCE OF THE NUTRITIONAL ROLE OF CALCIUM AND VITAMIN D IN THE PROCESS OF GROWTH AND DEVELOPMENT IN CHILDREN BETWEEN THREE TO SIX YEARS OLD

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INTRODUCTION: Calcium is an essential nutrient for our body and one of the main minerals that contribute to the composition of bone mineral tissue.
Vitamin D, plays an important role in calcium metabolism being produced in the skin after exposure to the sun or from intake.
OBJECTIVE: To study the importance of the nutritional role of calcium and vitamin D in the process of growth and development in children between three to six years old.
METHODS: A literature review, conducted between March 10 to April 3, 2020, on b-on data bases and GoogleScholar - with keywords: Preschoolers; Vitamin D; Calcium; Bioavailability, in Portuguese and English. After reading the title, abstract and using the exclusion criteria, out of the 30 articles, we were left with 15. Then, after reading these 15 articles in full, we were left with only 10 articles for analysis.
RESULTS: Most children from 3 to 6 years old lacked vitamin D and calcium.
Overweight children have a greater deficit of vitamin D, due to the fact that it is fat-soluble. According to the Estimated Average Requirement (EAR), the recommendation of calcium and vitamin D intake for children aged 3-6 years is, respectively, about 500-800 mg/day and 10,0 µg /day.
CONCLUSION: Optimal nutritional intake from calcium and vitamin D, in children between the ages of 3 and 6 years, are fundamental for bone development. Sun exposition and food rich in calcium and vitamin D should be increased, to ensure the correct intake.

Keywords: Preschoolers; Vitamin D; Calcium; Bioavailability

THE VITAMIN D IN THE FIRST YEAR OF LIFE

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INTRODUCTION: The first year of life is characterized by a fast growth and physical/social development, which is followed by a constant adjustment in food and nutrient intake. Vitamin D is deficient in the general european population, potentially triggering future complications at many levels.

AIM: Identify the importance of vitamin D in the first year of life; the causes and consequences of hypovitaminosis at this age group and highlight major sources of vitamin D.

METHODS: A literature review was conducted, considering nutrition scientific books and scientific papers published between 2000 and 2020, on the platforms Pubmed, Science Direct and b-on, using combinations of the following main keywords: Vitamin D, children, hypovitaminosis, sun exposure. From 813 scientific papers founded, 20 were selected.

RESULTS: Numerous reasons for vitamin D deficiencies were identified, but the most frequent are related to low intake of vitamin D-rich food and low sun exposure. Consequentially, children can develop many pathologies, acute or long termed, such as rickets, bone decalcification, insulin resistance, autoimmune diseases, among other health consequences. However, literature demonstrates that most consequences can be healed through sun exposure for short periods, around three times a week; rich vitamin D food Intake (fat fish, egg yolk, fish oil, animal liver), and, if necessary, supplementation.

CONCLUSION: An adequate vitamin D intake is essential to children's development and growth processes, as well as when adults. Thereby, awareness should be promoted in order to persuade mothers, in addition of supplementation, to provide suitable sun exposure and vitamin intake in children’s food.

Keywords: Keywords: Vitamin D, Children, hypovitaminosis, sun exposure

RELATIONSHIP BETWEEN SLEEP QUALITY AND BODY MASS INDEX, IN ADOLESCENTS

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Introduction: Body mass index (BMI) is influenced by nutritional intake, physical activity, psychological factors, sleep quality and others. Here was analyzed the relationship between sleep quality and body mass index in adolescents.

Objectives: To evaluate the relationship between sleep quality and BMI in adolescents.

Methods: Literature review was limited to the last 15 years with a filter to Portuguese studies. Only were considered articles relative to individuals between 10 – 18 years old and it was used key words like BMI, adolescents and overweight and sleep, sleep disturbance, sleep duration and healthy sleep.10 references from NCBI and Scielo database were analyzed in order to understand the state of the art, however, according literature review, only have 2 different studies in Portuguese population and were used that.

Results: Sleep disturbances, more than sleep duration predicted overweight among adolescents. According these results, consistent in most recent evidences in literature, will be important evaluate, in wellness programs, more than physical activity and nutritional intake, a correct healthy sleep. Scientific evidences show changed sleep patterns in adolescents. A correlation between sleep disorders and BMI problems, with an evident overweight as direct consequence is a transversal result in Portuguese and international studies.

Conclusion: Sleeping problems/disturbances are common in Portuguese adolescents and seems predicted overweight.

Keywords: body mass index (BMI); adolescents; overweight; sleep; sleep disturbance; sleep duration; healthy sleep

PHYSICAL AND COGNITIVE DEVELOPMENT RELATED WITH FOOD CONSUMPTION OF CHILDREN AGED BETWEEN 3 AND 6 YEARS OLD

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Introduction: Eating habits during childhood are fundamental for physical, intellectual and cognitive development. Childhood corresponds to a period where nutritional eating habits are formed, therefore being of maximum importance to acquire good habits in order to achieve a positive biopsychosocial development.

Objective: To acquire a bigger knowledge about a healthy or non-healthy eating habits and understand the impact of this matter in the cognitive development of children from 3 to 6 years old.

Methods: Literature review was conducted in Google Académico, Pubmed, Science Direct and Scielo databases, using the keywords “alimentação infantil”, “alimentação e cognição “, “infant feeding”, “food and cognition”. The selection of the articles was made based on the year of publication (2008-2020), title, summary and full reading, articles in Portuguese and English were chosen. 150 articles were filtered, and proceeding the reading of those who fit the theme, having at the end 23 articles.

Results: During our review and analysis, we realized that malnourished children or those with food shortages have difficulties in assimilation, where it is noticeable that school performance is compromised. The levels of n-3 fatty acids are associated with memory improvements and verbal learning, reading capacity, cognitive development, visual perception capacity and executive function.

Conclusion: According to our objective, we were able to conclude that food influences cognitive development, namely the consumption of n-3 fatty acids. If the intake of n-3 fatty acids is adequate in childhood, it will result in better cognitive performance in children.

Keywords: feed, cognitive development, children

THE INFLUENCE OF PEERS ON CHILDREN'S EATING HABITS: HOW LIKELY IS IT FOR A CHILD TO FOLLOW ANOTHER'S EATING HABITS?

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Introduction: Eating habits, particularly in childhood (6-10 years), has a decisive influence on emotional, intellectual and social development. Peers influencing is part of determinants of food choice, due to should be analysed.

Objective: To explore the influence of peers during childhood and how they can contribute on children eating habits.

Methodology: A review of several articles was conducted based on Google Scholar and Science Direct with key words "children", "scholar age", "peers", "influence", "food" and "eating habits" with the determinant "AND" from the last 10 years and 15 articles were obtained. The papers were firstly selected by the titles, then an abstract analysis was made, 10 being chosen and lastly, by full reading, 7 articles were included.

Results: The social and physic environment, home or school, influences children food choices. Children aged between 6-9years old tend to follow a model, who are now their peers. Peers presence seems to contribute into eating more food; and when they believe that other children ate healthy food, they tried to follow the same food pattern; the same occurs in terms of food portions eaten. Meanwhile, there are different behaviours towards peers related to food depending on their weight. Children who are obese have the opposite reaction, eating more when alone, watching TV, and less with siblings.

Conclusion: In general, peers presence seems to influence food choices and could contribute to the promotion of a healthy diet.

Keywords: "peers", "children", "eating habits", "influence"

THE INFLUENCE OF SOCIOECONOMIC INCOME ON THE EATING HABITS OF CHILDREN AGED 6 TO 10 YEARS

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Introduction: Childhood is a key period for establishing healthy eating habits and lifestyles that are beneficial for health and predictive for those of adulthood. Multiple factors influence children's eating habits, including the socioeconomic dimension of each family.

Objective: To identify the eating habits of children aged 6 to 10 years and the influence of socioeconomic factors on them.

Methods: A literature review was carried out in the pubmed, science direct databases, with the keywords: food, children and socioeconomic. It was considered articles published in the last nine years, in a total of 30 articles. After reading the title, we selected 10, of which after reading the abstract, were selected 5 for full reading.

Results: Children with low economic status seems to have more dietary control by their parents, while in those of intermediate economic status it was observed a high consumption of sugars and a higher expenditure on meals outside the home. Different studies have concluded that children who live in privileged areas have a frequent healthy diet associated with a greater practice of physical exercise, however those who live in precarious conditions reveal a high consumption of fast food and a high risk of obesity. Children from low-income families adopt a traditional diet with higher nutritional quality, as they consume less sugars and saturated fats than those who do not adhere to this food pattern.

Conclusions: Economic conditions of the household seems to influence children's eating patterns.

Keywords: food, children; socioeconomic

CORRELATION BETWEEN NUTRITION AND TYPE 2 DIABETES IN ADULTS

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Introduction: Diabetes is one of the fastest growing health challenges of this century. The “type of diet” is a relevant factor in patients with this pathology, and diets with low carbohydrate, ketogenic and Mediterranean diets are very popular, although their effectiveness is still discussed.
Objective: The main objective of this work is to study the relationship between nutrition, eating habits and healthy lifestyle with diabetes mellitus type 2 (T2DM) in the world adult population.
Methods: An online search was conducted in PubMed and Scienc Direct (end-of-search: April 02,2020). A literature review of the research articles, published in the last 5 years, using the keywords “adults”, “type 2 diabetes”, “nutrition”, “low carbohydrate diet”, “ketogenic diet” and “mediterranean diet”, was the chosen method. Using the keywords above, it was obtained 100 articles. After title and abstract analysis, it was selected 30 and from that, after full reading it was included in this study 9 articles.
Results: A variety of nutritional habits has been shown to be effective for adults with type 2 diabetes, such as Low-Carb, Ketogenic and Mediterranean diet. For people with type 2 diabetes or prediabetes, low-carbohydrate eating plans show potential to improve glycemia and lipid outcomes.
Conclusions: In order to reduce the risks of this pathology it is necessary to balance a healthy diet consisting of appropriate food portions - mediterranean, ketogenic or low carb - with regular physical activity, for these have proven to be most efficient in account of each individual's characteristics.

Keywords: Diet; Adults; Type 2 Diabetes Mellitus; Nutrition; Lifestyle

THE EFFECTS OF USING PROBIOTICS IN PREGNANCY

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Introduction: Pregnancy is an emotional stage of immunological and physiological changes that help to accommodate the growing fetus. Probiotics may have effects on the regulation of these changes, because they are a dietary supplement which contain living micro-organisms that are administered with the intention of increasing health.

Objectives: To understand the effect of intake probiotics during pregnancy on the health of the pregnant woman, the breast milk and fetus.

Methods: A review of the literature was conducted in the Pubmed, Sciencedirect, Scielo databases using the expression "probiotics and pregnancy". It was selected the articles in English, in humans and published in the last 10 years. Twenty-five articles were obtained, and analyzed, first by their title, then by reading the abstract and finally by reading the full text, and six articles were selected.

Results: Studies showed that probiotic supplementation is safe and can have a protective role in pre-eclampsia, gestational diabetes mellitus, vaginal infections and maternal-child weight gain. They may also stimulate inflammatory cytokines and have immunomodulatory effects, helping to switch to a pro-inflammatory microenvironment in the third trimester.

Probiotics seems to modulate the microbial composition and immunity of breast milk, increasing the concentration of adiponectin, which will have effects in the fetus development and later, repercussions on childhood.

The results will depend on the duration of the intervention, genetic differences and probiotic portions.

Conclusion: The revision showed that using probiotics has an influence on pregnancy and fetus in various ways, with changes in maternal and fetal gut and vaginal microbiome.

Keywords: probiotics; pregnancy; fetus; changes; microbiome

VITAMIN D AND CALCIUM DEFICIT IN ELDERLY POSTMENOPAUSAL WOMEN AND THE OCCURRENCE OF OSTEOPOROSIS

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Introduction: Post-menopause is a phase in an elderly woman's life, which brings an increased risk of osteoporosis since the levels of estrogen decrease, leading to the loss of bone mass and consequently these becoming more prone to bone fracture. Objectives: Identify how the insufficient consumption and metabolism of vitamin D and calcium, specifically in elderly women after menopause, can lead to osteoporosis. Method: The review article was elaborated from a compilation of fourteen review articles and original studies from which only ten were selected for the elaboration process carried out through the databases SciELO, ASBMR, Springer, Oxford Academy and ScienceDirect, prioritizing articles from the last twenty years and using as filters the content of the articles and studies, as well as the publication date. Throughout the process the keywords used were: osteoporosis, calcium, vitamin D, calciferol, menopause, estrogen and elderly woman. Results: The compilation of the selected articles allowed the understanding of the importance of calcium as an essential mineral to the correct activity of the human organism, as its function is directly related to the bone structure. Vitamin D, in turn, regulates the amount of calcium in the organism boosting the absorption of calcium and phosphorus in the intestine. Conclusion: The published articles allowed a better understanding of osteoporosis in elderly women after menopause. Women with family precedents of the disease are encouraged to an early control of the bone densitometry and possibly the hormonal reposition, not excluding the possibility of supplements.

Keywords: osteoporosis, calcium, vitamin D, menopause, elderly woman

THE INFLUENCE OF MICRONUTRIENTS ON CHILDREN'S NEURO DEVELOPMENT

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Introduction: The first years of life is very important for brain development because there is a very rapidly growth of it. After second semester, breast milk is not enough to require the baby's biological and nutritional needs and new foods should be introduced - food diversification.

Objective: To understand the influence of food diversification, namely of micronutrients iron and iodine, on the neuro-development of children aged between 1 and 3 years.

Methods: Literature review was conducted in the PubMed, Sciencedirect and Scielo databases, using keywords such as "Food Diversification", "and", "children", "neuro-development", "micronutrients", "iron" and "iodine" which led us into the articles that we selected, initially by the title, then reading the abstract and finally the whole article. It was selected nine of those, including articles in portuguese and english.

Results: Iron is a very important element in our organism because it participates in procedures such as neuronal maturation, proper functioning of neurotransmitter system, namely in processes of synthesis, function and degradation of neurotransmitters. Iodine, on the other hand, is indispensable for the regulation of metabolism and for the consolidation of neuro-development, specifically in early childhood. Breast milk contains about 400 µg/l of iron, however, the amount of iodine is influenced by mother's diet. After 6 months, nutritional requirements imply an intake of 11 mg / day of iron and 70 µg / day of iodine.

Conclusions: The need of nutrients under analysis is high, breastfeeding is not enough, due to adequate food diversification is essential to achieve nutritional needs.

Keywords: Key-words: Food Diversification, and, children, neuro-development, micronutrients, iron, iodine

FAMILY ROLE IN THE PROMOTION OF EATING BEHAVIORS IN ADOLESCENCE

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Introduction: Food consumption is determined by individual food choices and is a complex process. Family factors, such as educational level, socioeconomic level and food available at home, seem to contribute to adolescent eating habits at home and in other contexts.
Objective: This study aimed to analyse the literature about family role in adolescent eating habits and to identify family factors that are determining their eating behaviour.
Methods: A literature review was conducted. The research was performed in PubMed and Academic Google databases, using the key words “family”, “role”, “adolescence”, “AND”, “healthy”, “eating behavior”, considering papers published in the last 11 years. We obtained 12 articles and 6 were selected after reading the title, abstract and integral text.
Results: Data shows that adolescents do not include the required amount of fruits, vegetables, beans, grains and water in their diets. An association was found between adolescents engaging in family meals and their healthier eating patterns. Sharing family meals as well as the presence of healthy food at home are related with normal weight, less chance of developing unhealthy eating habits and eating disorders in adolescence. However, some studies indicated that sharing family meals was harmful due to the absence of family healthy eating habits.
Discussion/Conclusion: Family environment plays a crucial role in promoting eating habits among adolescents. Thus, family concerns and attitudes towards healthy food act as a protective factor in adolescent health. Future studies should analyse and develop interventions with families to promote better nutrition habits among adolescents.

Keywords: Family; role, adolescence, healthy; eating behaviour

DIETARY INTAKE BY 1-3 YEARS OLD CHILDREN IN CHILDCARE

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Introduction: Children aged 1 to 3 years old experience considerably growth and development therefore the nutritional intake is one of the most important factors in this age stage. Nowadays children spend around 8 hours per day in childcare.

Objective: Understand the nutritional guidelines of children aged 1 to 3 years old and if food intake in childcare is complying with these guidelines.

Methodology: Literature review was conducted in platforms namely PubMed and ScienceDirect using the keywords “childcare and dietary intake”, “nutrition” and “children aged 1 to 3 years old”; limiting the research to English and review articles or systematics reviews published in the last 10 years. Afterwards articles were selected by title, then abstract and finally by full reading, obtained 15 articles with some interest and selected 8 articles that respond to the objective of this work.

Results: Energy intake depends on age and gender: girls aged 1 to 3 years old should consume 716 to 1096 calories and boys should consume 788 to 1174 calories. Regarding total fat intake the percentage that is recommended is 35% to 40% of the daily energy intake. On the other hand, the percentage of free sugars intake must not exceed 10%. Some studies, pointed to a higher intake of energy, total fat and sweets concerning the nutrition guidelines and a lower intake of a few nutrients in childcare.

Conclusion: Childcare food intake seems not comply the recommendations, whereby policies and education programs should be implemented to increase the compliance.

Keywords: children; dietary intake; nutrition; childcare