

Impact and implications: Physiotherapists are well placed to deliver services which incorporate health prevention and can make a positive contribution towards addressing the health priorities of their local patient population.

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Do wrist proprioceptive exercises improve sense of force for hand grip?



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Relevance: Force sense (FS) is commonly assessed using force reproduction (FR) as a measure of proprioception. Assessing FR involves the use of a reference force, usually determined as a percentage of a maximal voluntary isometric contraction during some tasks and attempting to replicate that force. Proprioception of ankle, knee and shoulder joints has been studied mostly and concluded that proprioception may be improved using appropriate exercises. However, there is no study which measures force sense and compares the effectiveness of proprioceptive and conventional exercise programs for wrist joint.

Purpose: The aim of this study was to determine whether proprioceptive exercises of wrist joint have superior effect to conventional exercises for force sense of hand grip.

Methods/analysis: Forty-five healthy subjects recruited to the study and divided into three groups as control group (CG, $n=15$), conventional exercise group (CEG, $n=15$) and proprioceptive exercise group (PEG, $n=15$). Force-reproduction testing was performed with force reproduction precision for hand grip measured using Pneumatic Bulb Dynamometer. Targeted force was set at 50% of the grip force. Initially, it was allowed to subjects watching the dynamometer screen during hand grip until reaching to target grip force. Then, it was requested from the subjects to reproduce the target grip force blindly. Three attempts were performed and mean of absolute errors were recorded. Two intervention groups (CEG and PEG) received exercise programs a total of three weeks, three times per week. Subjects in the CEG had stretching and strengthening exercises using standard dumbbells. Stretching and isometric exercises, PNF techniques, stabilizing and perturbation exercises, strengthening exercises were used for PEG. Joint approximations and manual joint traction were also applied to PEG. CG had no intervention and force sense was measured two times (on first week and three weeks later). For statistical analy-

sis, “Wilcoxon Signed Rank Test” (intragroup comparison), “Repeated measurements Two-way ANOVA” and “Tukey” tests were used (intergroup comparison).

Results: Three groups had similar characteristics in terms of their age (The CG: 29.13 ± 6.74 , TEG: 28.73 ± 6.71 , PEG: 30.07 ± 7.68 years), gender, dominant hand and force reproduction errors (CG: 3.09 ± 0.79 , CEG: 2.80 ± 0.78 , PEG 2.78 ± 0.76) ($P > 0.05$). There was significant improvement in precision of force reproduction in favour of PEG (CG: 3.11 ± 0.66 , CEG: 2.62 ± 0.59 , PEG: 2.09 ± 0.66) ($P = 0.001$) after the interventions.

Discussion and conclusions: FS is defined as “the ability to accurately reproduce a given force” and not commonly used for measuring proprioception. Thus, literature indicates that not only joint position sense and kinesthesia, but also force reproduction sensibility is a critical parameter of proprioception. Proprioceptive exercises mostly take part in rehabilitation program of ankle, knee and shoulder pathologies, whereas extremely limited data exists about wrist proprioception and proprioceptive exercises. This study indicates precision of force reproduction of the wrist can be improved using proprioceptive exercises. Moreover, proprioceptive exercise may improve grip force sensibility in healthy individuals.

Impact and implications: Force reproduction precision, a major part of proprioception especially for hand and wrist can be improved with well-designed exercises. Proprioceptive exercises have superior effects compare to conventional exercises. Regarding the higher sensorimotor abilities of the hand and wrist, proprioceptive exercises have to be inserted to the rehabilitation program in clinical practice.

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Learning @pps: building a learning applications database to support physiotherapy education



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Relevance: In the recent years a rapid increase in the use of technology in education was witnessed, particularly concerning e-learning platforms, social networks and web-quizzes. These tools have been increasingly adopted by many health related educational institutions. Because of their ease of use and quick dissemination, they offer the opportunity of powerful information sharing and ease of collaboration which

can be taken anywhere, providing the potential for “anytime, anywhere” learning experiences (mobile learning).

Purpose: The aim of this project was to create a sustainable and searchable database of learning applications, based on technical criteria and learning outcomes taxonomy, to be used in physiotherapy education.

Approach/evaluation: Within the Facilitation of Learning working group of European Network of Physiotherapy in Higher Education (ENPHE), a list of criteria was created based on Bloom Taxonomy to characterize the learning outcomes, a set of technical aspects like: Operating System; Licence type and also their interest to Physiotherapy education. With that framework a form for pilot testing was developed with the participants of the ENPHE Working Seminar.

Outcomes: A web based database of learning applications (Learning @pps) open to the physiotherapy educator's community was created. The users can contribute, search and comment the repository using the classification criteria created by the working group.

Discussion and conclusions: This stepwise process allowed the working group to build up a potential usefully tool that aggregates a list of application organized by the learning outcomes, and technical proprieties. Building and supporting a learning application database could provide to the physiotherapy educators a repository of a very relevant list of tools and software, that can be used to support competence building in physiotherapy students.

Impact and implications: It is generally held by many educators that students learn best when immersed within a knowledgeable and socially rich environment. The use of such technologies could encourage learners' deeper engagement with learning contents towards building competences within the physiotherapy profile.

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A multidisciplinary approach to pressure ulcer prevention: exploring healthcare professionals' knowledge and attitudes to pressure ulcer prevention in the community



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Relevance: Responding to changing population needs, public health, prevention and social care.

Purpose: Pressure ulcers (PUs) present a burden to both individuals and healthcare providers, with an estimated UK NHS spend of £1.4 to £3.1 billion p.a on wound management. Prevention has therefore been highlighted as a key healthcare target. However, PU prevention is traditionally regarded as a nursing issue and little is known regarding the role of the multidisciplinary team (MDT) despite being promoted as best practice. While it is recognised that no one profession has all of the solutions in practice it is also clear that effective multidisciplinary working may not be consistently applied.

Methods/analysis: The PU Knowledge Assessment Tool and Attitudes to PU Prevention instrument were utilised with a convenience sample of healthcare professionals within a UK community NHS trust. These questionnaires were disseminated both online and in paper form to varying professional groups throughout the community setting. Sum scores were calculated and converted to percentage values for which >60% for knowledge and >75% for attitude were deemed satisfactory. 160 participants completed the attitude questionnaire, 119 completed the knowledge questionnaire.

Results: The median score across the MDT was satisfactory for knowledge (65.4%, IQR: 57.7%→69.2%) and attitudes (82.7%, IQR: 75%→88.5%), respectively. Within the MDT the knowledge assessment revealed that both occupational therapy (OT) and physiotherapy scored highly (median scores of 69 to 67%), with podiatry scoring the same as nursing (median scores of 65%). Healthcare assistants (HCAs) and rehabilitation assistants (RAs) scored the lowest (59.6%/57.7%, IQR: 57.7%→64.4%). The MDT exhibited strong attitudes to PU prevention, with HCAs and OTs demonstrating the most positive outlook (median = 86.5%). However, over a quarter of respondents indicated that they did not feel PUs were preventable in those at high risk (25.7%, *n* = 41).

Discussion and conclusions: While in general the MDT achieved satisfactory knowledge and attitude levels, there were differences between groups. Historically, PU prevention has been widely regarded as a nursing issue, despite