JRRD at a Glance

Reviewing effectiveness of ankle assessment techniques for use in robot-assisted therapy

Mingming Zhang, Eng MSc, et al.

Ankle performance and function assessment during robot-assisted therapy is crucial for an effective ankle rehabilitation strategy. Existing assessment techniques can be categorized into qualitative and quantitative methods. However, little is known about the effectiveness of existing ankle assessment techniques for potential use in robot-assisted therapy. This article provides a comprehensive review of studies that investigated ankle measurement techniques to better understand those that can be used in the real-time monitoring of rehabilitation progress for implementation in conjunction with robot-assisted therapy. Results show that qualitative ankle assessment methods are not suitable for real-time monitoring in robot-assisted therapy, though they are reliable for certain patients, while the quantitative methods show great potential. The majority of quantitative techniques are reliable in measuring ankle kinematics and kinetics but are usually available for only use in the sagittal plane. Limited studies determine kinematics and kinetics in all three planes (sagittal, transverse, and frontal) where motions of the ankle joint and the subtalar joint actually occur.

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Functional outcomes associated with expiratory muscle strength training: Narrative review

Helena Laciuga, MA

Expiratory muscle strength training (EMST) is a rehabilitative program for improving physiological outcomes related to breathing, voice, cough strength, and swallow function among people with Parkinson's disease and other neuromuscular disorders affecting the central and peripheral nervous systems. Veterans make up a large part of the patient population that may benefit from EMST during rehabilitation. This review summarizes the evidence of EMST effects to help rehabilitation specialists and patients considering this program.

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Visual function, traumatic brain injury, and posttraumatic stress disorder

Gregory L. Goodrich, PhD, et al.

Traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD) are the two signature injuries of the wars in Afghanistan and Iraq. Patients with either or both may present with overlapping visual symptoms. In this study, we examine visual function in patients with TBI. Patients diagnosed with both TBI and PTSD frequently reported similar visual problems; however, only TBI was associated with visual loss and dysfunction. PTSD may produce visually disabling symptoms such as light sensitivity as well as reading problems. Visual examinations are recommended for patients diagnosed with TBI to aid in comprehensive rehabilitation.

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Pain experience of Iraq and Afghanistan Veterans with comorbid chronic pain and posttraumatic stress

Samantha D. Outcalt, PhD, et al.

Many Veterans live with both chronic pain and posttraumatic stress disorder (PTSD). However, we do not have enough information about how these conditions are related. Increasing our understanding of this relationship could lead to more effective treatment for Veterans with both conditions. This study interviewed 241 Operation Iraqi and Enduring Freedom Veterans, 173 with only chronic pain

and 68 with pain and PTSD. We compared the two groups to identify differences in pain severity and disability, ways of thinking about pain, and emotional symptoms. We found that those with pain and PTSD reported a worse overall experience than those with pain alone.
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Posttraumatic stress disorder symptoms, levels of social support, and emotional hiding in returning veterans

Jeanne M. Duax, PhD, et al.

The postdeployment period is an important time for veterans to reestablish social connections and readjust to civilian life. For veterans with posttraumatic stress disorder (PTSD) symptoms, disruptions in social support can interfere with recovery. We administered a brief survey to veterans who had returned from Operation Iraqi Freedom and Operation Enduring Freedom deployments. We found that veterans who reported PTSD symptoms showed high levels of holding back their feelings, thoughts, and difficulties from significant others, friends, and family. It is important for clinicians working with veterans with PTSD symptoms to discuss veterans' attitudes regarding emotional disclosure and social support.
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Reliability of brain computer interface language sample transcription procedures

Katya Hill, PhD, CCC-SLP, et al.

The reliability of transcribing language samples of daily brain-computer interface (BCI) communication recorded as language activity monitor (LAM) logfiles is reported. This study determined interrater and interjudge reliability for transcription of communication of veterans with amyotrophic lateral sclerosis (ALS) using a P300-based BCI as an augmentative and alternative communication (AAC) system. The procedure was found to be highly accurate based on frequency of agreement ratio calculations across transcribers/raters. Interjudge agreement was 100% for the two selected language measures. The results indicate that transcribing language samples using LAM data is highly reliable and the fidelity of the process can be maintained.
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Reliability and agreement of digital weighing scale with MatScan in limb load measurement

Senthil Kumar N. S., M.Sc, et al.

This research focused on the measurement of uneven loading on human legs. The aim of research was to report on the trustworthiness of two digital weighing scales in measuring uneven load distribution in the legs. The findings supported an effective and economical procedure using digital weighing scales to measure the loading of the legs when compared with expensive equipment such as MatScan. This research provides knowledge for clinicians, surgeons, and any ordinary people on measurement of uneven loading on legs, which could help in early detection and prevention of problems related to uneven loading on legs.
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Identifying position, visibility, dimensions, and angulation of the ear

Kasim Mohamed, MDS, et al.

The article explains a method of assessing the position, visibility, dimension, and angulation of the ear of a specific facial form of an individual using facial plane landmarks and reference plane indicator. This would help in fabricating ear prostheses even in bilaterally missing ears so that the appearance of the patient will be better and reduces the work of maxillofacial prosthodontists. The present article is different from other previous study because it discusses all the variables required in ear prosthesis fabrication.
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Development of a progressive audiologic tinnitus management program for Veterans with tinnitus

Paula J. Myers, PhD, et al.

Tinnitus is the most common service-connected disability among Veterans. Tinnitus management has been inconsistent across Department of Veterans Affairs hospitals. This study developed and tested a tinnitus-management protocol to help Veterans manage their reactions to tinnitus. Five hierarchical levels of care were defined and named the "Progressive Audiologic Tinnitus Management" model. Staff training and patient education materials were developed and the model was tested with audiology patients at the James A. Haley Veterans' Hospital. The model was easily implemented within this busy Audiology clinic and helped Veterans manage their tinnitus.

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Assessment of gait stability, harmony, and symmetry in subjects with lower-limb amputation evaluated by trunk accelerations

Marco Iosa, PhD, et al.

In recent years, there has been an increasing use of accelerometers in the quantitative assessment of locomotor abilities, but poor attention has been served to people with amputation. We applied this technique to 22 people with transfemoral or transtibial amputation at dismissal from our rehabilitation hospital after a new prosthesis delivery and compared the data with those of 22 age-matched healthy subjects. Reduction of gait stability, harmony, and symmetry were found, especially for subjects with transfemoral amputations using prostheses with a locked knee. Our findings are an important step toward a quantitative clinical assessment of gait features in subjects with lower-limb amputation, such as many veterans.

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Test-retest reliability and rater agreements of Assessment of Capacity for Myoelectric Control version 2.0

Helen Y. N. Lindner, PhD, et al.

The clinical tool Assessment of Capacity for Myoelectric Control (ACMC) was developed to follow upper-limb prosthesis users' progress in learning to control their prostheses. We examined the stability and amount of error in ACMC results. Overall, the results support the stability of the ACMC and the amount of error was small. This study could benefit prosthesis users because the ACMC results indicate whether the user improved in prosthetic control and can help the therapist plan further training.

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Inflammation-mediating cytokine response to acute handcycling exercise with/without functional electrical stimulation-evoked lower-limb cycling

Thomas A. W. Paulson, MSc, et al.

Lower-limb paralysis and immobilization following a spinal cord injury predispose individuals to an elevation in cardiovascular disease risk factors; including chronic inflammation. Participation in regular exercise can reduce cardiovascular disease risk, in part because exercise may exert a down-regulatory effect on inflammatory pathways driving the development of insulin resistance and atherosclerosis. This study investigated whether the inflammation-mediating potential of handcycling exercise can be enhanced by the addition of concurrent electrical stimulation-evoked lower-limb cycling. Initial findings suggest electrical stimulation-evoked contractions initiated the secretion of the cytokine IL-6 from paralysed skeletal muscle and may enhance the anti-inflammatory potential of acute upper-limb exercise.

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Colitis after polytrauma: Case report

William E. Carter, MD, et al.

Rehabilitation patients, especially those with polytrauma, often experience multiple medical, social, and psychological health problems that effect participation in interdisciplinary rehabilitation. With multisystem injuries, some of the less urgent problems can be inadequately evaluated, resulting in delayed diagnosis. Across the medical literature, delayed diagnosis and treatment leads to more costly and worse outcomes. This case presentation highlights this issue and its effect in the rehabilitation setting.

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Botulinum toxin injection for bruxism associated with brain injury: Case report

Serdar Kesikburun, et al.

This report illimunates an uncommon complication of traumatic brain injury. Veterans experiencing traumatic brain injury from a gunshot wound may have bruxism, which means teeth grinding. It may cause uncomfortable sleep and torn teeth. Botulinum toxin injection may provide an effective treatment option. This article will help patients and healthcare providers learn how this injection can be performed and what benefits it may have.

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