

Heterotopic ossification in combat amputees from Afghanistan and Iraq wars: Five case histories and results from a small series of patients

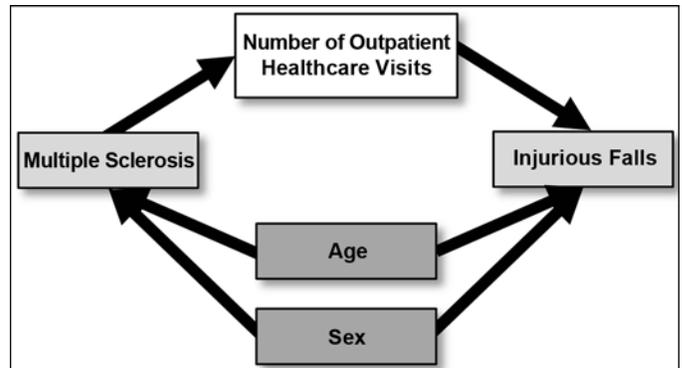
Ted Melcer, PhD, et al.



Heterotopic ossification (HO) is extra bone growth often caused by serious injuries from explosions. HO occurs in amputated limbs of soldiers injured in combat. It causes symptoms such as pain and interferes with walking with a prosthesis. This research described HO in 27 combat amputees. About one-third of patients had HO symptoms in amputated limbs, but X-rays showed HO in 15 of 25 amputated limbs. Of the 15 patients who had HO, 5 did not report any symptoms or problems. We summarized HO experiences of five patients, describing how HO interfered with walking in some cases but not in others.

Falls requiring medical attention among veterans with multiple sclerosis: A cohort study

Michelle H. Cameron, MD, PT, et al.



This study used a Department of Veterans Affairs computer database of veterans' healthcare visits to Veterans Health Administration facilities in the Northwest (Veterans Integrated Service Network 20) in fiscal year 2008 to compare how often veterans with and without multiple sclerosis (MS) were injured by falls. We found different results for male and female veterans. Three times more female veterans with MS than without MS sustained an injurious fall. This difference was statistically significant. Only 1.2 times more male veterans with MS than without MS sustained an injurious fall, which was not statistically significant. This study suggests that veterans with MS, and particularly female veterans with MS, have injurious falls more often than veterans without MS. Veterans with MS, and particularly female veterans with MS, may benefit from help to reduce their risk of falling and of being injured by a fall.

Validity of PTSD diagnoses in VA administrative data: Comparison of VA administrative PTSD diagnoses to self-reported PTSD Checklist scores

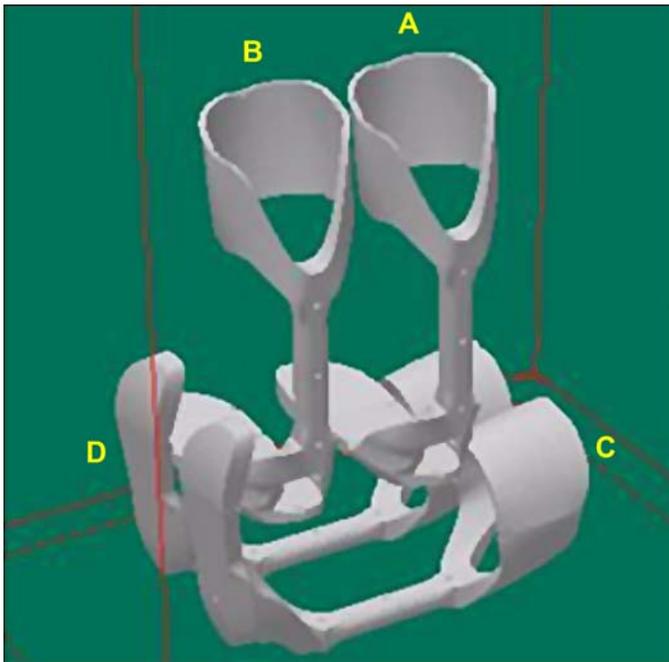
Amy A. Gravely, MA, et al.

This article demonstrates that when using Department of Veterans Affairs (VA) administrative data to compile posttraumatic stress disorder (PTSD) samples, researchers should locate participants with at least two PTSD diagnoses

to increase the likelihood that selected participants do have PTSD. This study also provides information about the actual composition of PTSD samples when they are selected by using at least two diagnoses. Researchers can use this information when selecting samples for research studies, which will lead to more accurate inferences being made from VA PTSD research studies and, ultimately, more effective interventions for PTSD.

Dimensional accuracy of ankle-foot orthoses constructed by rapid customization and manufacturing framework

Elisa S. Schrank, BS; Steven J. Stanhope, PhD



The orthoses automated fit customization and rapid manufacturing framework described in this article has great implications for the personalization and rapid delivery of orthoses for injured veterans. The framework also has the potential to dramatically enhance rehabilitation outcomes through the customization of functional characteristics. Finally, the framework is well suited for applications to other rehabilitation devices, such as prostheses.

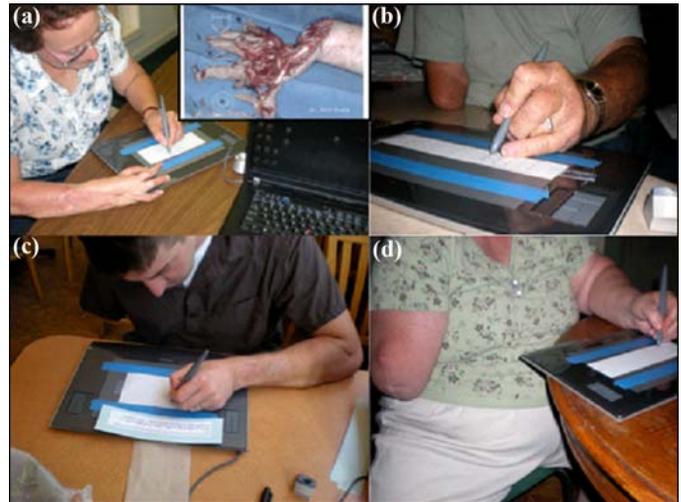
Pain neurophysiology education improves cognitions, pain thresholds, and movement performance in people with chronic whiplash: A pilot study

Jessica Van Oosterwijck, MS, et al.

It is estimated that 20 to 30 percent of returning veterans have reported some type of head injury. One of the most reported injuries to the neck is whiplash injuries, often caused by motor vehicle accidents. Between 10 and 42 percent of patients who sustain a whiplash injury develop chronic pain, and approximately 10 percent endure constant severe pain. In a pilot study, we report the positive results of patient education on disability, pain behavior, pain-free movement, and pain thresholds in patients with chronic whiplash. This information will help rehabilitation specialists and physiotherapists with the treatment of chronic whiplash associated disorders.

Stability of handwriting performance following injury-induced hand-dominance transfer in adults: A pilot study

Kathleen E. Yancosek PhD, OTR/L, CHT;
David R. Mullineaux, PhD

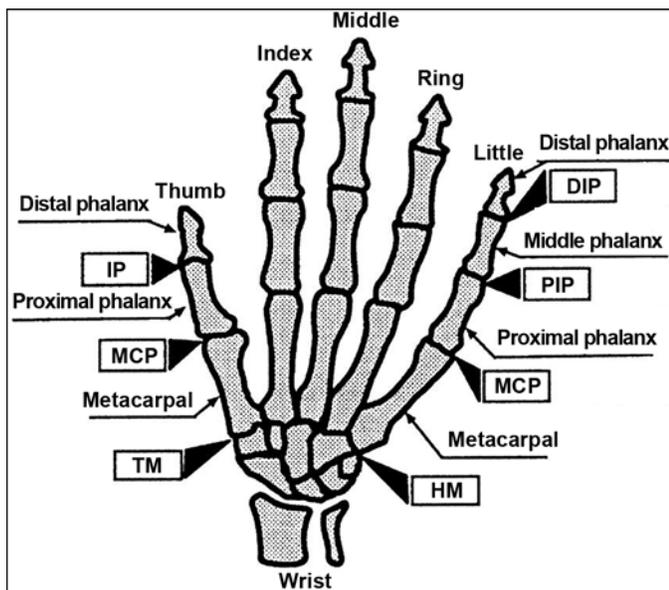


When a servicemember permanently loses the ability to use the dominant hand, he or she faces hand-dominance transfer. Since handwriting is the activity that most often defines hand dominance, this study looked at the handwriting ability of adults who had lost function in their previously dominant hand. The results showed that while not all the participants regained the ability to write with their

nondominant hand, most of them tried to write every day. Occupational and physical therapists should diligently try to teach handwriting skills to adults who lose dominant-hand function.

Development of finger-motion capturing device based on optical linear encoder

Kang Li, MEng, et al.



Data gloves for hand-motion capture are a promising tool for objectively assessing finger movements and rehabilitation strategies. This article describes the design and validation of a wearable multifinger sensing device called SmartGlove. SmartGlove design was based on the novel optical linear encoder (OLE), which is compact and lightweight, is immune to temperature or electromagnetic inter-

ference, is easily replaceable, and consumes little power. The characterization tests also show that the OLE's digital output has good linearity and accuracy. The SmartGlove prototype uses 10 OLEs to capture the flexion/extension motion of the 14 finger joints and is constructed based on the multipoint sensing method. A user study evaluated the SmartGlove using a standard protocol and found high repeatability and reliability in both the gripped and flat-hand positions compared with four other evaluated data gloves using the same protocol.

Measurement of lower-limb muscle spasticity: Intrarater reliability of Modified Modified Ashworth Scale

Nastaran Ghotbi, PhD, PT, et al.

Muscle spasticity is a complex and disabling motor disorder that occurs following conditions such as stroke, multiple sclerosis, spinal cord injuries, and cerebral palsy. The reliable assessment of spasticity is important for evaluating treatment effects. The Modified Modified Ashworth Scale (MMAS) is a clinical tool for measuring spasticity. This study determined whether the MMAS is reliable for the assessment of spasticity if performed by one rater across two occasions (intrarater reliability). Three muscle groups in the lower limb were assessed: hip adductors, knee extensors, and ankle plantar flexors. The reliability was moderate for the hip adductors, good for the knee extensors, and very good for the ankle plantar flexors. The overall reliability for the three muscle groups was very good. These findings indicate that the MMAS is reliable in patients with lower-limb muscle spasticity.