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Hindfoot Flexibility Influences the Biomechanical Effects of Laterally Wedged Insoles and Ankle-Foot Orthoses in Medial Knee Osteoarthritis

Bartsch and colleagues investigated the relationship of frontal plane ankle mobility with the effects of an ankle-foot orthosis (AFO) and a laterally wedged insole (LWI) on knee adduction moment (KAM) in the treatment of medial knee osteoarthritis. In a crossover design, study patients received AFOs and LWIs in a block randomized allocation without blinding. Patients (n=20) received AFO and LWI for 6 weeks each with gait analysis after each 6-week intervention. The KAM reduction with AFO correlated significantly with hindfoot varus reaction to the cross slope during walking: the greater the hindfoot valgization on the cross slope, the greater the KAM reduction with AFO. The KAM reduction with LWI correlated moderately negatively with the change in hindfoot varus: the greater the hindfoot valgization on the cross slope, the smaller the KAM reduction with LWI. The authors conclude that frontal plane ankle flexibility during walking and standing can distinguish between those individuals who will show a biomechanical response to LWIs compared to AFOs. Treatment with LWIs achieved the highest KAM reductions in patients with very limited frontal plane ankle mobility. In contrast, LWI may not reduce or even increase KAM in patients with more frontal plane ankle mobility. AFOs were shown to be particularly effective at reducing the KAM the more flexibly the ankle joint complex acts in the frontal plane. ■ SEE THE FULL ARTICLE AT PAGE 1699

Effect of Neuromuscular Electrical Stimulation During Walking on Pain Sensitivity in Women With Obesity With Knee Pain: A Randomized Controlled Trial

Matsuse and colleagues compared the efficacy of hybrid training system walking (HTSW) vs. sensory transcutaneous electrical nerve stimulation (TENS) on peripheral pain sensitivity, knee pain and quality of life in obese women with daily knee symptoms. Twenty-eight women participated in 12 weeks of biweekly 30-minute walking exercise with either HTSW or sensory TENS. Participants who exercised with HTSW tended to demonstrate greater improvement in remote pressure pain thresholds, although the greater than anticipated rate of dropouts limited statistical power. While there were no statistically significant differences in outcome measures between the HTSW and sensory TENS groups in symptomatic knee pain and quality of life, both groups exhibited significant improvements. The authors conclude that augmentation of an exercise program with HTSW reduces local knee pressure sensitivity compared to low-dose sensory nerve stimulation over the same muscle groups. ■ SEE THE FULL ARTICLE AT PAGE 1707

Effects of Early Postdischarge Rehabilitation Services on Care Needs-Level Deterioration in Older Adults With Functional Impairment: A Propensity Score-Matched Study

Mitsutake and colleagues examined the effects of early post-discharge rehabilitation on care-needs and level deterioration in older patients. Patients were ≥ 65 years and discharged from hospital to home between April 2012 and March 2014 and had care-needs certification indicating functional impairment. Of 2746 patients, 573 used early rehabilitation services. Care-needs level deterioration occurred in 508 patients, of which 76 used early rehabilitation services and 432 did not. One-to-one propensity score matching produced 566 matched pairs that adjusted for the differences in covariates. The hazard of care-needs level deterioration was significantly lower among patients who used early rehabilitation services than those who did not. Kaplan-Meier survival analysis showed similar results. The authors conclude that early rehabilitation services after hospital discharge appeared to be effective in preventing care-needs level deterioration, and that involving rehabilitation therapists in transitional care may optimize health-care for older adults with functional impairment. ■ SEE THE FULL ARTICLE AT PAGE 1715

Postamputation Cognitive Impairment Is Related to Worse Perceived Physical Function Among Middle-Aged and Older Prosthesis Users

Miller and colleagues compared middle aged and older prosthesis users with and without cognitive impairment to determine whether cognitive impairment is related to physical function. Of 119 adults aged ≥ 45 years who were at least one-year post-lower limb amputation and who were walking independently with a prosthesis, 28 had cognitive impairment. Participants with cognitive impairment had worse perceived physical function, even after adjusting for depressive symptoms, prosthesis satisfaction, number of chronic conditions, and assistive device use. Together, these variables accounted for 59% of the variability in perceived physical function. The authors conclude that cognitive impairment is associated with worse physical function post-lower limb amputation, even after controlling for physical and mental health characteristics. Tailored rehabilitation interventions may be needed to improve physical function in prosthesis users with cognitive impairment. ■ SEE THE FULL ARTICLE AT PAGE 1723