ESSENTIAL ARTICLES OF PM&R

GAIT, ASSISTIVE DEVICES, PROSTHESES, ORTHOSES, and AMPUTATION-RELATED ISSUES

Authors:
Mark Hirsch, PhD
Vu Nguyen, MD

Gait


Hemiplegic gait – Analysis of temporal variables.

Relationships between spasticity, strength, gait, and the GMFM-66 in persons with spastic diplegia cerebral palsy.

Walking speed as a basis for normal and abnormal gait measurements.

An evaluation of patient perceptions to the value of the gait laboratory as part of the rehabilitation of primary lower limb amputees.

Gait efficiency using the C-Leg.

Kinematic and kinetic comparisons of transfemoral amputee gait using C-Leg and Mauch SNS prosthetic knees.

Differences in gait characteristics between persons with bilateral transtibial amputations, due to peripheral vascular disease and trauma, and able-bodied ambulators.
Assistive Devices and Mobility

Mobile arm supports: Evidence-based benefits and criteria for use.

Participation in community-based activities of daily living: Comparison of a pushrim-activated, power-assisted wheelchair and a power wheelchair.

Evaluation of a stair-climbing power wheelchair in 25 people with tetraplegia.

How many people would benefit from a smart wheelchair?

Characterization of power wheelchair use in the home and community.

Orthoses

Orthotic and prosthetic prescriptions for today and tomorrow.

Energy expenditure in stroke subjects walking with a carbon composite ankle foot orthosis.

Effectiveness of upper and lower limb casting and orthoses in children with cerebral palsy: An overview of review articles.

Effect of ankle-foot orthoses on walking efficiency and gait in children with cerebral palsy.

Effects of an anterior ankle-foot orthosis on postural stability in stroke patients with hemiplegia.
Indications for orthoses to improve gait in children with cerebral palsy.

Orthotic management of the neuropathic limb.


Effects of rigid and dynamic ankle-foot orthoses on normal gait.

Biomechanical effect of electromechanical knee-ankle-foot-orthosis on knee joint control in patients with poliomyelitis.

Gait changes over time in stance control orthosis users.

Shoe modification and the use of orthoses in the treatment of foot and ankle pathology.

Advances in orthotics and bracing.

Foot orthoses in rehabilitation-what's new.

Functional bracing of the adult acquired flatfoot.

De-stabilizing and training effects of foot orthoses in multiple sclerosis.

Effects of foot orthoses on patients with chronic ankle instability.

Orthotic devices after stroke and other non-progressive brain lesions.
Tyson SF, Kent RM. Cochrane database of systematic reviews (Online) (1).1 2009: CD003694.

Protheses

Comparison of interface pressures with pin and suction suspension systems.

Microprocessor prosthetic knees.

Lower extremity socket design and suspension.

Comparison of different microprocessor controlled knee joints on the energy consumption during walking in trans-femoral amputees: Intelligent knee prosthesis (IP) versus C-Leg.

Effect of physical fitness on prosthetic ambulation in elderly amputees.

Review of research on prosthetic devices for lower extremity amputation.

Componentry for lower extremity prostheses.


A comparative study of conventional and energy-storing prosthetic feet in high-functioning transfemoral amputees.

A comparative study of oxygen consumption for conventional and energy-storing prosthetic feet in transfemoral amputees.
Evaluation of function, performance, and preference as transfemoral amputees transition from mechanical to microprocessor control of the prosthetic knee.

Osseointegrated trans-femoral amputation prostheses: prospective results of general and condition-specific quality of life in 18 patients at 2-Year follow-up.

The effects of prosthetic foot design on physiologic measurements, self-selected walking velocity, and physical activity in people with transtibial amputation.

Comparison of non-microprocessor knee mechanism versus C-Leg on prosthesis evaluation questionnaire, stumbles, falls, walking tests, stair descent, and knee preference.

Gait and balance of transfemoral amputees using passive mechanical and microprocessor-controlled prosthetic knees.

Energy expenditure and activity of transfemoral amputees using mechanical and microprocessor-controlled prosthetic knees.

Targeted reinnervation for improved prosthetic function.

Clinical factors associated with prescription of a prosthetic limb in elderly veterans.

Progressive upper limb prosthetics.

Control of a six degree of freedom prosthetic arm after targeted muscle reinnervation surgery.

Limb deficiency and prosthetic management. Decision making in prosthetic prescription and management.
A randomized controlled trial comparing functional outcome and cost efficiency of a total surface-bearing socket versus a conventional patellar tendon-bearing socket in transtibial amputees.

Comparison between the C-Leg microprocessor-Controlled prosthetic knee and non-microprocessor control prosthetic knees: A preliminary study of energy expenditure, obstacle course performance, and quality of life survey.

Pare and prosthetics: The early history of artificial limbs.

Changes in lower Extremity prosthetic practice.

Prosthetic feet: State-of-the-art review and the importance of mimicking human ankle-foot biomechanics.

Prosthetic ankle-foot mechanism capable of automatic adaptation to the walking surface.

Prosthetic management of the partial foot amputee.

Amputation-Related Issues

Clinical inquiries: What is the best way to manage phantom limb pain?

Return to driving after lower-extremity amputation.

Return to work after lower limb amputation.
Partial hand amputation and work.  

Self-delivered home-based mirror therapy for lower limb phantom pain.  

Reamputation, mortality, and health care costs among persons with dysvascular lower-limb amputations.  

Rehabilitation setting and associated mortality and medical stability among persons with amputations.  

Dermatologic conditions associated with use of a lower-extremity prosthesis.  

Skin problems in an amputee clinic.  

The geriatric amputee.  

Sexuality and amputation: A systematic literature review.  

Postoperative management of lower extremity amputations.  

Stability of phantom limb phenomena after upper limb amputation: A longitudinal study.  

Burns and amputations: A 24-year experience.  

The experience of phantom limb pain in patients with combat-related traumatic amputations.  

Chronic low back pain in traumatic lower limb amputees.  
Survival rates in dysvascular lower limb amputees.

Long-term outcomes and survival of patients with bilateral transtibial amputations after rehabilitation.

Efficacy of bracing the lower limbs and ambulation training in children with myelomeningocele.

Skin problems in lower limb amputees: A systematic review.

Determinants of skin problems of the stump in lower-limb amputees.

Low-Back Pain in transfemoral amputees: Is there a correlation with static or dynamic leg-length discrepancy?

Advances in amputee care.

Falls sustained during inpatient rehabilitation after lower Limb amputation: prevalence and predictors.

Heterotopic ossification following traumatic and combat-related amputations. Prevalence, risk factors, and preliminary results of excision.

Identifying clinically meaningful improvement in rehabilitation of lower-limb amputees.

Painful and nonpainful phantom and stump sensations in acute traumatic amputees.

Fluid collections in amputee stumps: A common phenomenon.
Managing the upper extremity amputee: A protocol for success.

The effectiveness of inpatient rehabilitation in the acute postoperative phase of care after transtibial or transfemoral amputation: Study of an integrated health care delivery system.

The prevalence of osteoarthritis of the intact hip and knee among traumatic leg amputees.

Comparison of quality of life and functionality in patients with traumatic unilateral below knee amputation and salvage surgery.

Early Treatment of trans-tibial amputees: Retrospective analysis of early fitting and elastic bandaging.

Quality of life of persons with lower-limb amputation during rehabilitation and at 3-month follow-Up.

Lower-extremity amputations in patients with diabetes: pre- and post-surgical decisions related to successful rehabilitation.