

Functional outcome in a cohort of lower limb amputees



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Keywords: Amputation; Lower limb; Prosthetic fitting; Functional outcome; Predictors; Epidemiology

Objectives.— To describe a cohort of lower limb amputees and evaluate its functional outcome after prosthetic fitting, as well as the existence of potential predictors.

Methods.— Descriptive, monocentric and prospective study, including all patients hospitalized in CRMPR-HN for prosthetic fitting of a unilateral lower limb amputation in 2012.

Results.— Forty-one patients were included, 31 transfemoral and 10 transtibial amputees. Amputations were from vascular, infectious, traumatic and tumor origin in respectively 58.5%, 17.1%, 14.6% and 9.8% of cases. Mean walking distance was 543 ± 1000 m, walking speed $1.9 \text{ km/h} \pm 1.3$, TMWT $63.3 \text{ m} \pm 45.0$ and TUGT $37.2 \text{ s} \pm 33.9$. Functional outcome had improved at 6 weeks after discharge. Mean LCI-5 was 37.9 ± 14.7 and Houghton score 7.6 ± 2.8 at 6 weeks after discharge.

Discussion.— Functional outcome after amputation from infectious origin was close to that of amputation from traumatic or tumor origin, even in arteritic context. Age, functional independence, time between amputation and prosthetic fitting, standing balance on unaffected limb, hip extension restriction and some comorbidities were significantly correlated with functional outcome. Simple predictors could estimate the functional outcome after prosthetic fitting.

<http://dx.doi.org/10.1016/j.rehab.2014.03.427>

CO68-008-e

Raising awareness of the use of orthotic devices in juvenile rheumatoid arthritis



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Keywords: Juvenile rheumatoid arthritis; Orthotic devices; Rehabilitation

Background.— The juvenile rheumatoid arthritis (JRA) is the most common chronic rheumatologic disease in the childhood. Almost all children with JRA can keep an active lifestyle but the ones with polyarticular involvement may have problems during disease flares.

Methods.— We present a case of a 16-year-old female with polyarticular onset juvenile idiopathic arthritis with incapacitating chronic pain that has become independent in her daily living with the help of orthotic devices. We pretend to describe (using video and photography) the several orthotic devices that were chosen accordingly to her health, disability and functioning.

Discussion.— Physical medicine and rehabilitation (PMR) is generally centred in treatments outside the inflammatory period of the disease relying mainly in stretching and passive or active mobilization. Other medical specialties commonly forget to refer to PMR during ongoing joint inflammation in order to provide orthotic devices to reduce articular load and these patients simply begin physical therapy after chronic weakness and contractures. PMR is paramount to present preventive measures reducing the articular load during ongoing joint inflammation, allowing for improved quality of life in the long-term and a more active lifestyle.

<http://dx.doi.org/10.1016/j.rehab.2014.03.428>

Prospective results of immediate correction of scoliosis in ARTbrace



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Keywords: Scoliosis; Prospective study; Immediate results; In-brace correction
Background.— The ARTbrace is an asymmetric rigid (polycarbonate) torsion brace with two lateral shells and front opening.

Results.— The immediate in-brace correction of the Cobb angle is the fundamental parameter of success of non-surgical orthopaedic treatment of scoliosis. The results of a prospective series of the first 75 patients were studied using EOS X-ray and compared with results obtained by other braces.

Radiologically, in the frontal plane, the immediate reduction in-brace is on average (0.69).

Discussion.— Depending on the type of curvature the results were, thoracolumbar (0.93), lumbar (0.71), double major (0.67) lumbar (0.71). According to the SRS criteria (31 cases) the results were, thoracic curves (0.66), lumbar (0.80). According to the initial angulation the results were $20\text{--}29^\circ = (0.77)$, $30\text{--}39^\circ = (0.65)$, $>40^\circ = (0.42)$. In 27 cases with initial kyphosis $<30^\circ$, improving the flat back was 7.7°. Apical rotation was improved by about 50%. Clinically, the push-up effect was 1.75 cm. After at least 1 month of continuous wearing, for Bunnell ATR, improvement was (0.50) and for lumbar (0.85). The improvement was 40% compared to the plaster cast and 60% compared to the best TLSO braces.

Conclusion.— All 3D radiological and clinical parameters improved significantly and ARTbrace seems to be the most corrective brace.

<http://dx.doi.org/10.1016/j.rehab.2014.03.429>

CO75-003-e

French validation of Brace Questionnaire



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Keywords: Quality of life; Scoliosis; Adolescent; Brace

Background.— Quality of Life (QoL) scales have to be introduced in the treatment evaluation of our patients with adolescent idiopathic scoliosis. Vasiliadis create the Brace Questionnaire (BrQ), the one, which is specific for brace, treated adolescents. This tool was developed and validated in Greek.

Methods.— The BrQ is made of 34 items on Likert Scale, divided in 8 domains. The questionnaire was developed in order that the child could fill in it alone and is adapted for 9 to 18-years-old. The lowest scale is 20 and the best 100. The highest scales show a better QoL. The process of cultural adaptation of the questionnaire was in accordance with the guidelines of the International Quality of Life Assessment (IQOLA) Project.

Results.— Statistical analysis. Firstly, descriptive statistics will be used to calculate mean scores and standard deviations for a given question and a domain. The second level will be comparative concerning reliability and validity.

Further reading

Vasiliadis E, Grivas TB, Gkoltsiou K. Development and preliminary validation of Brace Questionnaire (BrQ): a new instrument for measuring quality of life of brace treated scoliotics. *Scoliosis* 2006;1:7. [doi:10.1186/1748-7161-1-7].

<http://dx.doi.org/10.1016/j.rehab.2014.03.430>

CO75-004-e

Mechanical characterization of lumbar belts by measuring stress and interface pressure



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Keywords: Low back pain; Lumbar belt; Clinical study; Pressure; Stress; Full-field measurement

Objective.– Efficacy of lumbar belt in the treatment of low back pain has been already proven. Nevertheless, both mechanical and physiological effects remain unclear. A pilot study has been carried out to assess the mechanical effect of lumbar belts.

Methods.– Measurement protocol has been developed. It includes morphologic measurements (high, weight, waist and chest size), comfort evaluation of the lumbar belt, when worn, by using a visual analogic scale (VAS) and coupling measurement of both the lumbar belt stress and the interface pressure. This method has been applied on 15 healthy subjects to compare six lumbar belts.

Results.– Belts are different in terms of distribution of the lumbar belt stress and the interface pressure. Comfort only depends on the tightening of the belt. Morphology of the subject has no significant effect on results.

Discussion.– This is a first study that proves the feasibility of the protocol on a small number of healthy subjects. This protocol is currently realized on thirty low back pain patients.

Further reading

Calmels, Queneau, Hamonet, Le Pen, Maurel, Lerouvreur, et al. Effectiveness of a lumbar belt in subacute low back pain: an open, multicentric, and randomized clinical study. *Spine* 2009;34:215–20.

<http://dx.doi.org/10.1016/j.rehab.2014.03.431>

CO75-005-e

Prospective multicenter study evaluating the interests of Seat-Braces in gerontology

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Keywords: Wheelchair; Postural disorders; Gerontology

Background.– The difficulty sitting seniors are frequent, poorly known and causing potentially serious complications of ulcers. The adjustment of the seat is often the only solution.

Objectives.– To evaluate the difficulties the elderly sit and quantify the interest of seats corsets made on molding.

Method.– Prospective multicenter descriptive study conducted from an evaluation grid and objectives developed by a multidisciplinary team. Inclusion of older people with postural disorders requiring the completion of a corset custom seat. An evaluation of these disorders and its repercussions is requested at D0, 1 month and 3 months.

Results.– Eighty patients were enrolled from March 2011 to November 2013, with a mean age of 83 years (± 9 years), GIR 1 in 55.6% of cases. The three main causes of installation problems were distorting the acquired hypertension, tilt the spine and pain. After completion of the corset custom seat found a significant improvement in seat time and patients or family are very satisfied in 64.4% and 74.4%.

Conclusion.– This study shows a net profit interest of a better foundation installation of elderly people in institutions, in particular the reduction in the risk of slipping and falling.

<http://dx.doi.org/10.1016/j.rehab.2014.03.432>

CO80-001-e

Orthopedic shoes in chronic post-stroke patients: A retrospective study on satisfaction, compliance, and efficiency

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Keywords: Orthopedic shoes stroke; QUEST; Walking; Evaluation; Satisfaction; Compliance; Efficiency, Podo-orthotist; Functional ambulation classification

Background.– Orthopedic shoes (OS) are prescribed after a stroke without scientific proof.

Objective.– To evaluate the satisfaction and compliance to the OS and their efficiency on the capacity of walking.

Methods.– Retrospective study evaluating patients with OS made by one podo-orthotist in 2011 and 2012. The evaluation was made by phone call: frequency, time of port, QUEST, walking efficiency self-evaluation, functional ambulation classification (FAC). Some patients had a walking evaluation. Their quantitative walking performances barefoot and with OS were analysed.

Results.– Forty were held for the study, 36 could be contacted. 28 wear it daily, 6 occasionally 2 abandoned it. Twenty-two wear it all day long, 12 only outside (2 abandoned it). Satisfaction is good for each QUEST item. Good efficiency is self-reported. The FAC (6.30 vs. 3.6 $P < 0.0001$) and quantitative walking capacities (speed 34.6 cm/s vs. 24.9 cm/s $P 0.005$, healthy step length 25.8 cm/s vs. 16 cm/s $P 0.001$) are significantly improved.

Discussion.– Post-stroke patients are satisfied of their OS, compliance is good, walking capacities are improved by OS.

<http://dx.doi.org/10.1016/j.rehab.2014.03.433>

CO80-002-e

Long-term use of orthopedic shoes improved the gait of a Charcot-Marie-Tooth patient

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Keywords: Charcot-Marie-Tooth; Orthopedic shoes; Orthopedic shoes; Gait; Gait assessment

Objectives.– The aim of this study was to investigate the long-term use of custom-made orthopedic shoes (OS) by a patient with Charcot-Marie-Tooth (CMT) disease after 10 years of follow-up.

Methods.– A 66-year-old woman with CMT disease complained mainly of pain and frequent falling. The physical examination showed the presence of steppage. Treatment based on OS was prescribed in 2001. Complete physical examinations and quantified assessments using a GAITRite[®] system were performed in 2001, 2007 and 2011.

Results.– The results of a preliminary study conducted in 2001 showed that the falling and pain had disappeared and the spatio-temporal parameters such as the walking speed had increased. After 10 years of follow-up, we observed that the clinical data had stabilized since 2001 and the quantified data had improved up to 2007 and then stabilized between 2007 and 2011.

Conclusion.– Bracing with OS is an excellent means of treating gait disabilities in patients with CMT disease.

<http://dx.doi.org/10.1016/j.rehab.2014.03.434>

CO80-003-e

Retrospective multicentric studying about dynamic orthopedic shoe including a pneumatic anti-footdrop device

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Keywords: Foot drop; Ankle-foot orthosis; Orthopedic shoes; Investigation of satisfaction

Objective.– To assess the patient's satisfaction with a dynamic orthopedic shoe including a pneumatic anti-footdrop device (Mecaflex).

