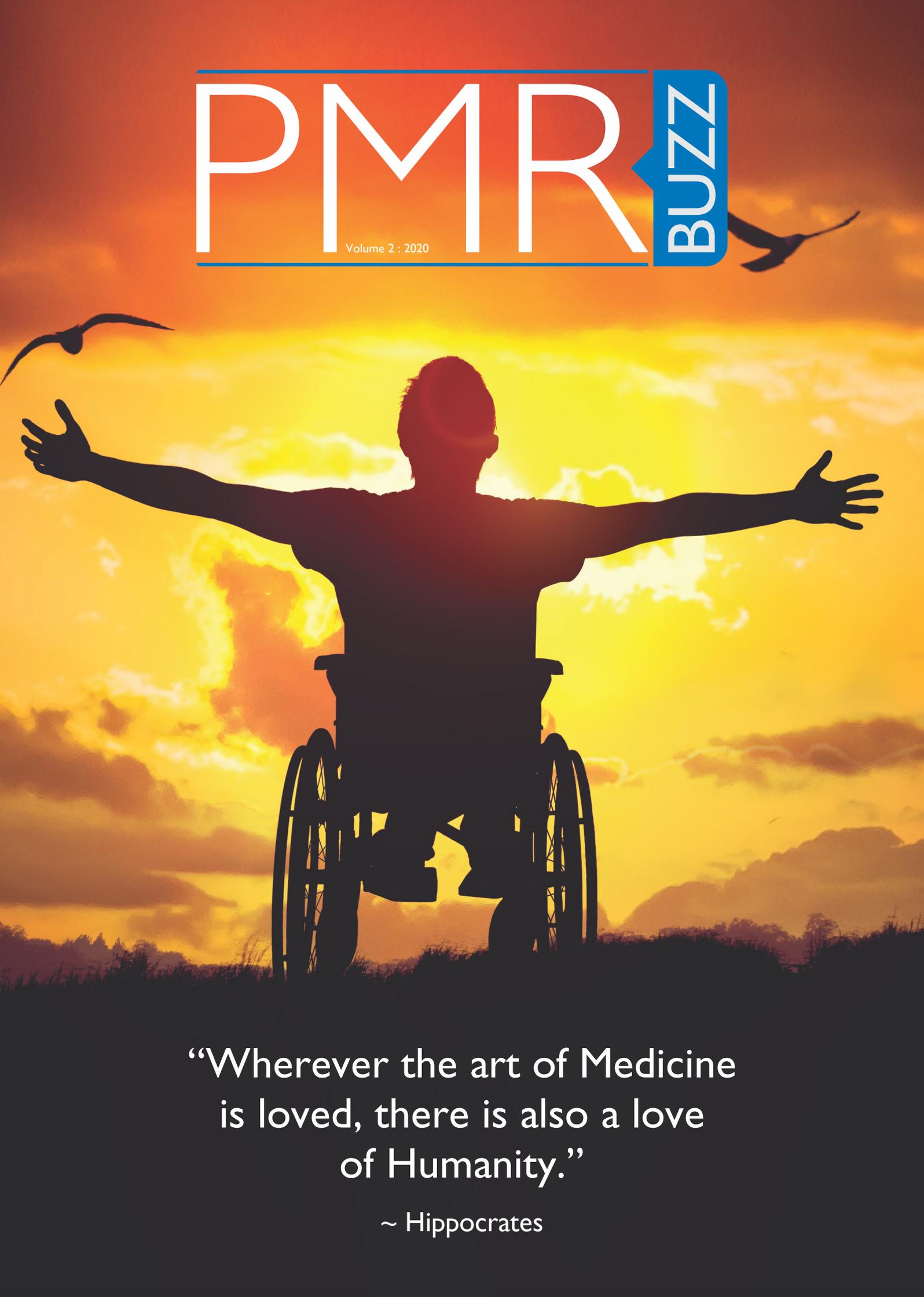


PMR BUZZ

Volume 2 : 2020

A silhouette of a person in a wheelchair with their arms outstretched, set against a vibrant sunset sky with birds flying. The person is positioned in the center of the frame, with their arms spread wide. The sky is a mix of orange, yellow, and red, with scattered clouds. Two birds are visible in flight, one on the left and one on the right. The overall mood is one of freedom and hope.

“Wherever the art of Medicine
is loved, there is also a love
of Humanity.”

~ Hippocrates

Preface

In line and success of first edition of our PMR buzz, an abstract review in an electronic form comprising inputs from well-known current journals covering various fields in rehabilitation medicine.

This is second edition, and we hope we will continue it for as long as the current contributors continue their efforts and more contributors volunteer to carve it in better shape. There will always be flaws, and scope of improvement, so keep us posted with suggestions, and we will grab the most feasible and bright.

We have selected one abstract from each volume of these journals published in the first quarter of the year. It does not mean that the others are any less in originality or quality, but we picked only those appearing to be practice-changing in Indian clinical scenario. Moreover, like any medley, there might be bias in the overture, but we are only humans.

Keep buzzing with **“PMR Buzz”**.

- **Dr. Mrinal Joshi**

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The Comparative Effectiveness of Autologous Blood derived Products Versus Steroid Injections in Plantar Fasciitis: A Systematic Review and Meta-analysis of Randomized Controlled Trials

Wen-Che Tseng, Jhanna Uy, Yi-Hsiang Chiu, Wen-Shiang Chen, Ariana Vora
PM R. 2020 Apr 5. doi: 10.1002/pmrj.12373. Online ahead of print

Objective

Plantar fasciitis is one of the most common musculoskeletal diseases, and nearly 90% of patients can be successfully treated by nonsurgical options. However, it is yet to be determined which nonsurgical treatment has the best efficacy. The present study investigated differences between autologous blood-derived products and corticosteroid injections in the treatment of plantar fasciitis.

Type

Systematic Review and Meta-analysis.

Literature Survey

PubMed, EMBASE, CINAHL, and Web of Science were searched for relevant articles up to November 2019. There was no language restriction, and unpublished trials were excluded. This systematic review included only randomized controlled trials.

Methodology

The primary outcomes were Visual Analog Scale and American Orthopedic Foot and Ankle Score (AOFAS). The follow-up times were divided into short term (3-6 weeks), intermediate term (3 months or 12 weeks), and long term (6 months or 24 weeks). The random-effects model was utilized, and weighted mean difference was calculated as the pool estimates.

Synthesis

Thirteen randomized controlled trials and 640 patients were included. No significant difference in Visual Analog Scale reduction was observed between autologous blood-derived product and corticosteroid injections in the short term (weighted mean difference [WMD]=-0.84; 95% confidence interval [CI], -1.71 to 0.03; $P=.057$), intermediate term (WMD=-0.24; 95% CI, -0.90 to 0.42; $P=.475$), and long term (WMD=0.47; 95% CI, -0.72 to 1.65; $P=.44$). No significant difference in AOFAS was observed between autologous blood-derived products and corticosteroids in the short term (WMD=-0.65; 95% CI, -5.40 to 4.10; $P=.79$), intermediate term (WMD=0.17; 95% CI, -8.07 to 8.41; $P=.97$), and long term (WMD=1.16; 95% CI, -4.54 to 6.86; $P=.69$).

Conclusions

This systematic review and meta-analysis of autologous blood-derived products versus corticosteroids for plantar fasciitis is the first that includes only randomized controlled trials. The meta-analysis found no significant difference between autologous blood-derived products and corticosteroids, as measured by Visual Analog Scale or AOFAS. These findings applied whether followed up in short, intermediate, or long term. These results differ from previous studies that showed superior efficacy of autologous blood-derived products compared with corticosteroids in the long term.

Phase I Single-Blinded Randomized Controlled Trial Comparing Balance and Aerobic Training in Degenerative Cerebellar Disease

Scott Barbuto, Dario Martelli, Omofuma Isirame, Nancy Lee, Laurie Bishop, Sheng-Han Kuo, Sunil Agrawal, Seonjoo Lee, Michael O'Dell, Joel Stein
PM&R 2020 May 7. doi: 10.1002/pmrj.12401. Online ahead of print

Introduction

Primary deficits in individuals with cerebellar degeneration include ataxia, unstable gait, and incoordination. Balance training is routinely recommended to improve function whereas little is known regarding aerobic training.

Objective

To determine the feasibility of conducting a randomized trial comparing balance and aerobic training in individuals with cerebellar degeneration.

Design

Assessor blinded randomized control phase I trial.

Setting

Assessments in medical center, home training.

Participants

Twenty participants with cerebellar degeneration were randomized to home balance or aerobic training.

Intervention

Aerobic training consisted of 4 weeks of stationary bicycle training, five times per week for 30-minute sessions. Home balance training consisted of performing the same duration of easy, moderate, and/or hard exercises.

Outcome Measures

Scale for the Assessment and Rating of Ataxia (SARA),

maximal oxygen consumption (VO₂max), Dynamic Gait Index, Timed Up and Go, gait speed.

Results

All 20 participants completed assigned training with no major adverse events. Seven of each group attained target training duration, frequency, and intensity. Although both groups had significant improvements in ataxia severity, balance, and gait measures, there were greater improvements in individuals who performed aerobic training in ataxia severity and maximal oxygen consumption when compared to balance training. The effect size for these outcome measures was determined to be large, indicating a phase II trial comparing the benefits of aerobic and balance training was feasible and required 26 participants per group. Improvements in SARA score and VO₂max remained in the aerobic training group at 3 months posttraining, but these improvements were trending back to baseline. In contrast, all balance group measures for pretraining and 3 months posttraining were statistically similar.

Conclusions

A phase II trial comparing balance and aerobic training in individuals with cerebellar degeneration is feasible. Benefits trended back toward baseline after training stopped, although benefits of longer duration exercise programs still need to be determined.

The International Classification of Functioning, Disability and Health-Children and Youth as a Framework for The Management of Spinal Muscular Atrophy In the Era of Gene Therapy: A Proof-of-concept Study

Antonio Trabacca , Elisabetta Lucarelli, Rossella Pacifico,
Teresa Vespino, Antonella Di Liddo, Luciana Losito

European Journal of Physical and Rehabilitation Medicine 2020 April;56(2):243-51

Background

Management of spinal muscular atrophy (SMA) has progressed enormously and reached unprecedented levels with nusinersen gene therapy. We are finally able to counter the progression of this devastating genetic disease, contributing to the definition of new trajectories in its natural history and the identification of new SMA phenotypes post-gene therapy. The aim of this paper was to use the The International Classification of Functioning, Disability and Health-Children and Youth as a framework for the management of spinal muscular atrophy in the era of gene therapy: a proof-of-concept study (ICF-CY) as a comprehensive documentation tool to better understand and improve care provided to a child with SMA and to illustrate its use in a multidisciplinary perspective with a proof-of-concept study.

Case Report

An SMA child under gene therapy receiving a rehabilitation program. Clinical and functional outcome measures assessed at all levels of the ICF-CY, including impairment by Hammersmith Infant Neurological Examination, activity by Hammersmith Functional Motor Scale and Functional Independence Measure for Children, and participation by Pediatric Quality of Life Inventory™ - PedsQL™ and Neuromuscular Module™ as well as by parent report. Treatment outcomes were assessed at two main time points: at T0: prior to administration of nusinersen, and T1: immediately before the first administration of

maintenance doses, 6 months after the first administration of nusinersen. A significant clinical improvement was seen on all domains between T0 and T1. The patient improved especially in motor skills and motor disability severity. The HRQOL showed a substantial improvement, too. ICF-CY codes were used to document change in body functions or structures, performance of activities or participation in social roles both in terms of gradient and hierarchy of change. This proof-of-concept study is the first attempt to explore SMA in a comprehensive manner from the perspective of the ICF-CY using a selected set of codes. These codes define essential child dimensions that can make up an ICF-CY core set, as identified by a trained multidisciplinary team, to guide assessment, treatment and rehabilitation.

Clinical Rehabilitation Impact

Although limited to a single patient, this study makes nonetheless a strong point: we suggest using the ICF-CY as an essential tool in SMA management at a time when gene therapy with nusinersen is changing the phenotypes of activity and functioning in these children.

Musculoskeletal Ultrasound Publications In Rehabilitation Journals: A EURO-MUSCULUS/USPRM update

Timur Ekiz, Ayse Merve Ata, Murat Kara, Eda Gürçay, Ke-Vin Chang, Merve Sekizkardes, Simão Serrano, Nikolaos Barotsis, Alessandro Picelli, Daniele Coraci, Kamal Mezian, Nuray Akkaya, Tülay Tiftik, Elem Yorulmaz, Gülümser Aydsn, Wei-Ting Wu, Mario Giraldo-Prieto, Levent Özçakar, Franco Franchignoni
J Int Soc Phys Rehabil Med 2020;3:1-4

Background

The utility of musculoskeletal ultrasound (US), both in the clinical settings and scientific arena, has significantly increased in recent years.

Aims

The aim of this study was to report and analyze the publications on musculoskeletal US in top rehabilitation journals (indexed by the 'Rehabilitation' category of Journal Citation Reports (JCR), Clarivate Analytics).

Methods

The search was carried out up to July 2018 through Web of Science (Science Citation Index-Expanded). The literature search comprised all 65 journals listed in the 2017 category "Rehabilitation" according to the JCR.

Results

A total of 971 papers published in 39 different journals from 1989 to 2018 were analyzed. The top three publishing countries (in decreasing order) appeared as

the United States of America (USA), Turkey and Taiwan. The American Journal of Physical Medicine and Rehabilitation, PM&R and the Archives of Physical Medicine and Rehabilitation were the top three journals (in decreasing order) publishing about topics on musculoskeletal US. The most commonly studied diseases in humans were musculoskeletal conditions, followed by neurological disorders. Physiatrists and PRM departments (46.9%) prevail as far as publishing specialties were concerned. Although the use of interventional US seems to have increased after 2000, diagnostic US is still ranked the first, when the purpose of the conducted study is taken into consideration.

Conclusion

Accordingly, we believe that this scientific output might help to raise awareness as regards the potential role of US in Physical and Rehabilitation Medicine.

Self-directed Usage of An In-home Exergame After A Supervised Tele-rehabilitation Training Program for Older Adults With Lower-limb Amputation

Gordon Tao, William C Miller, Janice J Eng, Heather Lindstrom, Bitu Imam and Michael Payne
Prosthetics and Orthotics International 2020 Apr; 44(2):52-59

Objective

Examine usage of an in-home exergame, compared to control, unsupervised after supervised training by older persons with lower-limb amputation.

Study Design

Secondary analysis of a multi-site parallel evaluator-masked randomized control trial.

Methods

WiiNWalk uses the WiiFit and teleconferencing for in-home group-based exergame therapy with clinical supervision. Participants engaged in a 4-week supervised training phase followed by a 4-week unsupervised phase in experimental (WiiNWalk) and attention control groups. Usage between phases and between groups was compared using unsupervised/supervised ratio of session count (over 4 weeks) and session time (mean min/session over 4 weeks) for each phase.

Results

Participants: n=36 experimental, n=28 control, unilateral lower-limb amputation, age > 50 years, prosthesis usage \geq 2 hours/day. Session count ratio unsupervised/supervised, median and interquartile range (IQR), was less than parity ($p < 0.01$) for experimental (0.25, IQR 0.00 -0.68) and control (0.18, IQR 0.00 -0.67) groups, with no different between groups ($p = 0.92$). Experimental session time unsupervised/supervised showed consistency (1.12, IQR 0.80 -1.41) between phases ($p = 0.24$); control showed lower (0.76, IQR 0.57 -1.08) ratios compared to experimental ($p = 0.027$).

Conclusions

Unsupervised exercise duration remained consistent with supervised, but frequency was reduced. Social and clinical guidance features may remain necessary for sustained lower-limb amputation exergame engagement at home.

Exercise Training Reduces Reward for High-Fat Food in People with Overweight/Obesity

Kristine Beaulieu, Mark Hopkins, Catherine Gibbons, Pauline Oustric, Phillipa Caudwell, John Blundell, Graham Finlayson
Medicine & Science in Sports & Exercise; 2020 Apr; 52(4):900-908

Purpose

There is increasing evidence that exercise training may facilitate weight management via improvements in homeostatic appetite control, but little is known about how exercise training affects food reward and susceptibility to overeating.

Methods

This study examined changes in food reward and eating behavior traits after a supervised 12-week exercise intervention (10.5 MJ/week) in inactive individuals with overweight/obesity (Exercisers; $n=46$, 16 males/30 females; BMI=30.6 (SD 3.8) kg/m² and age=43.2 (SD 7.5) years compared to non-exercising Controls ($n=15$; 6 males/9 females; BMI=31.4 (SD 3.7) kg/m² and age=41.4 (SD 10.7) years). Liking and wanting scores for high-fat relative to low-fat foods was assessed with the Leeds Food Preference Questionnaire before and after consumption of an isoenergetic high-fat (HFAT) or high-carbohydrate (HCHO) lunch. Eating behaviour traits were assessed using the Three-Factor Eating Questionnaire and Binge Eating Scale.

Results

A week by group interaction indicated that wanting scores decreased from baseline to post-intervention in Exercisers only ($M\Delta_{Pre-Post} = -4.1$, $p=0.03$, $\eta^2=0.09$, 95%CI= -7.8 to -0.4), but there was no exercise effect on liking. There was also a week by group interaction for binge eating, which decreased in Exercisers only ($M\Delta_{Pre-Post} = -1.5$, $p=0.01$, $\eta^2=0.11$, 95%CI= -2.7 to -0.4). A small reduction in disinhibition was also apparent in Exercisers ($M\Delta_{Pre-Post} = -0.7$, $p=0.02$, $\eta^2=0.10$, 95%CI= -1.3 to -0.1).

Conclusion

This study showed that 12 weeks of exercise training reduced wanting scores for high-fat foods and trait markers of overeating in individuals with overweight/obesity compared to non-exercising Controls. Further research is needed to elucidate the mechanisms behind these exercise-induced changes in food reward.

Greater Lower Limb Fatigability in People with Prediabetes than Controls

Jonathon W Senefeld, Alison R Harmer, Sandra K Hunter
Medicine & Science in Sports & Exercise; 2020 May; 52(5):1176-1186

Introduction

The study purpose was to compare perceived fatigability and performance fatigability after high-velocity contractions with knee extensor muscles between people with prediabetes, people with type 2 diabetes (T2D), and controls without diabetes matched for age, body mass index, and physical activity.

Methods

Twenty people with prediabetes (11 men, 9 women: 63.1 ± 6.0 yr, 26.9 ± 4.2 kg·m, 8030 ± 3110 steps per day), 39 with T2D (23 men, 16 women: 61.2 ± 8.5 yr, 29.4 ± 6.4 kg·m, 8440 ± 4220 steps per day), and 27 controls (13 men, 14 women: 58.1 ± 9.4 yr, 27.3 ± 4.3 kg·m, 8400 ± 3000 steps per day) completed the Fatigue Impact Scale as a measure of perceived fatigability and a fatigue protocol including 120 maximal-effort, high-velocity concentric contractions (MVCC; 1 contraction/3 s) with the knee extensors using a submaximal load (30% maximum) to quantify performance fatigability. Electrical stimulation was used to assess voluntary activation and contractile function of the knee extensor muscles before and after the fatigue protocol.

Results

Fatigue Impact Scale scores were not different between people with prediabetes, people with T2D, and controls (12.5 ± 15.1 , 18.3 ± 22.7 , and 12.6 ± 18.6 , respectively; $P = 0.517$). However, people with prediabetes had greater reductions in MVCC power during the fatigue protocol than did controls ($31.8\% \pm 22.6\%$ vs $22.1\% \pm 21.1\%$, $P < 0.001$), and both groups had lesser reductions than the T2D group ($44.8\% \pm 21.9\%$, $P < 0.001$). Similarly, the prediabetes group had larger reductions in electrically evoked twitch amplitude than the control group ($32.5\% \pm 24.9\%$ vs $21.3\% \pm 33.0\%$, $P < 0.001$), but lesser reductions than those with T2D ($44.0\% \pm 23.4\%$, $P < 0.001$). For all three groups, a greater decline in MVCC power was associated with larger reductions of twitch amplitude ($r = 0.350$, $P < 0.001$).

Conclusion

People with prediabetes have greater performance fatigability of the knee extensors due to contractile mechanisms compared with controls, although less performance fatigability than that of people with T2D.

Return to Sport Tests' Prognostic Value for Reinjury Risk After Anterior Cruciate Ligament Reconstruction: A Systematic Review

Evans Yayra Kwaku Ashigbi, Winfried Banzer, Daniel Niederer
Medicine & Science in Sports & Exercise; 2020 Jun; 52(6):1263-1271.

Introduction

Return to sports (RTS) clearance after anterior cruciate ligament (ACL) reconstruction typically includes multiple assessments. The ability of these tests to assess the risk of a reinjury remains unknown.

Purpose

To assess and rate RTS self-reported function and functional tests on prognostic value for reinjury risk after ACL reconstruction and RTS.

Study Design

Systematic review on level 2 studies.

Methods

PubMed, Web of Knowledge, Cochrane Library, and Google Scholar databases were searched for articles published before March 2018. Original articles in English or German that examined reinjury risks/rates after primary (index) ACL injury, ACL reconstruction, and RTS were included. All RTS functional tests used in the included studies were analyzed by retrieving an effect size with predictive value (odds ratio, relative risk (risk ratio), positive predictive value, positive likelihood

ratio, or hazard rate).

Results

A total of 276 potential studies were found; eight studies (moderate to high quality) on 6140 patients were included in the final analysis. The reinjury incidence recorded in the included studies ranged from 1.5% to 37.5%. Four studies reported a combination of isokinetic quadriceps strength at different velocities and a number of hop tests as predictive with various effect sizes. One reported isokinetic hamstring to quadriceps ratio (hazard rate = 10.6) as predictive. Two studies reported functional questionnaires (knee injury and osteoarthritis outcome score and Tampa Scale of Kinesiophobia-11; RR = 3.7-13) and one study showed that kinetic and kinematic measures during drop vertical jumps were predictive (odds ratio, 2.3-8.4) for reinjury and/or future revision surgery.

Conclusions

Based on level 2 evidence, passing a combination of functional tests with predetermined cutoff points used as RTS criteria is associated with reduced reinjury rates. A combination of isokinetic strength and hop tests is recommended during RTS testing.

Comparison of Self-reported Vs Observational Clinical Measures of Improvement in Upper Limb Capacity in Patients After Stroke

Eline C van Lieshout, Johanna M A Visser-Meily, Rinske H Nijland, Rick M Dijkhuizen, Gert Kwakkel
Journal of Rehabilitation medicine; 2020 Apr 22; 52(4):jrm00051

Objective

Recovery of the paretic arm post-stroke can be assessed using observational and self-reported measures. The aim of this study was to determine whether the correspondence (match) or non-correspondence (mismatch) between observational and self-reported improvements in upper limb capacity are significantly different at 0-3 months compared with 3-6 months post-stroke.

Methods

A total of 159 patients with ischaemic stroke with upper limb paresis were included in the study. Recovery of arm capacity was measured with observational (Action Research Arm Test; ARAT) and self-reported measures (Motor Activity Log Quality of Movement; MAL-QOM and Stroke Impact Scale Hand; SIS-Hand) at 0-3 and 3-6 months post-stroke. The proportion of matches was defined (contingency tables and Fisher's exact test) and compared across the different time-windows using McNemar's test.

Results

The proportion of matches was not significantly different at 0-3 months compared with 3-6 months post-stroke for the ARAT vs MAL-QOM and SIS-Hand (all $p > 0.05$). In case of mismatches, patients' self-reports were more often pessimistic (86%) in the first 3 months post-stroke compared with the subsequent 3 months (39%).

Conclusion

The match between observational and self-reported measures of upper limb capacity is not dependent on the timing of assessment post-stroke. Assessment of both observational and self-reported measures may help to recognize possible over- or under-estimation of improvement in upper limb capacity post-stroke.

Reliability and Validity of the Long-Distance Corridor Walk among Stroke Survivors

Shamay S M Ng , Tai-Wa Liu, Cheuk-Yin Chan, Choi-Wan Chan, Ching-Lam Chu, Chun-Hang Poon, Lok-Yee Poon, Cynthia Y Y Lai, Mimi M Y Tse
Journal of Rehabilitation medicine; 2020 May 29; 52(5):jrm00062

Objective

To identify the psychometric properties of the Long-Distance Corridor Walk (LDCW) among community-dwelling stroke survivors.

Design

Cross-sectional.

Subjects

Twenty-five stroke survivors and 25 healthy older adults.

Methods

The LDCW was administered to the 25 stroke survivors on 2 separate days with a 7-day interval. Fugl-Meyer Assessment for the Lower Extremities (FMA-LE), measurement of lower limb muscle strength, Berg Balance Scale (BBS), limit of stability (LOS), Narrow-Corridor Walk Test (NCWT), Timed Up and Go (TUG) test, and the Community Integration Measure-

Cantonese version (CIM) were performed on either day. The healthy older adults completed the LDCW once, and the results were recorded by a random rater.

Results

The LDCW showed excellent inter-rater reliability and test-retest reliability, and significant correlations with FMA-LE, BBS, TUG, and NCWT. A cut-off score of 127.5 m for the 2-min walk and 426.69 s for the 400-m walk distinguished stroke survivors from healthy older adults. The MDC in the LDCW in the 2-min walk and 400-m walk were 18.69 m and 121.43 s, respectively.

Conclusion

The LDCW is a reliable clinical measurement tool for the assessment of advanced walking capacity in stroke survivors.

Clinical and Functional Differences Between Right and Left Stroke With and Without Contralateral Spatial Neglect

Sinikka Tarvonen-Schröder, Tuuli Niemi, Mari Koivisto

Journal of Rehabilitation medicine; 2020 Jun 12; 52(6):jrm00072

Objective

To examine the clinical and functional characteristics associated with contralateral spatial neglect in right compared with left subacute stroke, and to investigate the correlations between neglect severity and stroke severity, functional ability and outcome.

Methods

Cross-sectional study comparing neurological impairment and disability. The same data-set was used in part 2 of this study.

Results

Contralateral neglect was present in 79.7% of right stroke and 68.3% of left stroke rehabilitants, and was, on average, equally mild. Left stroke rehabilitants with neglect had higher stroke severity, cognitive and total disability and dependence level and more impaired sphincter control than right stroke rehabilitants with neglect, while the occurrence of depression, motor and

sensory impairment was similar. Rehabilitants with neglect, irrespective of stroke side, had higher stroke severity, cognitive, motor and total disability and dependence level than rehabilitants without neglect.

Conclusion

In left and right stroke rehabilitants with equally mild neglect, those with left stroke had higher stroke severity, cognitive and total disability and dependence level. Neglect severity correlated with right or left stroke severity and functional ability, moderate to severe neglect correlated significantly more with functioning. Neglect severity was independently associated with functional outcome in right stroke.

Effect of Neck Botulinum Neurotoxin Injection on Proprioception and Somatosensory-Motor Cortical Processing in Cervical Dystonia.

Khosravani S, Buchanan J, Johnson MD, Konczak J.
Neurorehabil Neural Repair. 2020 April;34:309-320.

Background

Cervical dystonia (CD) is a neurological movement disorder characterized by involuntary contractions of the cervical musculature and is known to be associated with proprioceptive dysfunction in dystonic / nondystonic limbs.

Objectives

We examined how neck botulinum neurotoxin (BoNT) injection affects wrist proprioception and the corresponding sensorimotor cortical activity in CD.

Method

Wrist position sense acuity of the dominant (right) hand was evaluated in 15 CD and 15 control participants. Acuity measures were a psychophysical position sense discrimination threshold (DT; based on passive joint displacement) and joint position matching error (based on active movement). Cortical activity during the motor preparation period of the active joint position matching was examined using electroencephalography.

Results

In their symptomatic state, patients demonstrated a significantly higher wrist proprioceptive DT, indicating

an abnormal passive wrist position sense. Yet BoNT injections had no significant effect on this threshold. During active joint position matching, errors were significantly larger in patients, but this difference vanished after the administration of BoNT. Motor preparation of active wrist position matching was associated with a significantly higher rise of β -band (13-30 Hz) power over contralateral somatosensory-motor cortical areas in patients. This excessive cortical activity significantly declined post-BoNT.

Conclusion

Wrist proprioceptive perception during passive/active movements is abnormal in CD. An excessive rise of premotor/motor cortical β -oscillations during motor planning is associated with this proprioceptive dysfunction. Neck BoNT injections normalized the cortical processing of proprioceptive information from nonsymptomatic limbs, indicating that local injections may affect the central mechanisms of proprioceptive function in CD.

Is Recovery of Somatosensory Impairment Conditional for Upper-Limb Motor Recovery Early After Stroke?

Zandvliet SB, Kwakkel G, Nijland RH, van Wegen EE, Meskers CG. *Neurorehabil and Neural Repair*. 2020 May;34:403-16.

Background

Spontaneous recovery early after stroke is most evident during a time-sensitive window of heightened neuroplasticity, known as spontaneous neurobiological recovery. It is unknown whether poststroke upper-limb motor and somatosensory impairment both reflect spontaneous neurobiological recovery or if somatosensory impairment and/or recovery influences motor recovery.

Methods

Motor (Fugl-Meyer upper-extremity [FM-UE]) and somatosensory impairments (Erasmus modification of the Nottingham Sensory Assessment [EmNSA-UE]) were measured in 215 patients within 3 weeks and at 5, 12, and 26 weeks after a first-ever ischemic stroke. The longitudinal association between FM-UE and EmNSA-UE was examined in patients with motor and somatosensory impairments (FM-UE \geq 60 and EmNSA-UE \geq 37) at baseline.

Results

A total of 94 patients were included in the longitudinal analysis. EmNSA-UE increased significantly up to 12

weeks poststroke. The longitudinal association between motor and somatosensory impairment disappeared when correcting for progress of time and was not significantly different for patients with severe baseline somatosensory impairment. Patients with a FM-UE score \geq 18 at 26 weeks (n = 55) showed a significant positive association between motor and somatosensory impairments, irrespective of progress of time.

Conclusions

Progress of time, as a reflection of spontaneous neurobiological recovery, is an important factor that drives recovery of upper-limb motor as well as somatosensory impairments in the first 12 weeks poststroke. Severe somatosensory impairment at baseline does not directly compromise motor recovery. The study rather suggests that spontaneous recovery of somatosensory impairment is a prerequisite for full motor recovery of the upper paretic limb.

A Head-to-Head Comparison of an Isometric and a Concentric Fatigability Protocol and the Association With Fatigue and Walking in Persons With Multiple Sclerosis.

Taul-Madsen L, Dalgas U, Kjølhed T, Hvid LG, Petersen T, Riemenschneider M
Neurorehabil and Neural Repair. 2020 June;34:523–532.

Background

Fatigue is one of the most frequent symptoms in persons with multiple sclerosis (MS). Distinction is made between subjective perceptions of fatigue and objective measures of fatigability. Fatigability can be measured by different protocols. Yet no studies have compared isometric and concentric contraction protocols of the lower extremities head-to-head. Therefore, the purpose of the present study was to (1) compare 2 such protocols head-to-head and (2) to investigate the association between fatigability evoked by the 2 protocols and measures of fatigue and walking.

Methods

A total of 45 patients with MS had their walking capacity measured objectively by the 6-minute walk test (6MWT) and subjectively by the 12-item Multiple Sclerosis Walking Scale (MSWS-12). Fatigue was measured by the Modified Fatigue Impact Scale (MFIS) and fatigability by 2 knee extension protocols: sustained isometric and concentric.

Results

The sustained isometric protocol induced a higher degree of fatigability than the concentric protocol ($P < .01$). Regression analyses revealed that sustained isometric fatigability was not associated with either measures of fatigue or walking (all $r^2 = 0.00$; $P = .85-.99$), whereas the concentric protocol was significantly associated with fatigue ($r^2 = 0.20$; $P < .01$), 6MWT ($r^2 = 0.09$; $P < .05$), and MSWS-12 ($r^2 = 0.16$; $P < .01$). Furthermore, after adjusting for maximal strength and sex, concentric fatigability remained a strong and significant predictor of fatigue ($\beta = 0.49$) and walking (6MWT: $\beta = 0.26$; MSWS: $\beta = 0.37$).

Conclusion

This study provides the first evidence that a lower-extremity concentric fatigability protocol provides superior reflection of both fatigue and walking when compared with a sustained isometric protocol. We suggest that concentric protocols should be the focus of future studies investigating fatigability.

Clinimetric Properties of The Shortened Fugl-meyer Assessment for The Assessment of Arm Motor Function In Hemiparetic Patients After Stroke

Satoru Amano, Atsushi Umeji, Takashi Takebayashi, Kayoko Takahashi, Yuki Uchiyama & Kazuhisa Domen
Top Stroke Rehabil. 2020 April;27:290-295.

Background

The Fugl-Meyer Assessment (FMA) is widely used as the gold standard in stroke research. However, the FMA has not been used in general clinical practice, which may be related to the fact that the FMA is a time-consuming measurement. Therefore, the FMA (upper extremity motor section) has already been shortened to a 6-item version using Rasch analysis for routine assessments of patients with low endurance. Although the shortened FMA has already demonstrated sound clinical utility, data on its psychometric properties remain insufficient.

Objective

This study aimed to investigate the psychometric properties of the shortened FMA for the affected upper extremity in patients following stroke.

Methods

A retrospective single-center study involving 30 patients was conducted. This study was registered in 2018 as a pre-initiation condition. The data used in this study were obtained from a study conducted between

2016 and 2017. The FMA (33- and 6-item versions) and the Action Research Arm Test, the Box-and-Block Test, and the Motor Activity Log were employed, and inter-rater reliability/agreement, validity, and internal consistency were assessed.

Results

Regarding inter-rater reliability, the intraclass correlation coefficient was 0.994 (95% confidence interval: 0.988–0.997; $P < .001$). The mean differences between the raters of the shortened FMA were 0.07, and the limits of agreement were calculated to be between -0.81 and 0.95. Regarding the motor-related measurements, Spearman's rho were all higher than 0.91. On the other hand, regarding the sensation and joint motion/pain domain, Spearman's rho ranged from 0.25 to 0.50, and Cronbach's alpha was 0.92.

Conclusions

The shortened FMA can reliably assess the affected upper extremity in patients with hemiparesis after stroke.

Reference Value of 6-minute Walk Distance In Patients With Sub-acute Stroke.

Kubo H, Nozoe M, Kanai M, Furuichi A, Onishi A, Kajimoto K, Mase K, Shimada S
Top Stroke Rehabil. 2020 May;27:337-343.

Background

The 6-minute walk test (6MWT) has strong-to-moderate evidence to assess changes in walking distance for adults with neurologic conditions undergoing rehabilitation. However, the reference value of 6MWT distance according to walking ability and the cutoff value of walking independence in stroke patients in the rehabilitation unit has not been presented.

Objectives

To present the reference value of 6MWT distance depending on walking ability and determine the cutoff value of walking independence in stroke patients.

Methods

This cross-sectional observational study included 110 stroke patients admitted to the rehabilitation unit within 30 days from stroke onset. 6MWT was used to assess the walking ability at 30 days from stroke onset. Walking ability was classified using the Functional

Ambulation Category (FAC). Reference value of 6MWT distance was presented for each walking ability according to FAC score. One-way analysis of variance was computed to investigate 6MWT distance according to walking ability. Receiver operating characteristic curve was used to identify the cutoff value of 6MWT for walking independence.

Results

6MWT distances for each walking ability were as follows: FAC 2 was 141.8 m, FAC 3 was 224.5 m, FAC 4 was 352.6 m, and FAC 5 was 448.8 m ($p < .001$). Cutoff value of 6MWT for walking independence was 304 m (area under curve = 0.905, sensitivity of 0.833, specificity of 0.900).

Conclusion

6MWT distance was found to be longer with better walking ability. A distance of 304 m during 6MWT might be useful for judging walking independence in stroke patients.

Functional Outcome Trajectories Following Inpatient Rehabilitation for TBI in the United States.

Dams-O'Connor K, Ketchum JM, Cuthbert JP, Corrigan JD, Hammond FM, Haarbauer-Krupa J, Kowalski RG, Miller AC
J Head Trauma Rehabil. 2020 March/April 2020;35:127-139.

Objective

To describe trajectories of functioning up to 5 years after traumatic brain injury (TBI) that required inpatient rehabilitation in the United States using individual growth curve models conditioned on factors associated with variability in functioning and independence over time.

Design

Secondary analysis of population-weighted data from a multicenter longitudinal cohort study.

Setting

Acute inpatient rehabilitation facilities.

Participants

A total of 4624 individuals 16 years and older with a primary diagnosis of TBI.

Main Outcome Measures

Ratings of global disability and supervision needs as

reported by participants or proxy during follow-up telephone interviews at 1, 2, and 5 years postinjury.

Results

Many TBI survivors experience functional improvement through 1 and 2 years postinjury, followed by a decline in functioning and decreased independence by 5 years. However, there was considerable heterogeneity in outcomes across individuals. Factors such as older age, non-White race, lower preinjury productivity, public payer source, longer length of inpatient rehabilitation stay, and lower discharge functional status were found to negatively impact trajectories of change over time.

Conclusions

These findings can inform the content, timing, and target recipients of interventions designed to maximize functional independence after TBI.

Traumatic Brain Injury and Opioid Overdose Among Post-9/11 Veterans With Long-Term Opioid Treatment of Chronic Pain.

Fonda JR, Gradus JL, Brogly SB, McGlinchey RE, Milberg WP, Fredman L
J Head Trauma Rehabil. 2020 May/June 2020;36:209-217.

Objective

To evaluate the association between traumatic brain injury (TBI) and nonfatal opioid overdose, and the role of psychiatric conditions as mediators of this association.

Setting

Post-9/11 veterans receiving care at national Department of Veterans Affairs (VA) facilities from 2007 to 2012.

Participants

In total, 49 014 veterans aged 18 to 40 years receiving long-term opioid treatment of chronic noncancer pain.

Design

Longitudinal cohort study using VA registry data.

Main Measures

TBI was defined as a confirmed diagnosis (28%) according to VA comprehensive TBI evaluation; no TBI was defined as a negative primary VA TBI screen (ie, no head injury). Nonfatal opioid overdose was defined

using ICD-9 (International Classification of Diseases, Ninth Revision) codes. We performed demographic-adjusted Cox proportional hazards regression. We quantified the impact of co-occurring and individual psychiatric conditions (mood, anxiety, substance use, and posttraumatic stress disorder) on this association using mediation analyses.

Results

Veterans with TBI had more than a 3-fold increased risk of opioid overdose compared with those without (adjusted hazards ratio [aHR] = 3.22; 95% confidence interval [CI], 2.13-4.89). This association was attenuated in mediation analyses of any co-occurring psychiatric condition (aHR = 1.77; 95% CI, 1.25-2.52) and individual conditions (aHR range, 1.52-2.95).

Conclusion

TBI status, especially in the context of comorbid conditions, should be considered in clinical decisions regarding long-term use of opioids in patients with chronic pain.

Traumatic Microbleeds Persist for up to Five Years Following Traumatic Brain Injury Despite Resolution of Other Acute Findings On MRI.

Rizk T, Turtzo LC, Cota M, Van Der Merwe AJ, Latour L, Whiting MD, Chan L.
Brain Inj. 2020 June;34:773-781.

Objective

The primary objective of this study was to track the incidence and progression of traumatic microbleeds (TMBs) for up to five years following traumatic brain injury (TBI).

Methods

Thirty patients with mild, moderate, or severe TBI received initial MRI within 48 h of injury and continued in a longitudinal study for up to five years. The incidence and progression of MRI findings was assessed across the five year period. In addition to TMBs, we noted the presence of other imaging findings including diffusion weighted imaging (DWI) lesions, extra-axial and intraventricular hemorrhage, hematoma, traumatic meningeal enhancement (TME), fluid-attenuated inversion recovery (FLAIR) hyperintensities, and encephalomalacia.

Results

TMBs were observed in 60% of patients at initial presentation. At one-year follow-up, TMBs were more persistent than other neuroimaging findings, with 83% remaining visible on MRI. In patients receiving serial MRI 2–5 years post-injury, acute TMBs were visible on all follow-up scans. In contrast, most other imaging markers of TBI had either resolved or evolved into ambiguous abnormalities on imaging by one year post-injury.

Conclusions

These findings suggest that TMBs may serve as a uniquely persistent indicator of TBI and reinforce the importance of acute post-injury imaging for accurate characterization of persistent imaging findings.

Comprehensive Evidence-Based Guidelines for Facet Joint Interventions in the Management of Chronic Spinal Pain: American Society of Interventional Pain Physicians (ASIPP) Guidelines

Laxmaiah Manchikanti, Alan D. Kaye, Amol Soin, Sheri L. Albers, Douglas Beall, Richard E. Latchaw, Mahendra R. Sanapati, Shalini Shah, Sairam Atluri, Alaa Abd-Elseyed, Salahadin Abdi, Steve Aydin, Sanjay Bakshi, Mark Boswell, Ricardo Buenaventura, Joseph Cabaret, Aaron K. Calodney, Kenneth D. Candido, Paul J. Christo, Lynn Cintron, Sudhir Diwan, Christopher Gharibo, Jay Grider, Myank Gupta, Bill Haney, Michael E. Harned, Standiford Helm II, Jessica Jameson, Sunny Jha, Adam M. Kaye, Nebojsa Nick Knezevic, Radomir Kosanovic, Maanasa V. Manchikanti, Annu Navani, Gabor Racz, Vidyasagar Pampati, Ramarao Pasupuleti, Cyril Philip, Kartic Rajput, Nalini Sehgal, Gururau Sudarshan, Rachana Vanaparthy, Bradley W. Wargo, Joshua A. Hirsch
Pain Physician 2020; 23:S1-S127.

Background

Chronic axial spinal pain is one of the major causes of significant disability and health care costs, with facet joints as one of the proven causes of pain.

Objective

To provide evidence-based guidance in performing diagnostic and therapeutic facet joint interventions.

Methods

The methodology utilized included the development of objectives and key questions with utilization of trustworthy standards. The literature pertaining to all aspects of facet joint interventions, was reviewed, with a best evidence synthesis of available literature and utilizing grading for recommendations.

Summary of Evidence and Recommendations:

Non-interventional diagnosis:

- The **level of evidence is II** in selecting patients for facet joint nerve blocks at least 3 months after onset and failure of conservative management, **with strong strength of recommendation** for physical examination and clinical assessment.
- The **level of evidence is IV** for accurate diagnosis of facet joint pain with physical examination based on symptoms and signs, with weak strength of recommendation.

Imaging:

- The **level of evidence is I with strong strength of recommendation**, for mandatory fluoroscopic or computed tomography (CT) guidance for all facet joint interventions.
- The **level of evidence is III with weak strength of recommendation** for single photon emission

computed tomography (SPECT).

- The level of evidence is V with weak strength of recommendation for scintigraphy, magnetic resonance imaging (MRI), and computed tomography (CT).

Interventional Diagnosis:

• Lumbar Spine:

- **The level of evidence is I to II with moderate to strong strength of recommendation** for lumbar diagnostic facet joint nerve blocks.
- Ten relevant diagnostic accuracy studies with 4 of 10 studies utilizing controlled comparative local anesthetics with concordant pain relief criterion standard of $\geq 80\%$ were included.
- The prevalence rates ranged from 27% to 40% with false-positive rates of 27% to 47%, with $\geq 80\%$ pain relief.

• Cervical Spine:

- The level of evidence is II with moderate strength of recommendation.
- Ten relevant diagnostic accuracy studies, 9 of the 10 studies with either controlled comparative local anesthetic blocks or placebo controls with concordant pain relief with a criterion standard of $\geq 80\%$ were included.
- The prevalence and false-positive rates ranged from 29% to 60% and of 27% to 63%, with high variability.

• Thoracic Spine:

- The level of evidence is II with moderate strength of recommendation.

- o Three relevant diagnostic accuracy studies, with controlled comparative local anesthetic blocks, with concordant pain relief, with a criterion standard of $\geq 80\%$ were included.
- o The prevalence varied from 34% to 48%, whereas false-positive rates varied from 42% to 58%.

Therapeutic Facet Joint Interventions:

- Lumbar Spine:
 - o The **level of evidence is II with moderate strength of recommendation** for lumbar radiofrequency ablation with inclusion of 11 relevant randomized controlled trials (RCTs) with 2 negative studies and 4 studies with long-term improvement.
 - o The **level of evidence is II with moderate strength of recommendation** for therapeutic lumbar facet joint nerve blocks with inclusion of 3 relevant randomized controlled trials, with long-term improvement.
 - o The **level of evidence is IV with weak strength of recommendation** for lumbar facet joint intraarticular injections with inclusion of 9 relevant randomized controlled trials, with majority of them showing lack of effectiveness without the use of local anesthetic.
- Cervical Spine:
 - o The **level of evidence is II with moderate strength of recommendation** for cervical radiofrequency ablation with inclusion of one randomized controlled trial with positive results and 2 observational studies with long-term improvement.
 - o The **level of evidence is II with moderate strength of recommendation** for therapeutic cervical facet joint nerve blocks with inclusion of one relevant randomized controlled trial and 3 observational studies, with long-term improvement.
 - o The **level of evidence is V with weak strength of recommendation** for cervical intraarticular facet joint injections with inclusion of 3 relevant randomized controlled trials, with 2 observational studies, the majority showing lack of effectiveness, whereas one study with 6-month follow-up, showed lack of long-term improvement.

- Thoracic Spine:
 - o The **level of evidence is III with weak to moderate strength of recommendation** with emerging evidence for thoracic radiofrequency ablation with inclusion of one relevant randomized controlled trial and 3 observational studies.
 - o The **level of evidence is II with moderate strength of recommendation** for thoracic therapeutic facet joint nerve blocks with inclusion of 2 randomized controlled trials and one observational study with long-term improvement.
 - o The **level of evidence is III with weak to moderate strength of recommendation** for thoracic intraarticular facet joint injections with inclusion of one randomized controlled trial with 6 month follow-up, with emerging evidence.

Antithrombotic Therapy:

Facet joint interventions are considered as moderate to low risk procedures; consequently, antithrombotic therapy may be continued based on overall general status.

Sedation:

- The **level of evidence is II with moderate strength of recommendation** to avoid opioid analgesics during the diagnosis with interventional techniques.
- The **level of evidence is II with moderate strength of recommendation** that moderate sedation may be utilized for patient comfort and to control anxiety for therapeutic facet joint interventions.

Limitations

The limitations of these guidelines include a paucity of high-quality studies in the majority of aspects of diagnosis and therapy.

Conclusions

These facet joint interventions guidelines were prepared with a comprehensive review of the literature with methodologic quality assessment with **determination of level of evidence and strength of recommendations.**

Effectiveness of Suprascapular Nerve Pulsed Radiofrequency Treatment for Hemiplegic Shoulder Pain: A Randomized-Controlled Trial

Ebru Alanbay, Berke Aras, Serdar Kesikburun, Selvinaz Kizilirmak, Evren Yasar, Arif Kenan Tan
Pain Physician 2020; 23:245-252.

Background

Hemiplegic shoulder pain is one of the most common complications after stroke. Although there are many treatment strategies for this complication, sometimes very resistant cases are also seen.

Objectives

To evaluate the effect of suprascapular nerve pulsed radiofrequency (PRF) treatment for hemiplegic shoulder pain (HSP).

Study Design

A prospective randomized-controlled trial.

Setting

University hospital.

Methods

This study included 30 patients with HSP following stroke. The patients were randomly assigned to receive PRF to the suprascapular nerve (PRF group, n = 15) or suprascapular nerve block (NB) with lidocaine (NB group, n = 15). The patients were randomized into 2 groups (n = 15 both). In addition, the patients received physical therapy to the shoulder, including hot pack, transcutaneous electrical nerve stimulation, and stretching and strengthening exercise (5 days per week

for 3 weeks in a total of 15 sessions). Visual Analog Scale (VAS) for pain, the Goal Attainment Scale (GAS) during upper-body dressing, and shoulder range of motion (ROM) were assessed at baseline, 1 month, and 3 months after the procedure.

Results

Between the groups, comparison revealed that decrease in the VAS score was statistically significantly higher at the first (3.5 1.9 vs. 1.2 1.0) and third month (4.2 1.7 vs. 1.2 0.9) in the PRF group compared with the NB group (P < 0.01). The PRF group had significantly higher increases in shoulder ROM compared with the NB group (P < 0.05). The positive changes in GAS score at month 3 in the PRF group was significantly higher than that in the NB group (P < 0.05).

Limitation

There is a need for further studies with a longer follow-up period.

Conclusions

In light of these findings, the combination of PRF applied to the suprascapular nerve and physical therapy was superior to the combination of suprascapular NB and physical therapy.

Rehabilitation in Practice: Improving Delivery of Upper Limb Rehabilitation for Children and Young People with Acquired Brain Injuries Through the Development and Implementation of A Clinical Pathway

Gemma Kelly, Ruth Moys , Melanie Burrough, Samantha Hyde, Sammy Randall, Lorna Wales
Disabil Rehabil 2020 May 20;1-8.

Purpose

Decision making regarding upper limb assessment and management of children and young people (CYP) with acquired brain injury (ABI) is complex. This project aimed to standardise and improve upper limb provision in one residential rehabilitation unit for CYP with ABI.

Methods

Plan-do-study-act (PDSA) methodology was used. Available evidence was synthesised and recommendations for assessment and intervention of CYP who present at different functional levels were made. A multi-modal knowledge translation process was used for pathway implementation, with regular review and updates in each PDSA cycle. Audit and staff survey at one year and two years post implementation were conducted.

Results

A clinical pathway consisting of an assessment decision tree, intervention matrix and evidence based summaries was developed. Audit at one year demonstrated 70% of CYP had an appropriate

assessment form, which increased to 82% at two years. Staff survey showed increased knowledge and use of the pathway, and decreased perceived training needs between years one and two.

Conclusions

Use of an upper limb pathway can standardise care in line with best available evidence, and increase staff confidence in this complex rehabilitation area. Several years of development and implementation were required to embed its use in practice. Implications for rehabilitation Upper limb rehabilitation for CYP with ABI is complex, with no "one size fits all" assessment or intervention techniques available. Developing a pathway in which the evidence for assessment and management interventions for CYP of different functional levels, and recommendations for clinical practice can improve the consistency of assessment and intervention, and staff confidence with upper limb management. A multimodal strategy for implementation planned from the outset of pathway development can facilitate the translation of the pathway into routine clinical practice.

Motor Learning in Neurological Rehabilitation.

Levin MF, Demers M.

Disabil Rehabil. 2020;Apr 22 :1-9.

While most upper limb training interventions in neurological rehabilitation are based on established principles of motor learning and neural plasticity, recovery potential may be improved if the focus includes remediating an individual's specific motor impairment within the framework of a motor control theory. This paper reviews current theories of motor control and motor learning and describes how they can be incorporated into training programs to enhance sensorimotor recovery in patients with neurological lesions. An emphasis is placed on dynamical systems theory and the use of new technologies such as virtual, augmented and mixed reality applications for

rehabilitation to facilitate learning. Implications for Rehabilitation Kinematic abundance allows the healthy nervous system to produce different combinations of joint rotations to perform a desired task. The structure of practice to improve the movement repertoire in rehabilitation should take into account the kinematic abundance of the system. Learning can be enhanced by varied practice with feedback about key movement elements. Virtual reality environments provide opportunities to manipulate the structure and schedule of practice and feedback.

Wheelchair and Seating Assistive Technology Provision: A Gateway to Freedom

Gowran RJ, Clifford A, Gallagher A, McKee J, O'Regan B, McKay EA.
Disabil Rehabil 2020 Jun 8;1-12

Aim

The meaning of wheelchair and seating assistive technology and the impact inappropriate provision has on people's lives from a service user's perspective within an Irish context is highlighted. There is a dearth in evidence examining the process of wheelchair and seating provision and the interconnectedness between satisfaction, performance and participation from an equality and human rights perspective. The purpose of the study is to investigate wheelchair service users' perspectives of wheelchair and seating provision in Ireland.

Method

This is a mixed-methods study with an exploratory sequential design that includes two phases. During phase one, wheelchair service users were invited to take part in qualitative in-depth semi-structured interviews, which were thematically analysed and formed part of a larger ethnographic study involving multiple stakeholders in sustainable wheelchair and seating provision strategy development. In phase two, an online Survey Monkey questionnaire was distributed to obtain a wider overview of wheelchair service provision from a wheelchair service users perspective. Data obtained from the closed questions and content analysis for open comments was analysed descriptively for this phase.

Results

Eight wheelchair service users agreed to participate in the interviews and 273 responded to the online survey. Thematic analysis and questionnaire frequency and content analysis revealed the vital meaning of wheelchair and seating assistive technology provision.

However, bottlenecks within the system affect daily living, with qualitative data highlighting the obstruction to experiences of independent living from initial appointment to wheelchair breakdowns during daily life.

Conclusion

Appropriate wheelchair and seating assistive technology provision is a basic human right, supported by the essential and embodied nature of the wheelchair as demonstrated through the wheelchair service users' perspective throughout this study. These findings highlight the impact of ad-hoc services on individual freedoms and how the overall pace of the system affects a person's ability to organise their time as an equal member of the community across the lifespan. A national review of wheelchair and seating assistive technology provision services is called for, giving consideration to access to services, assessment and delivery, follow up and management, education and training.

Implications for Rehabilitation

Wheelchair and seating assistive technology provision as a basic human right is misunderstood. Appropriate wheelchair and seating assistive technology provision should be provided to meet this primary need as a prerequisite for survival. Every aspect of the wheelchair and seating provision process impacts on occupational performance, equality of opportunity and community mobility. Wheelchair and seating assistive technology professionals and providers have a responsibility to review their practice and service provision systems.

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Abridged Prescribing Information (BACLOF)

Active Ingredient: each tablet of BACLOF contains: baclofen 10, 25 mg, BACLOF liquid contains baclofen 5mg/5ml, 100 ml bottle. **Indication:** treatment of spasticity resulting from multiple sclerosis, particularly for the relief of flexor spasms and concomitant pain, clonus, and muscular rigidity. **Dosage:** Tablets: Initiate with a low dosage, preferably in divided doses, administered orally. Increase gradually based on clinical response and tolerability. The maximum dosage is 80 mg daily (20 mg four times a day). When discontinuing, reduce the dosage slowly. **Liquid:** adults: One 5ml spoonful (5mg) 3 times a day for 3 days; Two 5ml spoonfuls (10mg) 3 times a day for 3 days; Three 5ml spoonfuls (15mg) 3 times a day for 3 days; Four 5ml spoonfuls (20mg) 3 times a day for 3 days. Elderly: Small doses should be used at the start of treatment, the dose being titrated gradually against the response, under careful supervision. Paediatric population (0 to <18 years): A dosage of 0.75-2mg/kg body weight should be used. In children over ten years of age, however a maximum daily dosage of 2.5mg/kg body weight may be given. Treatment is usually started with half a 5ml spoonful (2.5mg) given 4 times daily. The recommended daily dosages for maintenance therapy are as: 12 months – 2 years: Two to four 5ml spoonfuls (10-20mg), 2 years – 6 years: Four to six 5ml spoonfuls (20-30mg); 6 years – 10 years: Six to twelve 5ml spoonfuls (30-60mg). **Contraindications:** hypersensitivity to baclofen or any component of this product. **Warning and precautions:** Abrupt discontinuation of baclofen has resulted in serious adverse reactions including death; therefore, reduce the dosage slowly when baclofen is discontinued. Neonatal withdrawal symptoms can occur; gradually reduce the dosage and discontinue baclofen before delivery. Baclofen can cause drowsiness and sedation. Patients should avoid the operation of automobiles or other dangerous machinery until they know how the drug affects them. Advise patients that the central nervous system effects of baclofen may be additive to those of alcohol and other CNS depressants. Baclofen can cause exacerbation of the following: psychotic disorders, schizophrenia, or confusional states; autonomic dysreflexia; epilepsy. Use with caution in patients with these conditions. **Pregnancy & Lactation:** Pregnancy: Based on animal data, may cause fetal harm. At recommended oral doses, baclofen is present in human milk. There are no human data on the effects of baclofen on milk production and on breastfed infant. **Interaction:** CNS depressants like benzodiazepines, antihistamine, antipsychotic, and alcohol etc., may cause increased sedative effects. Morphine (epidural) may cause hypotension and dyspnea. Laboratory Test Interactions may cause false elevation of AST (aspartate aminotransferase), alkaline phosphatase, or blood glucose. **Adverse reactions:** most common drowsiness, dizziness, and weakness. **Overdose:** Symptoms: Patients may present in coma or with progressive drowsiness, lightheadedness, dizziness, somnolence, accommodation disorders, respiratory depression, seizures, or hypotonia progressing to loss of consciousness. Treatment: includes gastric decontamination, maintaining an adequate airway and respirations. (Prepared on 23rd Feb 2020. It is recommended to refer full prescribing information before prescription. For further medical information, please write to: Intas Pharmaceuticals Ltd., Corporate House, Near Sola Bridge, SG highway, Thaltej, Ahmedabad-380054, Gujarat, India. productqueries@intaspharma.com.)

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