Nerves, muscles and poliomyelitis

**Lectures**

**CO04-001-e**

**Update on the scientific evidence for exercise in neuromuscular diseases**

N. Voet
*Radboud University Medical Centre, Nijmegen, Netherlands*

*Keywords:* Neuromuscular diseases; Exercise; Strength training; Aerobic exercise

Strength training, which is performed to improve muscle strength and muscle endurance, or aerobic exercise programmes, which are designed to improve cardiorespiratory endurance, might optimise physical fitness and prevent additional muscle wasting in people with neuromuscular diseases (NMD). However, people with NMD and some clinicians are still afraid of overuse and have a cautious approach to training. Cochrane reviews showed that moderate-intensity strength training in people with myotonic dystrophy or with facioscapulohumeral muscular dystrophy (FSHD) and aerobic exercise training in people with dermatomyositis or polymyositis appear not to harm muscles. Strength training combined with aerobic exercise appears to be safe in myotonic dystrophy type I and may be effective in increasing endurance in people with mitochondrial myopathy. Evidence suggests that strength training is not harmful in people in FSHD, myotonic dystrophy, mitochondrial disorders and dermatomyositis and polymyositis, but further research is needed to determine potential benefit. There is inadequate evidence to evaluate the effect of exercise on functional ability in people with NMD.

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**CO16-001-e**

**Carpal Tunnel Syndrome**

R. Buschbacher
*Indiana University, Indianapolis, IN, USA*

Carpal Tunnel Syndrome is a common and deceptively simple appearing condition. But in delving into the complexities of the disorder there is a lot of information to be learned. This lecture will focus on the definition, epidemiology, risk factors, presentation, and examination of the condition. There will be emphasis on occupational relationships. Electrodiagnosis of Carpal Tunnel Syndrome will be described.

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**Oral communications**

**CO04-002-e**

**Both aerobic exercise training and cognitive behavior therapy reduce chronic fatigue in patients with facioscapulohumeral muscular dystrophy: A randomized controlled trial**

N. Voet, G. Bleijenberg, I. De Groot, G. Padberg, B. Van Engelen, A. Geurts
*Radboud UMC, Nijmegen, Netherlands*

*Corresponding author.*

*Keywords:* Facioscapulohumeral dystrophy; Fatigue; Randomized controlled trial; Aerobic exercise therapy; Cognitive behavior therapy

**Background.**– Sixty-one percent of patients with facioscapulohumeral dystrophy (FSHD) are severely fatigued. Losses of muscle strength, physical inactivity, sleep disturbances, and pain contributed to chronic fatigue.

**Methods.**– We performed a multi-centre, assessor-blinded, randomized controlled trial (RCT). Fifty-seven FSHD patients with severe chronic fatigue were randomly allocated to aerobic exercise therapy (AET), cognitive behavior therapy (CBT), or usual care (UC). Outcomes were assessed at baseline, after 16 weeks of intervention, and after a 12-week follow-up.

**Results.**– Following treatment, both the AET and CBT intervention groups had significantly less fatigue relative to the UC group, with a difference of $-9.1$ for AET (95% CI: $-12.4$ to $-5.8$) and $-13.3$ for CBT (95% CI: $-16.5$ to $-10.2$) which lasted through follow-up. The patients who received CBT had an increase in registered and experienced physical activity, sleep, and social participation; the patients who received AET had an increase in registered physical activity only. The increase in registered physical activity in both groups and the improvement in social participation following CBT were still present at follow-up.

**Discussion.**– Chronic fatigue can be ameliorated in patients with muscular dystrophy. AET and/or CBT can be incorporated into an evidence-based treatment program to reduce fatigue in patients with muscular dystrophy.

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**CO04-003-e**

**24-weeks supervised and home-based training program improves motor function in FSHD patients**


24-weeks supervised and home-based training program improves motor function in FSHD patients.
Evaluation of muscle oxygenation in patients with facioscapulohumeral muscular dystrophy

N. Olivier a, J. Boissiere b, F. Daussin a, P. Mucci a, V. Tiffreau a,∗

a Unit of Myology, LPE, Rhône-Alpes Reference Centre for Rare Neuromuscular Diseases, EA 4338 UJM, CHU de Saint-Étienne, Saint-Étienne, France
b School of Health and Medical Sciences, Örebro University, Örebro, Sweden
c Unit of Myology, LPE, EA 4338 UJM, CHU de Saint-Étienne, Saint-Étienne, France

∗Corresponding author.

Keywords: Neuromuscular disease; Muscle oxygenation; Near-infrared spectroscopy; Physical exercise

Objective.—To determine changes in muscle oxygenation during effort in patients with facioscapulohumeral muscular dystrophy (FSH).

Methods.—Eight FSH patients and 15 age-matched controls performed isokinetic constant-load knee extension exercises at 20% of their extensors’ peak torque (i.e. the same relative load) for up to 4 min. All exercises consisted in rhythmic, voluntary, isokinetic, concentric contractions of the quadriceps at 90°/s, whereas the return was performed passively at the same speed. Muscle oxygenation in the vastus lateralis was evaluated noninvasively using near-infrared spectroscopy (NIRS).

Results.—FSH patients displayed a lower peak torque than controls (−41%). During exercise, deoxygenated hemoglobin (HHB) and blood volume were significantly lower in the FSH patients. The initial muscle deoxygenation and functional impairment (walking endurance) were correlated with the peak torque.

Discussion.—The findings in this study suggest that FSH subjects present an impairment in their capacity to deliver or to use oxygen and would be the consequences of the deconditioning syndrome.

Further reading

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