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21ST SYMPOSIUM OF THE EUROPEAN GROUP OF PEDIATRIC WORK PHYSIOLOGY

“Exercise and physical (in)activity in children with focus on the girl”

**Corsendonk Priory, Belgium
September 12–16, 2001**

Hosted by the Faculty of Medicine University Ghent
Department of Pediatrics
Department of Movement and Sport Sciences

In Collaboration with

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Faculty of Physical Education and Physiotherapy, University Leuven

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Wednesday, September 12

Rutenfranz Lecture
Anna FARKAS (Budapest, Hungary)
“What about girls?”

data suggest that anaerobic power as measured by the Wingate test does not significantly contribute to aerobic power in children with MR, which is in contrast to previously reported data in non-disabled children. These findings also suggest that leg strength is an important contributor to both anaerobic and aerobic power. In addition, the low levels of muscle strength in children with MR may limit both anaerobic and aerobic power, suggesting that muscle strength development should be an important consideration when designing exercise training regimes for children with MR.

(37) Comparison of Muscle Morphology, Electromyographic Activity and Force Production Between Pre-Pubertal Boys and Girls

T. Barbosa, M. Monteiro, V.P. Lopes, P. Magalhães, Polytechnic Institute of Bragança, Bragança, Portugal.

The purpose of this research was to compare the maximal voluntary isometric force (MVIF), the electromyographic activity (EMG) and the muscle thickness between pre-pubertal boys and girls. The sample comprises 27 children (12 boys and 15 girls) with 9.50 ± 0.52 years old. The MVIF and the EMG signal were acquired when the subjects made a single exercise of arm curl and triceps press. To evaluate the MVIF was used a dynamometer (TSD121C from *Biopac Systems Inc.*). During the arm curl exercise, one surface electrode (TSD 150A from *Biopac Systems Inc.*) was attached in each biceps. During the triceps press, one surface electrode was attached to the vastus lateralis and other to the vastus medialis of the each triceps. Ground electrode was attached to the elbow. The EMG signals were amplified by a differential amplifier with 2MW, a gain of 1000 and a bandwidth between 15-450Hz. The EMG signals were full-wave rectified and smoothed, allowing to determinate the integral of the EMG signal (iEMG). The iEMG was relativized according to the duration of the contraction. The muscle thickness of the biceps and of the triceps of both arms were measured by B-mode ultrasonography, using real-time electronic scanner with 7.5MHz scanning head (Ecocamera Aloca SSD-500). For comparison of those variables between gender was used the ANOVA factorial and Scheffe as post-hoc test ($p < 0.05$). There was no significant differences on the MVIF between boys and girls doing the arm curl exercise [$F(1; 25) = 4.128, p = 0.0529$] or the triceps press exercise [$F(1; 25) = 0.003, p = 0.9554$]. In the same way, there were no significant differences according to gender on the thickness of the triceps of the left arm [$F(1; 25) = 0.075, p = 0.7859$] of the triceps of the right arm [$F(1; 25) = 0.925, p = 0.3454$] of the biceps of the left arm [$F(1; 25) = 0.257, p = 0.6166$] and of the biceps of the right arm [$F(1; 25) = 0.016, p = 0.8989$]. The EMG parameters also didn't presents significant differences according to gender for the vastus lateralis of both arms, for the vastus medialis of both arms and for the biceps of the right and of the left arm. Therefore, we might conclude that apparently there are no significant differences on the muscle morphology, electromyographic activity and force production between pre-pubertal boys and girls.

(38) Delayed Onset Muscle Soreness in Boys and Men Following Eighty Plyometric Jumps

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Delayed onset muscle soreness (DOMS) is a well-documented phenomenon in adults. However, research on DOMS in children is sparse and results are equivocal. The aim of this