

SESSION 3 TRAINING AND PERFORMANCE

The Feldenkrais method as a potential procedure for training the muscle flexibility in dancers

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Aim. Despite the growing popularity and diffusion of the Feldenkrais method in Italy and its application in many rehabilitation areas; little is known about the influence of this method on the improvement of motor performance. The aim of our study was to evaluate whether the Feldenkrais method can be used in an exercise training program aimed to increase muscle flexibility in dancers.

Methods. Fourteen female dancers (23±3 years; 51.5±6.6 kg weight; 159.45±5.97 cm height), who have performed contemporary/modern dance for 14±5 years, were recruited from Dance School Academies. Eight dancers received the Feldenkrais Protocol (FP intervention group) and six dancers did not participate in this protocol (control group). Feldenkrais Protocol (FP) consisted of 6 sessions (2 sessions/week) of Awareness Through Movement® lessons (ATM) programmed for developing the range of motion of the arm circumduction, spine flexion, hip abduction and ankle plantar flexion. The measurements were performed by specific motor tests before starting the experimentation and after three and six sessions of FP.

Results. We found that FP group showed a slight increase in the range of motion of shoulder, hip and ankle joints after 6 sessions of FP. The improvements of hip and ankle ranges have been found mainly on the right. No difference has been observed in the muscle flexibility of spine after FP training. The control group was unchanged in the studied parameters after 2 and 4 weeks.

Conclusions. Although the dancers already had a high level of performance in the muscle flexibility; six sessions of FP appears to have a positive effect on the range of motion of shoulder, hips and ankle joints. This improvement in the right hemi-side of dancers might be linked to dominant limb phenomenon.

Fit levels and firefighters: definition of the principal components load in a specific simulated intervention

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Protection and safety of civilian population and property are under the responsibility of some institutional roles. One of those is the Fire and Rescue Service whose role has been having over the last decades an increase and a diversification in its intervention field. In

the same time their official statistics show increase in job injuries and pathologies, especially those of the muscle-skeletal and cardiovascular system. The aim of this paper is to analyze the fitness levels of 23 firemen in a specific simulated intervention, considered by literature as their highest endurance demand. This specific test was done by climbing a stairway, wearing the protective clothes and carrying a 30 kg extra load. The elaborated variables were: age, high, weight, Body Fat, Heart Rate Reserve (%Hrr) and the $\dot{V}O_{2max}$. A mathematic model (by a non linear regression) was applied on every performance data. Moreover, applying the Principal Components Analysis, 4 components were lightened:

- PC1, related to relative task load;
- PC2, related to weight and to Body Fat;
- PC3, that established physiologic age;
- PC4, related to the subject training level.

A very interesting result was the possibility, by PCA, to calculate the influence of the 4 latent factors in each participant fit level. This study could be useful to define a personalized protocol for training.

Profile of mood state of Italian Taekwondo athletes in relation to gender and competition level

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Olympic taekwondo is a very popular sport, considered appropriate for children to educate their self-discipline and self-control, and respect for opponents. Because taekwondo athletes start training and competing around 10 years of age, the aim of this study was to evaluate the profile of mood state (POMS; McNair *et al.*, 1971) of Italian Taekwondo athletes in relation to their gender and competition level. Fifteen elite (age: 24.6±3.4 yrs; F: n=4; M: n=11), 21 youth (age: 14.3±0.3 yrs; F: n=8; M: n=13), and 101 very young (age: 10.5±0.2 yrs; F: n=22; M: n=79) were administered the POMS questionnaire before participating in their National Championships. The results showed low mean scores for the negative subscales (Depression-dejection: 6.4±6.0 pt; Tension-anxiety: 8.7±4.5 pt; Anger-hostility: 5.9±6.1 pt; Fatigue-inertia: 3.2±3.5 pt; and Confusion-bewilderment: 4.9±3.9 pt) and high scores for the positive subscale (Vigour-activity: 22.7±6.4 pt), with no difference for gender. A difference ($P=0.032$) for competition level was found only for the tension subscale. Post-hoc analysis maintained the difference only between youth (10.6±4.7 pt) and very young (8.6±4.8 pt) subgroups. The low scores on the negative POMS sub-scales and high scores on the positive Vigour-activity sub-scale reflected the desired iceberg pattern (Morgan, 1980), indicating positive effects of chronic taekwondo training on athletes who present better mood state scores than those reported by for young Italian individuals (Farnè *et al.*, 1991) and for American taekwondo practitioners (Toskovic, 2001).