

Combining Core Training and Sensory Refinement: effects on physical performance

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The concept of “the Core” describes the complex of anatomical components of the trunk, pelvis and shoulder girdle that are responsible for maintaining the stability of the spine and pelvis and are critical for the transfer of energy from larger torso to the smaller extremities, during many sport and daily-living activities (1). This concept rooted in sport science and rehabilitation and recently Core Training (CT) became very popular as a method to prevent injuries and improve sport performance and physical fitness. It consists in the progressive training of the musculature of the Core with special emphasis in posture and lumbar spine stability. This aspect requires a fine coordination and body awareness that often are poor developed or regressed after an injury. Then, it is important to include exercises of Sensorial Refinement (SR) that may stimulate the refinement of perceptually neglected areas (2). The aim of the study was to evaluate the effect of combined CT and SR on physical performance and to compare these effects with traditional core training. Furthermore, the effect on retention after 4 weeks of detraining was evaluated. Two groups of participants were recruited (age >30 < 50) and assigned to experimental (CT and SR: EXP, n = 9) or control (CT: CON, n = 9) group. Both groups trained ten weeks, with a frequency of two sessions per week. Training consisted in 10' of warm up, 40' of workout and 10' of cool down. Workout of EXP group consisted in 20' of SR and 20' of CT whereas CON group performs 40' of CT. Participants were tested by: Star Excursion Balance Test (SEBT) for the dynamic balance of lower body, Upper Quarter Y Balance Test (YBT-UQ) to assess upper extremities function in a closed-chain position and McGill test to evaluate muscular endurance of the core. Both groups improved core endurance after training and worsen it at follow up; moreover, both groups ameliorate upper and lower body control (SEBT and YBT-UQ) after training but only EXP group improved or maintained it at follow up. Since the information about the movements of the body are elaborated in the somatomotor cortex for fine coordination, the combination of CT and SR should better promote the consolidation of motor memory and long-term body control.

References

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- [2] Tse et al. *J Strength Cond Res.* 2005 Aug;19(3):547-52.

Keywords

Core Training; proprioception; physical performance.