

Research Paper :

Effect of concurrent strength and endurance training and detraining on vital capacity

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ABSTRACT

The purpose of the study was to determine the effect of concurrent strength and endurance training and detraining on vital capacity. Thirty healthy men (mean (SD) age 21.3 (2.1) years) were assigned to experimental (n = 15) and control (n = 15) groups. They carried out 12 weeks concurrent strength and endurance training followed by 30 days detraining period. Vital capacity was measured at baseline and immediately after training and also during the detraining period. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). The data on post experimentation and detraining period (three cessations) were analyzed by two way (2 x 4) factorial ANOVA with last factor repeated measures. Although concurrent strength and endurance training improved vital capacity (5.91%) all training induced gains had been abolished after thirty days of detraining.

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Key words : Concurrent strength, Endurance training, Detraining and vital capacity

Concurrent training programme involving strength and endurance exercises are commonly performed by athletes to achieve adaptations specific to both forms of exercises. Research investigating the effects of concurrent training has typically compared changes in strength and endurance variables after strength training, endurance training or concurrent strength and endurance training. Concurrent strength and endurance training will improve the running performance more than endurance training. The strength training will build and maintain the muscle elasticity and power that is so critical in developing the running economy and speed. The phenomenon of concurrent training, or simultaneously training for strength and endurance, was first described in the scientific literature by Hickson (1980).

Detraining may occur due to unforeseen circumstances, such as injury or illness. Physical activity may need to be postponed for several weeks or months, and the effects on the body may be noticed fairly quickly. Fitness levels and muscle mass can decline during a break that lasts between two and four weeks. If an individual spends several months undergoing extensive, regular training, the body typically adapts and improves in terms of muscle strength and cardiovascular endurance. More than two weeks of abstinence from physical training can

often cause a reduction in the peak fitness level.

METHODOLOGY

Participants and variables:

Thirty untrained men volunteered to participate in the study. The selected participants were the students of Bachelor of physical education, Annamalai University. Their age, height and weight ranged between 18 years to 22 years, 158 cms to 174 cms, 50 kg and 71 kg, respectively. They were randomly divided into two groups and each group consisted of fifteen participants. A written consent form was signed by all participants after they had been informed of all risks, discomforts, and benefits involved. The dependent variable selected was vital capacity and was assessed by wet-spirometer. The data were collected prior to and immediately after the twelve weeks of training and also during the detraining period once in ten days for thirty days.

Training regimen:

The experimental group performed both the strength and endurance training programmes three sessions per week on alternative days for 12 weeks. The strength training programme was a total body workout consisting of 3 sets of 6-10 repetitions on 8 exercises that trained all