

Interval versus Continuous Training

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Continuous and interval training are widely used in sports practice in order to improve performance in athletes, or to promote health in sedentary populations. Moreover, both types of exercise are used in rehabilitation programs of patients with chronic diseases [1,2]. Interval training is considered as 'better training' and consists of repeated periods of high intensity exercise alternating with periods of lower intensity, whereas continuous exercise is characterized by constant submaximal workload. During the 1930's interval training became popular in track and field events (Woldemar Geschler, a German running coach first introduced this type of exercise). While in the early 1960's the Studies of Astrand et al. [3] and Christensen et al. [4] opened a new field in exercise physiology and training. Afterwards, few studies examined the cardiovascular and metabolic responses between the two types with contradictory results [5-8]. The differences between the studies are attributed to the variability of the exercise protocol (duration, type, and intensity, ratio of work at high intensity/low or complete rest), which in turn results in recruitment of different energy systems.

The preference in interval training compared to constant is attributed to the fact that high intensity exercise can be sustained longer compared to constant, imposing greater stress to the body. As a consequence, there is greater functional improvement in both the muscle and cardiorespiratory system. Daussin et al. [9,10], found that interval training in sedentary subjects, improved both central and peripheral components of oxygen consumption (VO_{2max}), while continuous training was associated with greater O_2 extraction. Interval training, is also beneficial for highly trained athletes, who difficult enhance further endurance performance. Studies show that such athletes can improve endurance performance mainly through high - intensity interval training. The alternations between periods of very high intensity (greater than anaerobic threshold) and brief periods of low intensity/ or inactivity, allow a partial recovery, which results in repeatedly stress of physiological systems to a greater extent than that required during exercise [11,12], resulting greater adaptations. Furthermore, Interval exercise seemed to be preferable in patients with cardiac problems compared to continuous. This is because, it challenges the heart's pumping ability, which in turn causes cardiac remodeling [13].

Both continuous and interval training are beneficial for athletes and sport participants, either by increasing performance or promoting health and well being. More studies need to be conducted in order to compare the two types of training. Also, we should consider that both

types are essential, when designing an exercise program. The age, the physical condition of the participant, the training phase (periodization), the targeting energy system and of course the goal of the program, determine which type of exercise is to be chosen.

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