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Athletes and Recovery Techniques

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Recovery is an important aspect of athletic training and during these years scientific knowledge of recovery techniques has increased [1]. But, many athletes compete or train without proper recovery which can cause burnout or poor performance [2]. There is also some misunderstandings that recovery is necessary in the case of injury occurrence and a tool for rehabilitation [3] and when the aim is not clear, improper methods may be used. The aim of recovery is acceleration of returning the body to pre exercise state. For this purpose, the body must be recovered physiologically and psychologically. Training and competition can cause fatigue in different aspects of metabolic, neural, psychological and environmental [4] and speeding up recovery process can reduce fatigue effects. Some programs and techniques are suggested for recovery and selection of appropriate recovery method depends on the intensity and volume of workloads and also recovery knowledge of athletes and coaches [5]. Several modalities are commonly used as recovery programs including massage, active and passive recovery, hydrotherapy, acupuncture/acupressure [5]. The use of modalities such as massage, floatation, hyperbaric oxygenation therapy and acupuncture has increased while little scientific evaluation of its use and effectiveness for exercise recovery exist [6]. The question is that which type of recovery technique is more effective than others.

Some studies have evaluated or compared influence of different recovery techniques.

Some researchers have indicated that active recovery is more effective in reducing blood lactate than passive recovery [7-9] and massage [10]. It has been suggested that excessive lactate accumulation is associated with sport performance fall [11] and can be explained by increasing H^+ as a result of lactic acid accumulation which act as force depressing factor [12]. However, in a study on Judo players, Lactate removal was increased by active recovery comparing passive recovery but active recovery did not result in improving performance [13]. One study indicated increased performance on a 200- yard (182.88 m) swimming after active compared to passive recovery [14], massage is also one of recovery type which is recommended by many coaches.

Massage can improve stretching of tendons and connective tissue and cause relief of muscle tension [15] and by enhancing muscle blood flow, speed up muscle recovery [16]. Massage can increase blood flow and result in removal of lactate after exercise. Massage may increase oxidation and diffusion out of lactate from muscle [17]. However, Some studies have not supported influence of massage on lactate removal or sport performance , but have indicated psychological benefits of massage in boxing [18]. One study compared influence of sport massage, active and passive recovery in promoting blood lactate removal after submaximal exercise and indicated that after supramaximal leg exercise, active recovery produced significant decreases in blood lactate compared with massage and rest recovery. No significant difference was observed between passive and massage recovery on blood lactate removal [10]. Massage techniques and duration vary widely, thus limit the ability to compare one massage study to another. Classical western massage or Swedish massage is the most common form of massage used for athletes and consists of five basic techniques known as effleurage, petrissage, tapotement, friction and vibration [18]. So, Regarding importance of recovery on subsequent performance and lactate removal, yet there is not clear finding that which type of recovery (active, passive and massage recovery) is more effective on subsequent sport performance and rehabilitation.

Hot and cold water is other recovery methods and research fields. Coachrane [19] in a review study concluded that although physiological effects of hot–cold water contrast baths for injury treatment have been proved, but its physiological influence on recovery is less known. Most evidences suggests that hot–cold water immersion helps to reduce injury in the acute stages of injury, However stated that there are limited studies focusing on the effectiveness of hot–cold water immersion for post exercise treatment and More research is necessary for clarifying whether alternating hot–cold water immersion improves recuperation and effects the physiological changes related to post exercise recovery. Cryotherapy is supported in some studies for injured or recovering athlete following exercise [19]. Compression garments are used by some athletes for recovery. A study indicated that in older cyclists, compression garments during 80 minutes recovery with elevated legs reduced blood lactate compared to control group [5], but there are limited related research. Electrical muscle stimulation, acupuncture and acupressure techniques are also used for rehabilitation from injury and recovery by some athletes, but future researches are necessary in order to recommend it scientifically to athletes. There is not clear answer which recovery technique is more proper after different sport activities for rehabilitation or exercise recovery, in male or female athletes, and for various ages. Besides recovery techniques, duration and methods of applying techniques are important issues which must be considered and future researches are necessary before any recommendation.

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