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Editorial

Respiratory Muscle Training and Athletic Performance

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Respiratory system is one of the main systems that as affect over the exercise performance. It is possible that the respiratory muscles (RM) are induced to their fatigue level during heavy exercise and respiratory muscle strength decreases over time with aging [1]. Skeletal muscles undergo a host of adaptations including structural, neural and functional (strength and endurance) with exercise training [2-5]. The RM respond adaptively to an overload stimuli like all skeletal muscles. Specific RM training or warm-up have been known to result in significant improvements in peak inspiratory pressures, sustained ventilatory capacity tasks and exercise performance [6-11]. Pulmonary load increases during high-intensity exercise. This situation causes fatigue in respiratory muscles, and cannot be compensate to tissue O2 demand, then athlete feels respiratory fatigue. Fatigue in respiratory muscles causes relatively 15% decrement in exercise performance and energy efficiency [12-15]. Respiratory muscles may be more strong in a few days, breathe frequency can reduce in three weeks, exercise performance can rise up in four weeks via specific RM training [16-19].

Inspiratory muscle training (IMT) is described as a remarkable exercise that aims to strengthen the body's respiratory muscles to make it easier for people to breathe. Although IMT is generally used for treatment on people who suffer from asthma, COPD, emphysema, airflow limitation, etc [20-24]. Today many sport scientists, acutely or chronically, adopt this training as a part of their scientific researches [1,6,7,9-11,25-28].

Through the training (IMT), there are reductions in blood lactate concentration, heart rate, and perception of breathing and limb effort [29,30]. In addition, use of lung capacity is increasing, when it comes to this reason deeper breathing uses a bit more energy but also allows more oxygen to enter the bloodstream with each breath while strengthening the breathing muscles [28]. IMT delays or abolishes inspiratory muscle fatigue and bit delays activation of the reflex from the inspiratory muscles that shuts down circulation to the limb muscles. The limb fatigue, lactate production and limb effort are decreased by this preservation of blood [26]. Besides, if the inspiratory muscles don't fatigue the perception of breathing effort of reduces and it is possible to maintain a more efficient deep, slow breathing pattern [31].

Finally, IMT produces improvements in performance during sports activities or aerobic exercise for different branches such as running, cycling, swimming, multisport, sliding sport, rowing, hiking and mountaineering, team and sprint sport, racket, striking, and throwing sport [9,32-36].

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