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PLAYING FOOTBALL TO PREVENT CHRONIC DISEASES

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Inactivity and poor physical fitness are major contributors to the increasing prevalence of cardiovascular diseases, type 2 diabetes and osteoporosis.
It is now well-known that physical training is a cornerstone in the prevention and treatment of lifestyle diseases and it has recently been concluded that sport participation reduces all-cause mortality by 20-40% (Khan et al. Lancet 2012; 380(9836): 59-64). However, less is known about the specific fitness and health benefits of various types of physical activity and sports.
Most training studies have investigated moderate-intensity aerobic exercise training or strength training, but over the last decade an increasing amount of evidence suggest that High-Intensity Interval Training (HIIT) may be an effective method to improve performance and health.
Since 2006, we have conducted a series of randomized controlled trials investigating the activity profile, physiological demands, fitness effects and health benefits of recreational football for untrained individuals across the life span. A total of 70 scientific articles have been published in this period, documenting that small-sided football has broad spectrum fitness and health effects for 6-80-year-old participants, as it combines elements of HIIT, endurance and strength training (3).
Small-sided football played 3v3, 5v5 or 7v7 elicits high heart rates and involves multiple intense actions such as sprints, turns, jumps, tackles, dribbles and shots, independently of age, gender, fitness status, socio-economic status and prior experience (Randers et al. Scand J Med Sci Sports 2010; 20 Suppl 1:14-23). The high average heart rates and periods with near-maximal heart rates provide effective cardiovascular training with multiple effects on maximal oxygen uptake, heart structure and function, endothelial function, capillarization, lipid profile and oxidative enzyme activity. Additionally, the football-specific intense actions involves all muscle groups and provide multiple favorable effects on muscle mass, muscle function, postural balance and bone mineralization (2). These findings are of great public interest, considering that football is the most popular sport in the world with an estimated 400 million active players.
Football also has positive motivational and social factors that may facilitate compliance and persistence with the sport and contribute to the achievement and maintenance of a physically active lifestyle. Recently, the health effects of football have been investigated specifically for patient groups with mild-to-moderate hypertension and type 2 diabetes. Just 3 months of football training, 2x1 hour per week, lowered systolic and diastolic blood pressure by 12/8, 8/8 and 11/9 mmHg, respectively, in the studies by Krustrup et al. (1), Schmidt et al, (Med Sci Sports Exerc 2013; 45: 2223-2233) and Knoepfli-Lenzin et al, (Scand J Med Sci Sports 2010; 20 Suppl 1: 72-79), which is a more pronounced effect than usually seen after 3-6 months of aerobic moderate-intensity training or strength training. In one of these studies, three-quarters of the participants normalized their blood pressure during the football training period (1), and the participants had additional benefits lowering their cardiovascular risk, such as an increase in maximal oxygen uptake, improved cardiac and endothelial function and lowered fat mass (Krustrup et al, Med Sci Sports Exerc 2013; 45: 553-560; Andersen et al, Scand J Med Sci Sports 2014; 24 Suppl 1: 105-112).

In a special issue of Scandinavian Journal of Medicine & Science in Sports published in June 2014, we presented data showing that football is a feasible and effective type of training for 65-80-year-old sedentary men (Andersen et al, 2014 Scand J Med Sci Sports 2014; 24 Suppl 1: 76-85; Helge et al. Scand J Med Sci Sports 2014; 24 Suppl 1: 122-129), which improves maximal oxygen uptake, functional capacity and bone mineralization within 3 months. Additionally, it was revealed that football can be used as rehabilitation for elderly men with prostate cancer undergoing androgen deprivation therapy, as 3 months of twice-weekly 45-60 minutes of football training sessions increased lean body mass, muscle strength and bone mineralization (Uth et al, Scand J Med Sci Sports 2014; 24 Suppl 1: 105-112).

References

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