EUROMEDITERRANEAN BIOMEDICAL JOURNAL

for young doctors

Commentary

SPORT AS A STRATEGY FOR PREVENTING PHYSICAL INACTIVITY: WALKING FOOTBALL

Calogero Roaul Aiello, Andrea Canalella, Dario Altieri

Summary

In the senile population, regular physical activity and reduction of a sedentary lifestyle lead to a series of positive effects. Such as, increased independence in daily activities and personal care, higher self-esteem, a better quality of life, a higher life expectancy and a decrease in mortality. Moreover, physical, psychological, and cognitive functions can also improve.

With regards to this notion, the Walking Football (WF) activity was started in England; a sport designed for the needs population segment, who, due to overweight and other typical diseases of old age, has a limited mobility and can only play sports with low-moderate cardiovascular effort.

WF is a new sport mainly created for people over 50, i.e. the population diagnosed with chronic degenerative diseases, and the actual increase of obesity gradually cause to abstain from a regular physical activity.

The game is played 7 vs. 7 and all players must only walk; running is considered a foul. To avoid sudden movements and reduce the risk of injury, the ball must be always kept on the ground, and slide tackles and an aggressive behavior are prohibited.

This sport, a slow variation of football, is considered a low risk sport activity for the low incidence of traumatic events and can be practiced safely because the cardiovascular effort is minimum.

WF comes directly from football, which is considered the most popular sport in the world. It is also associated with positive social and motivational factors that may facilitate compliance to the sport, which help maintain a physically active lifestyle.

WF is still not widespread in Italy, and our hope is that it can become, in a short time, a reference for the sports designed for the elderly.

Introduction

The world population is gradually aging; hence, the percentage of older people is increasing. According to the latest UN estimates, life expectancy in 2015 was estimated at around 80 years for men and 85 years for women, in 2040 and is expected to reach 85 years and up to 90 years respectively. This will inevitably result in an increase of

Address of the authors:
Dipartimento Biomedico di Medicina Interna e Specialistica, Università degli Studi di Perugia, Palermo, Italy;

Send correspondence to: *Roaul Aiello, roaulaiello@gmail.com*

Received: *6th June, 2016 — **Revised:** 28th October, 2016 — **Accepted:** 28th November, 2016*

the population over 65, from the current 14 million to about 20 million in 2040 [1].

As we age, we gradually abstain the regular practice of physical activity, mainly due to aging of the human organism caused by chronic and degenerative diseases primarily osteo-articular and cardio-pulmonary: it's easy to understand how the elders are the most sedentary and physically inactive people among the various segments of the population [2].

The World Health Organization (WHO) published guidelines for the importance of exercise in the senior population. Based on these guidelines, the exercise should be dosed as a drug and the minimum dose, to obtain a beneficial effect, would be at least 150 minutes / week of moderate exercise [3]. The American College of Sports Medicine (ACSM) in collaboration with the American Heart Association (AHA) has released detailed recommendations which require the completion of moderate aerobic activity for 30 minutes / 5 times a week, or more intense activity for 20 minutes / 3 times a week, or an equivalent combination always respecting a minimum of 10 minutes per training session [4].

Physical activity contributes positively to the prevention and treatment of certain diseases and chronic conditions, and is the most efficient and cheap way to prevent the decline in the functional capacity of the elderly. In the senile population, regular physical activity and reduction of a sedentary lifestyle leads to a greater independence in daily activities and personal care, higher self-esteem, a better quality of life, higher life expectancy and a decrease in mortality [3], gaining significant physical, psychological, and cognitive improvement [5,6,7].

There is also a lower loss of muscle mass, which physiologically after age 25 sets at around 0.5-1% for each year, maintaining the amount of strength; exercise is the most effective strategy to maintain good muscle tropism, to improve balance and flexibility needed to prevent falls that in old age often result in disability [8]. Therefore, the importance of promoting sport activities for all ages but especially in children, identifying, in each case, the most suitable type of activity performed safely.

Italy has some of the most advanced regulations in the world for the protection of the people's health while doing sports. In fact, with regards to competitive sports, any athlete that participates in a competition must necessarily undergo a physical examination by a sports medicine specialist to obtain the proof of eligibility. This has allowed, since the 80s, when these laws were introduced, a significant reduction in the incidence of sudden cardiac death.

Even for sports that do not involve competition, all parties, especially the elderly, before starting any sport activity should undergo a cardiovascular screening, have their health status verified, be identified and, considering any restrictions, be prescribed the right amount of exercise. For this reason, the prescription of exercise by the physician requires an excellent knowledge of the patient's state of health, but also of exercise physiology and biomechanical characteristics of the athletic movements of the individual disciplines.

The various sport activities are commonly classified based on the main energy sources used during muscular work. The most practiced sporting activities are aerobic, such as jogging and cycling, which provide a moderate cardio-circulatory commitment protracted in time, and an energy substrate coming from a precisely aerobic metabolism. Sports like football, basketball, etc. are widely practiced and defined in aerobic-anaerobic alternating activities, because they are based on the alternation of random sub-aerobic steps, aerobic, anaerobic and rest [9].

For each activity, there is a different cardiovascular response, due to different muscle involvement during the athletic movement in the various disciplines. Cardiac stress can be constant over time, as it occurs in aerobic disciplines, or intermittent in activities with the use of a ball. or the activities with alternating aerobic-anaerobic involvement, without altering the cardiovascular risk level related to the two types of sport activities.

Intense efforts and short sudden beginning/end, or abrupt termination, may have greater arrhythmogenic potential than efforts that are initiated and completed in a gradual way (even if they are maximal efforts). The abrupt stop after high intensity efforts is often far more disturbing from the point of view of arrhythmia and hemodynamic condition than other sport activities. Similarly, sports characterized by a moderate increase in heart rate, coupled with marked elevations in blood pressure, can be harmful in vascular disease and arterial hypertension.

Therefore, it is easy to understand that a sport like football, due to its characteristics that provide high pace of play, rapid increases in speed and sudden interruption of game (as in free kicks, goal, throw etc.) is considered more arrhythmogenic, and has a higher cardiovascular risk than other types of sports characterized by mild and constant efforts over time [10].

However, football is the most popular sport in the world and is associated with positive social and motivational factors that may facilitate compliance and adherence to the sport, which help maintain a physically active lifestyle [11].

Walking Football

Considering these notions, Walking Football (WF) was created in England based on the needs of that segment of the population who, for overweight and other typical diseases of old age, has a limited mobility and can only carry out activities with moderate cardiovascular effort. This activity represents a slow variation of football and has been designed for the population over 50, who needs to do a sport activity with low inherent risk and without traumatic events, it is also possible to practice it safely as the cardiovascular efforts are minimum.

The rules of the game are well laid out and all the players, including the goalkeeper, play only by walking; running is considered a foul, at which point the referee interrupts the game. To avoid sudden movements and reduce the risk of injury, the ball must be kept on the ground, below the pelvis, and in any case, not over one and a half meters from the ground. Tackles and aggressive behavior are prohibited. It is played in a regular soccer field, but there are 7 players instead of 5; 3 additional players are benched, and may replace players on the field during the interval between the two periods or during the match, if the goalkeeper of their team has the game ball in hand. The length of a game is 24 minutes divided in two 12 minute periods.

Most adults who practice soccer are under the age of 35, because for those over 50 the activity for this sport is stressful on the osteo-articular system, and becomes difficult due to the emergence of chronic diseases. WF significantly reduces the risk of injury because, in fact, risk behaviors such as acceleration sprints, contrasts and falls, are eliminated.

The literature suggests, in a grown-older population who practiced football, there is evidence of many positive effects on some indexes of cardiac function [12], on physical performance [13], on bone density [14], muscle mass [15], on the treatment of hypertension [16] and type 2 diabetes [13]. Recent studies also suggest that only 12 weeks of WF are sufficient to improve some anthropometric parameters such as reducing fat mass and percentage of body fat [17].

WF is just one of the activities that the elderly can practice with unquestionable benefit to their body, like gymnastics and swimming.

Gentle exercise is now widespread. Older people can perform elasticity exercises of all the joints and specific exercises to improve especially their bloodstream, in the sitting and lying position. Many exercises are focused on toning the abs and glutes, and the attention is directed particularly to the mobility of the spine.

Swimming, despite the enormous advantages, from improving the coordination of all the benefits of a virtual work performed in the absence of forces of gravity, is often recommended with some reserves because recent studies indicate that more than 50% of the swimmers have unhealthy behaviors, such as the violation of sanitary standards, which could be a health risk for an immune system that is no longer primed [18].

WF, as well as other activities, on one hand stresses the cardiovascular system,

the muscle tone, keeps the joints that tend to stiffen moving, and on the other hand favors social interaction, because it forces to maintain a healthy weekly, bi- or tri-weekly routine.

Conclusions

After 45 years of age, it is particularly difficult to lead the patient to regular exercise activities, because it is difficult to find an activity that is compatible with a body that is no longer young. Even more often, once a physical activity is started, patients are likely to drop-out or stop, due to loss of interest or other motivational factors. WF, as a team sport, has an intrinsic characteristic represented by the competition. The desire to improve, for a rematch and the chance to organize the team tournaments, could be the incentive to maintain interest in this sport.

This team sport was created in 2011, since then it had considerable success in England, and it is possible that in the future it will have some success in Italy, where the football culture is well established. For this reason, WF would be able to use a widespread network of existing sport facilities.

To make this possible, the main athletic federations and associations and individual municipalities, could promote the existence of this activity, still relatively unknown, by creating events such as tournaments and dedicated days.

References

1. United Nations. World Population Prospects: The 2015 Revision. Available online at: http://esa.un.org/unpd/wpp
2. Paterson D, Warburton D. Physical activity and functional limitations in older adults: a systematic review related to Canada's Physical Activity Guidelines. I J Behav Nut Phys Act 2010; 7(38)
3. WHO. A guide for population-based approaches to increasing levels of physical activity: implementation of the WHO Global Strategy on Diet, Physical Activity and Health. Geneva, World Health Organization, 2007
4. Nelson ME, Rejeski W J, Blair SN, et al. Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association. Med Sci Sports Exerc 2007;39:1435-45.
5. Warburton DE, Nicol CW, Bredin SS. Health benefits of physical activity: the evidence. CMAJ. 2006;174(6):801–9
6. Hong SY, Hughes S, Prohaska T. Factors affecting exercise attendance and completion in sedentary older adults: a meta-analytic approach. J Phys Act Health. 2008;5(3):385–97
7. Hupin D, Roche F, Gremeaux V, Chatard JC, Oriol M, Gaspoz JM et al. Even a low-dose of moderate-to-vigorous physical activity reduces mortality by 22 % in adults aged ≥60 years: a systematic review and meta-analysis. Br J Sports Med. 2015.
8. Mitchell WK, Williams J, Athertone P, et al. Sarcopenia, dynapenia, and the impact of advancing age on human skeletal muscle size and strength; a quantitative review. Frontiers in Physiology2012;3:260-78.
9. Dal Monte A., La valutazione funzionale dell'atleta, Firenze, Sansoni ed., 1983
10. Protocolli cardiologici per il giudizio di idoneità allo sport agonistico 2009. Medicina dello Sport Vol.63, 3/2010 n.1
11. Krustrup P, Dvorak J, Junge A, Bangsbo J. Executive summary: The health and fitness benefits of regular participation in small-sided football games. Scand J Med Sci Sports 2010: 20(S1): 132–135
12. Schmidt JF, Hansen PR, Andersen TR, Andersen LJ, Hornstrup T, Krustrup P, Bangsbo J. Cardiovascular adaptations to 4 and 12 months of football or strength training in 65–75-year-old untrained men. Scand J Med Sci Sports 2014: 24 (Suppl. 1): 86–97
13. Andersen TR, Schmidt JF, Nielsen JJ, Randers MB, Sundstrup E, Jakobsen MD, Andersen LL, Suetta C, Aagaard P, Bangsbo J, Krustrup P. Effect of football or strength training on functional ability and physical performance in untrained old men. Scand J Med Sci Sports 2014b: 24 (Suppl. 1): 76–85
14. Helge EW, Andersen TR, Schmidt JF, Jørgensen NR, Hornstrup T, Krustrup P, Bangsbo J. Recreational football improves bone mineral density and bone turnover marker profile in elderly men.

Scand J Med Sci Sports 2014a: 24 (Suppl. 1): 98–104
15. Uth J, Hornstrup T, Schmidt JF, Christensen JF, Frandsen C, Christensen KB, Helge EW, Brasso K, Rørth M, Midtgaard J, Krustrup P. Football training improves lean body mass in men with prostate cancer undergoing androgen deprivation therapy. Scand J Med Sci Sports 2014: 24 (Suppl. 1): 105–112
16. Andersen LJ, Randers MB, Hansen PR, Hornstrup T, Schmidt JF, Dvorak J, Søgaard P, Krustrup P, Bangsbo J. Structural and functional cardiac adaptations to 6 months of football training in untrained hypertensive men. Scand J Med Sci Sports 2014: 24 (Suppl. 1): 27–35
17. Arnold JT, Bruce- Low S, Sammut L. The impact of 12 weeks walking football on health and fitness in males over 50 years of age. BMJ Open Sport Exerc Med 2015;1:e000048.
18. Amodio E, Costantino C, Asciutto R, Dino C, Bianco A, Maringhini G, Mammina C, Calamusa G. Knowledge, risk perception and behaviours in swimming pool users of Palermo city, Sicily. Eur J Sport Sci. 2014;14 Suppl 1:S51-6.