

## Relationship between physical inactivity and effects on individual health status

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Published online: October 30, 2016

(Accepted for publication October 10, 2016)

DOI:10.7752/jpes.2016.s2170

### Abstract

The Increasing levels of physical inactivity and availability of food high in calories are bringing an increasing number of people developing pathological conditions such as obesity, type 2 diabetes, osteoporosis, cardiovascular disease, respiratory disease, colon cancer and breast cancer. In this review, it became evident that the lack of physical activity can contribute negatively to various diseases, and, what are the possible strategies recommended to promote changes in lifestyle to maintain acceptable levels of physical activity and to ensure a durable psychologic and physical well-being. A key challenge for all those working in the health and physical-sportive and undoubtedly capable to identify strategies that facilitate physical activity participation in adequate amounts, in relation to the possibilities and age, in order to produce benefits for all, in terms of learning, participation and inclusion.

**Keywords:** sedentary, physical activity, psychophysical wellbeing, lifestyle, pathologies and risk prevention.

### Introduction

In recent years it was consolidated the importance of physical activity to health, so it is important to know the effects of exercise for primary prevention, secondary and for the treatment of widespread diseases in industrialized countries. It is equally important to disseminate information on the sedentary lifestyle, which causes dangerous risks, reducing life expectancy and negatively influencing the health expense. The physical activities are the foundation of all learning and accompanying personal development at every stage (Altavilla et al, 2015a), meanwhile in the last decade has seen massive entrance of pervasive computing among sport-related technologies (Di Tore P.A., 2015).

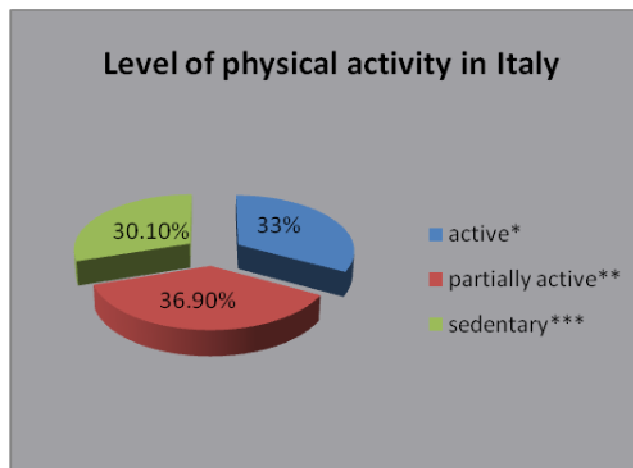
The data collected from recent studies show that the population inactivity can be a risk, since it can adversely affect both the mental and physical health, which on the economy and society. A risk that affects even people with special educational needs and for this interest in the Adapted Physical Activity (APA) is increasing and diversified, because it operates in a net dedicated both to disability that at people with needs and special needs.

Adapted Physical Activity (APA), a term introduced in 1973 by the founders of the Federation Internationale de l'Activite Physique Adaptee, is a professional branch of kinesiology / physical education / sport & human movement sciences, which is directed toward persons who require adaptation for participation in the context of physical activity.

The APA is geared to improve health conditions and safeguard the rights and participation in the practice of physical activities and sports. A recent explicit definition clarified his field of interest: in many cases APA involves individuals with disabilities, but its principles may also apply to including obese, aged, young individuals and any other individual difference that may restrict participation in regular (non-adapted) physical activity (Sherrill & Hutzler, 2010).

The use of physical and sport practice is used in a widespread manner in the world of mental health (Raiola, 2015ab). With passing of the years and with the progress, people have devoted always less space physical exercise, preferring a sedentary life; in young people this way of life is associated with a diet high in calories and fats that contributes to the increase in body weight and of fat mass until to determine the problem of overweight and obesity.

In Italy 30% of adults between 18 and 69 years plays, in everyday life, less physical activity than is recommended and can be defined sedentary. In particular, the risk of sedentary, increases with the age, and is higher among people with low educational attainment and economic difficulties. The role of the school and the sports and its interaction is particularly important both educational and training processes (Gaetano, Rago, 2014, Gaetano, 2012ab).



Tab.1 – PASSI Report 2011 epicentro.iss.it

Physical inactivity can contribute negatively to various diseases, such as type 2 diabetes, osteoporosis, obesity, cardiovascular disease, respiratory disease, colon cancer and breast cancer. Recent surveys show that in Italy, in 2010, the percentage of sedentary was dropped below 39%, over the previous year, and in 2009 there was an increase in physical activity by 3% in the age group 6 to 10 years. This will allow at new generations to safeguard the health, through continuous practice of physical activity, as it will foster the calorie balance, will help to reduce overweight, will increase the efficiency of the cardiovascular system and a feeling of psychological well-being.

The development of each person is realized by the physical activity, social, cognitive and emotional, they operate in such a way as to be interconnected and interdependent, so much so that any change occurs in any of these areas affects and is affected by other them (Altavilla et al, 2014). Physical inactivity or the sedentary may foresee some muscle activity and consequent changes in metabolic functions and other functions. The physical inactivity is, therefore, the lack of muscle contractions sufficient to stimulate the reconstruction, the lack of a sufficient increase in the metabolism and the lack of a sufficient amount of movements of a certain intensity, such as to require skills which allow to maintain the motoric control. In the sportive training this level of stimuli is defined physiological overload (Cirillo et al., 2016).

Practicing regular physical activity has a number of benefits, which are amplified if it is started in very young age, in overall terms and in terms of physical well-being (Altavilla, Di Tore, 2016). Many studies have provided evidence that various diseases are present mainly in people who do not normally perform a physical activity, compared to those that habitually practice a constant physical activity.

The frequency of these pathological conditions in inactive subjects has steadily increased in recent decades (Booth et al, 2002). Is it was found a clear relationship between the lack of physical activity and increased incidence of disease states, however, not due to factors such as age, gender, body fat, smoking, alcohol, the previous state health, education, income, etc... Were provided increasingly clear evidence that physical inactivity is a cause of serious problems for individual health. Physical activity remains the biological stimulus needed for the preservation of structures, of functions of the organs and systems, so that they can perform at the best their physiological tasks. And if health is conceived as energy for survival, for the physical performance, for cognitive and social life, then the adaptations due from the moderate activity, both in quantity for intensity, they improve health, reducing the risk of certain diseases, such as the type 2 diabetes, the overweight and obesity. The role of physical inactivity as a risk factor varies greatly from person to person and between the different pathologies, even if it remains a high risk factor for the start of the sarcopenia (loss of muscle mass) and osteoporosis in people elderly (bones brittle), while result a weaker risk factor for coronary heart disease and cancer.

The aim is to investigate the phenomenon and establish some significant aspects and deliver relationships between physical inactivity and the state of individual health. The method is the theoretical approach is founded for this study where the documentary research type and the argumentative one are joined according to social, psico-pedagogical paradigm of physical activity and sports.

## Discussion

At age 50, many people have already lost 10% of their muscle mass, while at 70 years it will have lost about 70%; as well as the loss of muscle strength is on the same proportions. This loss of muscle mass (sarcopenia) can be seen especially in physically inactive individuals, but also in those subjects who continued

to be physically active (Roth et al., 2000). The loss of muscle mass leads to serious consequences (Vandervoort and Symons 2001), in fact produces a deterioration in physical function (difficulty rising from a chair, climbing stairs, to make a brisk walking without losing balance). The precarious balance and the scarce muscle strength are important factors that can greatly increase the risk of falls. The probability of a functional decay, in older people who have a loss of muscle mass (moderate to severe), is respectively two and three times higher than in people without this condition (Janssen et al., 2002).

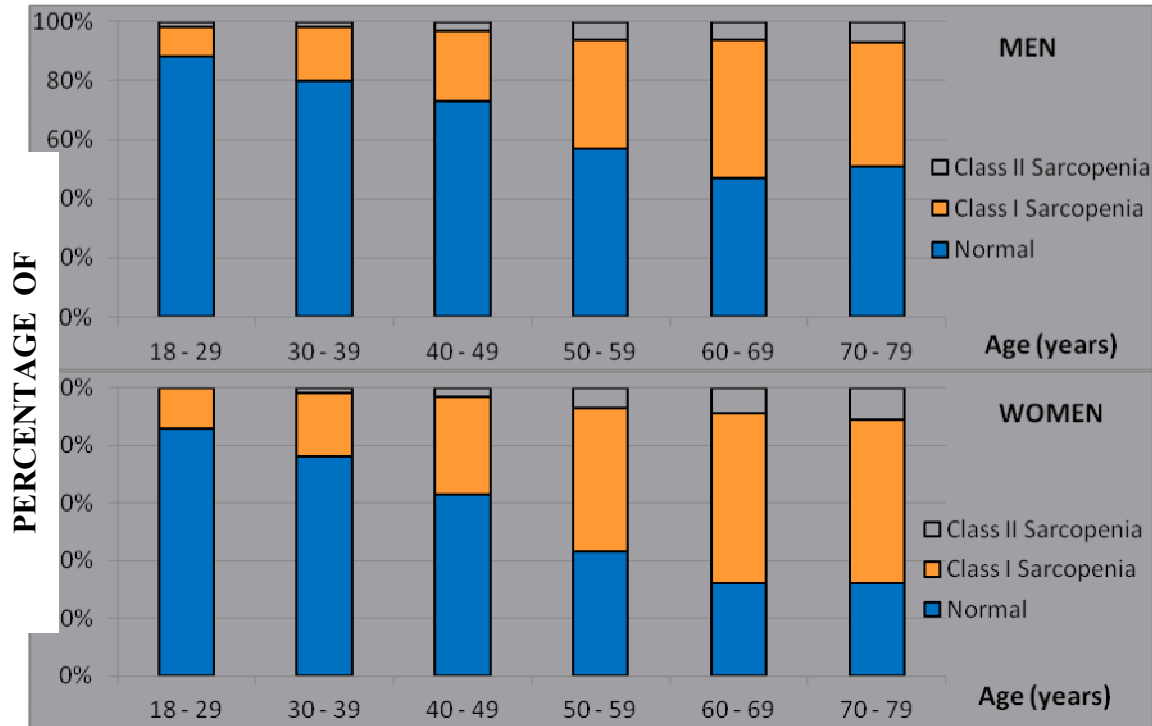


Fig. 1-2 The prevalence of men and women with a normal skeletal muscle index, class I sarcopenia, class II sarcopenia according to decade (Janssen et al., 2002).

The lack of a sufficient muscular force which causes tensile stresses and torsion on the bones accelerates the loss of bone tissue, increasing the risk of osteoporosis. The loss of bone tissue increases bone fragility and the risk of fractures, so you need to do prevention, own because it causes disability, pains, high treatment costs and mortality. Physical inactivity affects the risk of osteoporotic fractures, as it increases both the risk of osteoporosis that of falls (Rubenstein. 2006).

Cause	Mean percentage (%)	Range (%)
Accident/ environment-related	31	1-53
Gait/balance disorders or weakness	17	4-39
Dizziness/vertigo	13	0-30
Drop attack	9	0-52
Confusion	5	0-14
Postural hypotension	3	0-24
Visual disorder	2	0-5
Syncope	0,3	0-3
Other specified causes	15	2-39
Unknown	5	0-21

Fig. 3 - Cause of falls in elderly adults: summary of 12 studies that carefully evaluated elderly persons after a fall and specified a most likely cause (Rubenstein, 2006).

Physical inactivity increases the risk of fractures from osteoporosis because it increases the risk of falls. The risk of falls is greater due to factors such as poor muscle strength, poor joint mobility, unsteady gait and the poor balance; these factors are negatively affected by physical inactivity and positively by physical activity (Tinetti, 2003).

Prevalence of osteoporosis, ISTAT survey on health 1999-2000. For 100 persons of the same age and sex.

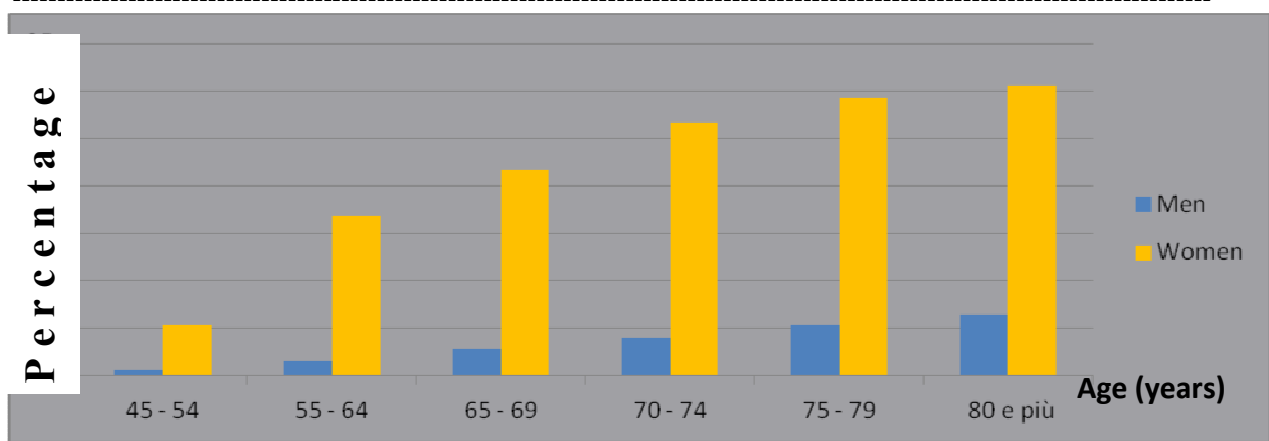


Fig. 4 - Farchi G. – Higher Health Institute, 2001 - epicentro.iss.it

The physical activity effects on growth and on bones is well known, in fact, temporary immobilization, for example, after a serious injury, makes hypotonic and untrained. Physical activity habitual and lengthy (also in adulthood) could provide a kind of insurance against cardiovascular disease (Altavilla et al., 2015b). The 70-85% of the Italian population experiences pain, muscle tension and the stiffness in the lower back. In school-age children has been detected an increase of back pain (Hakala et al., 2006), and it is unclear what the role of muscle strength and lack of regular physical activity, symptoms are positively correlated with the duration of the sitting position at school (Geldhof et al., 2007). The most common cause of overweight and obesity is the excess of energy intake, compared to its consumption. The risk of incur health problems increases only slightly in case of low or moderate overweight, but becomes significantly high in the case of obesity. With regard to obesity, the physical inactivity has important consequences on the health not only because it increases the risk of this condition, but also for the alterations on the metabolism. This is confirmed by several studies, that the risk of death from coronary artery disease and diabetes, for example, is greater in obese and physically inactive compared with obese subjects with a good physical condition (Stevens et al., 2002).

Diabetes type 2 (adult diabetes or non-insulin dependent) is a disease in continuous rising in many populations, is due, in addition to the genetic predisposition, also at environmental factors such as obesity, a sedentary lifestyle and a diet rich in saturated fats. Several studies have provided evidence that physical inactivity increases of 20-70% risk of developing type 2 diabetes (Solomon et al., 2001; Hu et al., 2003). The coronary artery disease or ischemic heart disease is characterized by the gradual clogging of the arteries and causes a gradual deterioration of the heart's pumping function. Coronary heart disease in the world, causes every year about 7.5 million deaths and more than 10 million heart attacks. The high incidence in many countries can be attributed primarily to three factors: an unhealthy diet, lack of physical activity and at smoking (Grundy, 1999). In sedentary individuals, compared to those who perform moderate exercise, the risk of coronary heart disease rose from 30 to 50%. The tumor is produced mainly from exposure to carcinogens contained in what a person eats, drinks or she breathes. It is estimated that the number of new cases in a year will increase from 10 million to 15 million in 2020 (WHO 2002). There is evidence significant that physical inactivity is associated at a risk of the 30-40% increased of colon tumors, as well as in women, the physical inactivity leads to an increase of 20-30% in the risk of breast cancer (Rintala et al., 2003). A limited or a lack of regular physical activity would lead to greater mortality from cancer (Tanaka et al., 2003). Several scientific studies have established that physical inactivity increases the risk of mortality, of which the largest component is represented by cardiovascular diseases (Lee & Skerret, 2001).

### Recommendations and suggestions

Scientific societies such as the American College of Sports Medicine and the Center for the Control and Prevention of the US disease (Centres for Disease Control and Prevention), have provided recommendations on how much exercise you should do to maintain the health status and reduce risk factors for a large number of diseases (Battistini et al., 2007). The persons physically inactive have a risk from 20% to 30% greater of mortality than those who follow the guidelines on the minimum necessary of physical activity from carry out (at least 30 minutes of physical activity at a moderate intensity for the highest number of days per week). Moving every day has positive effects on physical and mental health of the person. Several scientific studies confirm the beneficial effects and highlight that physical activity:

- Improves glucose tolerance and reduces the risk become ill of type 2 diabetes
- It prevents hypercholesterolemia and hypertension and reduces the levels of blood pressure and of the cholesterol
- Decreases the risk of developing heart disease and cancers, such as colon and breast

- Reduces the risk of premature death, in particular that caused by myocardial
- Prevents and reduces the risk of osteoporosis and fractures
- Reduces the symptoms of anxiety, stress and depression
- Prevents, especially among children and young people, risk behaviors such as use of tobacco, alcohol, unhealthy diets, violent attitudes and promotes psychological well-being by developing self-esteem, and facilitates the management of ' anxiety and stressful situations
- Produces energy expenditure and decreases the risk of obesity.

WHO recommends as a basic activity of the aerobic exercises, that is, those protracted and not excessive intensity, like brisk walking, running or pedaling. These should be integrated, 2-3 times a week, with power exercises, that is limited in time but more energetic,, to train muscle strength and strengthen your bones: they will not necessarily utilized complicated equipment, infact it is possible to stimulate the strength even at natural load, when it is the same weight of the body to act as a tool.

## Conclusions

The human being is born to get around: the movement is connate in him and a regular physical activity, even moderate, it helps to improve the quality of life. On the contrary, the lack of physical activity causes the onset of some of the disorders and diseases more common today: type 2 diabetes, cardiovascular disease (heart attack, myocardial infarction, stroke, heart failure) and certain cancers. There is a strong need to increase the levels of participation of all at the physical activities, sportive and amateur throughout life, in order to ensure a better quality of life for all, proposing health policies, school and sportive capable of involving the greatest number of people, to support even those who do not have the financial ability and to create new infrastructure in the less developed areas of Italy. The lifestyles of modern society and the importance of movement makes it essential, that in the context in which they live and develop, create opportunities for physical activity, increasing, for example, urban areas for games, creating safe bicycle paths and walking, using interior spaces of the palaces and opening the school gyms in the afternoon.

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