

The Journal of International Anatolia Sport Science
Vol. 6, No. 1, 2021



***PHYSICAL ACTIVITY AND WELLNESS**

¹ Halit EGESYOY, ² Hayrettin GÜMÜŞDAĞ, ³ Fatma ÜNVER, ¹ Eylem ÇELİK

¹ Pamukkale University Sport Sciences Faculty, Denizli, Turkey.

² Yozgat Bozok University Sport Sciences Faculty, Yozgat, Turkey.

³ Pamukkale University School of Physical Therapy and Rehabilitation, Denizli, Turkey.

RefNum	JIASS-30075
Manuscript Category	Movement and Training Science
Manuscript Type	Original Research
Rec.Date	03.03.2021
Corresponding Author	Hayrettin Gümüşdağ [hgumusdag06@hotmail.com] https://orcid.org/0000-0002-1616-8671

*This study was conducted by Burdur Mehmet Akif Ersoy University on 2-5 May 2018 soy 1. Presented as an oral presentation at the International Health Sciences and Life Congress.

doi: 10.5505/jiasscience.2021.30075

Abstract

Living conditions, technology and conveniences brought about by modernization, are making people less active on a daily basis. These changes, affect the health status of the people as the level of physical activity gradually decreases and consequently different health problems may occur. Regular exercise is the most effective method of protection from diseases. There is evidence in the literature about physical activity, cardiorespiratory status, muscle strength, metabolic health and bone health. There is strong evidence that mortalities, coronary heart disease, high blood pressure, paralysis, diabetes, metabolic syndrome, colon and breast cancer and depression are less common in more active individuals than in less active men and women. There is also strong evidence supporting a better cardiorespiratory and better level of muscular fitness in active individuals, a healthier and better body composition, effective cardiovascular disease and prevention of type II diabetes, and better bone health. It is also stated that regular physical activity with lifestyle modification plays an important role in preventing weight loss and reintroduction of given weight in obese individuals. Studies have shown that regular physical activity decreases the level of low-density lipoprotein (LDL), while that of high-density lipoprotein (HDL) increases. As a result, studies in the literature report a linear relationship between physical activity and health status and draw attention to the protective effect of exercise in the prevention of diseases. It is possible to obtain health benefits by appropriately adapting physical activities to age.

Key Words: Physical activity, Sport, Health, Life.

INTRODUCTION

Providing positive effects on people's physical and mental health; Physical activity, which is beneficial in both prevention and treatment of diseases, has a linear relationship with health (Warburton et al., 2006; Balboa et al. 2011). Physical activity has been shown to positively affect health-related quality of life (Balboa et al. 2011; Rhodes et al. 2012). It is also known that it reduces the risk of developing many diseases and provides social benefits by increasing social participation and social cohesion (WHO, 2010). Considering its effects, it has been reported that it reduces the risk of cardiovascular diseases, helps maintain healthy weight, reduces the risk of diabetes, reduces the risk of cancer, especially colon and breast cancer, helps to protect and develop muscular and skeletal health, provides psychological benefits and positive social effects (WHO, 2010). In addition to the prevention of various diseases and therapeutic benefits of physical activity, the increase in the quality and duration of human life increases the importance of physical activity (ACSM, 2009). Physical activity is defined as activities that occur with energy consumption using novices and joints in daily life, which increase heart and respiratory rate and result in fatigue of different severity. Various sports, including basic body movements such as walking, running, swimming, cycling, and arm-leg movements, dance, exercise, play, and activities during the day are considered physical activities (Pitta et al., 2006). Active life is a lifestyle in which physical activity is integrated into daily routines. The goal is to do at least 30 minutes of physical activity each day. Individuals can do this by means such as walking or cycling for transportation, participating in organized and casual sports activities, playing in the park, working in the garden, choosing to use stairs instead of elevators (Pitta et al., 2006). Health-related behaviors acquired at an early age can pose a risk for health problems that may occur later in life. Physical activity behaviors are also important among behaviors that positively affect people's lives and health status (Pitta et al., 2006). In line with this information, this review focuses on the importance, characteristics and effects of physical activity on health, while current studies on physical activity in the literature, especially in recent years, are included.

METHODS

In the study, qualitative research methods and document analysis were used as a data collection method for detailed examination and interpretation of physical activity and wellness studies published between 2004 and 2016. The data obtained were then analyzed by the content analysis method.

Physical activity and selection

Personal characteristics of individuals should be taken into account when choosing physical activity. Factors such as age, body weight, physical fitness, accessibility, individual requirements, economic status should be taken into account (Turkish Physical Activity Guide, 2014). The WHO recommends that people do physical activity for at least half an hour a week, with moderate intensity and about 150 minutes a week. The level of physical activity recommended by who for health is shown in Table 1 by age groups (Alpözgen and Özdiñler, 2016).

Table 1. Physical activity recommendations by age groups

Age Group	Type	Frequency	Duration	Violence
5-17 age	Aerobic exercises	7 days/week	Minimum 60 min/ day	Moderate to vigorous
	Strength exercises	At least 3 days/week	Vigorous	
18-64 age	Aerobic exercises	At least 10 minutes and more	At least 150 min min / week	HRR / VO2R 65-80 % or HR Max 80-90 % or 3000-3500 steps / 30 min.
	Vigorous Aerobic exercises	At least 75 min/week		
	Strength exercises	At least 2 days/week	For large muscle groups	
65 and over age	Aerobic exercises	At least 3 days/week	Individuals according to their general health should be as active as possible.	
	Strength exercises			
	Balance exercises			

HRR: Heart Rate Reserve; VO2R: Oxygen uptake reserve; HR maks: Maximal heart rate (WHO,2010)

Physical activity and characteristics

Physical activity differs from individual to individual depending on the purpose of the activity and the health and age of the individuals who do it. Before performing physical activity, the following elements should be taken into account.

1. Type of physical activity: physical activities can be classified as aerobic(endurance), strength, flexibility and balance activities (WHO, 2010).

2. Intensity of physical activity: refers to the amount of effort required in an activity. Exercise intensity can be expressed in absolute or relative terms. Absolute severity: is determined by the proportion of work done and individual physiological capacities are not taken into account. Absolute intensity for aerobic activity is typically energy consumption rate (ml/kg/min oxygen consumption or metabolic equivalent (MET) or kCal / min), activity rate for some activities (walking or running speed per hour, etc.) or physiological response (heart rate, etc.) is expressed as. At relative intensity, individual exercise capacity is taken into account and the violence is adjusted accordingly. Relative severity for aerobic activity can be expressed as an individual's maximal aerobic capacity (VO2max), oxygen consumption (VO2) Reserve percentage, or as a percentage of the individual's maximal heart rate. It can also be expressed as the degree of difficulty a person feels during exercise (on a scale of 0-10) (WHO, 2010). MET: means metabolic equivalent. 1 MET is the amount of energy spent sitting calmly. MET values are often used as a reference when determining the severity of physical activity. Oxygen used during physical activity is expressed in ml/kg/min. A weekly met minute score can also be obtained by multiplying the MET value and the duration of the activity(who,2010; Turkey Physical Activity Guide, 2014).

Physical activities are divided into three separate groups according to their severity: mild, moderate, and high violence. Moderate to severe activities are sufficient for maintaining and improving health (Turkish Physical Activity Guide, 2014) mild to severe activities are activities that require energy consumption below <3 meters according to the absolute measure. Moderate-intensity activities are activities that require energy expenditure between 3-6 meters according to the absolute measure or have 5-6 degrees of difficulty on a scale of 0-10 according to the relative measure. High-intensity activities are activities that require >6 meters of energy expenditure according to the absolute measure or have 7-8 degrees of difficulty on a scale of 0-10 according to the relative measure (WHO, 2010; Turkish Physical Activity Guide, 2014).

3. Frequency of physical activity: The number of weekly repetitions of the activity performed. It is usually expressed by set, session,or time (WHO, 2010). The most efficient results can be obtained when physical activity is performed by spreading to the days of the week. Frequency should be gradually increased over time (Bouchard et al. 2012).

4. Duration of physical activity: This is the period of time during which the activity is performed. It is usually expressed in minutes. In order to gain and maintain health, moderate-intensity activities are recommended for a total of 150 minutes per week in adult individuals. Duration, severity and frequency of exercise may vary according to age groups (WHO, 2010).

Physical activity and health studies

Regular exercise is one of the most effective methods of protecting against diseases. Evidence exists in the literature on the effect of physical activity on cardiorespiratory status, muscle strength, metabolic health, and bone health (Warburton et al. Nov., 2006). Mortality in individuals who are more active compared to less active individuals, coronary heart disease, high blood pressure, diabetes, metabolic syndrome, colon and breast cancer, and there is strong evidence of fewer sightings of depression (Warburton et al., 2007, Simon HB., 2015, WHO, 2015).

One of the earliest studies on FA was conducted among tailors and farmers in London and examined mortality rates from coronary heart disease. As a result of the study, it was determined that tailors had a greater risk of developing coronary heart disease due to the fact that they had a more sedentary lifestyle than farmers (Can et al., 2014).

In another study, a study conducted with double-decker bus drivers working in London and conductors actively cutting tickets found that physically active occupational groups had lower mortality rates from heart disease than sitting employees (Can et al., 2014).

Physical activity and obesity

In studies, the causes of obesity, differences between individuals and sexes, and physical inactivity are reported to be highly associated with obesity, and it is noted that regular FA combined with lifestyle changes play an important role in preventing weight loss and weight gain. However, it is emphasized that long-term, moderate-intensity aerobic exercise is important in the fight against obesity for body weight control in countries dominated by a diet that contains excess calories (Haskell et al., 2007, Donnelly, et al., 2009, Jakicic et al., 2010).

Physical activity and cancer

Regular moderate severe FA does not have any negative side effects on the immune system, but rather has beneficial effects, while inactivation has been reported to increase the risk of developing cancer by about 9-19%. In studies, 5 days a week, especially moderate activities reduce the risk of colon and breast cancer, which has the highest incidence, by about 20-40%, while recurrence rate decreases by 26-40%. Also different types of cancer different treatments performed, although individuals on exercise in cancer therapy to reduce fatigue, aerobic capacity, Nov strength, increasing flexibility, and mental health and quality of life provides a positive effect, it is noted that (Warburton et al., 2007, Friedenreich et al., 2010).

Physical activity and hypertension

Studies show that individuals with high levels of FA and physical fitness have a lower risk of hypertension and endurance exercises provide a decrease in blood pressure of about 5-7 mmHg (ACSM, 2009). However, regular aerobic exercise creates positive changes in body composition and insulin resistance, providing a regulating effect on blood pressure (Lakka and Laaksonen, 2007). It was determined that people who performed moderate aerobic exercise for at least 40 minutes per week had decreases in systolic blood pressure of 5 mmHg and diastolic blood pressure of 4 mmHg. (Reiner et al., 2013). In addition, it has been reported that lifestyle changes along with exercise play an important role in the prevention and treatment of hypertension (ACSM, 2009). Regular aerobic exercise, recommended as part of lifestyle changes to reduce cardiovascular risk, has been found to have a positive effect on lowering blood pressure (Tsai et al., 2004; Reiner et al., 2013).

Physical activity and osteoporosis

Osteoporosis is a metabolic bone disease caused by factors such as age, gender, nutrition, and sedentary lifestyle that occur with a decrease in bone mineral density. Nov-the health of the skeletal system, especially in the elderly, starting from adolescence research is important for functional independence in daily moderate and women combined (aerobic, strength, and balance) exercise and bone mass to prevent osteoporosis help by providing an increase in bone mineral density suggest that (Warburton et al., 2006; Nelson et al., 2007).

Physical activity and type 2 diabetes

The incidence of adult type (type 2) diabetes is rapidly increasing due to inactive lifestyle and eating habits (ACSM, 2009; Can and Ersoz, 2013). It is believed that this condition parallels the increase in obesity. But there is strong evidence that inactivity can also be caused. Studies show that the risk of diabetes with physical activity decreases by 33-50% in active groups. Hobby-style activities such as walking, cycling and gardening are associated with a reduced risk of diabetes (Can and Ersoz, 2013; Reiner et al., 2013). In Type 2 DM, nutrition and physical activity must be regulated together to ensure metabolic control. Diet and regular physical activity with weight loss, glycemic control can be achieved, as well as insulin resistance decreases. Exercise programs such as walking or cycling for 30-40 minutes three times a week have been shown to provide small, but significant improvements in blood sugar control in diabetes. (Lynch et al, 1996). In addition, it has been found that there is a significant reduction in the risk of developing Type 2 DM in women who exercise or walk effectively (Hu et al., 1999).

Physical activity and cardiovascular diseases

Heredity, age and gender play an important role in the emergence of factors such as cardiovascular diseases, while lifestyle factors such as nutrition and physical activity is important for prevention and treatment of such diseases (WHO, 2012). According to the National Burden of disease survey conducted in 2004, the mortality rate from cardiovascular diseases in our country was 47.7% (T.C. Ministry of Health Turkey disease burden study,2006) according to 2009 Organization for Economic Development and cooperation (OECD) data, cardiovascular diseases are responsible for 35% of deaths (who, 2012). Morris et al. (1950) with Paffenbarger et al. A study conducted by (1970) on men reported that physical activity had positive effects on coronary heart disease (Can et al.,2014). In this study, diseases associated with physical inactivity and the risks of relative death that develop due to any cause were evaluated, and it was noted that high levels of physical activity reduced cardiovascular risk factors by 20-35% (Can et al., 2014). Prior studies of the 2000's has created more intense physical activity only in recent years have adopted the opinion that the desired health benefits of regular walking, gardening, cycling indicate that moderate physical activity may reduce cardiovascular risk, such as light or opinions are proposed (Onat et al., 2007; Reiner et al., 2013).

Physical activity and mental health

It is noted that regular physical activity reduces symptoms of anxiety and depression, improves quality of life, improves social relationships, and improves self-confidence (ACSM, 2009; Lakka, and Laaksonen, 2007). Comprehensive studies of exercise for the treatment of patients anti-depressant effect that could have, however, exercise alone is not enough to without drug treatment in mental diseases, and Prevention of mental illness are among the suggestions that further studies were needed to the relationship of exercise (ACSM, 2009). According to this information, regular physical activity is used to prevent or treat many diseases, while physical activity recommendations for diseases with a high incidence in the world are given in Table 3.

Table 2. Physical activity recommendations for diseases with high incidence in the World

Diseases	Physical Activity Recommendations			
	Type	Frequency	Duration	Violance
Heart and vascular diseases	Aerobic activities	At least 3 days	Minimum 30 min / day	Aerobic % 40-60 & %60-85 HR Max Strength at least 8-10 movement, 8-15 reps, 1 sets
Osteoporosis	Aerobic activities and Strength exercises	Aerobics 3-5 days/week Strength 2-3 days/week	30-60 min/day aerobics and a combination of strength exercises	Aerobic % 40-80 HR Max Strength 1 RM %60-90; 6-12 reps, 2-3 sets
Hypertension	Aerobic activities and Strength exercises	Aerobics 3-7 days/week Strength 2-3 days/week	30-60 min / day continuous or intermit-tent	Aerobic % 40-60 HR Max Strength 1 RM % 60-80 at least 8-10 movement, 8-12 reps, 2-3 sets

Cancer	Aerobic activities and Strength exercises	Aerobics 3-5 days/week Strength 2-3 days/week	20-60 min/day	Aerobic % 40-60 HR Max Strength 1 RM % 40-60, 8-12 reps, 1-3 sets
Type 2 diabetes	Aerobic activities and Strength exercises	Aerobics 3-7days/week Strength 2-3 days/week	Total 150 - 300 min or 20-60 min/day per week	Aerobic % 50-80 HR Max Strength 1 RM % 60-80 at least 8-10 movement, 8-12 reps, 2-3 sets
Obesity	Aerobic activities and Strength exercises	Aerobics 5-7 days/week Strength 2-3 days / week	Total 150 per week- 300 min or 30-60 min/day	Aerobic % 40-75 HR Max Strength 1 RM % 60-80 at least 8-10 movement, 8-12 reps, 2-3 sets

HR maks:Maxsimal Heart Rate, RM: Reapatition Maximum (Can at al., 2014)

In accordance with these recommendations, exercise programs should generally increase endurance, muscle strength, flexibility and coordination, cover 5-10 minutes of warm-up and cooling down (Donnelly et al., 2009; ACSM, 2009).

Social Effects Of Physical Activity

Your individual health and, therefore, social health, physical activity habits, such as fun, low-cost and highly efficient acquisition, protected by gradually increasing costs and reducing health expenditures from the national budget, which holds a considerable share can be used as an effective tool in. Physically active individuals have better overall health status than inactive individuals, and reduced mobility and medical expenses (WHO, 2015). The table 2 is also given below shows some health data for countries.

Table 3. Health data by country

Country	Population	ExpectedAverage Life Expectancy (W/M)	Probability of death between 15-60 years (1/1000) (W/M)	Per Person Health Care Spending
Turkey	78.741.000	79 / 73	73 / 147	1036 \$
Greece	10.995.000	84 / 78	45 / 99	2098 \$
USA	321.774.000	87 / 77	77 / 128	9403 \$
Sweden	9.779.000	84 / 81	42 / 64	5219 \$
United Arab Emira-tes	9.157.000	79 / 76	57 / 81	2405 \$
Jameica	2.793.000	79 / 74	97 / 154	476 \$
Australia	23.679.000	85 / 81	44 / 74	4357 \$
Japan	126.574.000	87 / 80	38 / 73	3727 \$
Republic of China	1.400.000.000	78 / 75	71 / 98	731 \$

As seen in Table 3, the probability of death in our country between the ages of 15-60 is 73 per 1000 persons for women and 147 per 1000 persons for men. Health expenditure per capita is \$ 1036 (WHO, 2015).

DISCUSSION AND CONCLUSION

Considering the linear relationship between physical activity and health status, it is clear that physical activity is necessary at all ages in terms of human health. Regular physical activity is associated with a reduced risk of premature death and has a significant impact on the prevention and treatment of various chronic diseases. In order to positively affect both the health conditions and lives of individuals, social awareness should be increased and individuals of all ages should be encouraged to do regular physical activity.

REFERENCES

- Alpözgen, A.Z, Özdiñçler,A.R. (2013). Fiziksel Aktivite ve Koruyucu Etkileri:Der.(1):66-72.
- Balboa-Castillo, T., Leon-Munoz, L.M., Graciani, A., Rodriguez-Artalejo, F., Guallar-Castillon, P. (2011). Longitudinal association of physical activity and sedentary behavior during leisure time with health-related quality of life in community-dwelling older adults. *Health and quality of life outcomes*,9: 47.
- Başara,B.B.,Güler, C.,Eryılmaz, Z.,Yentür, G.K.,Pulgat,E. (2012). T.C. Sağlık Bakanlığı Sağlık Araştırmaları Genel Müdürlüğü Sağlık İstatist. Yıllığı 2011. Yayın No: 885, s. 25-36.
- Bouchard, C., Blair, S.N., Haskell, W. (2012). *Physical Activity and Health-2nd Edition*: Champaign IL: Human Kinetics Inc; p.345-357.
- Can, S., Ersöz, G. (2013). Tip 2 Diabetes Mellitus Tedavisinde Egzersizin Yeri ve Önemi, *Türkiye Klinikleri J Sports Sci*, 5(1): s. 29-38, 2013.
- Can, S. Arslan, E. Ersöz, G. (2014). Güncel Bakış Açısı İle Fiziksel Aktivite, *Ankara Üniv. Spor Bil Fak*, 12 (1), 1-10.
- Donnelly, J.E., Blair, S.N., Jakicic, J.M., Manore, M.M., Rankin, J.W., Smith, B.K. (2009). American College of Sports Medicine. American College of Sports Medicine Position Stand. Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults, *Med Sci Sports Exerc*, 41(2): pp. 459-71.
- Friedenreich, C.M., Neilson, H.K., Lynch, B.M. (2010). State of the epidemiological evidence on physical activity and cancer prevention, *Eur J Cancer*, 46(14): pp. 2593-2604.
- Haskell, W.L., Lee, I.M., Pate, R.R., Powell, K.E., Blair, S.N., Franklin, B.A., Macera, C.A., Heath, G.W., Thompson, P.D., Bauman, A. (2007). Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association, *Med Sci Sports Exerc*, 39(8): pp. 1423–1434.
- Hu, F.B., Sigal, R.J, Rich-Edwards, J.W., Colditz, G.A., Solomon, C.G., Willett, W.C., Speizer, F.E., Manson, J.E. (1999). Walking compared with vigorous physical activity and risk of type 2 diabetes in women: a prospective study. *JAMA*, 282(15):1433–9.
- Jakicic, J.M., Davis, K.K., Garcia, D.O., Verba, S., Pellegrini, C. (2010). Objective monitoring of physical activity in overweight and obese populations, *Physical Therapy Reviews*,15(3): pp. 163-169.
- Lakka, T.A., Laaksonen, D.E. (2007). Physical activity in prevention and treatment of the metabolic syndrome, *Appl Physiol Nutr Metab*, 32: pp. 76-88.
- Nelson, M.E., Rejeski, W.J., Blair, S.N., Duncan, P.W., Judge, J.O., King, A.C., Macera, C.A., Castaneda- Sceppa, C. (2007). Physical activity and public health in older adults, Recommendation from the ACSM and the American Heart Asso. *Circu.*, 116:pp. 1094-1105.
- Onat, A., Hergenç, G., Küçükdurmaz, Z., Bulur, S., Kaya, Z., Can, G. (2007). Fizik aktivitenin Türk yetişkinlerini metabolik bozukluklardan koruduğuna ilişkin ileriye dönük kanıt, *Türk Kardiyol Dern Arş – Arch Turk Soc Cardiol*, 35(8):s. 467-474.
- Pitka, F, Troosters, T, Probst, V.S., Spruit, M.A., Decramer, M., Gosselink, R. (2006). Quantifying physical activity in daily life with questionnaires and motion sensors in COPD. *Eur Respir J*, 27:1040-55.

Thompson, W.R., Gordon, N.F., Pescatello, L.S.(2009). ACSM's Guidelines for Exercise Testing and Prescription. American College of Sports Medicine. In: Thompson, 8th ed. Philadelphia: Lippincott Williams& Wilkins, pp.232-250.

Tsai, J.C., Yang, H.Y., Wang, W.H., Hsieh, M.H., Chen, P.T., Kao, C.C., Kao, P.F., Wang, C.H., Chan, P. (2004). The beneficial effect of regular endurance exercise training on blood pressure and quality of life in patients with hypertension. Clin Exp Hypertens,26(3):255-65.

Demirel, H., Kayıhan, H., Özmert, E.N., Doğan, A. (2014). Türkiye Fiziksel Aktivite Rehberi 2 ed. Ankara: T.C. Sağlık Bakanlığı, Kuban Matbaacılık Yayıncılık.

Warburton, D.E., Nicol, C.W., Bredin, S.S. (2006). Health benefits of physical activity: the evidence. CMAJ: Canadian Medical Association journal = journal de l'Association medicale canadienne Mar 14; 174(6): 801-809.

World Health Organization (2010). Global recommendations on physical activity for health. Geneva: WHO; [updated 2010 November 17; cited 2015 October 24]. Available

World Health Organization (2012). Noncommunicable diseases: A major health challenge of the 21st century, pp.35-36.