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Physical Activity in Children, Women and the Elderly People: Covid 19 Process

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Abstract

Sedentary lifestyle negatively affects health integrity as the fourth major risk factor causing deaths globally with the spread of non-communicable diseases such as high blood pressure, high blood sugar and obesity and the abandonment of physical movements due to increasing age. Regular physical activity at a moderate level is recommended for individuals to improve their health. Physical activity at a moderate level is the work done at a moderate pace for at least 30 minutes, which can make people sweat and noticeably increase the heart rate and breath rate. It is a tempo at which speech can be continued but a song cannot be sung while walking or moving. People exercise at a different intensity, frequency and duration. In order to overcome the problems stemming from the sedentary lifestyle, physical activities that people enjoy doing in their free time and participate voluntarily provide physical, mental, spiritual and social benefits. In order to ensure participation in physical and sports activities, the main duty of the people who manage sports is to increase participation in physical activity. With this study, suggestions were made for a common exercise prescription for the situations that may occur during the pandemic process for individuals including the children, women and elderly groups.

Introduction:

Efforts to increase physical activity in children and adolescents with the aim of creating a dynamic society have achieved significant success today (Dishnan *et al.*, 2018). Most of the interventions to increase the physical activity of children should be started in pre-school and school-age periods. These interventions include strategies such as changes in providing physical education, information sharing, and new training programs based on personal goal setting. Physical activity is associated with increased mental well-being, reduced risk of obesity, and lower blood pressure among children. Sedentary time may pose a threat causing non-communicable diseases but it is unclear whether this effect is independent of physical activity (Saridi *et al.*, 2019).

Physical activity (PA) is undoubtedly very important because it has many beneficial effects on physical, mental, and spiritual health and well-being. Physical exercise includes any muscle movement or activity that leads to calorie loss. Lack of physical activity causes 6% of deaths

worldwide while a previous study has revealed that the correct percentage is 9%. Despite the well-known benefits associated with physical activity, a significant amount of the global population is not physically active. The majority of adolescents (80%) aged 13–15 fail to regularly meet the goals recommended by WHO worldwide and 11% of the young people (11–15) are not physically active and this rate is 28% higher in the EU (Jago *et al.*, 2017).

The World Health Organization has reported that the global prevalence of physical inactivity for adults is 17% and 1.9 million deaths per year are associated with physical inactivity. A decrease in energy consumption is detected with the change in body composition and a decrease in physical activity with advancing age. Many researchers focus on what can be done to achieve the quality of life in the aging process (Sanli & Güzel 2009).

Globally, physical inactivity and poor mental health are among the most important risk factors for major disease morbidity. This situation applies not only to the general population but also to older adults and chronically ill populations who are especially at high risk of death from

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COVID-19. Physical activity for children and young people is closely related to school activities, active transport, and sports participation. As schools have been closed during the COVID-19 pandemic, this also jeopardizes physical activity participation and therefore increases the risk of longer-term sedentary behavior (Ammar *et al.*, 2020).

A sedentary lifestyle negatively affects health integrity as the fourth major risk factor causing deaths globally with the spread of non-communicable diseases such as high blood pressure, high blood sugar, and obesity and the abandonment of physical movements due to increasing age. Regular physical activity at a moderate level is recommended to improve health status. Physical activity at a moderate level is the work done for at least 30 minutes at a pace that can noticeably increase the heart rate and breath rate and make people sweat. It is a tempo at which speech can be continued but a song cannot be sung while walking or moving. People exercise at a different intensity, frequency, and duration. In order to overcome the problems stemming from the sedentary lifestyle, the main duty of the people who manage sports seems to be ensuring participation in physical and sports activities that provide physical, mental, spiritual, and social benefits, people enjoy doing in their free time and participate voluntarily (Çeker *et al.*, 2013).

It is well known that physical activity has health benefits even in elderly people when many physiological functions are reduced and it reduces susceptibility to chronic diseases of the cardiovascular and other systems. Exercise recommendations for elderly people vary according to individual needs and abilities that need to be matched to the type of activity in terms of intensity, duration, and frequency of exercise and depend on these abilities (Kozakiewicz *et al.*, 2019).

Resistance and balance training are required to improve functional ability and balance in elderly people. Exercises should be task-specific and performed at a high intensity (close to the individual's maximum capacity) with sufficient frequency and duration to achieve an optimal effect. In order to optimize the transition of motor learning concepts to daily life, it should be taken into consideration in balance training. In addition, the motivation of the individual to participate in exercise is important in terms of maintaining an exercise program, facilitating motor learning, and fulfilling exercise recommendations (Sondell *et al.*, 2019).

Results:

Child	Age	Flow Chart		
		Set	Repetition	Min
Wen, X.	3-5	1	5	10weeks/5days/20min
Altinkök.	5-6	-	-	16weeks/3 days/50min
Derer.	6-10	1	2	12weeks
Tompkins.	7-11	1	1	12weeks/3days
Jago.	8-9			5months/4days/30min

Table-1: Physical Activity Levels in Children

Age	Set	Repetition	Min	
Galapa.	9-11	3-5	2*	2 days/16weeks
Kelley.	12-18	1-3	1-7	4weeks
Taskin.	13-15	3	3	60min/ 7days
Lopez.	13-16	4	10	14weeks
Speer.	18<	3	8-10	30min/3days/2hours
Khawaja.	18<	3	6-10	60dk
Baltaci.	18<	2	8-10	30min/3-4 days

Table-2: Physical Activity Levels of Women

Women	Age	Set	Rep.	Min
Akgül.	23	30s	6	2weeks/3days
Dogan.	28	-	-	8weeks/60min/60 aerobic
Aktug.	20-30	30sn	5	8weeks
Glud.	36	3	10-12	12 weeks/60-75min/3days
Park.	20-40	-	-	12weeks/60min
Akbulut.	20-45	-	-	12weeks/30-45min/5days
Nowracka.	30-49	-	-	6days/60min
Parki.	47	-	-	12weeks/60min/3days
Mason.	50	-	-	5days/45min/12weeks

Table-3: Physical Activity Levels in Elderly People

Elder	Age	Set	Repetition	Min
Coelho.	60-75	8-10	3	1session
Bruseghini.	60-75	2	7	8weeks
Islegen.	60>	1-2		8-10/3-4days
Akandere.	65>	45dk.	3	8weeks
Kozakiewicz.	65>	30dk.	5	12months
Scheerman.	65>	60dk	24 sessions	8weeks
Thomas.	65>	3	10-12	16 weeks
Arslan.	65>	30dk.	15	3days/6weeks
Stathi.	65>	60dk	1	12weeks
Sondell.	84	2	5	16weeks

Discussion and Conclusion:

Exercise programs differ according to psychomotor periods and age groups in children which are prenatal period, infancy (0-2), early childhood (2-6), older childhood (6-12), adolescence (12,18) (Ataçoğlu & Gülbeyaz, 2019). Similarly, in our study, the period of menopause and post-menopausal period in women were considered separately. Women's life consists of five periods which are childhood, adolescence, sexual maturity, menopause, and old age (Yurdakul *et al.*, 2007). Old age has aspects such as physiological, psychological, and chronological. According to the World Health Organization, age periods are classified as follows: Individuals between 0-17 are called adolescents, individuals between 18-65 are called young, individuals between 66-65 are called middle-aged and individuals between 80-99 are called old.

Taskin & Özdemir (2018) stated in a review study on children aged 13-15 that the recommended exercise intensity should be applied as 60 minutes, 3 sets, and 3 repetitions every day per week.

Here are some of the notable suggestions from the relevant studies:

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Baltaci & Tedavi (2008) prepared an exercise prescription to be applied for children under 18 as 30 minutes, 2 sets, 8-10 repetitions, and 3-4 days a week.

Speer *et al.*, (2019) applied a training program consisting of 3 sets for 30 minutes, 8-10 repetitions, 3 days a week for children under the age of 18.

Jago *et al.*, (2017) applied an exercise program for children aged 8-9 years as 30 minutes for 4 days a week and 5 months.

Lopez *et al.*, (2019) used an exercise prescription for children aged 13-16 as 4 sets and 10 repetitions for 14 weeks.

Khawaja *et al.*, (2019) implemented a daily 60-minute training program consisting of 3 sets and 6-10 repetitions for children under the age of 18.

Kelley *et al.*, (2019) implemented a training program for groups of children aged 12-18 years, as 1-3 sets and 1-7 repetitions for 4 weeks.

Glopa *et al.*, (2018) conducted an exercise program for children between the ages of 9-11 as 2 days a week for 16 weeks with 3-5 sets and 2 repetitions.

Wen X *et al.*, (2018) implemented a program for young children between the ages of 3-5 as 20 minutes a week for 5 days and 10 weeks with 1 set and 5 repetitions.

Tomkins *et al.*, (2012) applied an exercise program consisting of 1 set and 1 repetition as 3 days a week for 12 weeks for children between the ages of 7 and 11.

Altinkök (2018) implemented a program as 50 min. daily for 16 weeks for children aged 5-6 who are in the early childhood period.

Derer & Balli (2018) applied an exercise program consisting of 1 set and 2 repetitions for 12 weeks for children between the ages of 6 and 10.

In the study on 26 women aged 36, Glud *et al.*, (2019) applied for an exercise program as 60-75 minutes daily, 3 days a week for 12 weeks with 3 sets and 10-12 repetitions.

Akbulut & Rakicioglu (2011), in their study conducted on 37 women between the ages of 20 and 45, created a training program as 30-45 minutes for 5 days a week for 12 weeks.

Nowrocka *et al.*, (2019) conducted an exercise program for 348 female participants aged 30-49 years as 6 days a week and 1 hour daily.

Park *et al.*, (2020) implemented a 60-minute training program for 12 weeks for 25 female participants between the ages of 20-40.

Parki *et al.*, (2019) applied a 60-minute exercise program for 3 days a week for 12 weeks for 35 female participants who are at the age of 47.

Mason *et al.*, (2019) created a training program for 439 female participants aged 50 years as 5 days a week and 45 minutes a day for 12 weeks.

Akgül *et al.*, (2016) implemented a training program for 10 female participants aged 23 years 3 days a week for 2 weeks with 6 repetitions for 30 seconds.

Dogan (2010), in his study on 20 female participants aged 28, implemented an aerobic training program for 60 minutes every day for 8 weeks.

Aktug *et al.*, (2019), implemented a training program for 50 female participants aged 20-30 as 30 seconds for 8 weeks with 5 repetitions.

Sandell *et al.*, (2019) applied an exercise program to 84-year-old individuals as 2 sets and 5 repetitions every day for 16 weeks.

Akandere (2007) applied for an exercise program 3 days a week, 45 minutes a day for 8 weeks in the study for participants older than 65 years.

Bruseghini *et al.*, (2020) used an exercise program consisting of 2 sets and 7 repetitions for 8 weeks in the study conducted for participants between the ages of 60-75.

Kazakiewicz *et al.*, (2019) applied for an exercise program 5 days a week and 30 minutes a day for 12 months in the study conducted for participants between the ages of 65-90.

Islegen (2015) stated that participants older than 60 years old should apply for an exercise prescription consisting of 1-2 sets and 8-12 repetitions 2-4 days a week.

Coelho *et al.*, (2017) applied a training program consisting of 8-10 sets, 3 repetitions, and 1 session in their study for participants between the ages of 60-75.

Scheerman *et al.*, (2018) applied a training program consisting of 24 sessions for 8 weeks (each session is 60 minutes) in their study with participants older than 65 yrs.

Thomas *et al.*, (2019) applied a training program consisting of 3 sets and 10-12 repetitions for 16 weeks in the study conducted with participants older than 65 years.

Stathi *et al.*, (2010) applied for an exercise program for 60 minutes and 1 repetition daily for 12 weeks in the study conducted with participants older than 65 years.

Table-4: Physical Activity Levels in studied subjects

Children	Women	Elderly People
Set: 8-10	Repetition :3-5	Min.:8weeks-5days-45min.

As a result of the study; an exercise program that can be jointly applied in children, women, and elderly people was organized.

It is recommended to direct individuals of all ages and professions to physical activity, spread the participation of physical activity to the whole society, and create the right sports policy based on a sufficient number of scientific researches.

References:

- Akandere, M. (2007): The effects of physical activities on life satisfaction levels of the elderly living in nursing home. *Selçuk Uni. J. Social Sci. Institute*, (18):1-9.
- Akbulut, G. & Rakicioğlu, N. (2011): Assessment of food and nutrient consumption status and some anthropometric measurements among overweight/obese women who have applied a low-calorie diet with or without physical activity

- during 12 weeks. *Tur. Klinikleri Cardiovasc. Sci.*, 23(1):29-39.
- Akgül, M.Ş., Gürses, V.V., Karabıyık, H. & Mitat, K.O.Z. (2016): The influence of 2 weeks of low- volume high - intensity interval training on aerobic indices. *Women Int. J. Sport Cult. Sci.*, 4(1):298-305.
- Aktuğ, Z.B., Murathan, F. & Dündar, A. (2019): Investigation the effect of b-fit exercises on anthropometric characteristics of women. *Gaziantep J. Sport Sci.*, 4(1):1-10.
- Ammar, A., Brach, M., Trabelsi, K., Chtourou, H., Boukhris, O., Masmoudi, L. & Müller, P. (2020): Effects of COVID-19 home confinement on eating behaviour and physical activity: Results of the ECLB-COVID19. *Int. Online Surv. Nutrients*, 12(6):1583.
- Ataçoğlu, M. & Gülbeyaz, K. The Effect Of Brain Fit® Exercises On Psycho-Motor Skills Development İn Children Between 4-18 Years Old. *Sakarya Uni. J. The Faculty Of Edu.*, (38):55-68.
- Baltacı, G. & Tedavi, F. (2008): Children and Sports . Ankara: Hacettepe University Faculty Of Health Sciences, Department Of Physical Therapy and Rehabilitation. First Edition: February.
- Bruseghini, P., Tam, E., Calabria, E., Milanese, C., Capelli, C. & Galvani, C. (2020): High intensity interval training does not have compensatory effects on physical activity levels in older adults. *Int. J. Envi. Res. Public Health*, 17(3):1083.
- Çeker, A., Çekin, R. & Ziyagil, M.A. (2013): Regular physical activity stages of behavior change in women and men from different age groups. *Cbü J. Physic. Edu. Sports Sci.*, 8(1):11-20.
- Coelho-Júnior, H.J., Irigoyen, M.C., Da Silva Aguiar, S., De Oliveira Gonçalves, I., Câmara, N.O.S., Cenedeze, M.A. & Uchida, M.C. (2017): Acute effects of power and resistance exercises on hemodynamic measurements of older women. *Clin. Intervent Aging*, 12:1103.
- Derer, A. & Ballı, Ö.M. (2018): elementary school students' motor proficiency level relationship with physical activity participation, age, gender and body mass index. *Hacettepe J. Sport Sci.*, 29(4):196-204.
- Dishman, R.K., Mciver, K.L., Dowda, M. & Pate, R.R. (2018): Declining physical activity and motivation from middle school to high school. *Med. Sci. Sports Exer.*, 50(6):1206.
- Doğan Günday, P. (2010): Investigating The Effects Of Aerobic Exercise On Anxiety In Women and Men. (Doctoral Dissertation, Deü Health Sciences İnstitute).
- Galan-Lopez, P., Domínguez, R., Pihu, M., Gísladóttir, T., Sánchez-Oliver, A.J. & Ries, F. (2019): Evaluation of physical fitness, body composition, and adherence to mediterranean diet in adolescents from estonia: the adoleshealth study. *Int. J. Envi. Res. Pub. Health*, 16(22):4479.
- Glapa, A., Grzesiak, J., Laudanska-Krzeminska, I., Chin, M.K., Edginton, C.R., Mok, M.M.C. & Bronikowski, M. (2018): The impact of brain breaks classroom-based physical activities on attitudes toward physical activity in polish school children in third to fifth grade. *Int. J. Envi. Res. Pub. Health*, 15(2):368.
- Glud, M., Christiansen, T., Larsen, L.H., Richelsen, B. & Bruun, J.M. (2019): Changes in circulating bdnf in relation to sex, diet, and exercise: a 12-week randomized controlled study in overweight and obese participants. *J. Obesity*, Article ID 4537274.
- İşleğen, Ç. (2015): Physical activity in elderly and its effect on diseases. *Ege J. Med.*, 54.
- Jago, R., Macdonald-Wallis, C., Solomon-Moore, E., Janice, L.T., Debbie, A.L. & Simon, J.S. (2017): Associations between participation in organized physical activity in the school or community outside school hours and neighbourhood play with child physical activity and sedentary time: a cross-sectional analysis of primary school-aged children from the uk. *Bmj Open*, 7(9):E017588.
- Kelley, G.A., Kelley, K.S. & Pate, R.R. (2019): Exercise and adiposity in overweight and obese children and adolescents: a systematic review with network meta-analysis of randomised trials. *BMJopen*, 9(11).
- Khawaja, I., Woodfield, L., Collins, P., Benkwitz, A. & Nevill, A. (2019): Exploring children's physical activity behaviours according to location: a mixed-methods case study. *Sports*, 7(11):240.
- Kozakiewicz, M., Rowiński, R., Kornatowski, M., Dąbrowski, A., Kędziora-Kornatowska, K. & Strachecka, A. (2019): Relation of moderate physical activity to blood markers of oxidative stress and antioxidant defense in the elderly. *Oxi. Med. Cell. Long.*, Article ID 5123628
- Mason, C., De Dieu Tapsoba, J., Duggan, C., Wang, C.Y., Alfano, C.M. & Mctiernan, A. (2019): Eating behaviors and weight loss outcomes in a 12-month randomized trial of diet and/or exercise intervention in postmenopausal women. *Int. J. Behav. Nutr. Physic. Act.*, 16(1):113.
- Nawrocka, A., Niestrój-Jaworska, M., Mynarski, A. & Polechoński, J. (2019): Association between objectively measured physical activity and musculoskeletal disorders, and perceived work ability among adult, middle-aged and older women. *Clin. Intervent. Aging*, 14:1975.
- Park, H.Y., Jung, W.S., Kim, J., Hwang, H. & Lim, K. (2020): Twelve weeks of aerobic exercise at the lactate threshold improves autonomic nervous system function, body composition, and aerobic performance in women with obesity. *J. Obesity Meta. Synd.*, 29(1):67.
- Park, K.M., Park, S.C. & Kang, S. (2019): Effects of resistance exercise on adipokine factors and body composition in pre- and postmenopausal women. *J. Exer. Rehabil.*, 15(5):676.
- Şanlı, E. & Güzel, N.A. (2009): Physical activity levels of the teachers and relation between age, gender and body mass index. *Gazi J. Physic. Edu. Sports Sci.*, 14(3):23-32.
- Saridi, M., Filippopoulou, T., Tzitzikos, G., Sarafis, P., Souliotis, K. & Karakatsani, D. (2019): Correlating physical activity and quality of life of healthcare workers. *Bmc Res. Notes*, 12(1):208.
- Scheerman, K., Raaijmakers, K., Otten, R.H.J., Meskers, C.G.M. & Maier, A.B. (2018): Effect of physical interventions on physical performance and physical activity in older patients during hospitalization: a systematic review. *Bmc Geriatrics*, 18(1):288.
- Sondell, A., Littbrand, H., Holmberg, H., Lindelöf, N. & Rosendahl, E. (2019): Is the effect of a high-intensity functional exercise program on functional balance influenced by applicability and motivation among older people with dementia in nursing homes? *J. Nutr. Health Ging*, 23(10):1011-1020.
- Speer, K.E., Naumovski, N., Semple, S. & Mckune, A.J. (2019):

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- Lifestyle modification for enhancing autonomic cardiac regulation in children: the role of exercise. *Children*, 6(11):127.
- Stathi, A., Gilbert, H., Fox, K.R., Coulson, J., Davis, M. & Thompson, J.L. (2012): Determinants Of Neighborhood Activity Of Adults Age 70 and Over: A Mixed-Methods Study. *J. Aging Physic. Activity*, 20(2):148-170.
- Taşkın, G. & Özdemir, F.N.Ş. (2018): The importance of exercise on children. *Gazi J. Physic. Edu. Sport Sci.*, 23(2):131-141.
- Thomas, E., Battaglia, G., Patti, A., Brusa, J., Leonardi, V., Palma, A. & Bellafiore, M. (2019): Physical activity programs for balance and fall prevention in elderly: A systematic review. *Med.*, 98(27).
- Tompkins, C.L., Hopkins, J., Goddard, L. & Brock, D.W. (2012): The effect of an unstructured, moderate to vigorous, before-school physical activity program in elementary school children on academics, behavior, and health. *Bmc Pub. Health*, 12(1):300.
- Wen, X., Zhang, Y., Gao, Z., Zhao, W., Jie, J. & Bao, L. (2018): Effect of mini-trampoline physical activity on executive functions in preschool children. *BioMed Res. Int.*, Article ID 2712803
- Yurdakul, M., Eker, A. & Kaya, D. (2007): Evaluating The Life Quality Of The Women In The Menopausal Period. *Firat Uni. J. Health Sci.*, 21(5):187-193.

