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Physical Activity: A Means of Enhancing Health and Well-Being of the Elderly in the Nigerian Populace

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Abstrak

Ketidakaktifan fisik dan ketidakaktifan menjadi merajalela di kalangan orang tua dalam populasi Nigeria. Alasannya dapat dilacak pada perubahan gaya hidup sebagai akibat dari pola makan, aktivitas sosial, dan orientasi. Sebagian besar lansia percaya bahwa mereka membutuhkan lebih banyak istirahat di usia mereka dan tidak boleh membuat tubuh mereka stres. Namun, pengalaman mengungkapkan bahwa banyak dari mereka mengalami gangguan kesehatan yang sebenarnya bisa dihindari jika mereka aktif secara fisik. Studi ini menganalisis penyebab ketidakaktifan, membahas pentingnya dan manfaat aktivitas fisik terhadap kesehatan dan kesejahteraan lansia di populasi Nigeria. Studi ini juga menganjurkan kebutuhan untuk terlibat dan aktivitas fisik dan jenis kegiatan yang bermanfaat bagi kesehatan orang lanjut usia. Studi ini menyimpulkan dengan menyarankan cara mengatasi hambatan yang teridentifikasi untuk partisipasi aktivitas fisik. Direkomendasikan bahwa para pemangku kepentingan seperti ilmuwan medis, paramedis, olahraga dan olahraga serta praktisi lainnya harus mengembangkan program untuk mengatasi masalah ketidakaktifan fisik dan memfasilitasi perubahan perilaku di kalangan lansia.

Kata kunci: Aktivitas Fisik, Meningkatkan Kesehatan dan Kesejahteraan, Penduduk Lanjut Usia Nigeria

Abstract

Physical inactivity and sedentariness are becoming rampant among the elderly within the Nigerian population. The reasons are traceable to changes in lifestyle as a result of diet, social activity and orientation. Most of the elderly believe that they need more rest out their age and should not subject their body to stress. However, experience has revealed that a lot of them experience health challenges that could have been averted if they were physically active. This study identified the causes of inactivity, addressed the importance and benefits of physical activity on health and well-being of the elderly in the Nigerian populace. The study also advocated for a need to engage and physical activity and the type of activities that are beneficial to the health of the elderly people. This study concluded by suggesting ways of overcoming identified barriers to physical activity participation. It was recommended that stakeholders such as medical, paramedical, sports and exercise scientists and other practitioners should develop programmes to address the problem of physical inactivity and facilitate behavioural change among the elderly.

Keywords: Physical Activity, Improving Health and Well-Being, Nigerian Elderly Population

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1. INTRODUCTION

The human body is designed for movement and physical activity. Physical activity refers to every effort that moves the body and burns calories (Bernard et al., 2021; Pilc, 2010; Schrauwen & Westerterp, 2000). Experts in preventive medicine have suggested that regular physical activity is one of the most important measures for improving our health as humans. According to previous study moderate to intense physical activity is seen as a necessary part of the well-being (Nadeem et al., 2020). It was also found that many of the health problems that seem to be with age can be avoided. It also strengthens muscle growth and improves daily activities without depending on others. No physical activity participation can be detrimental, irrespective of age or health status (Gill et al., 2013; Kruk et al., 2019; Rejeski et al., 1996). Health and well-being will increase with regular physical activity.

There are two types of physical activities are required each week to improve health, aerobics and muscle strengthening. The guidelines stated that adults require moderate-intensity aerobic activities (i.e. fast walking) at least deux hours and 30 minutes (150%) each

week and muscle reinforcement activities on two or more days a week that impact all major muscle groups (legs, hips, back, abdominal, chest, shoulder, and arms) (Foster & Armstrong, 2018; Landry & Driscoll, 2012; O'Donovan et al., 2010). In addition, it takes one hour and 15 minutes (75 minutes) of vigorous aerobic activity each week (i.e. jogging or running) and muscle strengthening activity every week on 2 or more days of week affecting all major muscle groups (legs, hips, the back, abdomen, chest, shoulders and arms) (Piercy et al., 2018; Yang, 2019).

It sounds like a lot of time to some 150 minutes each week (2 hours and 30 minutes), but most people spend the same time watching a movie. The reason for physical activity is the sustainability of life. The level of participation by individuals in physical activity varies greatly depending on personal lifestyles and other factors (Benedetti et al., 2018; Lee, P. G. et al., 2017; Tieland, M. et al., 2012). With correct guidance and orientation, the elderly can help to spread their activities throughout the week so that they don't have to do it all at once. During the day, you can even break it into intervals. Individuals need only plan what works best for them as long as they are active for at least 10 minutes on a stretch, at a moderate or vigorous intensity. However the program must be tailored to "age-appropriate" activities. This is because some physical activity is more suitable for a particular group of people (Broderick et al., 2014; Brown & Summerbell, 2009; Stubbs et al., 2018).

Therefore it is important to develop organized physical activity programs to improve public health benefits. The wellness concept focuses on lifestyle changes, including nutrition, physical activity, useful and reliable work and recreation. Previous study stressed that certain behaviors, including eating a healthy diet, maintaining a healthy body weight, resistance to harmful substances and being physically active, should be observed to achieve wellness (Sylvia et al., 2014). In African setting, physical activity patterns differ from rural to urban settings. Common activities for rural people include walking long distances to fetch firewood and water for home use as well as working in the field in order to earn a living (Banks-Wallace & Conn, 2002; Fleury & Lee, 2006; Joseph et al., 2015). Research has reported that physical activity contributes positively to increased longevity, enhanced work capacity, a healthy lifestyle and general wellbeing. According to previous study regular involvement in moderate to intense physical activity is seen as a necessary component of achieving and maintaining wellness (Steptoe & Wikman, 2011).

In African urban settings, physical inactivity/sedentary lifestyle is becoming common today; this is due to industrialisation, technological progress, urban planning and better mechanized transport. Overall, physical inactivity causes millions of deaths every year. Degenerative and cardiovascular heart disease are rampant in our society. Some of these deaths can be prevented if people are physically active (Lera-López et al., 2017; Strasser et al., 2018; Yemiscigil & Vlaev, 2021). The concept of wellness has evolved into the main ingredient of healthy living that includes lifespan physical activity, leaving behind an old, narrower concept of physical fitness. The holistic view suggests that social, mental and psychological problems are all connected, so that people can be well balanced not only in their work, play and social life. The lifestyle changes should be focused on, for example, nutrition, physical activity, good work and recreation (Dato et al., 2013; Diener & Chan, 2011). Wellness is more than physical health, it involves full physical, mental and spiritual well-being integrating. It is a complex interaction that improves the quality of life.

In addition, previous study identified well-being as an effort to remain healthy and to achieve the highest possible welfare potential (Accardi et al., 2019). Wellness essentially includes fitness, proper nutrition, stress management, disease prevention, social assistance, self-worth, drug control and non-smoking, regular physical exams, and health education, among others. Wellness should therefore include being physically active and healthy, not showing signs of illness, avoiding disease risk factors such as physical inactivity, excessive

stress, smoking and incorrect diets. The aims of this study is to analyze the causes of inactivity, addressed the importance and benefits of physical activity on health and wellbeing of the elderly in the Nigerian populace.

2. METHODS

This study is using SLR systematic literature review. The step of this study including search relevant databases such as PubMed, Scopus, and Google Scholar using the search terms developed. Then use Boolean operators (AND, OR) and truncation to refine the search. Also, include other relevant databases and grey literature such as conference proceedings, government reports, and policy documents. Screen the studies obtained based on the inclusion and exclusion criteria. Inclusion criteria could be studies that focus on physical activity, exercise, health, and well-being of the elderly in Nigeria. Exclusion criteria could be studies that focus on physical activity in younger populations, non-Nigerian populations, or studies that do not meet the research question.

Extract data from the studies that meet the inclusion criteria. This could include information such as the study design, sample size, population, intervention, outcome measures, and results. Then data was synthesize and analyze the data extracted from the selected studies. This could involve a qualitative or quantitative synthesis of the results. The analysis should address the research question and provide insight into how physical activity enhances the health and well-being of the elderly in the Nigerian populace. Interpret the findings from the analysis and discuss the implications for policy and practice. This could involve identifying gaps in the literature and recommendations for future research.

3. RESULTS AND DISCUSSION

Results

Physical Activity and Health

Routine physical work can help control bodyweight, decrease cardiovascular risk, type 2 diabetes and metabolic syndrome, cancer, enhancement of bone and muscle, improve mental health and mood, and increase life chances. To decrease body fat, exercise is essential, thus increasing muscle mass, which can be a significant phenomenon in reducing blood sugar levels. Training has been correlated with stress reduction as well. The author affirmed that marginally active individuals who were previously sedentary would gain the greatest health benefits. These benefits arise when the individual translates from a sedentary life into a moderately active life.

Four basic factors are included in the exercise prescription: mode or type of exercise, exercise frequency, duration and intensity of each exercise session. One or more modes of cardiovascular endurance operations, including jogging, walking, running and biking, should be the focus of the prescribed exercise program. Aerobic dancing is a more appealing alternative activity that encourages similar increases in aerobic endurance. Steps for boxes/benches, tennis rackets, squash, badminton. People should however be permitted to choose activities they enjoy and are prepared to enjoy throughout their lives. A major aspect is motivation in a good training program. The choice of a fun activity provides an avenue for the benefit of one of the significant tasks in the exercise prescription. The frequency of exercise is an important factor that should be considered in the prescription of exercise. The activity should in essence, be limited to three or four days per week at the beginning and increased to five or more days per week. Improvement in cardiovascular conditioning with a time of endurance exercise as short as five to ten minutes per day was observed during the

exercise span. Nevertheless, recent research has shown that 20 to 30 minutes is an ideal number and is representative of the greatest return on time spent.

Exercise duration cannot be discussed in isolation of exercise intensity. Exercise intensity happens to be the most important factor. How hard must an individual push him/herself to gain benefits? Similar improvements in aerobic capacity are gained with either a short duration high-intensity programme or a long duration; low-intensity programme. In isolation of exercise speed, exercise length cannot be addressed. The most significant factor appears to be exercise speed. How hard does a person have to drive him or herself to receive benefits? Similar gains in aerobic ability are accomplished with either a short-term program of high intensity or a long-term program of low intensity.

Control Your Weight

Looking to get to or stay at a healthier weight? Both diet and physical activity play a key role in regulating your weight. You gain weight because the calories you burn, even those burned during physical exercise, are less than the calories you eat or drink. When it comes to weight loss, people differ widely in how much physical activity they need.

Work your way up to 150 minutes of aerobic activity with moderate intensity, 75 minutes of aerobic activity with vigorous intensity, or an equivalent mix of the two each week. Scientific evidence shows that you can help maintain your weight over time through physical activity. However, since it varies greatly from person to person, the exact amount of physical activity needed to do this is not clear. To maintain your weight, you may have to do more than the equivalent of 150 minutes of moderate-intensity activity a week.

Unless you also adjust your diet and decrease the amount of calories you eat and drink, you will need a high level of physical activity. It takes both regular physical activity and a healthy eating plan to get to and stay at a healthy weight.

To reduce the Risk of Cardiovascular Disease

Two of the leading causes of death globally are heart disease and stroke. But following the guidelines and getting moderate-intensity aerobic activity for at least 150 minutes a week (2 hours and 30 minutes) can put you at a lower risk for these diseases. With more physical activity, one can lower the risk even further. Regular physical activity can also decrease blood pressure and boost levels of cholesterol.

Being physically active reduces the risk of two types of cancer: breast and colon cancer. Research demonstrates that: Physically active individuals are at a lower risk of colon cancer than individuals who are not active. Physically active women have a lower risk of breast cancer than non-active people do.

Physical Activity and Healthy Aging

In older adult, regular physical activity is one of the most important things to do to maintain and improve health. It can prevent many of the health problems that seem to come with age. Health benefits will also increase with the more physical activity that you do. Older adults need at least 2 hours and 30 minutes (150 minutes) of moderate-intensity aerobic activity (i.e., brisk walking) every week and muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms). Adults need at least 1 hour and 15 minutes (75 minutes) of vigorous-intensity aerobic activity (i.e., jogging or running) every week and muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms). Older adults should increase their activity to 5 hours (300 minutes) each week of moderate-intensity aerobic activity and muscle-strengthening activities on 2 or

more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

Regular physical activity is associated with lower mortality rates for both older and younger adults. Even those who are moderately active on a regular basis have lower mortality rates than those who are at least active. Physical activity is also imputed for maintaining muscle strength, joint structure, joint functioning and bone health.

Discussion

Given the health benefits of regular physical activity, we might have to ask why people are not active at recommended levels. Many technological advances and conveniences that have made our lives easier and less active, many personal variables, including physiological, behavioural, and psychological factors, may affect our plans to become more physically active (Cauffman et al., 2005; Schweiker et al., 2013). The most common reasons adults cite for not adopting more physically active lifestyles. Understanding common barriers to physical activity and creating strategies to overcome them may help one make physical activity part of one's daily life. In order to overcoming physical activity barriers it can be conducted by monitor your daily activities for one week. Identify at least three 30-minute time slots you could use for physical activity. Add physical activity to your daily routine (Lera-López et al., 2017; Yemiscigil & Vlaev, 2021). For example, walk or ride to work or shopping, organize school activities around physical activity, exercise while you watch TV, park farther away from your destination, etc. select activities requiring minimal time, such as walking, jogging, or stair climbing.

Explain your interest in physical activity to friends and family. Ask them to support your efforts. Invite friends and family members to exercise with you. Develop new friendships with physically active people (Thompson et al., 2010; van Sluijs, E. M. et al., 2011). Plan ahead make physical activity a regular part of your daily or weekly schedule and write it on your calendar. Invite a friend to exercise with you on a regular basis and write it on both your calendars. Join an exercise group or class. Learn how to warm up and cool down to prevent injury. Learn how to exercise appropriately considering your age, fitness level, skill level, and health status. Choose activities involving minimum risk. Select activities that require minimal facilities or equipment, such as walking, jogging, jumping rope, or calisthenics (Benedetti et al., 2018; Piercy et al., 2018). Identify inexpensive, convenient resources available in your community (community education programs, park and recreation programs, worksite programs, etc.).

Exercise with the kids-go for a walk together, play tag or other running games, get an aerobic dance or exercise tape for kids (there are several on the market) and exercise together. You can spend time together and still get your exercise (Broderick et al., 2014; Joseph et al., 2015). Jump ropes, do calisthenics, ride a stationary bicycle, or use other home gymnasium equipment while the kids are busy playing or sleeping. Try to exercise when the kids are not around (e.g., during school hours or their rest time).

At least 30 minutes of moderate-intensity aerobic activity 5 days per week for a total of 150 minutes per week or at least 25 minutes of vigorous aerobic activity 3 days per week for a total of 75 minutes; or a combination of moderate- and vigorous-intensity aerobic activity Moderate- to high-intensity muscle-strengthening activity at least 2 days per week for additional health benefits. For lowering blood pressure and cholesterol, an average 40 minutes of moderate- to vigorous-intensity aerobic activity 3 or 4 times per week will be ideal (Benedetti et al., 2018; Foster & Armstrong, 2018; Landry & Driscoll, 2012). From the foregoing there is a need for collaborative efforts among sports medicine practitioners, sports professionals and medical practitioners to design appropriate exercise programmes that will

address the needs of the general populace and tailored towards behavioural change especially among the adult and aging population.

The implications of this study suggest that physical activity can improve the health and well-being of elderly people in Nigeria, which can serve as a guide for society and government in encouraging physical activity among the older population. This research also highlights the importance of family and friend involvement in motivating parents to be more physically active, which can be used as the basis for social campaigns highlighting the role of family and society in encouraging physical activity. However, this study still has limitations, the subject of this study was carried out only in the elderly population in Nigeria, so it cannot be generalized to younger populations or to other countries. This study was conducted using a cross-sectional method, so it cannot determine a causal relationship between physical activity and the health of elderly people in Nigeria.

The researcher also made recommendations to all stakeholders, medical, Paramedical, sports and exercise science practitioners should adopt effective media advocacy programme targeted at enlightening, encouraging and educating the populace on the dangers of physical inactivity and the necessity for behavioural change towards physical activity participation. Then to government at all levels including philanthropists should play active part by providing community-based facilities that would assist in increasing physical activity participation among the populace. Last for community-based workshops and symposia should be organised by professionals where the benefits of regular physical activity participation will be highlighted and risk factor.

4. CONCLUSION

The best way to maintain a good cardiovascular health and general wellbeing is by adopting an active lifestyle. Regular exercise and other healthy habits have favourable impact on many of the established risk factors for CVD. The mortality due to physical inactivity could be reduced if the populace could embrace the benefits accruable from regular participation in physical activity. The huge amount spent on the management of degenerative diseases could be injected to develop the nation's economy. For instance it has been proved that exercise promotes weight reduction and can help reduce blood pressure.

5. REFERENCES

- Accardi, G., Aiello, A., Vasto, S., & Caruso, C. (2019). Chance and causality in ageing and longevity. *Centenarians: An Example of Positive Biology*, 1–21. https://link.springer.com/chapter/10.1007/978-3-030-20762-5_1.
- Banks-Wallace, J., & Conn, V. (2002). Interventions to promote physical activity among African American women. *Public Health Nursing*, 19(5), 321–335. https://doi.org/10.1046/j.1525-1446.2002.19502.x.
- Benedetti, M. G., Furlini, G., Zati, A., & Letizia Mauro, G. (2018). The effectiveness of physical exercise on bone density in osteoporotic patients. *BioMed Research International*. https://doi.org/10.1155/2018/4840531.
- Bernard, P., Chevance, G., Kingsbury, C., Baillot, A., Romain, A. J., Molinier, V., & Dancause, K. N. (2021). Climate change, physical activity and sport: a systematic review. *Sports Medicine*, 51, 1041–1059. https://doi.org/10.1007/s40279-021-01439-4.
- Broderick, J. M., Ryan, J., O'Donnell, D. M., & Hussey, J. (2014). A guide to assessing physical activity using accelerometry in cancer patients. *Supportive Care in Cancer*, 22, 1121–1130. https://doi.org/10.1007/s00520-013-2102-2.

- Brown, T., & Summerbell, C. (2009). Systematic review of school-based interventions that focus on changing dietary intake and physical activity levels to prevent childhood obesity: an update to the obesity guidance produced by the National Institute for Health and Clinical Excellence. *Obesity Reviews*, 10(1), 110–141. https://doi.org/10.1111/j.1467-789X.2008.00515.x.
- Cauffman, E., Steinberg, L., & Piquero, A. R. (2005). Psychological, neuropsychological and physiological correlates of serious antisocial behavior in adolescence: The role of self-control. *Criminology*, 43(1), 133–176. https://doi.org/10.1111/j.0011-1348.2005.00005.x.
- Dato, S., Crocco, P., D'Aquila, P., De Rango, F., Bellizzi, D., Rose, G., & Passarino, G. (2013). Exploring the role of genetic variability and lifestyle in oxidative stress response for healthy aging and longevity. *International Journal of Molecular Sciences*, 14(8), 16443–16472. https://doi.org/10.3390/ijms140816443.
- Diener, E., & Chan, M. Y. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being*, 23(1), 1–43. https://doi.org/10.1111/j.1758-0854.2010.01045.x.
- Fleury, J., & Lee, S. M. (2006). The social ecological model and physical activity in African American women. *American Journal of Community Psychology*, *37*, 129–140. https://doi.org/10.1007/s10464-005-9002-7.
- Foster, C., & Armstrong, M. E. (2018). What types of physical activities are effective in developing muscle and bone strength and balance? *Journal of Frailty, Sarcopenia and Falls*, *3*(2), 58. https://doi.org/10.22540/JFSF-03-058.
- Gill, D. L., Hammond, C. C., Reifsteck, E. J., Jehu, C. M., Williams, R. A., Adams, M. M., & Shang, Y. T. (2013). Physical activity and quality of life. *Journal of Preventive Medicine and Public Health*, 46(1), S28. https://doi.org/10.3961/jpmph.2013.46.S.S28.
- Joseph, R. P., Ainsworth, B. E., Keller, C., & Dodgson, J. E. (2015). Barriers to physical activity among African American women: an integrative review of the literature. *Women & Health*, 55(6), 679–699. https://doi.org/10.1080/03630242.2015.1039184.
- Kruk, J., Aboul-Enein, H. Y., Kładna, A., & Bowser, J. E. (2019). Oxidative stress in biological systems and its relation with pathophysiological functions: the effect of physical activity on cellular redox homeostasis. *Free Radical Research*, 53(5), 497– 521. https://doi.org/10.1080/10715762.2019.1612059.
- Landry, B. W., & Driscoll, S. W. (2012). Physical activity in children and adolescents. *PM&R*, 4(11), 826–832. https://doi.org/10.1016/j.pmrj.2012.09.585.
- Lee, P. G., J., Ackson, E. A., & Richardson, C. R. (2017). Exercise prescriptions in older adults. *American Family Physician*, 95(7), 425–432. https://www.aafp.org/afp/2017/0401/p425.
- Lera-López, F., Ollo-López, A., & Sánchez-Santos, J. M. (2017). How does physical activity make you feel better? The mediational role of perceived health. *Applied Research in Quality of Life*, *12*, 511–531. https://doi.org/10.1007/s11482-016-9473-8.
- Nadeem, A., Jalal, A., & Kim, K. (2020). Accurate physical activity recognition using multidimensional features and Markov model for smart health fitness. *Symmetry*, 12(11), 1766. https://doi.org/10.3390/sym12111766.
- O'Donovan, G., Blazevich, A. J., Boreham, C., Cooper, A. R., Crank, H., Ekelund, U., & Stamatakis, E. (2010). The ABC of Physical Activity for Health: a consensus statement from the British Association of Sport and Exercise Sciences. *Journal of Sports Sciences*, 28(6), 573–591. https://doi.org/10.1080/02640411003671212.
- Piercy, K. L., Troiano, R. P., Ballard, R. M., Carlson, S. A., Fulton, J. E., Galuska, D. A., & Olson, R. D. (2018). The physical activity guidelines for Americans. *Jama*, *320*(19),

2020-2028. https://doi.org/10.1001/jama.2018.14854.

- Pilc, J. (2010). The effect of physical activity on the brain derived neurotrophic factor: from animal to human studies. *Journal of Physiology and Pharmacology*, *61*(5), 533–411. https://www.academia.edu/download/67300321.
- Rejeski, W. J., Brawley, L. R., & Shumaker, S. A. (1996). Physical activity and healthrelated quality of life. *Exercise and Sport Sciences Reviews*, 24(1), 71–108. https://journals.lww.com/acsmessr/Citation/1996/00240.
- Schrauwen, P., & Westerterp, K. R. (2000). The role of high-fat diets and physical activity in the regulation of body weight. *British Journal of Nutrition*, *84*(4), 417–427. https://doi.org/10.1017/S0007114500001720.
- Schweiker, M., Brasche, S., Bischof, W., Hawighorst, M., & Wagner, A. (2013). Explaining the individual processes leading to adaptive comfort: Exploring physiological, behavioural and psychological reactions to thermal stimuli. *Journal of Building Physics*, 36(4), 438–463. https://doi.org/10.1177/1744259112473945.
- Steptoe, A., & Wikman, A. (2011). The contribution of physical activity to divergent trends in longevity. International Differences in Mortality at Older Ages: Dimensions and Sources. EM Crimmins, SH Preston, 193–216. https://books.google.com/books?hl=id&lr=&id=XWK-37X8CvIC.
- Strasser, B., Volaklis, K., Fuchs, D., & Burtscher, M. (2018). Role of dietary protein and muscular fitness on longevity and aging. Aging and Disease, 9(1), 119. https://doi.org/10.14336/AD.2017.0202.
- Stubbs, B., Vancampfort, D., Hallgren, M., Firth, J., Veronese, N., Solmi, M., & Kahl, K. G. (2018). EPA guidance on physical activity as a treatment for severe mental illness: a meta-review of the evidence and Position Statement from EPA. Supported by the International Organization of Physical Therapists in Mental Health (IOPTMH), 124– 144. https://doi.org/10.1016/j.eurpsy.2018.07.004.
- Sylvia, L. G., Bernstein, E. E., Hubbard, J. L., Keating, L., & Anderson, E. J. (2014). A practical guide to measuring physical activity. *Journal of the Academy of Nutrition and Dietetics*, *114*(2), 199. https://doi.org/10.1016/j.jand.2013.09.018.
- Thompson, J. L., Jago, R., Brockman, R., Cartwright, K., Page, A. S., & Fox, K. R. (2010). Physically active families-de-bunking the myth? A qualitative study of family participation in physical activity. *Child: Care, Health and Development*, 36(2), 265– 274. https://doi.org/10.1111/j.1365-2214.2009.01051.x.
- Tieland, M., Dirks, M. L., van der Zwaluw, N., Verdijk, L. B., Van De Rest, O., de Groot, L. C., & Van Loon, L. J. (2012). Protein supplementation increases muscle mass gain during prolonged resistance-type exercise training in frail elderly people: a randomized, double-blind, placebo-controlled trial. *Journal of the American Medical Directors* Association, 13(8), 713–719. https://www.sciencedirect.com/science/article/pii/S1525861012001788.
- van Sluijs, E. M., Kriemler, S., & McMinn, A. M. (2011). The effect of community and family interventions on young people's physical activity levels: a review of reviews and updated systematic review. *British Journal of Sports Medicine*, 45(11), 914–922. https://doi.org/10.1136/bjsports-2011-090187.
- Yang, Y. J. (2019). An overview of current physical activity recommendations in primary care. *Korean Journal of Family Medicine*, 40(3), 135. https://scholarcommons.sc.edu/sph_physical_activity_public_health_facpub.
- Yemiscigil, A., & Vlaev, I. (2021). The bidirectional relationship between sense of purpose in life and physical activity: a longitudinal study. *Journal of Behavioral Medicine*, 44(5), 715–725. https://doi.org/10.1007/s10865-021-00220-2.