



## **Analysis of Increasing Physical Fitness Through Physical Education after the Covid-19 Pandemic**

**Jamhari<sup>1</sup>, Trias Ramadhan<sup>2</sup>, I Made Dwi Sastra Wargama\*<sup>3</sup>**

<sup>1</sup> SMP Negeri 1 Sukagumiwang, West Java, Indonesia

<sup>2</sup> Universitas Majalengka, West Java, Indonesia

<sup>3</sup> Universitas Semarang, Central Java, Indonesia

### **Article Info**

Article History :

Received : March 2023

Revised : March 2023

Accepted : March 2023

### **Keywords:**

Covid-19,  
Physical Education,  
Physical Fitness,

### **Abstract**

Problems regarding physical fitness when allowed to return to activities outside the home after the implementation of work from home during the Covid-19 pandemic need attention for teachers at schools. The subject closest to fitness is physical education, bearing in mind that in physical education movement activity, movement quality, and movement skills are learning objectives that must be achieved. This research will provide an overview of the literature regarding how physical education can improve student fitness which is expected to lead to healthy and achieving students. This study uses a combination of interactive qualitative and non-interactive qualitative methods. The non-interactive qualitative method in this research is in the form of a literature review model or literature study. While the interactive qualitative method is in the form of interviews with students. The results of literature studies based on research published nationally and internationally show that fitness can be improved through correct movement habits. Movement habits at school can only be obtained by following physical education subjects. So that physical education can improve the fitness of students with motion activities. The motion in question is not just moving but improving the quality of the motion. Because with the increase in the quality of movement, the quality of life also increases. Interactive qualitative results are in line with literacy in which students feel an increase in fitness marked by the ability of students to carry out activities without feeling tired which means after the implementation of Physical Education at school. As a follow-up to this research, it is hoped that research related to increasing fitness through physical education will examine more about innovation in methods, models and strategies for learning physical education so that the physical education carried out is of good quality and even better.



\*Corresponding email : [sastrawargama@gmail.com](mailto:sastrawargama@gmail.com)

ISSN 2685-6514 (Online)

ISSN 2477-331X (Print)

## INTRODUCTION

Physical fitness is a person's ability to carry out activities without feeling significant fatigue (Syamsudin, 2021). Fitness is an important thing to consider in various activities. With a good level of fitness, humans can carry out various physical activities without experiencing problems such as fatigue. To have good fitness, of course, you have to pay attention to various factors that influence it. In general, physical fitness is influenced by two factors, namely internal and external (Arifin, 2018). Internal factors refer to factors that come from within the body and have an impact on the quality of one's fitness. Examples of internal factors that affect fitness are gender, genetics, age, and history of illness. While external factors that affect the quality of a person's physical fitness level are factors that can be changed, they are not permanent, such as forms of physical exercise, nutritional value consumed, and physical activity.

Physical activity is divided into three levels, namely low, medium and high. Along with the development of technology, everything is now more accessible and practical, supporting to speed up doing a job (Wargama et al., 2022). Especially in the world of education, physical activity is being categorized in the three levels above. This is determined based on the time of activities in school learning which takes approximately 6-8 hours. Within this period, children at school were given the obligation to participate in learning and education in the form of theory and practice. Starting from learning in class to practice in the field in sports subjects. With regard to physical fitness and education at school, then of course physical fitness is very closely related to the learning process. With good physical fitness, students can carry out every activity at school to the

fullest because they don't get tired easily (Sepriadi, 2017). The learning that is closest to physical fitness is physical education which is a subject in schools, both elementary, junior high and high school, which requires not only knowledge but also physical skills. However, at the beginning of 2020, the world was shocked by the status of the Covid-19 pandemic. During the Covid-19 pandemic, Indonesia became one of the countries that required all work processes to take place from home or known as "work from home". Likewise with the education sector which ultimately carries out learning that takes place at home. Thus, the physical activity of students becomes less compared to when learning takes place at school. Most of the activities of students at home are spent with virtual activities via the internet. This is because the form of face-to-face learning provides many opportunities for teachers to provide additional assignments for students because they feel they have more time at home.

This also applies to where the researcher works, namely at SMP Negeri 1 Sukagumiwang. Learning that contains physical activity activities is only on physical education subjects. Only physical education learning dominates the learning objectives with psychomotor. The big challenge as a physical education teacher is implementing physical learning with virtual methods. This will certainly have an impact on decreasing the physical fitness of students due to lack of movement activities. Although there are many factors that influence outside of physical activity, physical activity is the main focus in this research because physical education learning can increase fitness the most through physical activity and also researchers who work as physical education teachers. These assumptions and conjectures will be examined more deeply through this research so that later answers will be found on the question of how

students' physical fitness can be increased through physical activity.

Problems regarding the fitness of students arise and are of particular concern when learning begins to be carried out again at school. Student fitness is felt to be decreasing and in less condition. This was observed from the learning process which showed students often looked tired and less active. The most felt impact is on physical education learning which demands learning achievement on physical skills. Many students, because they are tired, do not move optimally. Erroneous movements greatly affect understanding and permanent movement skills. At junior high school age, the transition of characteristics between children towards the adolescent phase certainly requires special attention so that the growth and development of students can run optimally. If in this age phase errors in movement, physical activity, and healthy living habits are not good, then it is likely that it will affect their development towards adolescence. Junior high school students (SMP) are exploring the Formal Operational phase with special characteristics, namely thinking logically, starting to analyze things based on facts, and concluding things based on the information obtained (Wenno, 2010).

This research is important because the results of this study will give an idea of whether physical education learning can increase the fitness needed by students. The results of this study are expected to be generalizable to all educational institutions (schools) with the same level, namely Junior High Schools (SMP). If fitness has become a factor that must be prioritized then learning outcomes can increase and lead to an increase in good human resources for Indonesia in the future. So this research is important to do and publish. Supported by updated references, it makes the basis of this research strong in terms of drawing conclusions.

## METHODS

This study uses a combination of interactive qualitative and non-interactive qualitative methods. The non-interactive qualitative method in this research is in the form of a literature review model or literature study. The literature review model is the right method in this research because the literature that will be reviewed later is needed to answer research problems. The literature review research model is research conducted by combining descriptive and qualitative research. This study also presents data without manipulation and other additional treatments (Ridwan et al., 2021).

The results of the study of theories in the form of previous and relevant research results to be studied more deeply are then used as reinforcement from the results of the interactive qualitative data obtained. Interactive qualitative method with research subjects namely students of SMP Negeri 1 Sukagumiwang. This research has been carried out since the beginning of 2021 when the Covid-19 case decreased and schools were allowed face-to-face meetings until the results of this study were obtained. This is because literature review research will always develop and be updated because references in terms of research will also continue to be updated.

## Participants

This literacy research takes the results of previous studies selected based on the research theme, namely improving fitness through physical education. Physical education can also be interpreted as movement activities. The previous research used provides a very clear view directly related to efforts to improve physical fitness through movement activities. Improving fitness in students, elderly groups, and adaptive groups is closely related to what this research wants

to find. The subjects in this study were students of SMP Negeri 1 Sukagumiwang. Interview data from the subject will explain qualitatively related to the results of previous research. It is hoped that later the interview results will be valid evidence in supporting or rejecting the theory used.

### Design or Data Analysis

The determination of literacy used must be sourced from accredited national journals and Scopus indexed international journals. The results of the research used are the results of research related to the benefits of fitness in education both in schools, children with disabilities and the elderly group. Determination of literacy is devoted to several studies that have the main topic in research variables but are reviewed from different subjects and have different perspectives. The results of research that are used as literacy can only be desired by researchers, so prioritize literacy that is directly related to the topic but with a different point of view (Firmansyah, 2022). If the design of the study is complex or the stimuli require detailed description, additional subsections or subheadings to divide the subsections may be warranted to help readers find specific information.

This qualitative method was taken because it was in accordance with the research objectives, namely wanting to know the role of physical education in increasing fitness from the point of view of research subjects who were students at SMP Negeri 1 Sukagumiwang. Relevant previous research studies will certainly support the theory that will be concluded in the research results. Based on the literacy assessment carried out, it is also hoped that later this research will be able to be generalized in various regions because the references in the literature review used are universal. Interactive qualitative data which aims to see the views of students regarding the

relationship between physical education and fitness. Data obtained from research subjects in interactive qualitative research can be in the form of documentaries, videos, interviews, and statements (Nur & Utami, 2022). However, in this study, all of the data obtained came from interviews between researchers and students as subjects. The questions asked related to physical activity during learning activities at home, comparisons with activities when they started being active at school, to differences in physical condition (fitness) between learning activities at home and when they entered school.

## RESULT

The ideas and concepts to be explained in this study are increasing physical fitness through activities carried out in physical education learning. The presentation of the results of the literature review of several articles originating from accredited national and international articles is as follows.

**Table 1.** List of International Journals on the Linkage of Fitness with Physical Education and Health

No	Author and Year	Research Title	Journal Name and Publication Index
1	Xiangyu Zhai, Mei Ye, Qian Gu, Tao Huang, Kun Wang, Zuosong Chen & Xiang Fans, 2020(Zhai et al., 2022)	The relationship between physical fitness and academic performance among Chinese college students	Journal of American College Health ,Q2
2	Cheng-Chen Pan & Scott Mcnamara, 2020(Pan & Mcnamara, 2022)	The Impact of Adapted Physical Education on Physical Fitness of Students with Intellectual Disabilities: A Three-year Study	International Journal of Disability, Development and Education, Q2
3	Rismayanthi, C., Sugiyanto, Kristiyanto, A., & Doewes, M, 2022(Rismayanti et al., 2022)	Psychological-based Physical Exercise Education Model for Improving Elderly Physical Fitness	International Journal of Education in Mathematics, Science and Technology, Q3

The three studies above explain the relationship between physical fitness and physical education and health from different perspectives. Xiangyu Zhai's first article entitled The relationship between physical fitness and academic performance among Chinese college students, published in 2022 in the journal Journal of American College Health (Q2), explains that poor student achievement is closely related to low physical fitness. This study used a qualitative research method with subjects consisting of 2,324 students representing three Chinese universities.

Subsequent research from Cheng-Chen Pan, published in 2020 in the journal International Journal of Disability, Development and Education (Q2), explains how physical activity at school can improve fitness which leads to increased academic achievement in students with disabilities. It was emphasized in the article that if you want to improve your physical and academic abilities more significantly, a series of sports can be played because sports activities are very effective and recommended.

The third research is from Rismayanthi in 2022 which was published in the journal International Journal of Education in Mathematics, Science and Technology (Q3). This research was conducted with a research sample of the elderly age group. The results of the study show that long-term exercise consisting of weight training, balance and functional exercises is very beneficial for the elderly.

**Table 2.** List of National Journals on the Linkage of Fitness with Physical Education and Health

No	Author and Year	Research Title	Journal Name and Publication Index
1	Ibn Darmawan, 2017 (Darmawan, 2017)	Efforts to Improve Students' Physical Fitness Through Physical Education	Journal of Educational Inspiration, S3
2	Pulung Riyanto, 2020 (Riyanto, 2020)	Contribution of physical activity, physical fitness to physical education learning outcomes	Journal Of Physical And Outdoor Education, S4
3	Feryandi Liandra Hermawan, Oni Bagus Januarto, Gema Fitriady, 2021 (Hermawan et al., 2021)	The Influence of Indonesian Circuit Training on Physical Education Level Fitness Volleyball Extracurricular at State High School 1 Tumpang	Physical Education Center, S3

The three studies in the national journal above illustrate the link between physical fitness and education and health. The first research from Ibnu Darwan, which was published in 2017 in the Journal of Educational Inspiration, is the first reference on a national scale to be included in this study. The research conducted by Ibnu is considered interesting because the results of his research show a rejection of statements regarding the link between physical education and student fitness levels. Based on the data in the article, the quality of physical fitness of students in Indonesia is in poor condition even though physical education is an important subject.

The second study from Pulung Riyanto, published in 2020 at Journal Of Physical And Outdoor Education Provide an explanation of the relationship between physical activity in physical education learning can improve students' physical fitness. Especially if the physical activity in physical education learning is well programmed in the learning design.

The third research from Hermawan et al which was published in 2021 in the journal Indonesian Physical Education Center. This research was taken as one of the studies that will be used as a reference in drawing conclusions later because this research provides evidence that increased physical activity outside school hours such as extracurriculars can have a good impact on students' physical fitness. The example given in this article is a circuit training method which is highly adaptable in physical education learning at school. The various literacy results above are then explained by expressing the opinions of experts in the field of fitness which will later strengthen the conclusions in this study. In addition to the references described above, several research results will also be cited as comparisons and several book references in the field of fitness and physical education will strengthen the results of this research later.

The results of interviews with students found that during the Covid-19 pandemic the physical activity carried out at home was very minimal. Activities most often done in the morning by sunbathing to boost immunity. The rest, most activities are carried out at home with minimal movement. Finally what is felt by students is that they get tired faster in carrying out strenuous activities. One of the strenuous physical activities during a pandemic and learning activities at home were physical education subject assignments from school. The results of subsequent interviews related to physical activity after being allowed to do learning at school. Many students compare physical education between at home and when it is done at school. A significant comparison was felt by students because the implementation of physical education learning at school students were very active in movement and interaction with friends so that the resulting movement activities were more and more effective

because they were also supervised by the teacher. Students also feel fitter after learning physical education in schools that are more active. In the end, students acknowledged that physical education learning carried out in schools with good movement activities in physical education learning was able to improve their fitness.

## DISCUSSION

The purpose of this study was to find out how the process of physical education in schools is able to improve students' physical fitness which leads to increased student achievement at school by examining various appropriate literacy supported by data from interviews with students to draw conclusions later. The urgency of research is the condition after the Covid-19 pandemic which had required the learning process to take place at home. Researchers as educators (teachers) in the field of physical education feel the need to examine the theoretical linkages of the implementation of physical education learning in schools so as to improve student fitness. This is because physical education is the most dominant subject and has the goal of learning physical skills and movement activities. As it is known that good fitness will give our body the opportunity to have more energy to do activities. In addition, by improving one's physical fitness, the body's immune system will certainly increase and is expected to be a solution to efforts to break the chain of the Covid-19 virus. Regular physical activity and sports are one of the components in increasing body immunity (Kholis, 2021).

In the learning process at school, physical education subjects are subjects that have learning outcomes in the form of movement skills. The role of physical education is an integral part of education through physical activity which aims to improve individuals organically,

neuromuscularly, intellectually and emotionally through human movement which can be in the form of physical activity, games or sports to achieve educational goals.(Mustafa & Sugiharto, 2020). Based on the above understanding, the role of physical education in education is very large. Important points such as neuromuscular which explains the connection between muscles and nerves, intellectuals related to thinking skills, to the emotional level of students and mental maturity are all included in the indicators that must be achieved in physical education.

In addition to the components above, the quality of movement produced in physical education learning, especially at the elementary, junior high, or high school levels, is very likely to be permanent. Because it is at school age, children will recognize their own abilities in terms of the quality of movement and will then become a habit so that the results tend to be permanent. Given the important role of physical education on student growth and development in terms of the quality of movement, innovation in physical education learning is deemed necessary. In addition to understanding the concepts and objectives of mature learning, innovation is also needed to improve the quality of learning(Qomarrullah, 2015).

The various literacies used in this study focused on research results from articles published in accredited national and international journals. The first finding is from Xiangyu Zhai et al in 2022 which explains the close relationship between student fitness and academic achievement. In this study, it was explained that groups of students with good fitness levels tended to have good academic achievements. These results support the theory put forward by Darmawan (2017), namely efforts to improve students' physical fitness can be done through physical

education. In addition to the statement above, Darmawan provided input to educators on physical education subjects as well as policy makers in education to modify the number of hours of physical education lessons to three meetings a week. Besides that, improvement and strengthening of physical education teaching strategies is also needed to improve the quality of physical education. Thus it can be concluded that physical education is closely related to fitness. Subsequent research from Chen-chen Pan et al in 2020 which explains that fitness can have an impact on physical and academic abilities in students with disabilities. The application of active learning in motion and sports games can significantly improve physical and academic abilities. The correct motion habituation method will encourage students with disabilities to continue exploring their physical abilities. This literacy provides an overview of what is sought in research, namely the linkage of physical education to fitness which leads to academic achievement. If in the disability group correct movement habits can improve fitness and physical and academic abilities,

The third study from Rismayanthi et al in 2022 strengthens two previous studies regarding the role of movement activity on fitness which leads to health. If the first study was conducted on normal students, the second study on students with disabilities, then this study took research samples that were in the elderly category (elderly). As a result, movement becomes a very important component in improving fitness and health. Even simple movements like stretching before going to sleep or when you wake up have a positive impact. You can imagine if simple movements applied continuously can have an impact, especially when the truth of movement in larger activities becomes a culture and habit. Then the resulting

impact will also have a greater impact on fitness and health.

Literacy from national and accredited publications in this study took three studies that had been published in accredited national journals. Research from Pulung Riyanto 2020 explains the impact that physical activity has on fitness. In the results of the study it was stated that the effect of physical activity is not only temporary but can be in the long term. Research from Ibnu Darmawan in 2017 actually provides a statement that the physical education provided at school has not had enough effect on increasing students' physical fitness. However, Darmawan further explained that this was due to the lack of hours of physical education lessons. In addition, physical education teachers must be more innovative in implementing learning strategies so that physical education learning achievements that refer to movement skills can be achieved. If these two factors are improved then physical education is able to achieve one of its goals, namely the physical fitness of students.

Subsequent research from Hermawan et al in 2021 provides a broader view regarding the application of circuit training training patterns that contain physical activity to improve fitness in extracurricular participants. It was explained that physical activity during physical education lessons was felt to be insufficient to have a significant impact on fitness and this supports Darmawan's previous research. However, the solution offered by Hermawan is to provide policies from educational institutions to add extracurricular activities and structured training programs that will greatly support student fitness. So that a statement can be made that the literacy taken in this study all explain fitness from different sides but have the same goal, namely student fitness.

The next step carried out by the researcher was to use an interactive qualitative descriptive method by conducting interviews with students. 92% of subjects stated that physical activity at home when the study from home policy was implemented was minimal. Activities at home do more schoolwork involving computer devices so they rarely move for the learning process at home. Meanwhile, 8% of the subjects answered that there was quite a lot of physical activity at home during the pandemic. In fact, 8% of students who are still active at home turn out to be helping their parents in their work such as making crafts and cleaning the house. When they returned to school, the subject as a whole gave a uniform view that physical activity during school learning was much more than studying at home. Fatigue in the first week of face-to-face school became a complaint of all research subjects. The application of a new culture or "new normal" does not give students the freedom they had before the Covid-19 pandemic occurred. However, because the study time at home is quite long, learning activities at school make a significant difference. The subject then explained that of all the lessons learned, it was physical education subjects that made the most real difference. From initially only understanding sports theory without freely practicing it, now it can be done on the school field. The impact on fitness that is actually felt by the research subjects is after carrying out the Mid Semester Exams or approximately three months of learning being carried out. Fatigue, as you felt when you first returned to school activities, is no longer felt.

In the end, the subjects as a whole gave a statement that with their fitness which had begun to increase as a result of physical education, their bodies tended to get sick less easily. This statement supports Mashud's 2016 statement that being in good shape will be very important



for students and teachers to carry out their daily routines in order to get the desired goals and achievements. Teachers and students who are fit must be healthy, with a fit body condition the sickness will go away, the number of absences from school due to illness for both teachers and students will decrease even and automatically the teacher's performance will increase and student learning achievement will also increase (Mashud, 2016). The descriptive narratives from the various literacies above illustrate how the linkages between physical activity included in the physical education learning process have a positive impact on student fitness. The results of qualitative data from interviews with subjects also clearly explain the impact of physical activity on physical education subjects which gives them fitness so they don't get tired easily and don't get sick easily. The results of this study support various similar studies, one of which is research conducted by Tian et al in 2016, namely the involvement of students in physical education contributes to increasing physical abilities which are very useful when carrying out daily activities and lead to increased achievement (Tian et al., 2016).

The results of this study are very possible to generalize because the theories used come from diverse backgrounds and are universal. The results of this study also strengthen the results of previous studies regarding the role of physical education in improving fitness. Thus the role of physical education is very important as an effort to increase achievement and health as explained by Bakhtiar 2016, namely physical education plays an important role in educating students as a whole. The importance of motion education in educating the body and soul can have a positive impact on student achievement academically and student movement patterns (Bakhtiar, 2016).

## CONCLUSION

Physical education has a close relationship with the level of physical fitness of students. With physical education that contains improving the quality of movement as a learning goal, it is very likely that fitness will increase. When fitness is no longer an obstacle, students will be able to participate in learning to the fullest. As a result, achievement in both movement and academic skills will also increase.

The follow-up of this research is the need for innovation in the form of methods, models, and learning strategies so that more attention is paid to movement activities in physical education learning. Because good quality of movement can improve the quality of life. Life is motion, motion is the characteristic of life. Maintaining movement is maintaining life, increasing the ability to move is increasing the quality of life (Wijayanto, 2020). In addition to providing innovation in learning methods, models and strategies, what can be done after knowing the importance of physical education in improving fitness is to add student activities related to motion. Such as the addition of extracurricular activities in the field of sports. If student fitness increases then achievement will follow. With proud achievements, Gold Indonesia 2045 can easily be realized.

## REFERENCES

- Arifin, Z. (2018). Pengaruh Latihan Senam Kebugaran Jasmani (SKJ) Terhadap Tingkat Kebugaran Siswa Kelas V di MIN Donomulyo Kabupaten Malang. *Al-Mudarris: Journal Of Education*, 1(1), 22–29.
- Bakhtiar, S. (2016). Identitas Pendidikan Jasmani: Kaitannya Dengan Ilmu Keolahragaan. *Prosiding Seminar Nasional Pendidikan Jasmani Pascasarjana UM*, 1–8.

- Darmawan, I. (2017). Upaya meningkatkan kebugaran jasmani siswa melalui penjas. *Jurnal Inspirasi Pendidikan*, 7(2), 143–154.
- Firmansyah, D. (2022). Teknik Pengambilan Sampel Umum dalam Metodologi Penelitian: Literature Review. *Jurnal Ilmiah Pendidikan Holistik (JIPH)*, 1(2), 85–114.
- Hermawan, F. L., Januarito, O. B., & Fitriady, G. (2021). Pengaruh Circuit Training Terhadap Tingkat Kebugaran Jasmani Indonesia Ekstrakurikuler Bolavoli SMA Negeri 1 Tumpang. *Gelanggang Pendidikan Jasmani Indonesia*, 5(1), 89–97.
- Kholis, M. N. (2021). Menjaga kebugaran jasmani dan imunitas sebagai pemutus mata rantai covid-19. *Journal of Physical Activity (JPA)*, 2(1), 8–17.
- Mashud, M. (2016). Model sekolah berwawasan kebugaran jasmani. *Multilateral: Jurnal Pendidikan Jasmani Dan Olahraga*, 15(1).
- Mustafa, P. S., & Sugiharto, S. (2020). Keterampilan motorik pada pendidikan jasmani meningkatkan pembelajaran gerak seumur hidup. *Sporta Saintika*, 5(2), 199–218.
- Nur, A., & Utami, F. Y. (2022). Proses dan Langkah Penelitian Antropologi: Sebuah Literature Review. *Ad-Dariyah: Jurnal Dialektika, Sosial Dan Budaya*, 3(1), 44–68.
- Pan, C.-C., & Mcnamara, S. (2022). The impact of adapted physical education on physical fitness of students with intellectual disabilities: A three-year study. *International Journal of Disability, Development and Education*, 69(4), 1257–1272.
- Qomarrullah, R. (2015). Model Aktivitas Belajar Gerak Berbasis Permainan Sebagai Materi Ajar Pendidikan Jasmani. *Journal of Physical Education, Health and Sport*, 2(2), 76–88.
- Ridwan, M., Suhar, A. M., Ulum, B., & Muhammad, F. (2021). Pentingnya Penerapan Literature Review pada Penelitian Ilmiah. *Jurnal Masohi*, 2(1), 42–51.
- Rismayanthi, C., Sugiyanto, S., Kristiyanto, A., & Doewes, M. (2022). Psychological-based Physical Exercise Education Model for Improving Elderly Physical Fitness. *International Journal of Education in Mathematics, Science and Technology*, 10(1), 162–174.
- Riyanto, P. (2020). Kontribusi aktifitas fisik, kebugaran jasmani terhadap hasil belajar pendidikan jasmani. *Journal of Physical and Outdoor Education*, 2(1), 117–126.
- Sepriadi, S. (2017). Pengaruh Motivasi Berolahraga Dan Status Gizi Terhadap Tingkat Kebugaran Jasmani. *Jurnal Penjakora*, 4(1), 77–89.
- Syamsudin, S. (2021). Survey Tingkat Kebugaran Jasmani Anggota Komunitas Bola Basket PJKR Unmus Pasca Pemberlakuan New Normal Pandemi Covid-19. *Musamus Journal of Physical Education and Sport (MJPES)*, 4(01), 113–123.
- Tian, Y., Jiang, C., Wang, M., Cai, R., Zhang, Y., He, Z., Wang, H., Wu, D., Wang, F., & Liu, X. (2016). BMI, leisure-time physical activity, and physical fitness in adults in China: results from a series of national surveys, 2000–14. *The Lancet Diabetes & Endocrinology*, 4(6), 487–497.
- Wargama, I. M. D. S., Soegiyanto, S., & Hadi, H. (2022). Semarang Citizens' Culture And Psychosocial Behavior In Physical Activity At The Fitness Center. *JUARA: Jurnal Olahraga*, 7(1), 90–103.
- Wenno, I. H. (2010). Pengembangan model modul IPA berbasis problem solving method berdasarkan karakteristik siswa dalam pembelajaran di SMP/MTs. *Cakrawala Pendidikan*, 2(2).
- Wijayanto, A. (2020). Strategi Pembelajaran Pendidikan Jasmani, Olahraga dan Kesehatan selama Pandemi Covid-19. *Akademia Pustaka*.
- Zhai, X., Ye, M., Gu, Q., Huang, T., Wang, K., Chen, Z., & Fan, X. (2022). The relationship between physical fitness and academic performance among Chinese college students. *Journal of American College Health*, 70(2), 395–403.