

Achievement of learning volleyballs: Correlation between mental hygiene and the level of physical fitness

Rola Angga Lardika^{labcde*}, Daharis^{2abd}, Ardiah Juita^{lab}, Zainur^{lab}

Universitas Riau, Indonesia¹
Universitas Islam Riau, Indonesia²

Received: 03 May 2021; Accepted 28 June 2021; Published 07 December 2021
Ed 2021; 6(3): 367-376

ABSTRACT

Mental hygiene and physical fitness are very important concerning volleyball learning achievement. This study aims to determine volleyball learning achievement which is correlated with (mental hygiene) and level of physical fitness. This research is a type of quantitative research with a correlation approach. The population in this study was 78 students of class 1A, Department of Physical Education, Health, and Recreation, Universitas Riau. The author will use only a portion to represent the existing population. The sampling technique of this research is purposive sampling. The number of samples is 40 people. Methods of data collection uses survey methods with test and measurement techniques. The statistical analysis method used in this study is multi-correlation. It is using a regression analysis test because it analyzes the relationship of more than 2 test variables. The instrument used was a test of physical fitness, mental health questionnaire test, and the results of learning achievement scores of volleyball subject. The mental hygiene instrument has a validity level of 0.595 and a reliability level of 0.522. while physical fitness instruments are adopted of the Indonesian Physical Fitness Test. Test and measurement data were processed using the multiple regression analysis methods. Based on the research results, it can be concluded that physical fitness and mental hygiene have a significant relationship with volleyball learning achievement. These results explain the importance for educators to be able to pay attention to students to improve volleyball learning achievement through providing subject matter by paying attention to physical fitness, using group games to instill a social spirit, sportsmanship, and students' confidence.

Keywords: Learning achievement; volleyball; mental hygiene; physical fitness

 [https://doi.org/10.25299/sportarea.2021.vol6\(3\).6513](https://doi.org/10.25299/sportarea.2021.vol6(3).6513)

OPEN  ACCESS 

Copyright © 2021 Rola Angga Lardika, Daharis, Ardiah Juita, Zainur

Corresponding Author: Rola Angga Lardika, Department of Physical Education, Health and Recreation, Faculty of Teacher Training and Education, Universitas Riau, Pekanbaru, Indonesia
Email: rolaanggalardika@lecturer.unri.ac.id

How to Cite: Lardika, R. A., Daharis., Juita, A., & Zainur. (2021). Achievement of learning volleyballs: correlation of mental hygiene and the level of physical fitness. *Journal Sport Area*, 6(3), 367-376. [https://doi.org/10.25299/sportarea.2021.vol6\(3\).6513](https://doi.org/10.25299/sportarea.2021.vol6(3).6513)

Authors' Contribution: a – Study Design; b – Data Collection; c – Statistical Analysis; d – Manuscript Preparation; e – Funds Collection

INTRODUCTION

Education is generally defined as a process in which a person masters knowledge, skills, and attitudes during his life. In this case, education affects the way humans adapt from birth to death. More or less a person obtains an education, which is the result of human development towards maturity (Lardika & Tulyakul, 2020). One of the efforts to create a human form that has the knowledge, skills, physical, and spiritual health is through education (Kautzner & Junior, 2018). Even though the law already exists, it does not mean that physical education and health, especially in sports, have been properly implemented at all

levels and types of education. In a study conducted by [Mansfield et al., \(2021\)](#) it was found that there was a substantial reduction in the physical condition and mental health after physical activity. More research is needed to determine whether this reduction reflects changes in disease frequency or missed disease opportunities ([Lacheta et al., 2021](#)). Maintaining health should be a top priority in future public health planning, including further restrictions ([Cvetković et al., 2018](#)). In practice, at school, there are many obstacles whose results are less than optimal and proportional to what is expected ([Hakked et al., 2017](#)). Healthy life skills education is the cultivation of habits that include physical health in the form of physical fitness levels, mental, and social health ([Ranasinghe et al., 2016](#)). The existence of the motto "Men Sano in Corpore Sano" which is the life motto of the Romans, the impression is that a healthy body is considered a presupposition or Sine Quom Condition, which is in the form of a "perfect human being", related to two elements that in a healthy body there is a healthy soul as well ([Abalasei, 2014](#)). This shows that a normal or healthy person with healthy mental health is relatively close to the ideal body and spiritual integrity, which is a division of only two elements between body and soul ([Mazic et al., 2015](#)).

With mental health, it can be identified with efficient characteristics, having clear life goals, having a healthy self-concept and high concentration, there is coordination between all potential and efforts, having personality integrity, and a mind that is always calm ([Nicolai Ré et al., 2016](#)). Education is not only related to the addition of knowledge but also in the form of skills, attitudes, skills, understanding, self-esteem, interests, character, and self-adjustment ([Milanović et al., 2019](#)). It is clear that it concerns all aspects of the organism and the behavior of a person's personality, thus it can be said that learning is a series of mental and physical, psychophysical activities towards the direction of the development of the whole human person, which means that it involves the elements of creativity, taste and intention, the cognitive, affective domains, and psychomotor ([Sujarwo et al., 2018](#)). From this definition, it can be interpreted that learning is a process that involves behavior, sequences of events, and results. The student subject must make something or a situation reaction that affects him. Learning depends on what the student is doing, this concerns how he thinks, feels, and acts. The result of learning is a behavior change ([Fovet et al., 2020](#)). Individuals who do sports will grow healthy and without feeling reluctant in carrying out other activities ([Lardika & Arni, 2019](#)). The enthusiasm for learning also grows in these students. With no feeling of laziness, this is certainly a positive effect in the form of being physically and mentally healthy ([Ardiyanto et al., 2020](#)). On the other hand, some students do not like sports activities, especially in participating in volleyball ([Lardika & Arni, 2019](#)).

In these children, there is a desire to participate in sports, but a feeling of inferiority, fear, sweat, fear of being wrong, this is due to insecurity. Physical fitness is generally distinguished in its application function, as follows in terms of health, in terms of physiology, physical fitness is the ability and willingness of the body to make adjustments (adaptations) to the physical being given to it without causing significant fatigue ([Hammami et al., 2018](#)). Meanwhile, according to [Parvathy \(2014\)](#), the meaning of physical fitness in skills is a person who has physical fitness is a person who has sufficient strength (strength), ability (ability), ability, creative power, and endurance to do his job efficiently without causing significant fatigue. In longitudinal studies, the education improvement of learners is a category of educational performance and is considered an indicator of their mental health. Recent studies have shown that twenty percent of Iranian youth and adolescents suffer from some form of mental disorder ([Ghooshchy et al., 2020](#)). Besides, learning difficulties, inability to concentrate, difficulty studying and remembering exam material, inability to participate in group activities, and class activities are signs of mental disorders ([Powell et al., 2021](#)). Physical fitness concerns the ability of a person's body to adapt to physical changes caused by certain work and describes a person's health status for various levels of physical health ([Ellenberger et al., 2020](#)). As adulthood is a period of growing the stability of several personality dimensions as it approaches the end of adolescence, it can be said that research is important in this phase. Thus researchers will research education and mental health. Based on the above opinion, it is clear that every physical activity (physical activity is subject to a load) requires a level of physical fitness which is supported by bodily physiology which in turn will change physical fitness. Physical freshness gives a person the ability to lead a productive life and is adaptable to any type of physical activity ([Coma & Cook, 2018](#)).

Mental hygiene and physical fitness issues are very important about learning achievement (McGregor, 2017). Research conducted in Iran, it seems clear that physical exercise is effective in physical growth and mental hygiene (Kaartinen et al., 2019). The researchers explain that the next inevitable pandemic will be a mental health pandemic. The Covid-19 pandemic has worsened the mental hygiene that exists in the lives of many people, especially in the education sector, people with disabilities, people with chronic illnesses, and those who are economically disadvantaged (Hall et al., 2021). The growth and development of movement have characteristics from physical and physiological maturity as well as development and interest in physical activity (Mansfield et al., 2021). It can be seen that to be able to do a job requires mental and physical conditions that are following the work level (Mansfield et al., 2021). This research is important to do because, with our mental health, we can identify good and bad traits, clearer life goals, a healthy self-concept, high concentration, and coordination between potential and the integrity of one's personality. From several of the studies described above, no research specifically addresses volleyball activities that are related to the mental health and physical fitness of students. While mental health and physical fitness are required in student learning activities, especially amid the COVID-19 pandemic as it is today. Volleyball as one of the subjects of the college curriculum needs further study so that the learning is more empirical in its actualization. Based on this assumption, the author has an interest in exploring the relationship between volleyball learning activities and various other aspects.

METHOD

This research is a type of quantitative research with a correlation approach. In this case, there is a correlation between the level of physical fitness and mental hygiene with learning achievement for volleyball. Research, especially in empirical sciences, generally aims to find, develop, or test the truth of knowledge (Milanović et al., 2019). Finding means trying to find something to fill a void or deficiency. Based on the title and the problems suggested by the authors, this study is a correlation study with a quantitative approach. In this case, there is a correlation between the level of physical fitness and mental health with physical education learning achievement (Sciamanna et al., 2017).

The population in this study is all students in semester 1 of Physical Education and Health Research Center, Riau University, totaling 78 people. The author will use only a portion to represent the existing population. The number of samples will also be influenced by the limitations of time, energy, and costs that are owned by the researcher. The sampling technique in this study is purposive sampling with a sample size of 40 people.

Table 1. Research Population

Class	Quantity
1A	40
1B	38
Total	78

According to Fraenkel and Wallen on (Asaeda, 2019), there is no definite measure of the number of a representative sample. Nonetheless, they recommend several pointers as follows:

Table 2. Minimum Number of Samples Based on the Type of Research

Types of Research	Minimum Number of Samples
Descriptive / Survey	100 subjects
Correlation	40 subjects
Experimental / causal-comparative	30 subjects or 15 subjects with very tight control

In this study, retrieval of data on the level of physical fitness through a skill test with guidance (TKJI), Indonesian Physical Fitness Test, Center for Physical Fitness and Recreation. While for mental hygiene researchers used a direct questionnaire method with a closed-form. Respondents choose alternative answers

that have been provided with their opinions. The mental hygiene instrument has a validity level of 0.595 and a reliability level of 0.522. There are two (2) alternative answers, each of which has a score, as follows:

Table 3. Questionnaire Assessment

Answer	Positive	Negative
Yes	1	0
No	0	1

Source: Mental health questionnaire assessment

The statistical analysis method used in this study is multi-correlation using a regression analysis test because to analyze the relationship of more than 2 test variables. The analysis uses correlation, namely the statistical term which states the degree of a linear relationship between the variables of the study which consists of more than two variables, namely two independent variables and one dependent variable, then data analysis uses Multiple Regression Analysis.

RESULTS AND DISCUSSIONS

After getting a clear flow in the research method, the next step is data analysis. To find out the results of this study, the collected data must be processed first. The initial steps in data analysis are as follows;

Physical Fitness Test

After obtaining data from the test results and filling out the questionnaires that have been carried out, namely the Physical Fitness Level test with the guide (TKJI) Running 40 m, Sit Up for 30 seconds, Hanging Elbow Bending 60 seconds, Vertical Jump, and running 600 m, and Health Test Mental with filling out questionnaires and volleyball achievement scores:

Table 4. Physical Fitness Level Test Results

No	Total Value	Category	Total Test Scores	Criteria	Percentage
1	22-25	VG	8	Very Good	20%
2	18-21	G	27	Good	67.5%
3	14-17	M	3	Moderate	7.5%
4	10-13	L	2	Less	5%
5	5-9	VL	-	Very Less	-
Total			40		100%

Based on the table and diagram above, the categories of students' physical fitness levels are as follows: (1) There are 8 people or 20% of students who have a physical fitness level in the Very Good category. (2) There are 27 people or 67.5% of students have a good category of physical fitness. (3) There are 3 people or 7.5% of the students have a moderate level of physical fitness. (4) There are 2 people or 5% of the students who have a physical fitness level in the category of less. So it can be seen that the category of the student's physical fitness level is in the very good category of 20%, good 67.5%, moderate 7.5%, and in the less category 5%. So in general, students can be classified into the good category.

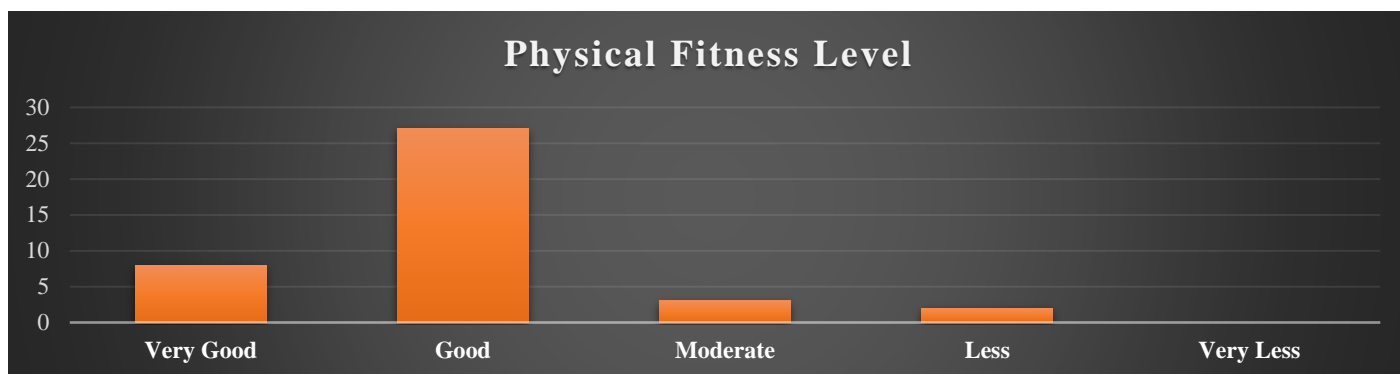


Figure 1. Descriptive Physical Fitness Data

Based on the table and diagram above, the categories of the physical fitness level of Physical Education Students 1A are as follows: There are 8 people or 20% who have a very good category of physical fitness. There are 27 people or 67.5% have a good level of physical fitness. There are 3 people or 7.5% who have a moderate level of physical fitness. There are 2 people or 5% who have a physical fitness level in the category of less. So in general it can be classified in the good category.

Mental Health Test Results

In this case, there is a correlation between the level of physical fitness and mental hygiene with learning achievement. After calculating using a fitness test, the results of the mental health test will be presented. To make it easier to find out the results can be seen in Table 5 below:

Table 5. Results of Mental Health Research

Number of Students	The Number of Student Scores Above the Average is Mentally Healthy	Average Volleyball Value	Number of Students	The Number of Student Scores Under the Average is Mentally Healthy	Average Volleyball Value
34	69.33	83.57	6	23.27	69.42

Source: Mental health questionnaire research results and learning achievement (2020)

From table 5, based on the research data, 34 students had mental health above the average of 69.33, while 6 students who had mental health below the average were 23.27 so that it can be taken the percentage of students who have mental health above the average of 85%, while students who have mental health are below the average of 15%.

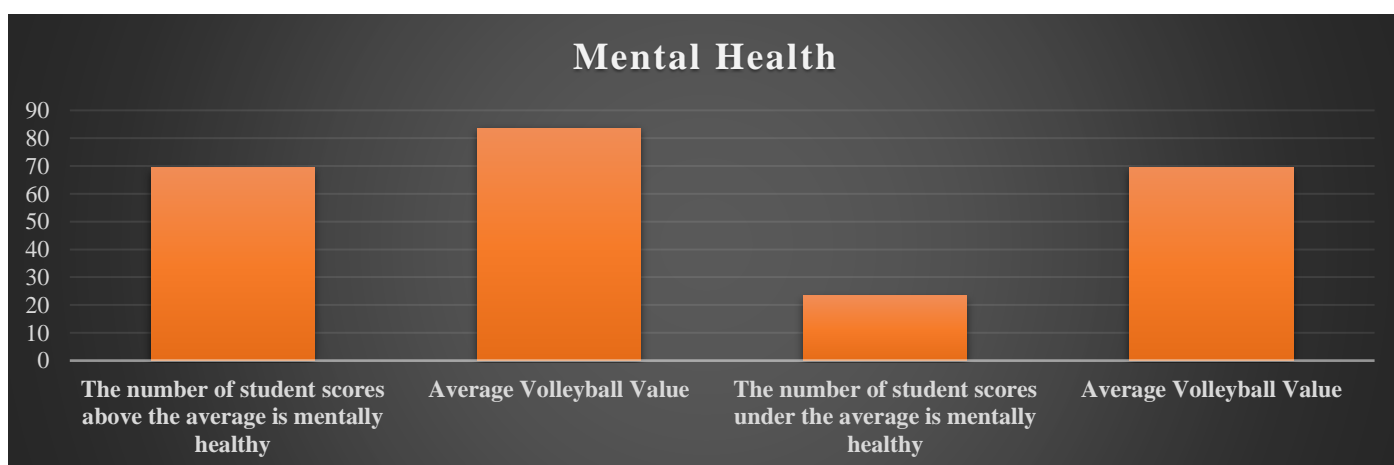


Figure 2. Descriptive Mental Health Data

Volleyball Learning Score Results

Mental hygiene and physical fitness issues are very important about volleyball learning achievement during the Covid-19 pandemic. After calculating using mental hygiene, the results of the volleyball learning will be presented. To make it easier to find out the results can be seen in Table 6 below:

Table 6. Data Description of Volleyball Learning Score Results

Source of Variation	DK	JK	KT	F Count	F Table
Regression	2	4.102	2.052	23.654	3.253
Residue	37	3.211	0.086		
Total	39	7.313			

Source: 2020 Research Results

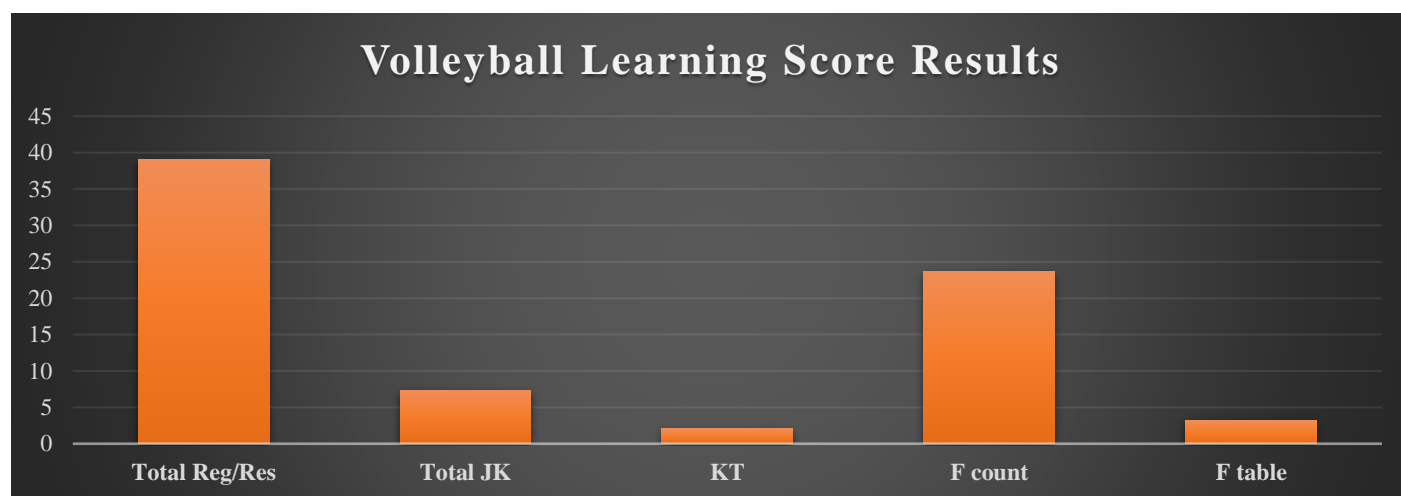


Figure 3. Data Description of Volleyball Learning Score Results

From the calculation of multiple regression analysis (Multi Correlation) in table 6, the correlation coefficient F count is 23,654, while the F table with a significant level of 5% is 3,253 because $F \text{ count} > F \text{ table}$, so the correlation coefficient is significant. So it is clear that physical activity through volleyball is maintenance and improves physical fitness and mental health so that physical fitness has the potential to increase learning achievement, physical fitness, especially for students, greatly helps improve learning achievement and has the potential to develop knowledge if the body's mechanics in motion are carried out effectively and efficiently on the learning process.

This study aims to determine volleyball learning achievement which is correlated with (mental hygiene) and level of physical fitness. Mental hygiene and physical fitness are very important concerning volleyball learning achievement. This definition provides a broad description of the field in a healthy state, covering various aspects so that the results of research which are one of the factors in the form of physical health / physical fitness and mental health can create welfare. There is a relationship between the level of physical fitness and mental health which has a significant relationship with learning volleyball learning achievement. That student has mental health above the average mental health and physical fitness levels in the moderate category affect the results of learning, especially in volleyball learning achievement because with the condition of the students' physical fitness level, they have high body fitness so that when studying or the implementation of volleyball lessons can follow it and get a satisfactory final result. Likewise, students who have mental health above the average mental health can carefully follow the learning process both indoors and outdoors. With the results of the regression analysis data effective contribution, obtained from the variables physical fitness and mental health. It turns out that physical fitness occupies the top level (36%), then mental health is (26%), while the remaining 38% is determined by intelligence, physical health, nutritional status, facilities and infrastructure in learning, parental attention, etc. The research results

obtained a significant relationship between the level of physical fitness and mental health which is significant with the learning achievement of volleyball.

Healthy according to (WHO) World Health Organization is a condition in the form of full physical, mental and social well-being and not merely in the form of absence of certain illness or weakness (Powell, 2021). The Global School-based Student Health Survey (GSHS) collects data on adolescents aged 13 to 15 who are enrolled in high school. They used a meta-analysis to compare the results from 11 GSHS participating countries including Djibouti, Indonesia, Jordan, Kenya, Lebanon, Myanmar, Philippines, Tanzania, Thailand, Uganda, and the United Arab Emirates. Of the 7,904 high school students, 25.5% reported depression, 8.6% loneliness, and 7.8% anxiety-related insomnia. The decline in mental health among adolescents can lead to an increase in bad behavior. Teachers, parents, and other adults who observe sub-optimal hygienic status in adolescents should consider whether this indicates a mental health problem that requires serious treatment (Ranasinghe et al., 2016). Likewise with mental health itself, the psychological field is a human psychic dimension along with all the dynamics of human behavior, while education shows changes in human behavior in a more normative manner (Kaartinen, 2019). Various terms related to mental health are still in one scientific discipline, such as 1) Community psychiatry which emphasizes more on the promotion of mental health and prevention efforts against the onset of psychiatric disorders, 2) Community psychology, the promotion of the psychological potential of the community and prevention efforts against the emergence inappropriate behavior towards mental health and basic (psychological), 3) Community mental health which is the basis of science in interventions in the field of community mental health. The description above is a classification of the rate of development in the handling of mental health, especially at the age of children whose early stages must be maintained, to grow and develop in general like people who are physically and spiritually healthy (Iulian-Doru, 2014). In addition to mental health, physical education also actualizes the potential for human activities in the form of attitudes, actions, and works towards personality unanimity following the ideals of students to ensure good growth and development (Corbin, 2020). Many people are at risk for noncommunicable diseases (NCDs) and mental disorders but have no access to treatment or prevention for these diseases. Continuous investment and research in disease prevention measures are required to improve mental health (Powell et al., 2021). The results showed a significant difference between the educational performance and mental health of athletic and non-athletic students (Gholtash et al., 2017). So it is clear that physical education is the maintenance and improvement of physical fitness and health so that physical fitness has the potential to increase learning achievement. Physical fitness, especially for students, really helps improve learning achievement and has the potential to develop knowledge if the body is effective and efficient in the learning process.

CONCLUSION

Based on the results of data processing and analysis, answers to the research questions were obtained. The conclusions obtained are as follows: The level of physical fitness and mental hygiene has a significant relationship with volleyball learning achievement. With the finding that the value is below the average mental hygiene, social relations on campus, family, and the neighborhood need more attention. Future researchers can research other general physical activities. This study has not explained in detail the differences in gender aspects on the level of physical fitness and mental hygiene. For future researchers, it is recommended to focus on differences in responses to physical fitness and mental hygiene based on gender.

ACKNOWLEDGMENT

This research is sponsored by Non-Tax State Revenue (PNBP FKIP Universitas Riau) under contract number 064/UN19.5.1.1.5/SKP/PP/2021.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- Abalasei, B. (2014). Social representation of the kinesiotherapist profession. *Timisoara Physical Education & Rehabilitation Journal*, 7(13), 64–68. <https://doi.org/10.1515/tperj>
- Ardiyanto, I., Wibirama, S., & Nurwanto, F. (2020). Sliding variance and data range for lightweight sports activity recognition with fusion of modalities. *Journal of King Saud University - Computer and Information Sciences*, 32(7), 775–783. <https://doi.org/10.1016/j.jksuci.2018.08.012>
- Asaeda, M., Deie, M., Kono, Y., Mikami, Y., Kimura, H., & Adachi, N. (2019). The relationship between knee muscle strength and knee biomechanics during running at 6 and 12 months after anterior cruciate ligament reconstruction. *Asia-Pacific Journal of Sports Medicine, Arthroscopy, Rehabilitation and Technology*, 16, 14–18. <https://doi.org/10.1016/j.asmart.2018.11.004>
- Coma, J., & Cook, M. (2018). Indirect acute effects of the COVID-19 pandemic on physical and mental health in the UK: a population-based study. *Medicina del Deporte*, 11(1), 30–35. <https://doi.org/10.1016/j.ramd.2016.03.002>
- Corbin, C. B. (2020). Conceptual physical education : A course for the future. *Journal of Sport and Health Science*, 00, 1–15. <https://doi.org/10.1016/j.jshs.2020.10.004>
- Cvetković, N., Stojanović, E., Stojiljković, N., Nikolić, D., Scanlan, A. T., & Milanović, Z. (2018). Exercise training in overweight and obese children: Recreational football and high-intensity interval training provide similar benefits to physical fitness. *Scandinavian Journal of Medicine and Science in Sports*, 28, 18-32. <https://doi.org/10.1111/sms.13241>
- Ellenberger, L., Jermann, J., Fröhlich, S., Frey, W. O., Snedeker, J. G., & Spörri, J. (2020). Biomechanical quantification of deadbug bridging performance in competitive alpine skiers: Reliability, reference values, and associations with skiing performance and back overuse complaints. *Physical Therapy in Sport*, 45, 56–62. <https://doi.org/10.1016/j.ptsp.2020.05.013>
- Fovet, T., Thibaut, F., Thomas, P., & Lancelev, C. (2020). *Forensic Science International : Mind and Law French forensic mental health system during the COVID-19 pandemic*. 1(September), 1–2. <https://doi.org/10.1016/j.fsml.2020.100034>
- Gholtash, A., Salehi, M., Aminshayan, S., & Ostovari, A. (2017). Investigate and Comparison of Mental Hygiene and Educational Performance of Athletic and non- Athletic high school students. *Procedia - Social and Behavioral Sciences*, 15, 80–83. <https://doi.org/10.1016/j.sbspro.2011.03.055>
- Ghooshchy, S. G., Kameli, S., & Jahromi, M. K. (2011). The effect of sport activity and gender differences on self-perception in adolescents. *Procedia Computer Science*, 3, 1532–1534. <https://doi.org/10.1016/j.procs.2011.01.044>
- Hakked, C. S., Balakrishnan, R., & Krishnamurthy, M. N. (2017). Yogic breathing practices improve lung functions of competitive young swimmers. *Journal of Ayurveda and Integrative Medicine*, 8(2). <https://doi.org/10.1016/j.jaim.2016.12.005>
- Hall, S., White, A., Ballas, J., Saxton, S. N., Dempsey, A., & Saxer, K. (2021). Education in Trauma-Informed Care in Maternity Settings Can Promote Mental Health During the COVID-19 Pandemic. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 2017, 1–12. <https://doi.org/10.1016/j.jogn.2020.12.005>
- Hammami, A., Randers, M. B., Kasmi, S., Razgallah, M., Tabka, Z., Chamari, K., & Bouhlel, E. (2018). Effects of soccer training on health-related physical fitness measures in male adolescents. *Journal of Sport and Health Science*, 7(2). <https://doi.org/10.1016/j.jshs.2017.10.009>

- Ilulian-Doru, T., Vasilica, G., & Maria, T. (2014). The Importance of Group Sports Activities in Adult Lifelong Education and in Improving the Quality of Life. *Procedia - Social and Behavioral Sciences*, 117, 9–15. <https://doi.org/10.1016/j.sbspro.2014.02.170>
- Kaartinen, S., Aaltonen, S., Korhonen, T., Latvala, A., Mikkelsen, M., Kujala, U. M., & Kaprio, J. (2019). Is diversity of leisure-time sport activities associated with low back and neck–shoulder region pain? A Finnish twin cohort study. *Preventive Medicine Reports*, 15(July), 100933. <https://doi.org/10.1016/j.pmedr.2019.100933>
- Kautzner, N., & Junior, M. (2018). Physical profile (skill time) and performance of some conditioning capacities (skill reach) of the master volleyball during the sets. [*Perfil Físico (Tiempo de La Habilidad) y Rendimiento de Algunas Capacidades Condicionales (Alcance de La Habilidad) Del V*, 14(3), 155–166.
- Lacheta, L., Miles, J., Douglass, B., Millett, P., & Sc, M. (2021). The Effect of Torque Differences for All-Suture Anchor Fixation Strength: A Biomechanical Analysis. *Arthroscopy, Sports Medicine, and Rehabilitation*. 3(2), 549–554. <https://doi.org/10.1016/j.asmr.2020.12.008>
- Lardika, R. A., & Arni, E. P. (2019). *Factors Affecting Women's Athlete's Motivation in Volleyball Practice Pusat Pendidikan Dan Latihan Pelajar (PPLP) Dispora Provinsi Riau 2019*. Joint International Conference: Seminar Serantau ke-9 and 3rd Universitas Riau International Conference on Educational Sciences, 64-69. <https://ices.prosiding.unri.ac.id/index.php/ICES/article/view/7870>
- Lardika, R. A., & Tulyakul, S. (2020). The Effect of Direct Instruction Model in Physical Education Towards Students' Adversity Quotient (AQ). *Journal Sport Area*, 5(1), 1–12. [https://doi.org/10.25299/sportarea.2020.vol5\(1\).4460](https://doi.org/10.25299/sportarea.2020.vol5(1).4460)
- Mansfield, K. E., Mathur, R., Tazare, J., Henderson, A. D., Mulick, A. R., Carreira, H., Matthews, A. A., Bidulka, P., Gayle, A., Forbes, H., Cook, S., Wong, A. Y. S., Strongman, H., Wing, K., Warren-gash, C., Cadogan, S. L., Smeeth, L., Hayes, J. F., Quint, J. K., ... Langan, S. M. (2021). *Articles Indirect acute effects of the COVID-19 pandemic on physical and mental health in the UK : a population-based study*. 3(April). 217-230. [https://doi.org/10.1016/S2589-7500\(21\)00017-0](https://doi.org/10.1016/S2589-7500(21)00017-0)
- Mazic, S., Lazovic, B., Djelic, M., Suzic-Lazic, J., Djordjevic-Saranovic, S., Durmic, T., Soldatovic, I., Zikic, D., Gluvic, Z., & Zugic, V. (2015). Respiratory parameters in elite athletes - does sport have an influence? *Revista Portuguesa de Pneumologia*, 21(4). 192-197. <https://doi.org/10.1016/j.rppnen.2014.12.003>
- McGregor, A. H. (2017). Injury prevention, performance and return to sport: How can science help? *Chinese Journal of Traumatology - English Edition*, 20(2), 63–66. <https://doi.org/10.1016/j.cjtee.2016.11.005>
- Milanović, Z., Pantelić, S., Čović, N., Sporiš, G., Mohr, M., & Krstrup, P. (2019). Broad-spectrum physical fitness benefits of recreational football: a systematic review and meta-analysis. *British Journal of Sports Medicine*, 53(15). 926-939. <https://doi.org/10.1136/bjsports-2017-097885>
- Nicolai Ré, A. H., Cattuzzo, M. T., Henrique, R. dos S., & Stodden, D. F. (2016). Physical characteristics that predict involvement with the ball in recreational youth soccer. *Journal of Sports Sciences*, 34(18). 1716-1722. <https://doi.org/10.1080/02640414.2015.1136067>
- Parvathy, D. U., & M, P. (2014). Relationship between Adversity Quotient and Academic Problems among Student Teachers. *IOSR Journal of Humanities and Social Science*, 19(11), 23–26. <https://doi.org/10.9790/0837-191172326>
- Powell, T. M., Li, S., Hsiao, Y., Thompson, M., Farraj, A., Abdoh, M., & Farraj, R. (2021). An integrated physical and mental health awareness education intervention to reduce non-communicable diseases among Syrian refugees and Jordanians in host communities: A natural experiment study. *Preventive Medicine Reports*, 21, 101310. <https://doi.org/10.1016/j.pmedr.2021.101310>

- Ranasinghe, S., Ramesh, S., & Jacobsen, K. H. (2016). Hygiene and mental health among middle school students in India and 11 other countries. *Journal of Infection and Public Health*, 9(4), 429–435. <https://doi.org/10.1016/j.jiph.2015.11.007>
- Sciamanna, C. N., Mowen, A. J., Kraschnewski, J. L., Smyth, J. M., Rovniak, L. S., Conroy, D. E., Kearcher, K., Redman, C., Silvis, M., Auer, B. J., Wang, M., Lehman, E., & Messina, D. (2017). Why just exercise if you can play? Interest in a modified sports program to enhance physical activity among primary care patients. *Preventive Medicine Reports*, 8(December), 273–278. <https://doi.org/10.1016/j.pmedr.2017.10.009>
- Sujarwo., Tangkudung, J., & Hanif, A. S. (2018). The effect of vital capacity of the lungs, nutritional status, physical activity and exercise motivation towards physical fitness on the athlete package national sports committee Indonesia Depok City. *JIPES Journal of Indonesian Physical Education and Sport*, 4(2), 71–78.