

Profile of physical fitness college student during covid-19 pandemic

Muhammad Saleh^{1,*}, Firman Septiadi¹

¹Muhammadiyah University of Sukabumi, Jl. R. Syamsudin, S.H. No. 50, Sukabumi, West Java, Indonesia

muhammadsaleh@ummi.ac.id; septiadifirman@ummi.ac.id

*corresponding author

ABSTRAK

This study aims to determine the level of physical fitness (VO_{2Max}) of prospective new students during the Covid-19 pandemic. This type of research is descriptive with a quantitative approach. The method used is a survey with data collection techniques using tests and measurements. The sample in this study was the prospective new students 20 male and 8 female, the total sample 28 people. This study uses a total sampling technique. The data analysis technique uses a frequency distribution. Data collection was carried out in the yard of Building D, Muhammadiyah University of Sukabumi. The test instrument used in this study is the Multistage Fitness Test (MFT) or bleep test. The results showed that the majority of prospective new students were in the very poor category with 18 men (90%) and less than 2 (10%), while women who were in the very poor category 7 people (87.5) and category of less than 1 person (12,5%). It can be concluded that the level of physical fitness of prospective new students is in the very poor category.

Keywords: *College Student, Physical Fitness, VO_{2max} , Covid-19.*

ARTICLE INFO

Article History:

Accepted : 10 Agustus 2021
Approved : 9 November 2021
Available online November 2021

Correspondence Address:

Muhammad Saleh
Physical Education, Health, and Recreation, Muhammadiyah
University of Sukabumi
Jl. R. Syamsudin SH. No. 50, Sukabumi, West Java, Indonesia
E-mail: muhammadsaleh@ummi.ac.id

INTRODUCTION

In the current era of globalization, the lifestyle of the majority of Indonesian people can be said to be lacking side by side with physical activity (sports). This is influenced by several things, including busy work, school and dependence on technological advances as well as the Covid-19 pandemic. This certainly has a negative impact on physical conditions, namely physical fitness and endurance, especially at the level of maximum oxygen volume VO_{2Max} . This life shift causes a decrease in one component of physical fitness, namely, cardiorespiratory fitness or what is often referred to as the maximum oxygen volume level (VO_{2Max}). (Ario Debbian S. R, & Rismayanthi, C: 2016). Endurance is an important component of physical condition and can be said as the foundation for developing other physical conditions (Nugraha, B.F: 2017).

In particular, cardiovascular endurance or aerobic endurance is defined as the ability of the body's organisms, especially the heart, lungs and circulatory system to overcome fatigue caused by training loads that last relatively long. (Santika, 2015) suggests that cardiovascular endurance (general endurance) must be possessed by a person when doing activities in daily life. Regular cardiovascular endurance exercise will increase the maximum oxygen volume or

VO₂Max according to the needs of each sport (Setyo, B: 2012). (Nusri & Panjaitan, 2019) Argue that aerobic endurance is the ability to carry out long-term activities associated with O₂ and ATP bonds to supply energy (Warsono, O. D. Y. H., Widodo, S., & Kumaidah, E.: 2017). Which states that, VO₂Max can also be referred to as maximal oxygen consumption or maximal oxygen uptake or aerobic capacity. VO₂Max comes from V which means volume used per minute and O₂ means oxygen and Max represents physical activity at maximum intensity, and can mean oxygen uptake during maximum exercise excretion that the body can use during exercise. (Tumiwa, 2016) VO₂Max not only as a parameter of the level of the body's/physical ability to take in oxygen, but also send it to working muscles and help remove metabolic waste and not only that, VO₂Max is also one of the factors to support achievement (Salman, 2018). Someone who has good endurance and stamina has a high VO₂Max value (Chotimah, 2015). So that someone who has poor endurance and stamina will have an impact on poor VO₂Max levels. Factors that affect VO₂Max levels include gender, age, heredity, altitude, exercise and nutrition (Indrayana & Yuliawan, 2019). Various studies say that if one of the indicators of a person's physical fitness is at a good level, it can be seen from his VO₂Max

Some sports are very concerned with good VO₂Max and there are several sports that make VO₂Max an achievement instrument in a sport (Sinurat, 2019). Although the majority of prospective students are not athletes, a good level of VO₂Max is very useful for a healthy body welfare and the performance of respiratory and lung muscles can work optimally. VO₂Max is defined as a determining factor of fitness level that plays an important role for athletes and non-athletes (Barus, 2020) Researchers refer to the results of the aerobic endurance test (VO₂Max) on prospective new students of the PJKR Study Program at the Muhammadiyah University of Sukabumi as one of the parameters to pass the selection. Of course the results obtained are very varied due to the different backgrounds of prospective new students, because there are several prospective new students from senior high school who have different physical activity management. In addition, there are several prospective new students who are basically athletes, but the majority are just ordinary students. One of the most dominant factors is the difference in geographical location or elevation of the plains from where the prospective new students live.

Of the several indicators that distinguish these, of course, the type of exercise and the portion of the physical activity routine for some of these new students are different. This affected the record of VO₂Max test results obtained by the implementing committee for the selection of new students, especially in the physical education health and recreation study Program.

METHODS

This type of research is descriptive with a quantitative approach. The method used is a survey with data collection techniques using tests and measurements. The sample in this study was prospective new students of the physical education health and recreation study Program with a total of 20 males and 8 females, so the total sample size was 28 person. This study uses a total sampling technique. The data analysis technique uses a frequency distribution. Data collection was carried out in the yard of Building D, Muhammadiyah University of Sukabumi. Test instrument used in this study is the Multistage Fitness Test (MFT) or bleep test ([Suharjana, 2013](#))

The bleep test is carried out by running along a 20-meter track, the test starts by running slowly and gradually getting faster until the participant is unable to run with the rhythm of time, so that his maximum ability is at the reverse level. The implementation of the bleep test consists of level 1 to level 21 and a maximum of 16 students. The start begins by standing, and all feet are behind the line. With the command "tu la lit, start level one, one" the athletes always follow the rhythm towards the boundary line until one foot crosses the boundary line. If the sound signal has not been heard, the competitor has exceeded the limit, must wait for the next sound signal to continue running. On the other hand, if there is a sound signal that the athlete has not yet reached the boundary line, the athlete must speed up the run until it crosses the boundary line and immediately return to running in the opposite direction. If two consecutive times the athlete is not able to follow the rhythm of the running time, it means that his maximum ability is only at that level and reverse. After the athlete is unable to follow the rhythm of the running time, the athlete should not continue to stop, but continue to run slowly for 3-5 minutes for cooling down.

RESULT AND DISCUSSION

Result

The results of the study of the male sample studied obtained an overview of the VO₂Max level of prospective new students of the physical education health and recreation study program. The results of the research on VO₂Max capabilities in general can be described as follows:

Table 1. Description of male research results

Sample	N	mean	Min	Max
Prospective New Student PJKR	20	30.31	24	36.8

Based on the table above, it can be described the results of the analysis of the VO₂Max ability of male prospective new students with a sample of 20 people, obtained an average value (mean) of 30.31, a low value (min) of 24, and the highest score (max) of 36. ,8. Furthermore, the following is a description of the results of the frequency distribution of the male VO₂Max ability level of prospective PJKR UMMI new students from the results of the analysis according to the VO₂Max norm with a bleep test as follows:

Table 2. Male VO₂Max Ability Prospective New Student PJKR

Classification	VO2Max Score	Frequency	Percentage
Very poor	<35.0	18	90%
Poor	35.0 – 38.3	2	10%
Medium	38.4 – 45.1	0	0
Good	45.2 – 50.9	0	0
Very well	51.0 – 55.9	0	0
Very good	>55.9	0	0
Amount		20	100%

Based on table 2 and figure 1 above, it shows that the level of physical fitness (VO₂Max) of prospective PJKR new students during the Covid-19 pandemic was mostly in the very poor category, it can be seen that the prospective new students who were in the category of very good, very good, good, and less as many as 0 people (0%), the poor category as many as 2 people (10%), and the rest fall into the very poor category which amounted to 18 people (90%).

The results of the study from the sample of women studied obtained an overview of the VO₂Max level of prospective new students of PJKR study program. The results of the research on VO₂Max capabilities in general can be described as follows:

Table 3. Description of women's research results

Sample	N	mean	Min	Max
Prospective New Student PJKR	8	23.4	20.8	26.8

Based on the table above, it can be described the results of the analysis of the VO₂Max ability of female new prospective students with a sample of 8 people, obtained an average value (mean) of 23.4, a low value (min) of 20.4, and the highest score (max) of 26 ,8. Furthermore, the following is a description of the results of the frequency distribution of the VO₂Max level of female prospective new students of PJKR UMMI from the results of the analysis according to the VO₂Max norm with the bleep test as follows:

Table 4. Female VO₂Max Ability Prospective New Student PJKR

Classification	VO2Max Score	Frequency	Percentage
----------------	--------------	-----------	------------

Very poor	<25.0	7	87.5%
Poor	25.0 – 30.9	1	12.5%
Medium	31.0 – 34.9	0	0
Good	35.0 – 38.9	0	0
Very well	39.0 – 41.9	0	0
Very good	>41.9	0	0
Amount		8	100%

Based on table 4 and figure 2 above, it shows that the level of physical fitness (VO₂Max) of prospective PJKR new students during the Covid-19 pandemic was mostly in the very poor category, it can be seen that the prospective new students who were in the category of very good, very good, good, and less as many as 0 people (0%), less category as many as 1 person (12,5%), and the rest fall into the category of very less amounting to 7 people (87.5%).

Discussion

An indicator of a person's physical fitness level can be seen through the VO₂Max ability. VO₂Max is the volume of O₂ that is processed by the body when carrying out activities, or a person's ability to maximally use oxygen during intense activities. There are several ways to determine the ability of VO₂Max, one of which is the bleep test. (Nunes, 2019) states that VO₂Max is a form of evaluation of the level of physical condition (physical fitness).

Based on the results of the research described above, the classification is quite varied. It is known that there are no prospective students who reach the good to very good category, from the results obtained by prospective students, both male and female, only fall into the less and less category, even from both sexes, the majority results are in the very poor category. This means that the overall level of physical fitness (VO₂Max) of prospective new students is in the very poor category. The results obtained by these prospective students are varied and even very lacking because environmental conditions and physical activities carried out daily are different, including one of the causes is the spread of the Covid-19 pandemic that occurred in Indonesia.

This is when compared to previous prospective students who took part in the selection not during the pandemic, their fitness level was better. This happens because before taking the fitness test, prospective students will prepare physically. Thus, if prospective students are supported to improve their fitness when they are students, of course their fitness level will be better, at least their fitness level is in the good category.

With the Covid-19 pandemic, prospective students are certainly lacking in physical activity in their respective homes so that it has a negative impact on their physical fitness condition. This means that with limited space and time in the midst of the Covid-19 pandemic, prospective students must continue to do physical activity in order to maintain and improve their level of physical fitness. In addition to maintaining and improving physical fitness, physical activity if carried out regularly at home will be able to improve psychological well-being, this is as explained by Saleh, M (2019: 12) that if physical activity (aerobic) is done regularly 3- 5 per week can improve psychological well-being. Based on the analysis of the research results and supported by several references,

From the research results obtained by prospective new students, it will be an important input and note for the study program, followed up to continue to be trained and improved again while studying at Muhammadiyah University, Sukabumi, so that when participating in the Student Activity Unit (UKM) in the campus environment, they can further develop their interests and talents so that by doing exercise routines will improve their physical fitness.

CONCLUSION

Based on the results of the study, it showed that the level of physical fitness (VO₂Max) of prospective new students of the PJKR Study Program was in the very poor category with 18 men out of 20 samples (90%), and 7 out of 8 women (87.5%). The rest fall into the less male category 2 (10%) and female 1 (12.5%), and none are in the good or very good category. This will be the subject of further study and research related to activities and exercise programs to improve physical fitness, either exercising independently in a sports team or specifically in a research program. So that this research can be used as the basis for further research implications to improve students' physical fitness, at least their fitness level is in the good category

The results of this study can be used as initial data for prospective PJKR new students to later be improved during lectures, so that their level of physical fitness (VO₂Max) becomes better, and so that they become study material for students, lecturers, teachers, coaches and sports people to always maintain and improve fitness even in the midst of the Covid-19 pandemic.

REFERENCES

- Ario Debbian S. R, dan Rismayanthi, C. (2016). Profil Tingkat Volume Oksigen Maskimal (VO₂ Max) Dan Kadar Hemoglobin (Hb) Pada Atlet Yongmoodo Akademi Militer Magelang. *Jurnal Olahraga Prestasi*, 12(2), 115966. <https://doi.org/10.21831/>

jorpres.v12i2.11874

- Chotimah Chusnul. (2015). *Pengaruh Konsumsi Rokok Terhadap Hasil VO2Max pada Pemain Futsal Putra Hatrick Solo (Skripsi)*. Surakarta : Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surakarta.
- Indrayana, B., dan Yuliawan, E. (2019). Penyuluhan Pentingnya Peningkatan Vo2Max Guna Meningkatkan Kondisi Fisik Pemain Sepakbola Fortuna Fc Kecamatan Rantau Rasau. *Jurnal Ilmiah Sport Coaching and Education*, 3(1), 41–50. <https://doi.org/10.21009/Jsce.03105>
- Jan Bobby Nesra Barus. (2013). Tingkat Daya Tahan Aerobik (Vo2max) Siswa Ekstrakurikuler Gulat Di Sma Negeri 1 Barusjahe Kabupaten Karo Jan. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.
- Nugraha, B. F. (2017). *Standarisasi Vo 2 Max Atlet Bulutangkis Kategori Tunggal Remaja Putra Di Jawa Barat Budiman Faza Nugraha (PKO FPOK UPI)*. 10(2), 43–56.
- Nunes, R. (2018). Prediction of vo2 max in healthy non-athlete men based on ventilatory threshold (Predicción de vo2 max en hombres sanos no atletas basado en umbral de ventilatorio). *Retos*, 2041(35), 136–139. <https://doi.org/10.47197/retos.v0i35.62165>
- Nusri, A., dan Panjaitan, S. (2019). Upaya Meningkatkan Vo2Max Melalui Latihan Interval Training Pada Atlet Wushu Sanda Tobasa Kategori Junior. *Jurnal Kesehatan Dan Olahraga* 3(2), 96–105.
- Ocky Dermawan Yudha Hari Warsono, Sumardi Widodo, E. K. (2017). *Perbandingan Nilai Vo 2 Max Dan Denyut Nadi Latihan Pada Unit Kegiatan Mahasiswa Universitas Diponegoro*. 6(2), 1001–1008.
- Saleh, M. (2019). Latihan dan aktivitas fisik untuk meningkatkan kesejahteraan psikologis. *Journal Power Of Sports*, 12–22(9), 1689–1699 .
- Salman, E. (2018). Kontribusi VO2 Max terhadap Kemampuan Renang Gaya Dada 200 Meter. *Gelombang Olahraga: Jurnal Pendidikan Jasmani Dan Olahraga (JPJO)*, 1(2), 21–31. <https://doi.org/10.31539/jpjo.v1i2.133>
- Santika, I. G. P. N. A. (2015). Hubungan Indeks Massa Tubuh (IMT) Dan Umur Terhadap Daya Tahan Umum (Kardiovaskuler) Mahasiswa Putra Semester II Kelas A Fakultas Pendidikan Olahraga Dan Kesehatan IKIP PGRI Bali Tahun 2014. *Jurnal Pendidikan Kesehatan Rekreasi*, 1(1), 42–47, 151(1), 10–17.
- Setyo, B. (2012). *Metodologi Latihan Olahraga*. Malang: Universitas Negeri Malang. Vol. 8; 99–117.
- Sinurat, R. (2019). Profil Tingkat Volume Oksigen Maskimal (VO2 Maks) Pada Atlet Sepakbola Universitas Pasir Pengaraian. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, 5(1), 80–88.
- Suharjana. (2013). *Kebugaran Jasmani*. Yogyakarta
- Tumiwa, H. T. (2016). Gambaran Kapasitas Vital Paru Dan Volume Oksigen Maksimum (Vo2Max) Pada Atlet Sepak Bola Ps.Bank Sulutgo Di Kota Manado Tahun 2016. *Pharmakon*, 5(2), 251–258. <https://doi.org/10.35799/pha.5.2016.12213v>
- Warsono, O. D. Y. H., Widodo, S., dan Kumaidah, E. (2017). Perbandingan Nilai Vo2max dan Denyut Nadi Latihan Pada Pemain Futsal Dengan Pemain Sepak Bola (Studi Pada Unit Kegiatan Mahasiswa Universitas Diponegoro). *Diponegoro Medical Journal (Jurnal Kedokteran Diponegoro)*, 6(2), 1001–1008. <https://doi.org/10.14710/dmj>

v6i2.18611