SPMRJ. Volume 5 No. 1 February 2023 DOI: 10.20473/spmrj.v5i1.23767
SINTA 5 (Decree No: 200/M/KPT/2020) Available online at https://e-journal.unair.ac.id/SPMRJ

## Original Research

# Fitness Level in Mojo VI Surabaya Elementary School Students

**Nabilah Ishanan Ramadhan[1*], Hening Laswati[1], Kristanti Wanito Wigati[1], Sri Mardjiati Mei Wulan[1]**
[1]*Faculty of Medicine, Universitas Airlangga, Surabaya, East Java, Indonesia*

*Corresponding Author:
Nabilah Ishanan Ramadhan, Faculty of Medicine, Universitas Airlangga, Surabaya, East Java, Indonesia.
Email: nabilah.ishanan.ramadhan-2017@fk.unair.ac.id

**Article info:**
Received: December 10th 2020;
Received in revised: March 17th 2022;
Accepted: October 14th 2022;
Published: February 17th 2023.



Cite this as:
Ramadhan NI, Laswati H, Wigati KW, Wulan M. Fitness level On Mojo VI Elementary School Student Surabaya. SPMRJ. 2023;5(1):1-5.

## ABSTRACT

**Background:** A sedentary lifestyle such as watching TV and video for a long time, or playing PlayStation, is experienced by two-thirds of children, especially in developing countries. The fitness levels of elementary school students are not all in a good condition. So far, there is no study of healthy children with 2-minute walk test method. Therefore, the researcher is interested to do research about fitness level with 2-minute walk test.

**Aim:** The purpose of this research is to determine the fitness level of Mojo VI elementary school Surabaya.

**Material and Methods:** The method used in this research is descriptive observational with a cross-sectional research design using total sampling. Data collection was using primary data obtained from the results of 2-minute walk test.

**Results:** The fitness level based on age obtained the highest average value at the oldest age of 12 years old with an average of 207.30 m±17.359. While the lowest average value at the youngest age was 184.96 m±15.991. Meanwhile, based on gender, it obtained higher average value in male students (201.81 m±22.06 m) than female students (194.30 m±14.29 m).

**Conclusion:** The higher the age, the higher the student's fitness level. Meanwhile, based on gender, the fitness level of a male is higher than a woman.

**Keywords**: *Age 7-12 years old, Children, Fitness level, Gender, 2-minute walk test.*

## Introduction

Physical fitness is the ability of a person's body to carry out daily work tasks without causing significant fatigue. The higher the degree of a person's physical fitness, the greater his physical ability and work productivity.[1] Several factors can affect fitness, namely genetics, age, gender, nutrition, and smoking.

The rapid development of technology demands changes in all fields, which can sometimes cause problems. In its action, the world of technology has also penetrated the world of children. From video games to television, all forms of children's games have been filled with cartoon films. Unfortunately, all forms of games and entertainment presented there have also made children tend to be physically passive in general.

A sedentary lifestyle, such as watching TV and videos for a long time, or playing on the PlayStation, is experienced by two-thirds of children, especially in developing countries.[2] Compared to people who have never been physically active, someone who regularly does sports can move and work for a long time without feeling quickly tired.

Children aged 6-12 years showed that 41.5% had moderate levels of physical fitness, while 41.1% had low and abysmal physical fitness levels.[3]

So far, no study has measured healthy children using the 2-minute walk test method. In previous studies, healthy children measured using the 6-minute walk test in children aged 7-8 years had a low average.[4] Therefore, the researcher is interested in researching the fitness level of SD Negeri Mojo VI Surabaya students using the 2-minute walk test method.

## Material and Methods

The method used in this research was descriptive observational with a cross-sectional research design and using total sampling. The population in this study were students of grades I to VI SD Negeri Mojo VI Surabaya for the 2019/2020 school year. Based on the inclusion criteria, the sample size was 179 students.

The inclusion criteria are as follows: male and female of SD Negeri Mojo VI Surabaya, aged 7-12 years, physically healthy, can work well (cooperatively).

The study used probability sampling and stratified random sampling technique. The probability sampling technique is a way of taking samples with all objects in the population having the same opportunity to be selected as samples. Stratified random sampling is the process of taking the sample through the process of dividing the population into strata.

In this study, data retrieval was carried out by using primary data obtained from 2-minute walk tests with slight modifications undertaken by the related research object. The 2-minute walk test is a test that is commonly used to measure fitness in meters with a predetermined time.[5]

Data were collected at SD Negeri Mojo VI Surabaya by distributing informed consent (IC) for each class, from grade I to grade VI. Then the researchers determined the research subjects based on the inclusion criteria and eliminated the exclusion criteria. Data were collected in the morning when the subjects had breakfast. When the data were collected, the subjects wore footwear, namely shoes. The subjects were measured for height and weight and then they did a 2-minute walk test.

The procedure for conducting this test started with marking the starting point and ensuring that the place was long and there were no obstacles. Next, the cone was placed at point 0 as a marker for the researcher to start. The next thing to do was to position the object of research at the starting point and provide instructions. The researcher would give instructions to the object to start walking with a comfortable stride and walk as quickly as possible after the researcher counted one to three and said "start." The researcher would start the stopwatch when the object's foot passed the 0-meter point and end it after two minutes. That way, the mileage was calculated in meters.

Data processing was carried out by collecting data on the fitness level of elementary school students utilizing a 2-minute walk test and grouped according to the criteria to be examined by the researcher. After that, the data that had been grouped were processed and presented

in diagrams and tables, and then qualitative and quantitative descriptive analysis were carried out regarding the level of fitness.

## Results

In this study, 179 research subjects were selected based on inclusion criteria and eliminating exclusion criteria with a composition of 95 males and 84 females. Research subjects were grouped into six age groups in each of these sexes, namely 7, 8, 9, 10, 11, and 12 years.

Fitness Level by Gender After taking the 2-minute walk test data on men and women, higher average scores were obtained in men (201.81 m) than women (194.30 m).

Fitness Levels by Age After taking 2-minute walk test data based on age 7 to 12 years, the highest average value was obtained at the oldest age, namely 12 years (207.30 ± 17.359). In contrast, the lowest average value at the youngest age was seven years (184.96 ±15.991).

**Table 1.** Average 2-Minute Walk Test by Gender

| Gender | N | Minimum (m) | Maximum (m) | Mean (m) | Std. Deviation (m) |
|---|---|---|---|---|---|
| Male | 95 | 145 | 240 | 201.81 | 22.056 |
| Female | 84 | 161 | 219 | 194.30 | 14.298 |

**Table 2.** Average 2-Minute Walk Test by Age

| Age | n | Minimum (m) | Maximum (m) | Mean (m) | Std.Deviation (m) |
|---|---|---|---|---|---|
| 7 | 25 | 168 | 230 | 184.96 | 15.991 |
| 8 | 33 | 145 | 233 | 195.36 | 19.497 |
| 9 | 29 | 152 | 230 | 199.07 | 17.320 |
| 10 | 35 | 146 | 238 | 200.71 | 19.164 |
| 11 | 27 | 168 | 238 | 200.19 | 19.423 |
| 12 | 30 | 180 | 240 | 207.30 | 17.359 |

## Discussions

### *Fitness Level by Gender*

Male students obtained an average fitness of 201.81 m. Meanwhile, female students got an average fitness of 194.30 m. In this study, the fitness of male students was higher than female students. In the results of differences in physical fitness measurements, male students have better physical fitness than female students.[6] This can occur because there are differences in physical activity, where male students have higher physical activity than female students.

The difference in fitness between men and women is related to the maximum muscle strength related to body surface area, body composition, muscle strength, the amount of hemoglobin, hormones, lung capacity, and so on. Until puberty, the fitness of boys is usually almost the same as in girls, but after puberty, the fitness of boys and girls is generally increasingly different.[7]

The physical fitness level of men is usually better than that of women. This is because the physical activity carried out by men is more than that of women. Until puberty, boys' physical fitness is usually almost the same as girls'. However, after puberty, boys typically have a greater physical fitness level than girls.[8]

Androgens are steroid sex hormones

whose effects are masculinizing. Meanwhile, estrogen is a hormone that causes feminization. Both sexes customarily secrete both types of hormones. The testes secrete large amounts of androgens, especially testosterone, but they also secrete a small amount of estrogen. The ovaries secrete large amounts of estrogens and small amounts of androgens. The ovaries also secrete progesterone, a steroid with a particular function in preparing the uterus for pregnancy. The hormone estrogen is known to increase fat accumulation in women.

Hormonal differences between women and men play a huge role in differences in a person's appearance. The testosterone secreted by the male testes has a strong anabolic effect on the enormous protein storage everywhere in the body, especially in the muscles. Men who do minimal sports activities and have a lot of testosterones will have muscles that will grow to be 40% or larger in size than the muscles of their female partners and accompanied by an appropriate increase in strength.[9]

From the average data obtained, it can be categorized as fit and less fit. A total of 39 male students (41%) were in the less fit category, and 56 male students (59%) were in the fit category. Meanwhile, for female students, it was found that 36 students (43%) were in the less fit category, and 48 students (57%) were included in the fit category.

There are more female students who are in the fit category than less fit. The female junior high school students who have low and very low physical fitness status account for 52.34%. Meanwhile, students who have good and excellent physical fitness are, in fact, very minimal (4.77%).[10]

***Fitness Level by Age***

Based on the data results, it was found that the fitness average was 184.96 m at the age of 7 years, 195.36 m at the age of 8 years, 199.07 m at the age of 9 years, 200.71 m at the age of 10 years, 200.19 m at the age of 11 years, and at the age of 12 years the fitness average was 207.30 m. From these data, it can be seen that the higher the age, the higher the fitness level.

Similar to terms of class level, it was found that the higher the class in the elementary school, the higher the physical fitness.[6]

In this study, sampling was carried out by grade level, but then the research subjects were grouped by age. So, even though they were included in one group of research subjects, there might be differences in conditions even if only slightly. Grouping by class certainly means that the subject underwent observation with conditions similar to that of the group.[6]

In children aged seven years to 12 years, it was found that 48% (86 students) were in the less fit category, while 52% (93 students) were in the fit category. In this study, the fitness level of students aged 7 to 12 years was in the fit category. For students aged 10 to 12 years,62.32% were in good and very good categories of physical fitness. Then, 21.74% were in the moderate category, while the less category was 0%.[11]

It was found that some 85% of the physical fitness levels in children aged 12-14 years were in the low and very poor category, while only 1.2% were in the good category.[12]

Things that can affect the level of physical fitness include:

a. Students do physical activities outside school hours.
b. Adequate food and nutrition.
c. Enough rest.
d. Regular and healthy living habits and school environmental factors.[13]

## Conclusions

The level of fitness based on age shows that the higher the age, the higher the fitness level of the students. Meanwhile, based on gender, the fitness level of men is higher than that of women.

## References

1. Pusat Pengembangan Kualitas Jasmani. 2002. Ketahuilah Tingkat Kebugaran Jasmani Anda. Jakarta: Departemen Pendidikan Nasional.
2. Mutohir, Toho Cholik, and Ali Maksum. 2007. “Sport Development Index Alternatif Baru Mengukur Kemajuan Pembangunan Bidang Keolahragaan (Konsep Metodologi Dan Aplikasi).” In Jakarta: PT.Index.
3. Sahari, Tugini. 1997. “Hubungan Persen Lemak Tubuh Dengan Kesegaran Jasmani Menurut Tes ACSPFT Pada Anak Usia 6-12 Tahun di 10

Sekolah Dasar Di DKI Jakarta." Universitas Indonesia.
4. Kusumawardani MK, Haryadi RD, and Andriati. 2020. "Correlation of Anthropometry Characteristics and Six-Minute Walking Test Distance in Children Aged 7-8." Indian Journal of Forensic Medicine and Toxicology 14(3): 1169–74.
5. Bohannon, Richard W., Ying Chih Wang, and Richard C. Gershon. 2015. "Two-Minute Walk Test Performance by Adults 18 to 85 Years: Normative Values, Reliability, and Responsiveness." Archives of Physical Medicine and Rehabilitation 96(3): 472–77.
6. Sulistiono, Agus Amin. 2014. "Kebugaran Jasmani Siswa Pendidikan Dasar Dan Menengah Di Jawa Barat." Jurnal Pendidikan dan Kebudayaan 20(2): 223.
7. Ikrami U. 2013. "Faktor-Faktor Yang Mempengaruhi Kebugaran Jasmani." http://ulfahikrami.blogspot.com/2013/11/faktor-faktor-yang-mempengaruhi.html.
8. Suharjana. 2008. "Pendidikan Kebugaran Jasmani." In Yogyakarta: FIK UNY.
9. Nyoman Kanca, I. 2006. "Olahraga Dan Kesehatan Reproduksi." Medikora II(2): 205–18.
10. Dewi, WF. 2014. "Tingkat Kebugaran Jasmani Mahasiswa Prodi S1 Ilmu Gizi Sekolah Tinggi Ilmu Kesehatan (STIKES)." Universitas Diponegoro.
11. Andrayani, Fitria Dwi. 2017. "Status Kebugaran Jasmani Siswa Putri Kelas VIII SMPN 3 Depok Yogyakarta." Motion 8(1): 59–66.
12. Utari A. 2007. Doctoral dissertation, program Pascasarjana Universitas Diponegoro. "Tingkat Kesegaran Jasmani Pada Anak Usia 12-14 Tahun." Universitas Diponegoro.
13. Hudain Muhammad Adnan. 2011. "Tingkat Kesehatan Jasmani Murid SD Inpres Malengkeri Setingkat Kota Makassar Pada Kelompok Usia 10-12 Tahun." ILARA II (2): 31-38.