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Physical fitness levels in children with intellectual disabilities aged 13-15 years in Kebumen regency 2024

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ABSTRACT

The level of physical fitness in children with intellectual disabilities is an issue that requires special attention in an effort to improve their well-being and quality of life. The purpose of the study was to determine the fitness level of students with intellectual disabilities aged 13-15 years in Kebumen district in 2024. The design of this study is using survey techniques. The sampling process of the study used purposive sampling techniques as many as 47 people consisting of 29 sons and 17 daughters. This TKJDI measuring instrument has been tested by showing the value of validity and reliability. The validity value of TKJDI is 0.968 (male) and 0.914 (female), then the reliability value of TKJDI is 0.896 (male) and 0.883 (female). Data analysis using quantitative descriptive techniques obtained by TKJDI survey method. Produced average data on BMI for Boys (19.43 kg/m^2) in the Ideal category and Women (21.40 kg/m^2) in the ideal category, Sitting test for Men (25.07 cm) in the medium category and Women (24.06 cm) in the good category. Sit up test Men's (12.86 rep/min) in the less category and Women's (12.71 rep/min) in the less category, Men's bench up and down test (105.86) in the Very good category and Women's (87.76) in the good category. The results of the study and discussion concluded that the level of physical fitness of children with intellectual disabilities in Kebumen was in good condition with a total score of 15 in children with intellectual disabilities in boys and 15 in children with intellectual disabilities in girls. Contributions to future research, in particular, need to design physical education learning methods that are interesting and fun so that they can be used to improve and maintain physical fitness levels in children with intellectual disabilities. As well as the importance of awareness of physical fitness in order to increase the interest and motivation of children with disabilities in physical activity and sports.

***Keywords**: children, intellectual disabilities, physical fitness*

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INTRODUCTION

The level of physical fitness in children with intellectual disabilities is an issue that requires special attention in an effort to improve their well-being and quality of life. Intellectual disability can affect physical development and motor abilities, which in turn can limit their participation in physical activity and sports (Taylor et al. 2023). In recent decades, awareness of the importance of physical fitness for children with disabilities has increased significantly. Studies have shown that regular physical exercise can provide significant benefits to their physical and mental health, including improved muscle strength, balance, coordination, and heart health (Taylor et al. 2024).

Physical fitness is a person's ability to carry out daily activities efficiently without causing excessive fatigue so that they can adjust the function of their body tools and still be able to enjoy free time (Candra Dewi, Astra, and Suwiwa 2020) Physical activity that is carried

out continuously will affect a person's physical fitness (Mahfud, Gumantan, and Nugroho 2020). Physical Fitness is important to be applied in everyday life, because every day students carry out learning activities, students must have good physical fitness so that during the learning process there are no students who experience fatigue and are sick (Idham et al. 2022). During the Covid-19 pandemic, one of the communities that is particularly vulnerable to the impact of COVID-19 restrictions is those with physical and/or intellectual disabilities, where the impact of reduced opportunities and provisions for physical activity is likely to greatly affect physical activity and mental health (Burhaein et al. 2021). Low physical fitness in children with intellectual disabilities during the pandemic period can increase the risk of physical and mental health problems, including obesity, anxiety, and depression (Greguol et al. 2021).

Intellectual disability or what is often called intellectual disability also means someone who has intellectual abilities below the average of friends of the same age (McDermott et al. 2022). This condition causes them to experience difficulties or slow when they try to learn something new, while for those who are already classified as heavy or very heavy, the child will have a deficiency in their speaking ability, besides that children with intellectual disabilities also experience delays in the development of their movements, and deficiencies in providing help for themselves (Ida Ayu Dian Pramantik 2021). So that the impact in mastering skills in physical fitness learning is not optimal.

The World Health Organization recommends children and adolescents aged 5–17 years with disabilities should engage in at least 150 minutes of moderate-to-vigorous-intensity physical activity per week if possible. Previous research suggested various types of physical activities that can be done during the Covid-19 pandemic, namely push-ups, lying down, sitting, pull-ups that can be done at home, walking around the house, zumba gymnastics, climbing stairs, to aerobic exercise and practicing with body weight simply by involving the use of the body as a medium (McDermott et al. 2022)

In addition to being beneficial to the body, physical activity is known to benefit our mental health, improve perceptions of competence, confidence and self-esteem, and can also provide social support for people with disabilities (Valle Ramírez, Sáez-Gallego, and Abellán 2021). The Indonesian government has officially determined the end of the Covid-19 pandemic in Indonesia to be endemic, although the public is asked to remain vigilant and maintain health by exercising and maintaining hygiene. Lack of physical activity can affect immunity because basically when the body does not do physical activity, the body's immunity can also decrease

and susceptible to diseases/viruses but by paying attention to the intensity of physical exercise that will be done (Anam, Evitamala, and hariadi 2021). It can be interpreted that physical activity is an activity that has an important role for everyone's health, including students with disabilities.

This condition is inversely proportional to the conditions in the field, namely extraordinary schools in Kebumen. The field survey conducted by the author, in Kebumen district already has direction in sports and achievements are proven in one of the SLB in Kebumen regency many have sports achievements, especially in athletics in provincial, national, and even Southeast Asian championships. Despite having a myriad of achievements achieved, it turns out that there are still many students with intellectual disabilities who lack physical activity. This is evidenced by their lack of participation in physical education learning. In addition, outside of school activities they also rarely do physical activity, which is an important body need in maintaining their physical condition. The purpose of the study was to determine the fitness level of students with intellectual disabilities aged 13-15 years in Kebumen Regency by 2024. Therefore, the latest data on physical fitness is needed to determine the fitness level of students with intellectual disabilities in Kebumen Regency, so that after knowing the level of physical fitness, it is expected that students with intellectual disabilities and supervisors are aware of the importance of maintaining body fitness, and improve the physical fitness of students with intellectual disabilities and can achieve achievements.

METHOD

The design of this study is using survey techniques (Fraenkel, Wallen, and Hyun 2018). Furthermore, the author uses a physical fitness test for mild intellectual disability aged 13-15 years developed by Visalim and Sumaryanti (2019) for the purpose of processing data. The survey was conducted using a physical fitness test for mild intellectual disability (TKJDI) aged 13-15 years which included 1) Body Mass Index (BMI), Raih Sitting Test, Sitting Sitting Test, Up and Down Stool Test, then the results were processed using test norms. From the above stages, the level of physical fitness of students with intellectual disabilities was then analyzed and obtained. The subjects in this study were children with intellectual disabilities in Kebumen district. This study used quantitative descriptive method (Fraenkel et al. 2018) namely by describing the physical fitness of students with intellectual disabilities in SLB Kebumen district, data collection through a series of physical fitness tests that have been adjusted to the

situation and circumstances of respondents.

Participants

Participants in this study included all children with intellectual disabilities in Kebumen district with an age range of 13 to 15 years. With the distribution of data collection sites covering all extraordinary schools in Kebumen district. The number of respondents in this study was 29 sons and 17 daughters.

Sampling procedure

Research sampling process using purposive sampling technique (Fraenkel et al. 2018). The author determined the participants in the study by considering the category of people with low intellectual disabilities with an age range of 13 to 15 years which then all the data were collected into one that describes the situation in Kebumen district.

Research tools and materials

In carrying out the intellectual disability physical fitness test (TJKDI) aged 13-15 years, in accordance with the test guidelines (Visalim and Sumaryanti 2019). This TKJI measuring instrument has been tested by showing the value of validity and reliability. The validity value of TKJDI is 0.968 (male) and 0.914 (female), then the reliability value of TKJDI is 0.896 (male) and 0.883 (female).

Research Procedure

In carrying out this study, there are several procedures that must be carried out by researchers and respondents before conducting the test, as stated in the physical fitness test guidebook for students with mild intellectual disabilities (Visalim and Sumaryanti 2019). Equipment and facilities needed in conducting physical fitness tests for students with mild intellectual disabilities are; Height gauges, Weight scales, Grab sitting tables, Stopwatches, benches, test forms, stationery, and loudspeakers. Before the test, participants must be completely in good health and ready to carry out the test. It is expected to have eaten, at least two hours before doing the test, it is recommended to use sports equipment. Before doing the test, participants warm up first. After carrying out the test, if unable to carry out one or more types of tests, it is declared a failure or does not get a score.

The officer gives the test taker the opportunity to try the movements of the test. Please pay attention to moving the implementation from one test item to the next as soon as possible. For participants who cannot take one or more test items are considered to have failed the test or not

given a grade. Record test results using a combined or hybrid test form. After carrying out the above procedures, a series of physical fitness tests were carried out which began with:

A. Body Mass Index (BMI) Measurement

This test aims to describe weight in relation to height. Then the results are entered into the formula BMI = Weight (kg) :(Height (m))2 (Visalim and Sumaryanti 2019). The results of the measurements are entered and analyzed using tables.

Category	Male Index	Score	Female Index	Category
Malnutrition	< 13.8	1	< 13.6	Malnutrition
Very thin	13.9- 14.8	2	13. 7- 14.8	Very thin
Thin	14.9- 16.3	3	14.9- 16.5	Thin
Low ideal	16.4- 18.1	4	16.6- 18.7	Low ideal
Ideal	18.2- 20.7	5	18.8- 21.7	Ideal
High ideal	20.8- 24.7	4	21.8- 26.1	High ideal
Fat	24.8- 31.6	3	26.2- 33.3	Fat
Very fat	31.7- 34.7	2	33.4- 36.0	Very fat
Obesity	>34.8	1	>36.1	Obesity

B. Sit and Reach Test

This test aims to measure the flexibility of the back muscles towards the front. The results are recorded how far the range that can be achieved by students is recorded in centimeters (Cm) (Visalim and Sumaryanti 2019). The results of the measurements are entered and analyzed using the following table.

Category	Male Index	Score	Female Index	Category
Excellent	35	5	30	Excellent
Good	27-34	4	23-29	Good
Fair	19-26	3	16-22	Fair
Poor	11-18	2	9-15	Poor
Very poor	3-10	1	2-8	Very poor

C. Sit Up Test

This test aims to measure the strength and endurance of the abdominal muscles. Performed for 60 seconds and then the results recorded the number of repetitions that can be done by the testicle (Visalim and Sumaryanti 2019). The results of the measurements are entered and analyzed using tables.

Category	Male Index	Score	Female Index	Category
Excellent	37	5	30	Excellent
Good	29-36	4	23-29	Good
Fair	21-28	3	16-22	Fair
Poor	12-20	2	9-15	Poor
Very poor	4-11	1	2-8	Very poor

D. Harvard Step Test

This test aims to measure cardiovascular ability. Testi performs movements up and down the bench for 60 seconds according to the rhythm, then calculated by the following formula; Duration of exercise (in seconds) x 100 / 5.5 x pulse for 30 seconds in recovery. Testi is considered unable to perform if the change of nalk / down the bench is not in accordance with the rhythm and twice (2x) changes legs when starting (Visalim and Sumaryanti 2019). The results of the measurements are entered and analyzed using tables.

Category	Male Index	Score	Female Index	Category
Excellent	97	5	95	Excellent
Good	84-96	4	81-94	Good
Fair	71-83	3	67-80	Fair
Poor	58-70	2	53-66	Poor
Very poor	45-57	1	39-52	Very poor

Data analysis techniques

After the data is calculated using the formula above, then the results of the calculation are classified into the following classification table:

NO	Total Score	CLASSIFICATION
1	16-20	Excellent
2	12-15	Good
3	9-11	Fair
4	5-8	Poor
5	1-4	Very poor

RESULT AND DISCUSSION

Result

Based on the results of physical fitness test data for physical fitness of mild intellectual disability aged 13-15 years in Kebumen, then the data can be tabulated in the following table:

1. BMI

Table 1. BMI

No	Category	Description		Percentage
		Male	Female	
1	Malnutrition	1	0	1
2	Very thin	2	0	2
3	Thin	6	2	3
4	Low ideal	7	4	4
5	Ideal	4	3	5
6	High ideal	7	6	6
7	Fat	1	2	7
8	Very fat	1	0	8
9	Obesity	0	0	9
	Total	29	17	100%
	Average	19.43	21.40	
	Category	Ideal	Ideal	

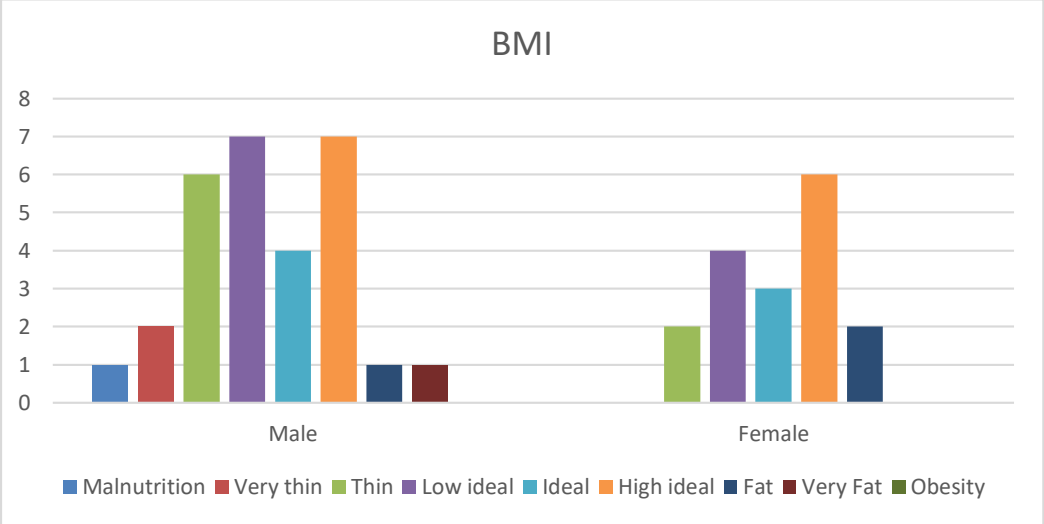

Figure 1. Graph Distribute BMI test results

2. Sit and Reach Test

Table 2. Sit and Reach Test Results

No	Category	Description		Percentage
		Male	Female	
1	Excellent	2	4	1
2	Good	8	6	2
3	Fair	16	7	3
4	Poor	3	0	4
5	Very poor	0	0	5
	Total	29	17	100%
	AVERAGE	25.07	24.06	
	Category	Fair	Good	

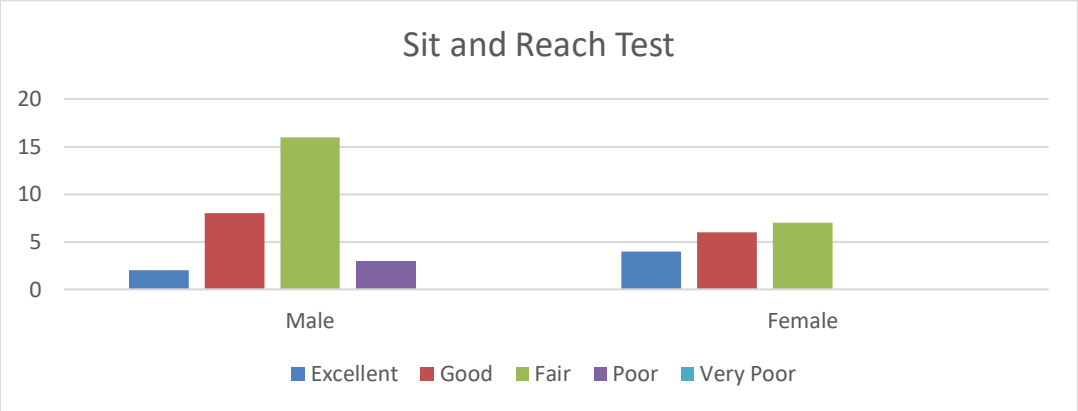

Figure 2. Graph Distribute Sit and Reach test results

3. Sit Up Test

Table 3. Sit Up Test Results

No	Category	Description		Percentage
		Male	Female	
1	Excellent	2	4	14%
2	Good	8	6	30%
3	Fair	16	7	41%
4	Poor	3	0	15%
5	Very poor	0	0	0%
Total		29	17	100%
AVERAGE		12.86	12.71	
Category		poor	Poor	

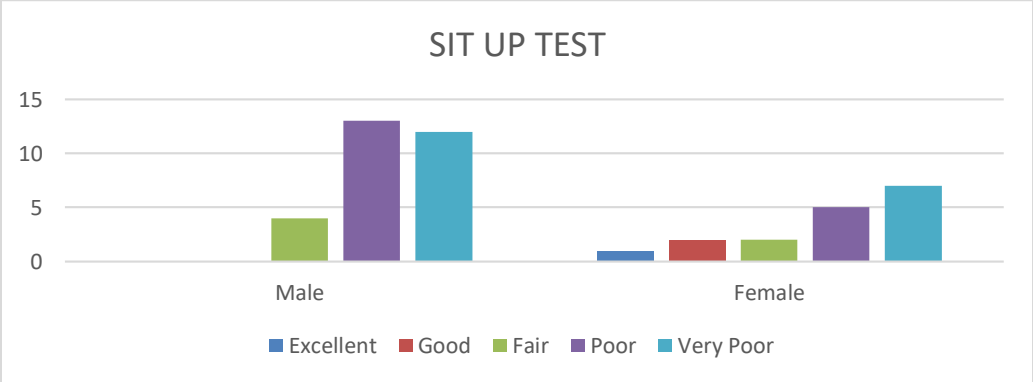

Figure 3. Graph Distribute the results of sit up test

4. Harvard Step Test

Table 4. Harvard Step Test Result

No	Category	Description		Percentage
		Male	Female	
1	Excellent	20	9	63.04%
2	Good	5	3	17.39%
3	Fair	1	0	2.17%
4	Poor	2	4	13.04%
5	Very poor	1	1	4.35%
Total		29	17	100
AVERAGE		105.86	87.76	
Category		Excellent	Good	

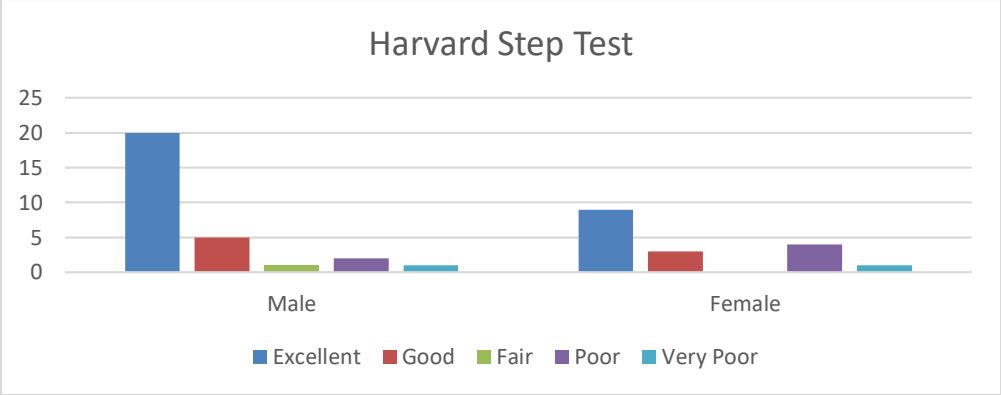

Figure 4. Graph Distribute the results of the harvard Step test

From all the data that has been collected can be described as a whole as follows:

Table 5. Results of Physical Fitness Analysis of Children with Intellectual Disabilities

No	Test Instrument	Average Result		Category		Score	
		L	P	L	P	L	P
1	BMI	19.43	21.40	Ideal	Ideal	5	5
2	Sit and Reach	25.07	24.06	Fair	Baik	3	4
3	Sit up	12.86	12.71	Poor	Kurang	2	2
4	Harvard Step Test	105.86	87.76	Excellent	Baik	5	4
		Total				15	15
		Category				Good	Good

The results above show that the physical fitness level of children with intellectual disabilities in Kebumen is in GOOD condition with a total score of 15 in children with intellectual disabilities in boys and 15 in children with intellectual disabilities in girls. However, there were unsatisfactory results in the sitting lying test which obtained a score of 12.86 in men and 12.71 in women included in the less category.

Discussion

The level of physical fitness of children with intellectual disabilities can be influenced by the basic characteristics that in general A person with mild intellectual disability has difficulty in motor skills, suboptimal physical health, limited coordination of movements, lack of confidence in the surrounding situation and environment, and has limited gross and fine motor skills (Visalim and Sumaryanti 2019).

In addition to being influenced by the basic characteristics of children with intellectual disabilities, physical fitness can also be influenced by food and nutritional intake consumed, nutritional intake is very influential on children's growth and development. Some children have nutritional status ranging from underweight to obese. Children with poor nutritional status tend to be less physically active (Burhaein et al. 2021). As a result, the muscles of the body in

children are not fully developed, so the body structure is not ideal. Racial/ethnic/regional background of origin is one of the sociocultural environmental factors that influence biological and behavioral aspects of health maintenance, including in children.

Barriers to physical activity for people with disabilities include not only functional impairment itself but also social and personal factors such as isolation, inadequate support and opportunities, cognitive problems, lack of motivation, and low perception of health risks (Kim et al. 2024). The involvement of parents in children's daily lives has a significant impact on their level of physical fitness, especially in terms of supervision and regulation of children's nutritional intake and physical activity (Prianto et al. 2022). Among the many factors that can affect a person's level of physical fitness, gadget factors have the greatest influence on a person's physical fitness level. The more often a person uses and engages with gadgets, the lower his level of physical fitness, within reasonable limits (Prianto et al. 2022). A person's level of physical fitness can be influenced by environmental factors, including the physical and socioeconomic condition of the community, physical fitness is related to academic and non-academic learning outcomes (Riska Lestari, Destriana, 2024). Low interest and motivation as well as a tendency to be lazy to exercise are also factors, especially in children who are starting to enter adulthood (Rossi, Behme, and Breuer 2021). In addition, parents' lack of understanding of the importance of physical activity for early childhood development also plays a role (Boukrim et al. 2021; de Leeuw et al. 2023). Contributions to future research, in particular, need to design physical education learning methods that are interesting and fun so that they can be used to improve and maintain physical fitness levels in children with intellectual disabilities. As well as the importance of awareness of physical fitness in order to increase the interest and motivation of children with disabilities in physical activity and sports.

CONCLUSION

The results of data collection that have been carried out by the author show that the level of physical fitness of children with intellectual disabilities in Kebumen is in good condition with a total score of 15 in children with intellectual disabilities in sons and 15 in children with intellectual disabilities in daughters. Overall TKJDI results show satisfactory results, but there are unsatisfactory results in the sitting lying test where the results obtained by sons and daughters are included in the category of less. Physical fitness that will affect children's learning outcomes in addition to adjusting to daily demands without feeling tired. Good

physical fitness has sufficient energy to enjoy free time, and is ready to face emergency situations whenever needed. This study has several limitations, especially because this study is an analysis of the category of mild intellectual disability aged 13-15 years so that the results are less relevant if used for severe intellectual disabilities, older or younger age ranges, or other types of disabilities. Because the measurement instrument used has been adjusted to the target participants, namely mild intellectual disabilities aged 13-15 years, this study, it can be seen an overview of the physical fitness condition of children with mild intellectual disabilities in Kebumen district and become a guideline for physical education teachers in extraordinary schools in developing physical education learning programs in schools.

REFERENCES

Anam, Khaerul, Lilik Evitamala, and Hariadi hariadi. 2021. "Rehabilitas Pasca Covid-19 Dari Segi Fisik." *Jurnal Porkes* 4(2):76–80. https://doi:10.29408/porkes.v4i2.4151.

Boukrim, Mohamed, Majdouline Obtel, Jalal Kasouati, Abderrahmane Achbani, and Rachid Razine. 2021. "Covid-19 and Confinement: Effect on Weight Load, Physical Activity and Eating Behavior of Higher Education Students in Southern Morocco." *Annals of Global Health* 87(1):7. https://doi:10.5334/aogh.3144.

Burhaein, Erick, Beltasar Tarigan, Dian Budiana, Yudy Hendrayana, and Diajeng Tyas Pinru Phytanza. 2021. "Physical Activity Level of Students with Disabilities during COVID-19 Pandemic." *Jurnal Pendidikan Jasmani Dan Olahraga* 6(2). https://doi:10.17509/jpjo.v6i2.38547.

Candra Dewi, Ni Komang Alit Tri, I. Ketut Budaya Astra, and I. Gede Suwiwa. 2020. "Motivasi Mahasiswa Prodi Pendidikan Jasmani Kesehatan Dan Rekreasi Fakultas Olahraga Dan Kesehatan Menjaga Kebugaran Jasmani Pada Masa Pandemi Covid-19." *Jurnal Ilmu Keolahragaan Undiksha* 8(1). https://doi:10.23887/jiku.v8i1.29573.

Fraenkel, Jack, Norman Wallen, and Helen Hyun. 2018. *How to Design and Evaluate Research in Education (10th) Ed.)*. McGraw-Hill.

Greguol, Márcia, Cristiana Conti, Bruno Marson Malagodi, Bruna Barboza Seron, Elaine Cappellazzo Souto, and Attilio Carraro. 2021. "Impact of the COVID-19 Pandemic on

Physical Activity Practice of People with Disabilities." *EDUCATION SCIENCES AND SOCIETY* (1):240–51. https://doi:10.3280/ess1-2021oa11886.

Ida Ayu Dian Pramantik. 2021. "Optimization of Gobak Sodor Based Neuroscience Learning Game as Character Education in Intellectual Disabilities." *JUMORA: Jurnal Moderasi Olahraga* 1(02):63–74. https://doi:10.53863/mor.v1i02.231.

Idham, Zul, Hendri Neldi, Anton Komaini, Tjung Hauw Sin, and Damrah Damrah. 2022. "Pengaruh Kebugaran Jasmani, Status Gizi, Dan Motivasi Belajar Terhadap Hasil Belajar PJOK." *Jurnal Basicedu* 6(3):4078–89. https://doi:10.31004/basicedu.v6i3.2196.

Kim, Young Hoon, Su Hyun Kim, Taegyu Kim, and Rui Ma. 2024. "Health-Related Physical Fitness, Blood Pressure, and Body Mass Index among People with Intellectual Disability, Visual Impairment, and Hearing Impairment." *Exercise Science*. https://doi:10.15857/ksep.2023.00563.

Lestari, R., Destriana., & Destriani. (2024). Indonesian Student Fitness Test to Measure Students Physical Fitness Levels. Journal of Physical Education, Sport, Health and Recreation, 13 (1), 50-55. https://doi.org/10.15294/active.v13i1.76618

Leeuw, M. J., A. Oppewal, R. G. Elbers, T. I. M. Hilgenkamp, P. J. E. Bindels, and D. A. M. Maes-Festen. 2023. "Associations between Physical Fitness and Cardiovascular Disease in Older Adults with Intellectual Disabilities: Results of the Healthy Ageing and Intellectual Disability Study." *Journal of Intellectual Disability Research* 67(6):547–59. https://doi:10.1111/jir.13027.

Mahfud, Imam, Aditya Gumantan, and Reza Adhi Nugroho. 2020. "Pelatihan Pembinaan Kebugaran Jasmani Peserta Ekstrakurikuler Olahraga." *56 | Wahana Dedikasi*. https://doi:10.31851/dedikasi.v3i21.5374.

McDermott, Gary, Noel E. Brick, Stephen Shannon, Ben Fitzpatrick, and Laurence Taggart. 2022. "Barriers and Facilitators of Physical Activity in Adolescents with Intellectual Disabilities: An Analysis Informed by the Model." *Journal of Applied Research in Intellectual Disabilities* 35(3):800–825. https://doi:10.1111/jar.12985.

Prastyawan, Rifky Riyandi, and Khoirul Anwar Pulungan. 2022. "Signifikansi Kebugaran Jasmani Terhadap Prestasi Belajar Siswa Sekolah Dasar." *Jurnal Pendidikan Jasmani Indonesia* 18(2):185–93. https://doi:10.21831/jpji.v18i2.55859.

Prianto, David Agus, Maris Aka Satriyo Utomo, Dwinda Abi Permana Abi Permana, Toho Cholik Mutohir, and Suroto. 2022. "Survey Tingkat Kebugaran Jasmani Dan Faktor Yang Mempengaruhi Tingkat Kebugaran Jasmani Siswa Sekolah Menengah Pertama Di Sidoarjo." *Jurnal Segar* 10(2):49–56. https://doi:10.21009/segar/1002.01.

Rossi, Lea, Nick Behme, and Christoph Breuer. 2021. "Physical Activity of Children and Adolescents during the COVID-19 Pandemic—A Scoping Review." *International Journal of Environmental Research and Public Health* 18(21):11440. https://doi:10.3390/ijerph182111440.

Solekhah, Nur, and Arumugam Raman. 2023. "Physical Fitness Survey of Grade VI Students of Public Elementary School 2 Kebumen for the 2022/2023 School Year." *JUMORA: Jurnal Moderasi Olahraga* 3(2):94–107. https://doi:10.53863/mor.v3i2.678.

Taylor, Leah G., Leigh M. Vanderloo, Julia Yates, Rebecca L. Bassett-Gunter, Meagan Stanley, and Patricia Tucker. 2024. "Physical Activity Among Young Children With Disabilities: A Systematic Review." *Adapted Physical Activity Quarterly* 41(1):176–97. https://doi:10.1123/apaq.2022-0100.

Taylor, Sarah L., Samantha J. Downs, James R. Rudd, Bronagh McGrane, Craig A. Melville, Arlene M. McGarty, Lynne M. Boddy, and Lawrence Foweather. 2023. "Associations between Motor Competence and Physical Activity Levels of Children with Intellectual Disabilities and/or Autism Spectrum Disorder: Movement Matters." *Journal of Intellectual Disabilities*. https://doi:10.1177/17446295231203764.

Valle Ramírez, Alicia, Nieves María Sáez-Gallego, and Jorge Abellán. 2021. "Un Estudio Sobre La Participación En Educación Física de Una Alumna Con Discapacidad Física (A Study about the Participation in Physical Education of a Student with Physical Disability)." *Retos* 44:116–27. https://doi:10.47197/retos.v44i0.83500.

Visalim, Aqim, and Sumaryanti. 2019. Buku Panduan Tes Kebugaran Jasmani Disabilitas Intelektual Ringan Usia 13-15 Tahun. Yogyakarta.