2025, Retos, 62, 268-276

Prueba de condición física para atletas de escalada en roca de la provincia central de Sulawesi en preparación para Prapon 2023

Physical condition test for central Sulawesi province rock climbing athletes in preparation for prapon 2023

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Abstract. The purpose of this study was to determine the physical condition of rock climbing athletes in Central Sulawesi Province in preparation for Prapon 2023. The method used in this study is descriptive research. The sample in this study was 15 athletes consisting of 8 female athletes and 7 male athletes. The instruments used to measure the physical condition of rock climbing athletes were Speed (30-meter run), Strength (60-second push-up, 60-second sit-up, 60-second pull-up, handgrip), Explosive Power (vertical jump), Flexibility (sit & reach), Reaction (hand and foot reaction), Agility (4x10-meter shuttle run), Endurance (Bleep Test). Of the 15 rock climbing athletes, 0 athletes (0%) were in the Very Good category, 4 athletes (26.67%) were in the Good category, 10 athletes (66.67%) were in the Moderate category, there was 1 athlete (6.66%) in the Less category, and there were 0 athletes (0%) in the Very Less category. Based on the research results, it can be concluded that the physical condition of rock climbing athletes in Central Sulawesi Province is in the moderate category.
Keywords: Physical Condition, Rock Climbing, PraPON

Resumen. El propósito de este estudio fue determinar la condición física de los atletas de escalada en roca en la provincia de Sulawesi Central en preparación para Prapon 2023. El método utilizado en este estudio es una investigación descriptiva. La muestra en este estudio fue de 15 atletas que consta de 8 atletas femeninas y 7 atletas masculinos. Los instrumentos utilizados para medir la condición física de los atletas de escalada en roca fueron Velocidad (carrera de 30 metros), Fuerza (flexiones de brazos de 60 segundos, abdominales de 60 segundos, dominadas de 60 segundos, agarre de manos), Potencia explosiva (salto vertical), Flexibilidad (sentarse y alcanzar), Reacción (reacción de manos y pies), Agilidad (carrera de ida y vuelta de 4x10 metros), Resistencia (prueba de pitidos). De los 15 atletas de escalada en roca, 0 atletas (0%) estaban en la categoría Muy buena, 4 atletas (26,67%) estaban en la categoría Buena, 10 atletas (66,67%) estaban en la categoría Moderada, había 1 atleta (6,66%) en la categoría Menos, y había 0 atletas (0%) en la categoría Muy Menos. Con base en los resultados de la investigación, se puede concluir que la condición física de los atletas de escalada en roca en la provincia de Sulawesi Central está en la categoría Moderada.
Palabras clave: Condición física, Escalada en roca, PraPON

Fecha recepción: 07-08-24. Fecha de aceptación: 09-10-24
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Introduction

The government's efforts to popularize sports and advance community sports have made a very valuable contribution and are the shared responsibility of all parties in current development.(Condolences, 2018). With the many sports that are developing in Indonesia. One of the sports that is developing in Indonesia is rock climbing. The development of rock climbing in Indonesia is very rapid, as evidenced by the many rock climbing associations in big cities and other areas.(Condolences, 2018).This is proven by being competed in the National Sports Week (PON). Rock climbing is a sport that prioritizes the physiology of athletes such as arm strength, arm explosive power, leg strength, leg explosive power and finger strength.(Mashuri, Mappaompo, & Purwanto, 2022). It is no coincidence that this activity influences physical development.(Batyrbekov, Zakiryanov, Ageleuova, Kadyrbekova, & Shalabayeva, 2024). Rock climbing is a challenging activity so that rock climbers need good physical condition.(Isnaini, Hasbi, Purwanto, Suharti, & Setiawan, 2023).

The sport of rock climbing was originally born from the exploration activities of mountain climbers where they finally found a track that had a level of difficulty that was no longer possible to climb normally. Originating from mountain climbing, rock climbing is now a stand-alone sport. Rock climbing as an active human function emerged when humans felt the desire and need to conquer rocky terrain..Rock climbing is the activity of climbing or climbing cliffs that utilizes gaps or protrusions that are used as footholds or grips in climbing to increase height.(Taryatman et al., 2021).Rock climbing is a sport that is considered extreme because the activity takes place on cliffs by taking advantage of rock defects, both protrusions and cracks that have a slope of more than 45°.(Chandra & Hidayat, 2023). Rock climbing is an extreme sport in which people climb artificial walls with various artificial holds using their hands and feet.(Cha et al., 2015).

Rock climbing is a branch of sport that is expected to contribute to the development of Indonesia's sporting achievements in the future.(Wibowo & Fathir, 2019). This sport demands high nervous system function due to the need to make quick decisions in non-standard conditions with almost maximum tension of all major muscle groups.(Tezer, 2018).

Rock climbing is an activity that trains physical strength to be able to climb higher, the ability to technically place feet and hands on the surface of the wall, the ability to strategize in determining the path, and the ability to think to make decisions quickly, in order to reach higher

places.(Tiar Pramukti, 2014). So it requires high analytical skills, steel mentality and physical endurance. To become a professional athlete requires good physical performance.(Claros, Alvarez, Arenas, & Sanchez, 2022; Sholikhah, Firdaus, & Junaedi, 2023; Yuliana & Wahyudi, 2022). Doing physical exercise is a powerful and efficient tool to help improve mental health.(Calderón, Luzuriaga, Herrera, & Varela, 2023).

To achieve high achievement, it is necessary to prepare a plan with the right target including physical, technical, tactical and psychological preparation. Physical condition is the main factor that needs to be considered before studying techniques, tactics and mentality.(Nurhidayah & Satya Graha, 2017). The physical condition of the athlete plays a very important role in the athlete's training program.(Kungku, Murtono, & Rahmah, 2023). In forming an athlete who achieves, an athlete must go through stages of physical training, where physical training is the initial foundation for an athlete to enter a higher stage.(Condolences, 2018).

The development of physical condition is one of the most important components in human life.(Cruz et al., 2023). Physical conditioning training programs must be well designed and systematic and aimed at improving physical fitness and the functional capabilities of the body's systems so as to enable athletes to achieve better performance.(Andreeva, Maksimenko, & Lyshevska, 2020; Samolenko et al., 2020; Yu, 2020). The level of physical condition is a determining factor(Rodríguez-Rodríguez, Roblero, & Ferrari, 2020). Physical condition consists of a large number of factors: structure, physical qualities, and motor actions.(Romero-naranjo & Andreu-cabrera, 2023).

The components of physical condition required in rock climbing are anthropometry, endurance, speed, strength, flexibility, power, reaction, coordination, accuracy and agility.(Kozina, OA, Kr, & Miroslawa, 2013). There are several physical condition factors that greatly affect the quality of a rock climber's performance, such as diet, lack of rest, irregular training and the ability of the trainer's science and technology in the athlete's physical training methods. Therefore, combining various types of physical training is recommended to maintain optimal physical condition, especially for people with athlete status.(Hernández-Beltrán, Campos, Espada, & Gamonales, 2024).

Current physical condition is considered to be one of the most important markers of health and can be considered as an integrated measure of most(Pelin, Grigoroiu, Wesselly, & Netolitzchi, 2020). If not all, body functions are involved in daily performance, physical activity, and/or exercise. Then physical condition is measured through tests that integrate most body functions.(Saldana & Urzua, 2023). Physical condition is the sum of the physical, mental, and functional capacities of the human body, which are needed to optimally cope with environmental challenges.(Pelin et al., 2020). Physical fitness is partly genetically determined but can also be greatly influenced by environmental factors, engaging in physical activity is considered a key element in the development of physical condition.(Cruz et al., 2023; Guijarro-Romero, Mayorga-Vega, Casado-Robles, & Viciana, 2023; Jiménez-Loaisa, Reyes-Corcuera, Martínez-Martínez, & Valcarcel, 2023; Karina Elizabeth et al., 2023). Practically, through the most accessible, approved and effective physical exercises in an effort to improve the level of physical condition.(García Vallejo, Sánchez Alcaraz Martínez, Hellín Martínez, & Alfonso Asencio, 2023; Giakoni, Bettancourt, & Duclos-Bastías, 2021). Physical activity is important from the first years of life to enjoy optimal health and improve physical condition, for cognitive and psychosocial development and also for cardiometabolic health.(Elif, 2018). With physical exercise can play an important role in improving many physical functions.(Fonnegra et al., 2024). It will be difficult to achieve if the duration of physical exercise is short.(Hardinata et al., 2023). Because physical exercise is a fundamental factor(Rojas et al., 2024).

Method

This type of research is descriptive research. Descriptive research is research conducted to determine the value of independent variables, either one or more variables without making comparisons or connecting with other variables.(Jayusman & Shavab, 2020). The subjects of this study were all FPTI Central Sulawesi rock climbing athletes totaling 15 athletes consisting of 8 female athletes and 7 male athletes. The criteria for athletes taken in this study were athletes who were prepared to represent Central Sulawesi Province at the National Sports Week (PON). The test instruments used in the study were taken from previous studies(Andreeva et al., 2020; Fotynyuk, 2017)namely Speed (30 meter run), Strength (60 second push-up, 60 second sit-up, 60 second pull-up, squeeze), Explosive power (vertical jump), Flexibility (sit & reach), Reaction (hand and foot reaction), Agility (4x10meter shuttle run), Endurance (Bleep Test).

Results and discussion

Results

The results of the study on the physical condition of rock climbing athletes in Central Sulawesi Province are further explained from the research results.

Speed (30 meter run)

The results of speed measurements using a 30-meter running test can be seen in the following table:

Table 1.
Results of the 30-meter running test

Number	Criteria	Amount	Presentation
1	Very well	0	0%
2	Good	4	26.67%
3	Currently	4	26.67%
4	Not enough	6	40%
5	Less than once	1	6.66%

The description of the test results of 15 rock climbing

athletes in Central Sulawesi Province, there is 0 athletes (0%) are in the very well category, 4 athletes (26.67%) are in the good category, 4 athletes (26.67%) are in the currently category, 6 athletes (40%) are in the not enough category and 1 athlete (6.66%) are in the less than once category. For more details, see the following diagram:

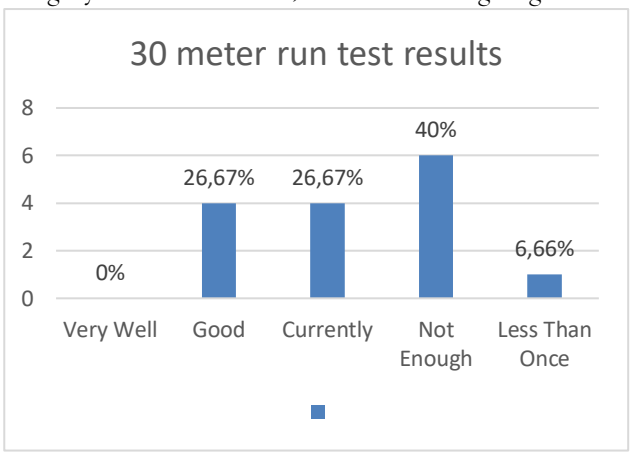

Figure 1. 30-meter running test results

Strength

60 second push-up

The results of strength measurements using the 60-second push-up test can be seen in the following table:

Table 2.
60-second push-up test results

Number	Criteria	Amount	Presentation
1	Very well	1	6.66%
2	Good	2	13.33%
3	Currently	4	26.67%
4	Not enough	4	26.67%
5	Less than once	4	26.67%

The description of the results of the 60-second push-up test from 15 rock climbing athletes in Central Sulawesi Province, there is 1 athlete (6.66%) are in the very well category, 2 athletes (13.33%) are in the good category, 4 athletes (26.67%) are in the currently category, 4 athletes (26.67%) are in the not enough category, and 4 athletes (26.67%) are in the less than once category. For more details, see the following diagram:

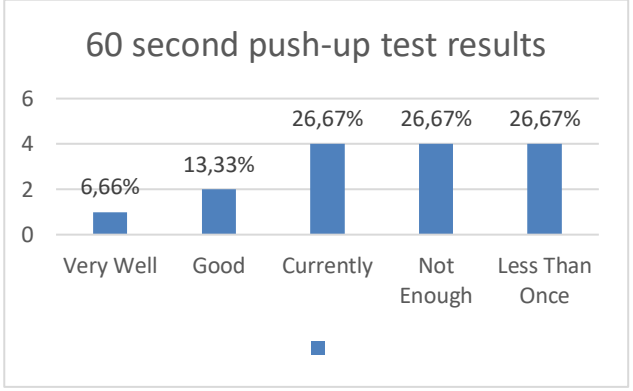

Figure 2. 60-second push-up test results

60 second sit-ups

The results of strength measurements using the 60-second sit-up test can be seen in the following table:

Table 3.
Results of the 60-second sit-up test

Number	Criteria	Amount	Presentation
1	Very well	0	0%
2	Good	0	0%
3	Currently	9	60%
4	Not enough	6	40%
5	Less than once	0	0%

As for the description of the results of the 60-second sit-up test from 15 rock climbing athletes in Central Sulawesi Province, there is 0 athletes (0%) are in the very well category, 0 athletes (0%) are in the good category, 9 athletes (60%) are in the currently category, 6 athletes (40%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

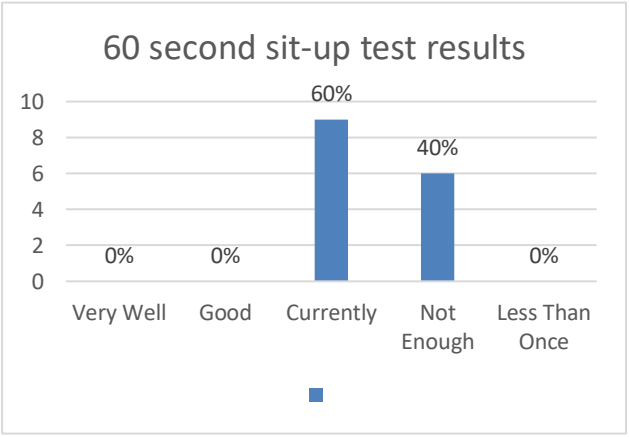

Figure 3. 60-second sit-up test results

60-second pull-up

The results of strength measurements using the 60-second pull-up test can be seen in the following table:

Table 4.
Results of the 60-second pull-up test

Number	Criteria	Amount	Presentation
1	Very well	4	26.67%
2	Good	9	60%
3	Currently	2	13.33%
4	Not enough	0	0%
5	Less than once	0	0%

The results of the 60-second pull-up test from 15 rock climbing athletes in Central Sulawesi Province, there is 4 athletes (26.67%) are in the very well category, 9 athletes (60%) are in the good category, 2 athletes (13.33%) are in the currently category, 0 athletes (0%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

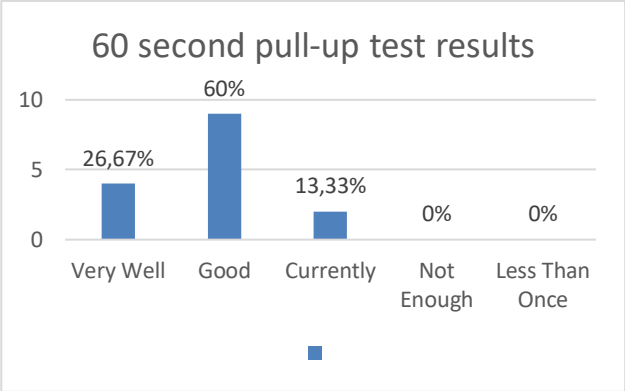

Figure 4. 60-second pull-up test results

Handgrip Test

The results of the squeezing strength measurements can be seen in the following table:

Table 5.
Handgrip test results

Number	Criteria	Amount	Presentation
1	Very well	1	6.66%
2	Good	4	26.67%
3	Currently	10	66.67%
4	Not enough	0	0%
5	Less than once	0	0%

The description of the handgrip test results of 15 rock climbing athletes in Central Sulawesi Province, there is 1 athlete (6.66%) are in the very well category, 4 athletes (26.67%) are in the good category, 10 athletes (66.67%) are in the currently category, 0 athletes (0%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

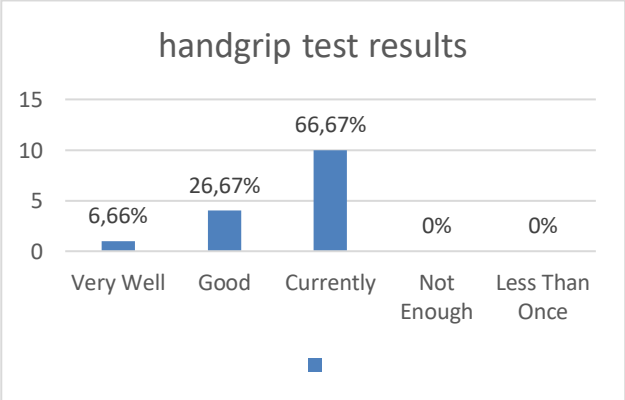

Figure 5. Handgrip test results

Explosive Power (Vertical jump)

The results of explosive power measurements using the vertical jump test can be seen in the following table:

Table 6.
Vertical jump test results

Number	Criteria	Amount	Presentation
1	Very well	3	20%
2	Good	5	33,33%
3	Currently	7	46.67%
4	Not enough	0	0%
5	Less than once	0	0%

The description of the test results of 15 rock climbing athletes in Central Sulawesi Province, there is 3 athletes (20%) are in the very well category, 5 athletes (33.33%) are in the good category, 7 athletes (46.67%) are in the currently category, 0 athletes (0%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

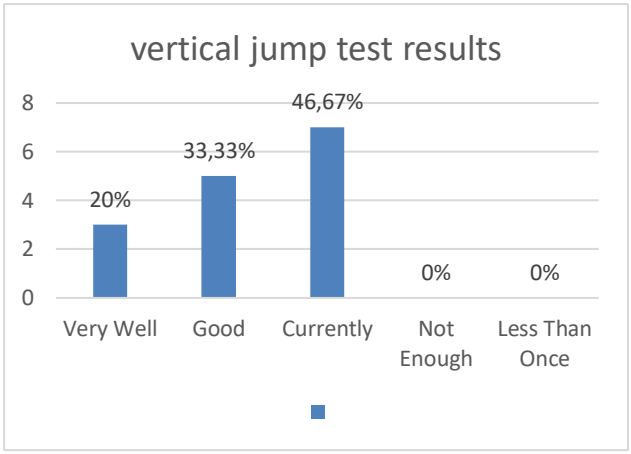

Figure 6. Vertical jump test results

Flexibility (sit and reach)

The results of measuring flexibility using the sit and reach test can be seen in the following table:

Table 7.
Sit and reach test results

Number	Criteria	Amount	Presentation
1	Very well	1	6.67%
2	Good	2	13,33%
3	Currently	9	60%
4	Not enough	3	20%
5	Less than once	0	0%

The description of the test results of 15 rock climbing athletes in Central Sulawesi Province, there is 1 athlete (6.67%) are in the very well category, 2 athletes (13.33%) are in the good category, 9 athletes (60%) are in the currently category, 3 athletes (20%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

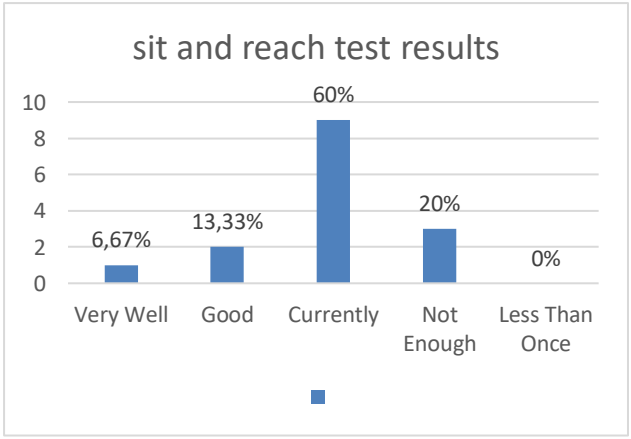

Figure 7. Sit and reach test results

Reaction

Hand Reaction

The results of reaction measurements using the visual hand reaction test can be seen in the following table:

Table 8.
Results of the visual hand reaction test

Number	Criteria	Amount	Presentation
1	Very well	2	13.34%
2	Good	0	0%
3	Currently	5	33.33%
4	Not enough	3	20%
5	Less than once	5	33.33%

The description of the test results of 15 rock climbing athletes in Central Sulawesi Province, there is 2 athletes (13.34%) are in the very well category, 0 athletes (0%) are in the good category, 5 athletes (33.33%) are in the currently category, 3 athletes (20%) are in the not enough category, and 5 athletes (33.33%) are in the less than once category. For more details, see the following diagram:

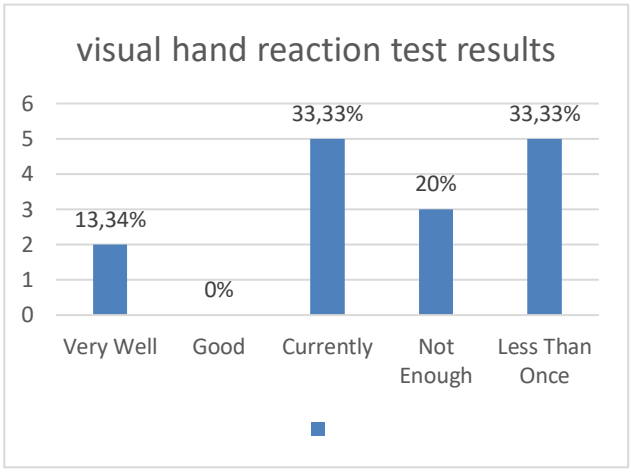

Figure 8. Visual hand reaction test results

Foot Reaction

The results of reaction measurements using the visual foot reaction test can be seen in the following table:

Table 9.
Results of the visual foot reaction test

Number	Criteria	Amount	Presentation
1	Very well	0	0%
2	Good	9	60%
3	Currently	6	40%
4	Not enough	0	0%
5	Less than once	0	0%

The description of the test results of 15 rock climbing athletes in Central Sulawesi Province, there is 0 athletes (0%) are in the very well category, 9 athletes (60%) are in the good category, 6 athletes (40%) are in the currently category, 0 athletes (0%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

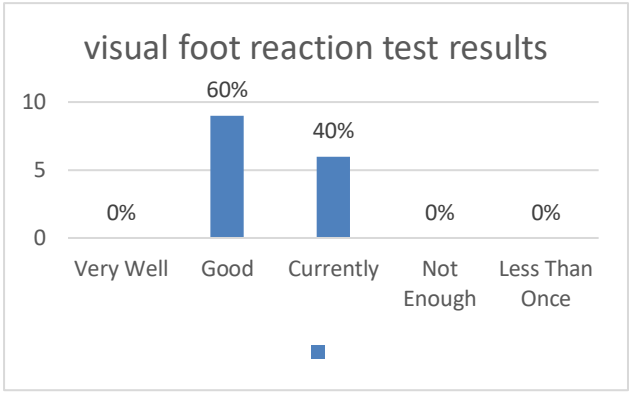

Figure 9. Visual foot reaction test results

Agility (4x10meter Shuttle Run)

The results of agility measurements using the 4x10 meter shuttle run test can be seen in the following table:

Table 10.
Results of the 4x10 meter shuttle run test

Number	Criteria	Amount	Presentation
1	Very well	0	0%
2	Good	5	33.33%
3	Currently	9	60%
4	Not enough	1	6.67%
5	Less than once	0	0%

The description of the test results of 15 rock climbing athletes in Central Sulawesi Province, there is 0 athletes (0%) are in the very well category, 5 athletes (33.33%) are in the good category, 9 athletes (60%) are in the currently category, 1 athlete (6.67%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

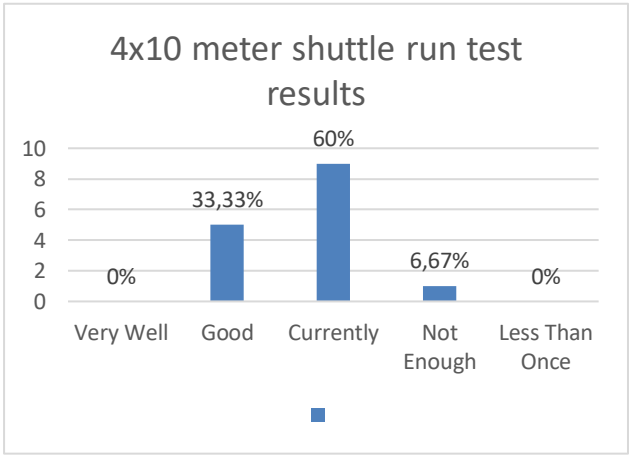

Figure 10. Results of the 4x10 meter shuttle run test

Endurance (Bleep test)

The results of measuring endurance using the bleep test can be seen in the following table:

Table 11.
Bleep test results

Number	Criteria	Amount	Presentation
1	Very well	4	26.67%
2	Good	9	60%
3	Currently	2	13.33%
4	Not enough	0	0%
5	Less than once	0	0%

The description of the test results of 15 rock climbing athletes in Central Sulawesi Province there is 4 athletes (26.67%) are in the very well category, 9 athletes (60%) are in the good category, 2 athletes (13.33%) are in the currently category, 0 athletes (0%) are in the not enough category, and 0 athletes (0%) are in the less than once category. For more details, see the following diagram:

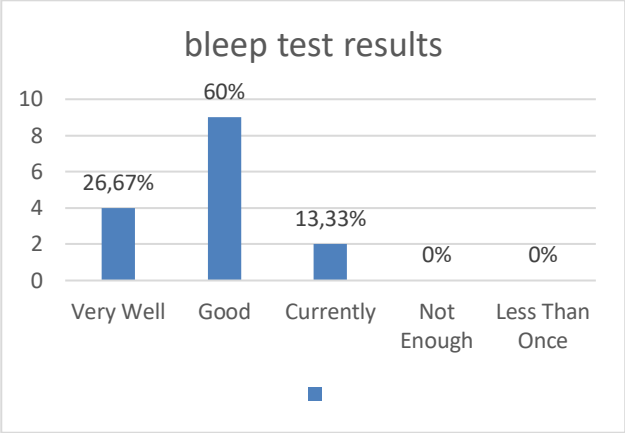

Figure 11. Bleep test results

Recapitulation of Results of Overall Physical Condition Test of Rock Climbing Athletes in Central Sulawesi Province

To determine the results of an athlete's overall physical condition, this study uses the following physical condition norms:

Table 12.
Physical Condition Norms

Number	Norm	Percentage
1	Very well	49.5 – 55
2	Good	38.5 – 49
3	Currently	27.5 – 38
4	Not enough	16.5 – 27
5	Less than once	11 – 16

Based on the norm table above, the percentage is(Anggraini, 2020). The results of the physical condition of rock climbing athletes in Central Sulawesi Province can be seen in the following table:

Table 13.
Percentage of Physical Condition Categories of Rock Climbing Athletes in Central Sulawesi Province

Norm	Percentage	Number of Frequency	Percent
Very well	49.5 – 55	0	0%
Good	38.5 – 49	4	26.67%
Currently	27.5 – 38	10	66.67%
Not enough	16.5 – 27	1	6.66%
Less than once	11 – 16	0	0%

The following diagram shows the percentage results of the overall physical condition of rock climbing athletes in Central Sulawesi Province.

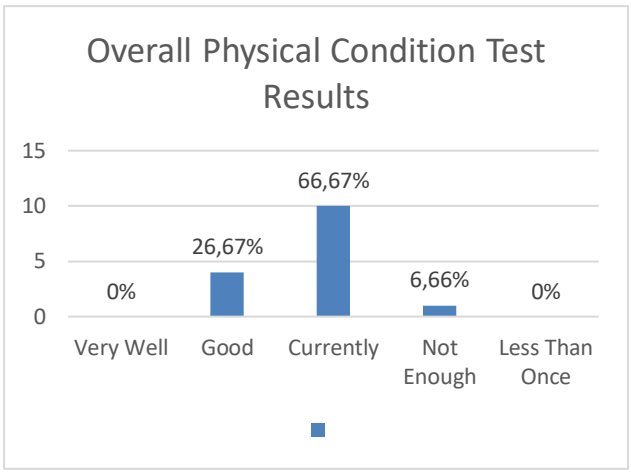

Figure 12. Percentage of overall physical condition results

Based on table 13 and figure 12 above, the results of the overall physical condition of rock climbing athletes in Central Sulawesi Province from 15 athletes, there is 0 athletes (0%) are in the very well category, 4 athletes (26.67%) are in the good category, 10 athletes (66.67%) are in the currently category, 1 athlete (6.66%) is in the not enough category, and 0 athletes (0%) are in the less than once category.

Discussion

Activity is an important factor in improving physical development and has an impact on active and healthy lifestyles.(Ramírez-gomez, Vallejo-osorio, Bahamón-cerquera, Roa-Cruz, & Monterrosa-quintero, 2024; Samolenko et al., 2020). Today physical condition is considered as one of the most important markers of health and can be considered as an integrated measure of most of the body functions involved in daily performance.(Pelin et al., 2020). Athletes who have prime physical condition, in order to achieve peak performance will experience many obstacles and it is impossible to achieve high performance.(Iqroni, 2017). To achieve high achievement, a person needs to train his physical and mental abilities.(Wijaya, Sugihartono, & Yarmani, 2017). Therefore, to find out the physical condition of the athlete, periodic examinations are needed, with the aim of evaluating the level of the athlete's physical condition.(Martinez, Atencio-Osorio, & Arango, 2024; Zapata-López et al., 2024). Specifically in this study are rock climbing athletes from Central Sulawesi Province

Based on research data, it can be seen that the physical condition of rock climbing athletes in Central Sulawesi Province is still in the moderate category. Physical condition is something that must be maintained by athletes even though they have to train independently in their respective areas.(Purnamasari et al., 2022). Physical training is considered as a complete pedagogical system(Napadiy, 2014). In today's modern conditions, the problem of maintaining the health of the younger generation, reflecting new approaches to organizing physical activity and health, is becoming increasingly relevant.(Andreeva et al., 2020). So

that it can have a direct impact on improving lifestyle behavior.(Gibelli, de Moraes, Teodoro, & Verardi, 2024; Patiño et al., 2023; Ramalho, Fonseca, & Petrica, 2024).

Research that has been conducted by(Yu, 2020)stated that physical condition determines the effectiveness of training and improves better performance and improves health. Good physical condition can improve and strengthen the quality of technique. The physical condition status of an athlete can be known after taking a physical condition test, with training it is hoped that performance will increase(Metikasari & Roepadjadi, 2020). Physical strength alone is not enough for successful performance but must be accompanied by great mental ability.(DERECELİ, DERECELİ, & YILDIZ, 2023).

Conclusion

Based on the results of the research and discussion above, it can be concluded that the physical condition of rock climbing athletes in Central Sulawesi Province is in the Moderate category. However, in certain test items such as pull ups are very dominant. Therefore, the author suggests that managers and coaches create a training program that can improve the physical condition of athletes. Although there are several obstacles encountered, one of these obstacles is the spread of athletes from various regions in Central Sulawesi Province.

Confession

The researcher would like to express his deepest appreciation and gratitude to the Leaders, Coaches and Rock Climbing Athletes of Central Sulawesi Province who have made very valuable contributions to this research. As well as to the Physical Education, Health and Recreation Study Program of Tadulako University which has facilitated and granted permission to use the sports laboratory and provided support in this research.

References

Andreeva, O.V., Maksimenko, A. ., & Lyshevska, V. . (2020). Modern Approach to the use of Fitness Technology as a Means to Improve the Physical Condition of Youth. Scientific Journal National Pedagogical Dragomanov University, 7(7), 9–14. https://doi.org/10.31392/NPU-nc.series 15.2020.7(127).02

Anggraini, FL (2020). Physical Condition Survey of Male Athletes of the East Java Rock Climbing Training Center in the Speed Track Category. Faculty of Sports Science, Surabaya State University, 5(3), 248–253.

Batyrbekov, N., Zakiryanov, B., Ageleuova, A., Kadyrbekova, D., & Shalabayeva, L. (2024). Development of sports tourism on the territory of Kazakhstan for the development of a healthy lifestyle among the younger generation on the example of rock climbing. Retos, 51, 311–318. https://doi.org/10.47197/RETOS.V51.100535

Calderón, FCP, Luzuriaga, GSM, Herrera, ERY, & Varela, ERG (2023). Physical conditioning and the relationship with stress in the National Police of the Metropolitan District of Quito. Retos, 48, 505–510.

Candra, AT, & Hidayat, VG (2023). Analysis of the Impact of Shouting on the Level of Fatigue and Speed of Rock Climbing Athletes. SPRINTER: Journal of Sports Science, 4(1), 27–34. https://doi.org/10.46838/spr.v4i1.290

Cha, K., Lee, E.-Y., Heo, M.H., Shin, K.-C., Son, J., & Kim, D. (2015). Analysis of climbing postures and movements in sport climbing for realistic 3D climbing animations. Procedia Engineering, 112, 52–57. https://doi.org/10.1016/j.proeng.2015.07.175

Claros, VJA, Alvarez, CV, Arenas, AA, & Sánchez, JHP (2022). Valores percentiles de la conditionión física saludable en escolares. Retos, 43, 162–170. Retrieved from https://recyt.fecyt.es/index.php/retos/index

Cruz, MG, Pereira, LG, Navarro, JRS, Mera, SHR, Yapo, JLC, & Ruiz, HRM (2023). La condición física y las habilidades militares en el proceso de formación de los Grumetes (The physical condition and military skills in the training process of the Cabin Boys). Retos, 49, 214–224. https://doi.org/10.47197/retos.v49.96020

DERECELİ, E., DERECELİ, Ç., & YILDIZ, T. (2023). Spor Yapan ve Spor Yapmayan Spor Bilimleri Fakültesi Öğrencilerinin Kişisel Uyum Düzeyleri ile Liderlik Yönelimlerinin Karşılaştırılması. International Journal of Mountaineering and Climbing, 6(2), 38–51. https://doi.org/10.36415/dagcilik.1359180

Elif, B. (2018). Yapılandırmacı Kuram Per spectifinden Metaforlar ve Analojiler Yoluyla Öğrenme Transferi : Dağcılık - Liderlik Örneği Elif Bilginoğlu * Learning Transfer by Metaphors and Analogies from the Perspective of Constructivist Theory : Mountaineering – Leadershi. International Journal of Mountaineering and Climbing, 1(1), 9–24.

Fonnegra, OEH, Landázuri, P., García-Cardona, D.M., Chamorro, N.L., Bonilla, V.C., & Torres, M. Á. C. (2024). Effects of combined exercise (aerobic and resistance) on body composition and physical condition in breast cancer patients and survivors. A systematic review of clinical trials. Retos, 56, 1096–1110. Retrieved from https://recyt.fecyt.es/index.php/retos/index

Fotynyuk, V.G. (2017). Determination of first year students' physical condition and physical fitness level. Physical Education of Students, 116–120. https://doi.org/10.15561/20755279.2017.0303

García Vallejo, A., Sánchez Alcaraz Martínez, B.J., Hellín Martínez, M., & Alfonso Asencio, M. (2023). Influencia de un programa de recreos activos en la conditionión física de estudiantes de Educación Primaria. Retos: Nuevas Tendencias En Educación Física, Deporte y Recreación, 48, 222–228. Retrieved from https://dialnet.unirioja.es/descarga/articulo/8776857.pdf%0Ahttps://dialnet.unirioja.es/servlet/extart?codigo=8776857

Giakoni, F., Bettancourt, P. P., & Duclos-Bastías, D. (2021). Physical education in Chile: Duration and its influence on physical condition, body composition, and level of physical activity in schoolchildren. Retos, 39, 24–29. https://doi.org/10.47197/retos.v0i39.77781

Gibelli, G., de Moraes, M. G., Teodoro, M. A., & Verardi, C. E. L. (2024). Levels of physical activity, physical and psychological well-being of university students, during the COVID-19 pandemic. Retos, 54, 180–187.

https://doi.org/10.47197/retos.v54.100951

Guijarro-Romero, S., Mayorga-Vega, D., Casado-Robles, C., & Viciana, J. (2023). Desarrollo y validación de una prueba escrita objetiva de elección múltiple para evaluar el conocimiento del entorno para el acondicionamiento físico (CENAFI) en escolares (Development and validation of an objective written test of multiple-choice to assess. Retos, 51, 426–441. https://doi.org/10.47197/retos.v51.97719

Hardinata, R., Putra Sastaman, B., Okilanda, A., Prabowo, TA, Tjahyanto, T., Rozi, MF, … Suryadi, D. (2023). Analysis of the physical condition of soccer athletes through the yo-yo test: a survey study on preparation for the provincial sports week. Retos, 50, 1091–1097. https://doi.org/10.47197/retos.v50.100300

Hernández-Beltrán, V., Campos, LFCC de, Espada, M.C., & Gamonales, J.M. (2024). analysis of the physical condition and lifestyles related to the consumption of tobacco and alcohol of hunters from Extremadura. Retos, 51, 94–101.

Iqroni, D. (2017). Basic skills and physical condition test model to identify the talents of prospective basketball athletes. Journal of Sports, 5(2), 142. https://doi.org/10.21831/jk.v5i2.15595

Isnaini, LMY, Hasbi, Purwanto, D., Suharti, & Setiawan, E. (2023). Exploring the Psychological Profile of Rock Climbing Athletes Participating in the National Sports Week (PON) in West Nusa Tenggara: A psychometric analysis. Journal Sport Area, 8(2), 291–299. https://doi.org/10.25299/sportarea.2023.vol8(2).12229

Jayusman, I., & Shavab, OAK (2020). Student Learning Activities Using Edmodo-Based Learning Management System (LMS) Learning Media in History Learning. Artifact Journal, 7(1), 13–20. https://doi.org/10.25157/ja.v7i1.3180

Jiménez-Loaisa, A., Reyes-Corcuera, M. de los, Martínez-Martínez, J., & Valcarcel, J. V. (2023). Niveles de actividad y condición física en escolares de Educación Primaria en la "nueva normalidad." Retos, 47, 442–451. Retrieved from https://dialnet.unirioja.es/servlet/articulo?codigo=8648257

Karina Elizabeth, A.-L., Pedro Angel, L.-R., Juan Antonio, P.-M., Jorge Luis, P.-L., Jose Carlos, C.-L., & Alexander, M. -L. (2023). Asociación entre la conditionión física y el estado ponderal en escolares de Educación Primaria. Retos, 51, 888–894. Retrieved from https://recyt.fecyt.es/index.php/retos/article/view/100788

Kozina, Z. ., OA, R., Kr, P., & Miroslawa, C. (2013). Psychophysiological Possibility Of Mountaineers and Climbers Specializing In Speed Climbing and Climbing Difficulty. Medical-Biological Problems of Physical Training and Sport, 41–46. https://doi.org/10.6084/m9.figshare.785784

Kungku, C., Murtono, T., & Rahmah. (2023). Physical Condition Test Of Trail Running Athletes In Central Sulawesi Province 2023 Prapon Preparation. Glasser Educational Journal, 7(2), 353–359. https://doi.org/DOI:10.32529/glasser.v7i2.2791

Martinez, B.S., Atencio-Osorio, M.A., & Arango, H.A.C. (2024). Condición física y riesgo de caídas en un un groupo de personas mayores del servicio médico de una universidad pública. Retos, 55, 461–467.

Mashuri, H., Mappaompo, MA, & Purwanto, D. (2022). Analysis of energy requirements and nutritional needs of rock climbing athletes. Sports Area Journal, 7(3), 437–445. https://doi.org/10.25299/sportarea.2022.vol7(3).10886

Metikasari, S., & Roepadjadi, J. (2020). Analysis of the Physical Condition of the Sidoarjo Regency Women's Indoor Hockey Team. Journal of Sports Health, 8(3), 11–16.

Napadiy, A. (2014). Planning of educational process for physical culture taking into consideration the dynamics of the physical condition of 13–14 years school children. Науково-Спортивний Вісник, 43(5), 55–58. https://doi.org/10.15391/snsv.2014-5.010

Nurhidayah, D., & Satya Graha, A. (2017). Physical Condition Profile of Athletes of the Yogyakarta State University Pencak Silat Student Activity Unit in the Competition Category. Medikora, 16(1), 1–16.

Patiño, BAB, Reina, C.J., Martínez-benítez, C., Uribe, J.D.P., Montilla-Valderrama, V., Cárdenas-contreras, S., … Ávila-martínez, JD (2023). Relación de la competencia aprender aprender, estilos de vida y condición física en estudiantes universitarios colombianos de deporte: Estudio exploratorio. Federación Española de Asociaciones de Docentes de Educación Física (FEADEF), 51, 58–68. Retrieved from https://recyt.fecyt.es/index.php/retos/index

Pelin, R., Grigoroiu, C., Wesselly, T., & Netolitzchi, M. (2020). The Perceived Level of Physical Condition in Young People Aged 20-22 Years. Discobolul – Physical Education, Sport and Kinetotherapy Journal, 59(2), 143–155. https://doi.org/10.35189/dpeskj.2020.59.2.5

Purnamasari, I., Listiandi, AD, Novian, G., Hidayat, B., Indonesia, UP, & Soedirman, UJ (2022). Physical Condition of West Java Judo Athletes During the COVID-19 Pandemic: A Review of the General Preparation Stage. JOSSAE (Journal of Sport Science and Education), 7(1), 24–33. https://doi.org/dx.doi.org/10.26740/jossae.v7nI.p24-33

Ramalho, A., Fonseca, R., & Petrica, J. (2024). On the Move: A Cross-Sectional Study on Physical Activity, Sedentary Behavior, and Depressive Symptoms among Older People in Rural Portugal. Retos, 53, 521–529.

Ramírez-gomez, D.C., Vallejo-osorio, A.N., Bahamón-cerquera, P.E., Roa-Cruz, M. Á., & Monterrosa-quintero, A. (2024). Levels of physical activity and psychological well-being of the elderly in rural areas. Retos, 51, 69–74.

Rodríguez-Rodríguez, F., Roblero, S. M., & Ferrari, G. L. de M. (2020). Recreo organizado como estrategia para mejorar los niveles actividad física y condición física en adolescentes escolares (Organized recess as a strategy to improve physical activity levels and physical condition in adolescents). Retos, 39, 403–401. https://doi.org/10.47197/retos.v0i39.78534

Rojas, IAS, Bejarano, LO, Romero, KD, Pachón, HA, Patiño, CI, Salas, SF, & Gutiérrez, YPA (2024). Impact of supervised physical exercise on the determinants of physical condition in the population with a post Covid 19 diagnosis. Retos, 56, 465–471. https://doi.org/10.47197/retos.v56.100722

Romero-naranjo, F. J., & Andreu-cabrera, E. (2023). Physical condition and neuromotricity. Theoretical-practical justification according to the BAPNE method. 50, 215–227.

Saldaña, B.F., & Urzúa, A.R. (2023). Nivel socioeconómico e índice de masa corporal: predictores de la condition física en estudiantes Chilenos Socioeconomic level and Body mass index: predictors of physical condition in Chilean students. Retos, 50, 228–233.

Samolenko, T. ., Yanchenko, I. ., Hapsalis, G. ., Kovalova, A. ., Dembitska, E. ., & Brazhnyk, V. . (2020). Comparative analysis of assessment of the level of physical fitness of

students of the Faculty of International Trade and Law. Scientific Journal National Pedagogical Dragomanov University, 2(2), 148–151. https://doi.org/10.31392/NPU-nc.series15.2020.2(122)30

Sholikhah, K., Firdaus, M., & Junaedi, S. (2023). Survey of Physical Condition Level of Mapala Pelita Rock Climbing Members in 2022. SCIENTIFIC JOURNAL OF PENJAS (Research, Education and Teaching), 9(1), 14–23. https://doi.org/10.36728/jip.v9i1.2465

Sungkawa, MGG (2018). Strength Training Model for Rock Climbing in Adolescent Athletes. Maenpo Journal: Journal of Physical Education, Health and Recreation, 8(1), 13–24. https://doi.org/10.35194/jm.v8i1.913

Taryatman, Muharram, NA, Suharjana, Sulistya, A., Yuliawan, D., Puspodari, & Kurniawan, WP (2021). TOT (Training Of Trainer) Parameter Test for PPLP DIY Rock Climbing Athletes 2021. GANDRUNG: Journal of Community Service, 2(2), 210–216. https://doi.org/doi.org/10.36526/gandrung.v2i2.1298

Tezer, N. (2018). Dağcılık Antrenörlerinin Kaygı Düzeyleri İncelemesi. International Journal of Mountaineering and Climbing, 1(1), 1–8. https://doi.org/10.36415/dagcilik.428464

Tiar Pramukti, SJ (2014). The Effect of Ladder Drill and ABC Run Training on Increasing the Speed of Climbing Speed Tracks of FPTI Rock Climbing Athletes in Magelang City. Journal of Sport Sciences and Fitness, 3(4), 51–54.

Wibowo, S., & Fathir, LW (2019). Evaluation of the Physical Condition of Rock Climbing Athletes of the Regional Training Center (PUSLATDA) of East Java Province Against the Achievement Results Towards the XIX PON in 2016. Surabaya State University.

Wijaya, R., Sugihartono, T., & Yarmani. (2017). Contribution of Arm Muscle Strength and Hand Strength to Climbing Speed in Rock Climbing Sports at UKM Nature Lovers, University of Bengkulu. Scientific Journal of Physical Education, 1(1), 20–27.

Yu, K. N. (2020). Physical Conditions of Future Law Officers at the Stage of Professional Formation. Scientific Journal National Pedagogical Dragomanov University, 6(6), 99–105. https://doi.org/10.31392/NPU-nc.series 15.2020.6(126).22

Yuliana, A., & Wahyudi, H. (2022). Analysis of Physical Condition of Female Pencak Silat Athletes in Extracurricular Competition Category Age 15-16 Years of SMA Negeri 12 Surabaya. JOSSAE (Journal of Sport Science and Education), 7(1), 34–41. https://doi.org/10.26740/jossae.v7n1.p34-41

Zapata-López, J. S., Calvo-Paz, M., & Carrillo-Arango, H. A. (2024). Acoso escolar y su relación con la actividad física en adolescentes escolarizados de Cali. Retos, 52, 639–646. https://doi.org/10.47197/RETOS.V52.100607

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