

Identification of Physical Condition and Anthropometrics of Women's Volleyball Athletes Central Sulawesi

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Abstract
<p>Objective. of the study was to assess the physical and anthropometric conditions of female volleyball athletes in Central Sulawesi. This research is a descriptive study employing a quantitative methodology.</p> <p>Materials and Methods. The study population comprised 14 volleyball athletes from Central Sulawesi PON. The sample method employed was Purposive sample. The data collection technique employed the TEST and measurement methodologies. The instruments employed to assess physical conditions in this study included: 1) speed (30-meter run), 2) arm muscle strength, 3) explosive power (vertical leap), 4) flexibility (sit and reach), 5) agility (shuttle run 4x10m), and 6) endurance (1600m run).</p> <p>Results. The study results, derived from physical condition tests conducted on 14 volleyball participants in Central Sulawesi Province, yielded the following findings. There were no athletes (0) or 0% in the very good category, 3 athletes or 21.43% in the good category, 11 athletes or 78.57% in the moderate category, and no athletes in the less and very less categories (0) or 0%. The anthropometric measures yielded an average weight of 59.14 kg, a minimum weight of 56 kg, and a maximum weight of 63 kg. Mean height is 169.21 cm, with a low of 154 cm and a maximum of 176 cm. Mean leg length is 72.57 cm, with a minimum of 69 cm and a maximum of 78 cm. Mean arm spread is 35.79 cm, with a minimum of 32 cm and a maximum of 40 cm.</p> <p>Conclusion. The physical condition of female volleyball athletes in Central Sulawesi Province during PON is, on average, categorized as medium.</p>
Keywords : Hypertension, Walking, High Blood Pressure

Introduction

Sports as a physical or bodily activity can provide satisfaction to the perpetrators as an individual need supported by facilities and infrastructure (Kuswoyo, 2018) . The role of sports in human life is so great that sports can be used as a means for sports education and sports health, recreation, achievement and even as a culture. Sports and health education is essentially an educational process that utilizes physical activity and health to produce holistic changes in individual quality, both in terms of physical, mental, and emotional (Hatmoko, 2015) . Physical education treats children as a whole unit, a total being, rather than just considering them as someone who is separate in physical and mental quality (Kuswoyo & Donggoran, 2019) . (Dewi, 2023a) Physical training is done progressively for a long time to

get good results. Therefore, from our physical condition we can find out the points that are lacking in athletes so that the athletes themselves will continue to hone the abilities that are considered lacking. In various sports activities, less than perfect physical preparation, technical, tactical, and mental abilities will be affected so that the performance is less than optimal. In this case, the purpose of measuring physical condition is the most dominant initial preparation for performing maximum physical performance. From the basic components of physical condition, it is necessary to have training according to its portion, because the components of differences in energy systems, forms of movement, training methods, training loads, which are used in various sports activities are very much determined by the performance of physical condition.

World volleyball was realized in 1946, with the establishment of the International Volleyball Federation (IVBF) (Winarno et al., 2018) which is one of the popular sports in Indonesia. In the modern era volleyball clubs should have started volleyball sports coaching which has been carried out in stages starting from the beginner stage (multilateral) to the senior stage as preparation for coaching towards achievement sports (Dewi, 2023b)

(Suherman et al., 2018) In the sport of volleyball, several components are also needed, namely concentration, accuracy, and strength to get maximum results and no less important is the improvement of an athlete's physical fitness (Anggraeni & Sutiarysih, 2018) Attacking techniques and defensive techniques that are carried out easily and practically and mastery of basic techniques including service, passing, smash, and block (Gazali, 2016). and smash techniques must be trained in athletes from an early age because at an early age it is a stage that is prone to movement errors (Pranopik, 2017).

This research is important to do to find out the physical and anthropometric conditions of PON volleyball athletes in Central Sulawesi in order to provide knowledge about the physical and anthropometric conditions of female PON volleyball athletes as a basis for seeing poor physical conditions and as a basis for a coach to determine the training program and provide training loads. Seeing the problems above, the title of this study is Identification of physical and anthropometric conditions of PON volleyball athletes in Central Sulawesi.

Materials and Methods

Study organization.

This research is a descriptive research. According to (Sugiyono, 2012) , descriptive research is a research that functions to describe or provide an overview of the object being

studied through sample data or population as it is, without conducting analysis and conclusions that apply to the public.

The research method used is a survey. According to Sugiyono (Arikunto, 2010) the survey research method is a quantitative research method used to obtain data that occurred in the past or present, about beliefs, opinions, characteristics, behavior, variable relationships and to test several hypotheses about variables, and to test the sociology and psychology of samples taken from a certain population and data collection techniques with tests.

Study Participants.

The sample in this study was all female volleyball athletes from Central Sulawesi, totaling 14 people.

Statistical analysis.

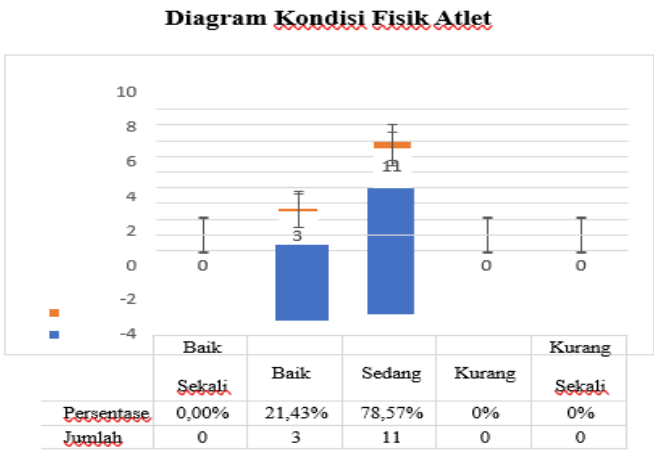
The physical condition instruments used in this study were Speed Test (30 meter run), arm muscle strength (push up), leg muscle explosive power (vertical jump), Flexibility (sit and reach), agility (4x10 meter run) and endurance test (1600 meter run) as well as anthropometric tests which included weight, height, leg length, arm length.

Results

The results of the physical condition and anthropometry tests carried out on the Central Sulawesi Province PON athletes in the volleyball sport, which consisted of 5 physical condition test items, namely: 1) Speed (30 meter run), 2) Arm muscle strength (Push Up) 3) Explosive power (Vertical Jump), 4) Flexibility test (Sit & Reach), 5) Agility (Shuttle Run 4x10m) 6) Endurance (1600 meter run). While anthropometry by measuring body weight and height.

Based on the results of the physical condition test, it can be stated as follows. There are no athletes (0) or 0% in the very good category, there are 3 athletes or 21.43% in the good category, there are 11 athletes or 78.57% in the moderate category, there are no athletes in the less category and the very less category (0) or 0%. Further details can be seen in the following diagram. Anthropometric measurements obtained measurement results that can be seen in the following table.

Figure
Condition



1. Physical
Diagram

Table 1. Results of Anthropometric Measurements
Tabel Hasil Pengukuran Antropometri

No	Nama	Antropometri			
		BB (Kg)	TB(Cm)	Panjang Tungkai (Cm)	Rentang Lengan (Cm)
1	AA	58	168	71	32
2	BB	59	169	72	36
3	CC	57	166	70	38
4	DD	62	172	75	40
5	EE	61	173	75	40
6	FF	60	170	72	39
7	GG	63	176	78	37
8	HH	61	170	76	35
9	II	57	171	72	36
10	JJ	55	166	70	32
11	KK	59	169	71	34
12	LL	56	154	69	32
13	MM	59	170	72	34
14	NN	61	175	73	36
Rata-rata		59,14	169,21	72,57	35,79

Based on the table above, the average weight is 59.14 kg, minimum weight is 56 kg, and maximum weight is 63 kg. Average height is 169.21 cm, minimum height is 154 cm, and maximum height is 176 cm. Average leg length is 72.57 cm, minimum leg length is 69 cm, maximum leg length is 78 cm. Average arm span is 35.79 cm, minimum arm span is 32 cm, and maximum arm span is 40 cm.

Discussion

Physical activity is an important part of improving the physical condition of athletes (Andika et al., 2024) . Currently, physical condition is used as an important marker or benchmark for health and as a complex measure of the large part of body functions that work in daily activities (Bhattad & Pacifico, 2022) . Athletes basically must have good physical condition, because with good physical condition athletes can move well and achieve good achievements (Iqroni, 2017). The physical condition of an athlete certainly does not just

happen, of course there are stages that the athlete has gone through such as training or match tests. Therefore, to find out the physical condition of the athlete, the athlete's condition needs to be measured or checked periodically in order to find out the athlete's ability level.

The results of this study show that the physical condition of volleyball athletes in Central Sulawesi Province is in the moderate category. However, if we look at the data in the table we can see that the athletes already have good physical condition because they managed to achieve good scores on each test item. The physical condition of these athletes still needs to be improved by the athletes in various ways such as training with a training program that needs to be improved again to be able to improve the physical condition of the athletes. Physical condition is very important for someone to optimize the techniques learned, good physical condition is the main requirement to master and develop a sports technique skill. Therefore, a training system and management are needed to improve physical condition with a complete and complex system (Napadiy, 2014).

The development of modern sports today, one of the problems of maintaining health for the current young generation is to regulate physical and health activities which are increasingly relevant (Andreeva, 2020). Previous research conducted by Bondarenko in 2015 stated that the physical condition of athletes is a determinant of training effectiveness and improving performance and improving health (Bondarenko, 2015). Good physical condition is directly proportional to improving and increasing the quality of technique for athletes, this is also a benchmark that the athlete's physical condition can be known after taking a physical condition test which is a reference for monitoring and evaluating athletes (Metikasari & Roepadjaji, 2020).

Conclusions

The study conducted physical condition and anthropometric assessments on 14 female volleyball athletes in Central Sulawesi Province, revealing an average classification of moderate. However, each athlete demonstrated satisfactory physical condition, and the anthropometric measurements yielded favorable outcomes. Consequently, the author recommends enhancing physical conditioning training, as it is fundamental for athletes to achieve optimal performance. This requires further enhancement to ensure athletes achieve superior physical condition metrics and that all team members maintain uniform physical fitness levels.

References

- Andika, IMB, Nita, P., Fahritsani, H., & Sugarwanto, S. (2024). Adaptive Sports Learning in Physical Education: Theory and Practice for Physical Education (PE) Students. *Musamus Journal of Physical Education and Sport (MJPES)* , 6 (2), Article 2. <https://doi.org/10.35724/mjpes.v6i2.6098>
- Anggraeni, D., & Sutiyarsih, S. (2018). Improving learning outcomes of basic throwing movements through a play approach. *Indonesian Journal of Physical Education* , 14 (1), Article 1. <https://doi.org/10.21831/jpji.v14i1.21340>
- Arikunto, S. (2010). *Arikunto, S. (2010). Research Procedures: A Practical Approach (Revised Edition). PT. Rineka Cipta. Research Procedures: A Practical Approach (Revised Edition). PT. Rineka Cipta.*
- Bhattad, P.B., & Pacifico, L. (2022). Empowering Patients: Promoting Patient Education and Health Literacy. *Cureus* . <https://doi.org/10.7759/cureus.27336>
- Dewi, R. (2023a). The Effect Of Big Ball Game Modification On Gross Motor Development Of Elementary School Students. *COMPETITOR: Journal of Sports Coaching Education* , 15 (1), 48. <https://doi.org/10.26858/cjpko.v15i1.43810>
- Dewi, R. (2023b). The Effect Of Big Ball Game Modification On Gross Motor Development Of Elementary School Students. *COMPETITOR: Journal of Sports Coaching Education* , 15 (1), Article 1. <https://doi.org/10.26858/cjpko.v15i1.43810>
- Hatmoko, JH (2015). Survey of Female Students' Interests and Motivations for Physical Education and Health Subjects in Vocational High Schools in Salatiga City in 2013. *Journal of Physical Education, Sport, Health and Recreations* , 4 (4), Article 4.
- Kuswoyo, DD (2018). Identification of the Level of Football Skills of Grade V Male Students of SDN Monta, Monta District, Bima Regency, 2018-2019 Academic Year. *Journal of Sports Science* , 17 (2), 6–10.

Kuswoyo, DD, & Donggoran, MF (2019). Identification of Basic Football Game Ability

Levels of Physical Education and Health Students. *Musamus Journal of Physical*

Education and Sport (MJPES , 02 (01), Article 01.

Sugiyono. (2012). *Quantitative, Qualitative and R&D Research Methods* . CV. Alfabeta.

Suherman, B., Haris, IN, & Risyanto, A. (2018). THE EFFECT OF SHOOTING TRAINING

USING THE DRILL METHOD ON SHOOTING ACCURACY ON GOAL OF

TUNAS MUDA FC PLAYERS. *BIORMATICS Scientific Journal of FKIP, Subang*

University , 4 (2), Article 2.