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PROFILE PULMONARY ENDURANCE AND ANTHROPOMETRY OF TAEKWONDO ATHLETES

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ABSTRACT

This study aims to determine the results of cardiopulmonary endurance and anthropometry in the South Sumatra TPC taekwondo dojang athletes. This type of research is descriptive. The population of the study were TPC taekwondo athletes, totaling 30 athletes. The sample in this study was taken from the whole or total sampling, namely 30 athletes. The data analysis technique was processed with the percentage of data obtained, namely for the results of cardiopulmonary endurance athletes have an average cardiopulmonary endurance in the very good category, and for anthropometric results on body mass index have an average condition that is in the good category, for the circumference The athlete's upper arm circumference is in the good category, and the average athlete's abdominal circumference is in the good category. The implementation of this study is that if athletes have good cardio-pulmonary endurance and anthropometry, it will affect the results of sports achievements, especially in taekwondo sports.

Keywords: Cardio Pulmonary Endurance; Anthropometry; Taekwondo

Introduction

The importance of the role of sport in human life, as well as in participating in efforts to advance quality human beings in Indonesia, the government in Indonesia provides guidance and development in the field of sports. For example holding sports matches which are usually followed by sportsmen. In accordance with the sports coaching and development system, the government in Indonesia has formed a forum called KONI or the Indonesian National Sports Committee which oversees various sports in Indonesia, one of which is the martial arts sport Taekwondo. Taekwondo is a sport that originated in South Korea. This taekwondo sport includes martial arts that use the feet and hands, but mostly uses the feet. Yoyok Suryadi dikutip oleh Rozikin & Hidayah, (2015) Taekwondo consists of three words, namely tae which means the foot which functions to destroy with kicks, kwon which means the hand functions to hit and do which means the art or method of self-discipline or what is called martial arts. The principle of this taekwondo martial sport is a combination of strength and speed (Suryadi dikutip oleh Setiawan et al., 2018). Based on this, both technique and physical ability must be equally good in order to succeed in a competition. As said by Setiawan et al., (2017) physical ability must match his technique in order to apply the kick attack technique. This kick technique is a technique that is mostly used in a match and this attack has a higher value than a punch or kick attack. The basic techniques of taekwondo, namely punches, blocks, stances, and especially kicks, require maximum speed, accuracy, strength, power, especially endurance and anthropometry.

Endurance is a person's ability to use the heart and lungs and blood circulation effectively and efficiently to carry out work continuously which involves a number of high-

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intensity muscle contractions for a long time. Santika (2015) General endurance or cardiovascular endurance is the body's ability to carry out activities continuously that last long enough in aerobic conditions or muscle cell metabolism that requires a supply of oxygen from outside to get the power to contract. Agree what was said Husnul & Nida (2021) Cardiovascular endurance is the ability of the heart, lungs and blood vessels to take in, distribute and use oxygen to the tissues which is influenced by individual factors such as BMI, age, physical activity and exercise habits. Endurance is very much needed by everyone in carrying out their daily activities. Without good endurance, a person will not be able to carry out activities optimally to deal with their daily activities. Agustin & Hartati (2021) Factors that can affect cardiopulmonary endurance include heredity, age, gender, physical activity, nutrition, weight control, not smoking, and exercising.

Taekwondo athletes also really need to have good anthropometry, because dominant taekwondo athletes have good postures. Sarjana (2012) explains that anthropometry is basically the same as the concept of growth. Growth in children changes with age, including children aged 13-15 years. The anthropometric growth of children aged 13-15 years can be seen from the increase in height, weight and BMI. These changes are influenced by certain factors such as genetic factors, nutrition, and ethnic background. Genetic factors are factors that are influenced by parents, so that the anthropometry of children is not much different from the anthropometry of their parents. An athlete really needs to know their physical condition. Especially for taekwondo athletes at TPC South Sumatra, because taekwondo sports require good physical condition and it is known that taekwondo sports use body weight to compete. Anthropometry has an important role in physical condition in sports with tests carried out using this anthropometric method, we can see the level of success in an athlete, for example, like a taekwondo athlete seen from body posture can also help the success of a taekwondo athlete seen from body posture, strength as well as endurance and so on, this sport also really takes advantage of a tall body because it can play optimally during matches. Herlambang et al., (2020) The anthropometric component includes linear dimensions, as well as, content and also includes areas of size, strength, speed and other aspects of body movement. There are also other opinions regarding the factors that influence anthropometry Zetli et al., (2019) various factors that affect anthropometric data such as ethnicity, gender, age, occupation, type of clothing, and physical disabilities. Materials that are very important for someone to train in taekwondo are poomae, kyupa and kyourugi materials. According to Utomo (2018) The techniques that must be mastered by a taekwondo athlete are parry (makki), stance (soegi), attack (kyongkyok kisul), and body target (seup so).

Based on the results of previous research conducted by Fakih et al., (2020) that the anthropometric profile of the lowland group was better than the high-altitude group in soccer athletes, and vice versa for cardiopulmonary endurance. Furthermore, previous research conducted by Prasetya & Sulistyorini (2020) The results obtained for the anthropometric level of extracurricular students at SMA Negeri 1 Talun Blitar measured body height and weight are in the ideal category and for the level of endurance it is in the less category. Based on the results of observations at the South Sumatra TPC taekwondo dojang, it was found that many athletes still did not know their physical condition and anthropometry, therefore researchers wanted to know the cardiopulmonary endurance and anthropometry of the South Sumatra TPC taekwondo athletes so that these athletes could excel in competitions. from provincial, national and international levels.

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Method

This research is a type of descriptive research, because in this study the aim was to look at the results of data on cardiopulmonary endurance and anthropometry of the South Sumatran TPC dojang athlete. The population in this study were all TPC Taekwondo athletes in South Sumatra. The sample used is total sampling, namely the entire population of 30 athletes. The test used to measure cardiopulmonary endurance is the Harvard step test and for anthropometry, it measures body mass index, arm circumference and abdominal circumference. The analysis technique used is by using percentages and Excel assistance in computer programs.

Discussion

The results of this study obtained results for the cardiopulmonary endurance of athletes who got in the very good category totaling 8 athletes with a percentage of 26.7%, the good category totaling 16 athletes with a percentage of 53.3%, the moderate category numbered 4 athletes with a percentage of 13.3%, the lacking category consisted of 2 athletes with a percentage of 6.7% and no athletes who had poor lung endurance. Furthermore, the results of anthropometry on the BMI or Body Mass Index of athletes who got results in the category of light weight deficiency amounted to 10 athletes with a percentage of 33.3%, the normal category numbered 12 athletes with a percentage of 40.0%, the category of excess weight in the mild level totaled 6 athletes with percentage of 20.0%, the category of overweight weight level totaled 2 athletes with a percentage of 6.7%, and no athlete got results in the underweight category. For the upper arm circumference, there were 19 athletes who were in the normal category with a percentage of 63.4% and athletes who were in the abnormal category were 11 athletes with a percentage of 36.6%. For abdominal circumference in the male category, there were 16 athletes in the normal category with a percentage of 53.3% and in the female category, there were 14 athletes with a percentage of 45.7%. Cardiopulmonary endurance is the body's ability to cope with fatigue from working for a long time without experiencing excessive fatigue. A person's fitness can be said to be good if he has cardiopulmonary endurance. Cardio-pulmonary endurance can be increased by exercising, one of which is fitness training, regular physical exercise will lead to an increase in oxygen consumption which is getting better, so that cardiac endurance will increase. Cardio-pulmonary endurance can be obtained and maintained, one of which is by exercising. Alamsyah dkk., (2017: 83) Exercising can be useful to prevent the occurrence of causes of stress so that they are not harmful to the health of the body. Having and maintaining good cardiopulmonary endurance must also pay attention to what are the factors that can affect the level of cardiopulmonary endurance in students. Factors that can affect endurance or the level of cardiopulmonary endurance in students are age, gender, temperature, state of exercise, physical condition, and nutritional intake (Gunawan, 2018). Komariah & Wibowo (2017) Anthropometry is a collection of numerical data related to the physical characteristics of the human body, size, shape and strength and the application of these data for handling design problems. Anthropometry is also a field of study related to measuring the dimensions of the human body. Anthropometrics is also referred to as a collection of numerical data related to the physical characteristics of the human body, size, shape and strength and the application of these data to handling design problems. Anthropometry has an important role in physical condition in sports with tests carried out

using this anthropometric method, we can see the level of success in an athlete, for example, like a taekwondo athlete seen from body posture can also help the success of a taekwondo athlete seen from body posture, strength as well as endurance and so on, this sport also really takes advantage of a tall body because it can play optimally during matches. Firdaus et al., (2018) Anthropometric includes linear dimensions, as well as, content and also includes areas of size, strength, speed and other aspects of body movement. As mentioned Ambarita et al., (n.d.) Factors that influence variations in human body dimensions include age, gender, ethnicity and race. There are also other opinions regarding the factors that influence anthropometry Zetli et al., (2019) various factors that affect anthropometric data such as ethnicity, gender, age, occupation, type of clothing, and physical disabilities. Taekwondo athletes also really need to have good anthropometry, because dominant taekwondo athletes have good postures. Adriani & Wirjatmadi (2012) explains that anthropometry is basically the same as the concept of growth. Growth in children changes with age, including children aged 13-15 years.

Conclusion

Based on the results of the study, it can be concluded that the results of the cardiopulmonary endurance of the TPC taekwondo athletes in South Sumatra have good cardiopulmonary endurance and the overall anthropometric test results of the South Sumatra TPC athletes have an average that is categorized as good.

References

Agustin, W. W., & Hartati, H. (2021). *Analisis Daya Tahan Jantung Paru Terhadap Hasil Belajar Mahasiswa Pendidikan Jasmani Dan Kesehatan Semester Iii Fkip Universitas Sriwijaya*. Sriwijaya University.

Alamsyah, D. A. N., Hestiningsih, R., & Saraswati, L. D. (2017). Faktor-Faktor Yang Berhubungan Dengan Kebugaran Jasmani Pada Remaja Siswa Kelas Xi Smk Negeri 11 Semarang. *Jurnal Kesehatan Masyarakat (e-Journal)*, *5*(3), 77–86.

Ambarita, E. O., Setyawati, I., & Yulihastuti, D. A. (n.d.). *Hubungan Antropometri Tulang Panjang Terhadap Tinggi Badan Mahasiswa Suku Batak Toba Di Kota Bekasi The Anthropometry Relationship Long Bone To Height Of Batak Toba Tribe Student In Bekasi City*.

Fakih, A., Mappanyukki, A. A., & Mutmainnah, M. (2020). *Perbandingan Profil Antropometri Dan Daya Tahan Kardiovaskular Pada Atlet Sepak Bola Dataran Tinggi Dan Dataran Rendah Di Kabupaten Bulukumba*. Universitas Negeri Makassar.

Firdaus, R. N., Yunidar, D., & Syarif, E. B. (2018). Perancangan Ulang Kursi Duduk Supir Bus Untuk Mengurangi Terjadinya Pegal Pada Area Punggung (traffic Seat). *EProceedings of Art & Design*, *5*(1).

Gunawan, O. (2018). Survei status gizi, daya tahan kardiovaskuler dan keterampilan bermain futsal pada club general fc Makassar. *Seminar Nasional Olahraga*.

Herlambang, S., Santoso, A. Z., Gomareuzzaman, M., & Wibowo, A. W. A. (2020). *Biochar salah satu alternatif untuk perbaikan lahan dan lingkungan*. LPPM universitas pembangunan nasional veteran Yogyakarta.

Husnul, D., & Nida, K. (2021). Hubungan Denyut Nadi Dengan Daya Tahan Kardiovaskular Ditinjau Dari Indeks Massa Tubuh. *Jurnal Sport Science*, *11*(1), 1–6.

Komariah, A., & Wibowo, B. (2017). Model Matematis Penentuan Volume Segmen Tangan dan Kaki Wanita Etnis Jawa Usia 20 30 Tahun. *Seminar Nasional Hasil Penelitian Dan Pengabdian Masyarakat UNIMUS 2017*.

Prasetya, D. D., & Sulistyorini, M. (2020). Analisis Antropometri dan Daya Tahan VO2Max Peserta Ekstrakulikuler Bolavoli Putri SMAN 1 Talun Blitar. *Indonesia Performance Journal*, *4*(1), 46–55.

Rozikin, A., & Hidayah, T. (2015). Hubungan fleksibilitas dan kekuatan otot tungkai terhadap hasil tendangan eolgol dollyo-chagi pada olahraga taekwondo. *Journal of Sport Science and Fitness*, *4*(1).

Santika, I. G. P. N. A. (2015). Hubungan Indeks Massa Tubuh (IMT) dan umur terhadap daya tahan umum (kardiovaskuler) mahasiswa putra semester II Kelas A Fakultas Pendidikan Olahraga dan Kesehatan IKIP PGRI Bali tahun 2014. *Jurnal Pendidikan Kesehatan Rekreasi*, *1*(1), 42–47.

Sarjana, U. P. N. (n.d.). Adriani, M & Wirjatmadi, B 2012, Peranan Gizi Dalam Siklus Kehidupan, Kencana Prenada Media Group, Jakarta. Almatsier, S 2009, Prinsip Dasar Ilmu Gizi, Gramedia Pustaka Utama, Jakarta. Almatsier, S, Soetarjo, S, Soekatri, M 2011, Gizi Seimbang Dalam Daur . *Jurnal Socioscientia Universitas Borneo Tarakan*, *3*(1).

Setiawan, Y., Amra, F., & Lesmana, H. S. (2018). Analisis tentang cedera dalam olahraga beladiri taekwondo di dojang unp. *Jurnal Stamina*, *1*(1), 401–414.

Setiawan, Y., Sodikoen, I., & Syahara, S. (2017). *The Contribution of Leg Muscle Strength and Dynamic Balance Towards The Ability of Dollyo Chagi Kick*.

Utomo, A. W. B. (2018). Analisis hubungan faktor kondisi fisik dominan dengan keterampilan poomsae atlet taekwondo putri Kabupaten Ngawi. *JPOS (Journal Power Of Sports)*, *1*(2), 23–29.

Zetli, S., Fajrah, N., & Paramita, M. (2019). Perbandingan Data Antropometri Berdasarkan Suku Di Indonesia. *Jurnal Rekayasa Sistem Industri*, *5*(1), 23–34.