IJSSHT, **Februari 2023, 1 (1), 35-40**
p-ISSN: - e-ISSN: -
Available online at http://ijssht.ppj.unp.ac.id/index.php/IJSSHT/index

The Effectiveness of Sports Exercise on Lowering Blood Pressure: A Literature Review

Umar [1*], Ida Rahmayani [2], Bafirman HB [3]

[123]Faculty of Sports Science, Universitas Negeri Padang, Jl. Prof. Dr. Hamka Air Tawar, Padang, Sumatera Barat, Indonesia.
Email: umar@fik.unp.ac.id
Scopus ID: 57193787654

Received: 5 February 2023
Revised: 11 February 2023
Accepted: 17 February 2023

Abstract

This study aims to determine the effectiveness of exercise training. Blood pressure can be interpreted as the force exerted by blood circulation on the walls of the body's arteries, or the main blood vessels of the body. The amount of this pressure depends on the resistance of the blood vessels and how hard the heart is working. The more blood the heart pumps and the narrower the arteries, the higher the blood pressure. The design used in this study is a literature review. A total of 1,000 articles and 5 articles that met the review criteria were identified by Google Scholar. Obtained various types of sports training given to lower blood pressure such as walking, massage, massage. yoga, massage with meditation and aerobic exercise.

Keywords: Literature Review, Sports Exercise, Lowering, Blood Pressure

(*) Corresponding Author: umar@fik.unp.ac.id

INTRODUCTION

Sport is a physical activity that can improve the quality of individual health and make the body feel healthier and fitter and can prevent various diseases (Handoko & Gumantan, 2021). Sport is part of a person's daily activities which is beneficial for the development of mental and physical health. So far, sports have had a positive impact on improving public health. In addition, sport has a role in increasing the country's ability to implement a sustainable development system. When exercising, a person must also have a good physical condition, so that he can carry out sports activities without excessive fatigue, conversely if a person's physical condition is bad, let alone bad, then he will experience difficulties in exercising, which can cause excessive fatigue (Sarifin, 2022).

Physical fitness in general is a basic ability for the development of physical performance which consists of components of strength, speed, endurance and flexibility. Sports or exercises are often defined as activities that involve regular

physical activity with a certain duration and intensity. Some sports aim to improve

physical fitness, while others do not. A person cannot show his abilities if he is notin prime condition both physiologically and psychologically (Akhmad, 2015).

We often hear about the link between exercise and health, including blood pressure. The increase in blood pressure during static contractions serves to push more blood to the strongly contracting muscles and is caused by a nervous reflex in the working muscles. Uncontrolled high blood pressure can be a serious problem because it can damage many organs in the body. This is because it makes the heart work too hard and can lead to atherosclerosis (hardening of the arteries). This increases the risk of heart disease and stroke, and can also lead to other conditions such as congestive heart failure. Blood pressure is considered normal if the systolic blood pressure does not exceed 10 mmHg and the diastolic blood pressure at rest does not exceed 90 mmHg.

The more active a person is doing strenuous exercise, the blood pressure can increase up to 130-170. systolic and 100-120 mmHg diastolic (Sarifin, 2022). Due to changes in the work of the heart and blood vessels caused by regular exercise can affect blood pressure values (Alim, 2015). High blood pressure is a problem for athletes or other people, because most athletes or the public are not aware that they have high blood pressure. This is because the symptoms are not clear and do not indicate any serious health problems in the early stages. Symptoms that often appear are dizziness, headache, feeling of heaviness or stiffness in the neck, difficulty sleeping, and nosebleeds. These symptoms appear suddenly when blood pressure rises (Putriastuti, 2016) . Therefore, the purpose of this literature review is to evaluate various exercises that can be used to reduce blood pressure in athletes and the public.

METHODS

The method used in describing the problems in this research is a literature review of relevant research references and results (Notar & Cole, 2010). The journal database used in this literature review research was obtained from the journal provider, namely Google Scholar. The findings of the journal used in this study are the last 10 years (2012-2022) using the keywords effectiveness, sports training, lowering blood pressure, data obtained from 1000 articles from Google Scholar. In assessing the quality of the literature reviews method, what is meant is the assessment of eligible data sources according to the inclusion criteria. The assessment of the quality of the articles in this study used the inclusion criteria set by the researcher, the articles were accessible along with their full text documents, and there was no duplication of articles. After the screening process took several stages, 5 journals were obtained that matched the purpose of writing this literature review.

RESULTS

After a Google Scholar literature search, 5 Google Scholars were reviewed. Additionally, the full text is checked and there is 1 from Google Scholar. The final result of searching the Google Scholar database is 5 literatures.

No	Author	Judul Penelitian	Metode/ Instrumen	Hasil
1	Sabar & Lestari, (2020)	The effectiveness of progressive muscle relaxation exercises on reducing blood pressure in hypertensive patients in Makassa	This type of quasi-experimental research with an approach pre and post test two groups with control design.	Progressive Muscle Relaxation (PMR) exercise can significantly reduce systolic blood pressure (p=0.027) and also reduce diastolic blood pressure (p=0.041)
2	Surbakti Sabar, (2014)	The Effect of 30 Minute Walking Exercise on Lowering Blood Pressure in	Experimental method, this study lasted for six weeks using a one group	30 minutes of walking exercise has an effect on reducing blood pressure
		Suffering Hypertension Patients at Kabanjahe General Hospital	pre-test and post-test design.	
3	Syafi'i, (2019)	The effect of massage therapy, massage with yoga, and massage with meditation on lowering blood pressure and levels anxiety in hypertensive patients	Type of research Experiment with 2x3 factorial design, using a test pre-test and post-test.	Massage therapy, massage with yoga, massage with meditation and initial anxiety levels have a significant effect on reducing blood pressure and anxiety levels in people with hypertension
4	Rizka, (2021)	Effect of walking exercise on physical fitness, blood pressure, blood sugar, and cholesterol of elderly Posyandu members in Sungai Aur, West Pasaman Regency	This type of experimental research, the design of this study is the pretest posttest control group design, the instrument uses the rockport test	There is a significant effect of walking exercise and on the physical fitness of elderly posyandu members in the aur river, west pasmanan regency
5	Dewi,	The effect of	This type of	Providing aerobic

Noviardhi, Prihatin, Tursilowati,& Rahmaati, (2018)	providing aerobic exercise activities on reducing blood pressure in adolescents with hypertension at SMA 10 Semarang	experimental research with a randomized control trial group design.	exercise activities has an effect on reducing systolic and diastolic blood pressure in adolescents with hypertension.

DISCUSSION

Blood pressure is the force needed so that blood can flow in the blood vessels and circulate to all tissues of the human body (Moniaga 2013). Low blood pressure or hypotension is a condition in which a person experiences low blood pressure, usually less than 90/60 mmHg. But that's not an absolute measure, because everyone has different blood pressure or tension (Gustawa & Muliarta, 2016). Blood pressure measurement using hemodynamic parameters. Blood pressure is measured in millimeters of mercury (mmHg) and consists of two numbers, namely systolic blood pressure (when the heart contracts) and diastolic blood pressure (when the heart rests). The total pressure on the artery walls each time the heart contracts or pushes blood out of the heart is called the systolic blood pressure. At the same time, diastolic pressure is the amount of pressure in the arteries when the heart is relaxed.

The pressure that forces blood through the blood vessels results from the pumping action of the heart. When the heart beats, blood is pumped out of the heart and between them flows into the blood vessels and is transported throughout the body. The amount of pressure in the vascular system is very important to keep blood vessels open (Azizah, 2021). This is in line with the opinion of (Surbakti Sabar, 2014), the 30-minute form of walking exercise has an effect on reducing blood pressure. This is because walking exercise can improve blood circulation to take, distribute and use oxygen and increase the elasticity of blood vessels and the heart. will work normally.

According to research conducted by (Rizka, 2021)walking is an activity that is classified as economical and has a low risk, in the design of a well-organized exercise program it shows a decrease in systolic (3 mm Hg) and diastolic (2 mm Hg) pressure, walking is a recommendation and activities that are very beneficial for lowering blood pressure. While lowering blood pressure according to Dewi et al. (2018) Providing aerobic exercise activities has an effect on reducing systolic and diastolic blood pressure in adolescents with hypertension. According to research conducted (Sabar & Lestari, 2020) concluded that Progressive Muscle Relaxation (PMR) exercises can significantly reduce systolic blood pressure (p=0.027) and also reduce diastolic blood pressure (p=0.041) in hypertensive patients in the working area of the Puskesmas bangkala in 2019. research (Ananto, 2017) concluded that giving effleurage massage techniques to the back and upper extremities can reduce systolic blood pressure from 156.60 mmHg to 141.33 mmHg, and diastolic blood pressure from 87.60 mmHg to 81. 20 mm Hg.

Blood pressure drops as blood vessels dilate and blood vessels can relax. Blood pressure can also drop due to reduced heart activity. By doing regular exercise, the muscles and blood circulation will be more perfect in taking and using oxygen, reducing the occurrence of blood clots so that the possibility of blockage of blood vessels leading to the heart muscle will be reduced and will lower blood pressure.

CONCLUSIONS

Based on the results of the review, it can be concluded that various alternative training procedures can be performed for athletes or people with high blood pressure, as well as providing interventions such as walking, massage, massage. yoga, massage with meditation and aerobic exercise. then blood pressure will drop if the blood vessels experience relaxation and dilation which can relax the blood vessels. Doing regular exercise will lower blood pressure.

REFERENCES

Akhmad, I. (2015). Efek latihan berbeban terhadap fungsi kerja otot. Pedagogik Olahraga, 1 (2), 80–102.

Alim, A. (2015). Pengaruh Olahraga Terprogram Terhadap Tekanan Darah Dan Daya Tahan Kardiorespirasi Pada Atlet Pelatda Sleman Cabang Tenis Lapangan. Medikora, VIII (2). https://doi.org/10.21831/medikora.v0i2.4651

Ananto, D. prasetyo. (2017). Pengaruh Massage Teknik Effleurage Terhadap Tekanan Darah Pada Penderita Hipertensi Di Desa Kalirejo Kabupaten Purworejo. Advanced Drug Delivery Reviews, 135(January 2006), 989–1011. https://doi.org/10.1016/j.addr.2018.07.012%0Ahttp://www.capsulae.com/media/ Microencapsulation.

Azizah. (2021). Efektifitas senam lansia terhadap penurunan tekanan darah. Akperyarsismd.E-Journal.Id, 3(1), 23–32.

Dewi, I. M., Noviardhi, A., Prihatin, S., Tursilowati2, S., & Rahmawati, A. Y. (2018). the Effect of Giving Aerobic Sports Activities To Decreasing Blood Pressure in Youth. Jurnal Kesehatan, 39–45.

Gustawa, I. G. K., & Muliarta, I. M. (2016). Studi Deskriptif Untuk Mengetahui Rata-Rata Penurunan Tekanan Darah Setelah Olahraga Futsal Selama 15 Menit. E-Jurnal Medika, 5(7), 9–12.

Handoko, D., & Gumantan, A. (2021). Penerapan Permainan Tradisional Dalam Pembelajaran Olahraga di SMAN 1 Baradatu. Journal Of Physical Education,2(1),1–7. https://doi.org/10.33365/joupe.v2i1.951

Moniaga, V. (2013). Pengaruh Senam Bugar Lansia Terhadap Tekanan Darah Penderita Hipertensi Di Bplu Senja Cerah Paniki Bawah. Jurnal E-Biomedik, 1(2), 785–789. https://doi.org/10.35790/ebm.1.2.2013.3635

Putriastuti, L. (2016). Analisis Hubungan Antara Kebiasaan Berolahraga Dengan Kejadian Hipertensi Pada Pasien Usia 45 Tahun Ke Atas. Jurnal Berkala Epidemiologi, 4(2), 225–236. https://doi.org/10.20473/jbe.v4i2.2016.225

Rizka, M. (2021). Pengaruh Latihan Kaki Terhadap Kebugaran Jasmani, Tekanan darah, Gula Darah, dan Kolesterol Anggota Posyandu Lansia di Sungai Aur Kabupaten Pasaman Barat. Perpustakaan UNY, 133.

Sabar, S., & Lestari, A. (2020a). Efektifitas latihan progressive muscle relaxation terhadap penurunan tekanan darah pada pasien hipertensi di Makassar. Jurnal Ilmiah Kesehatan Pencerah, 09(1), 1–9.

Sabar, S., & Lestari, A. (2020b). Efektifitas Latihan Progressive Muscle Relaxation Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi Di Makassar. Jurnal Ilmiah Kesehatan Pencerah, 09(1), 1–9. VF https://doi.org/10.12345/jikp.v9i01.135

Sarifin, G. (2022). The Effect Of Sports Activities On Blood Pressure In BKMF Basketball Athletes FIK UNM Pengaruh Aktivitas Olahraga Terhadap Tekanan Darah Pada Atlet BKMF Bolabasket FIK UNM. 13(2), 8–12.

Surbakti Sabar. (2014). Pengaruh Latihan Jalan Kaki 30 Menit Terhadap Tekanan Darah Pada Pasien Hipertensi. Pengabdian Kepada Masyarakat, 20(September 2014), 1–15.

Syafi'i, A. (2019). Pengaruh terapi masase , masase dengan yoga , dan masase dengan meditasi terhadap penurunan tekanan darah dan tingkat kecemasan pada penderita hipertensi The effect of massage therapy , massage with yoga , and massage with meditation on the decrease of bl. 1(1), 18–29