



## Application Of Hypertension Gymnastics Against High Blood Pressure For The Elderly In Bendungan Village, Sragen

Kharisma Putri Ardyantilova<sup>1\*</sup>, Exda Hanung Lidiana<sup>2</sup>

<sup>1</sup>Faculty of Health Sciences, 'Aisyiyah Surakarta University

<sup>2</sup> Faculty of Health Sciences, 'Aisyiyah Surakarta University

### ABSTRACT

**Background:** Hypertension is the most common vascular disease in society. According to data from the World Health Organization (WHO) in 2021, the prevalence is 1.28 billion people with hypertension aged 30-79 years. The elderly is the age limit that is most vulnerable to suffering from hypertension. Hypertension Gymnastics is an appropriate non-pharmacological treatment for the elderly because the movements tend to be slow but show significant results. **Objective:** To know the results of the implementation of Hypertension Gymnastics on changes in blood pressure in elderly people with hypertension. **Method:** This application uses a method in the form of a case study with a sample of two respondents in Dukuh Tegalsari, rt.002/000, Bendungan, Kedawung, Sragen, each of whom suffers from mild hypertension. **Results:** The management of hypertension in the elderly with Hypertension Gymnastics, which was given twice a week for 30 minutes and carried out for a total of four weeks, decreased in the first respondent by a decrease in systolic by 22 and a decrease in diastolic by 14, while in the second respondent, there was a decrease in systolic by 23 and a diastolic decrease of 13 in the normotensive category. **Conclusion:** Hypertension Gymnastics in the elderly can reduce blood pressure in elderly with hypertension.

**Keywords:** Elderly, Hypertension, Hypertension Gymnastics

Corresponding Author: Kharisma Putri Ardyantilova

Email : [kharismaardyantilova@gmail.com](mailto:kharismaardyantilova@gmail.com)





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



## 1. INTRODUCTION

Disorders of the cardiovascular system are a major health problem in both developed and developing countries. Hypertension is the most common cardiovascular disease in society (Ministry of Health RI, 2019). The older the age, the higher the risk for hypertension, this is due to reduced arterial elasticity in the elderly compared to younger ages. (Setiati, et al., 2014). Elderly is a term for those who have entered the age of 60 and over (Fest, 2018).

According to the World Health Organization (WHO) in 2022, the prevalence of the number of elderly people in the world is already 727 million people aged 65 years and over. The prevalence of elderly over 60 years in Indonesia in 2022 shows 80 million people (Ministry of Health RI, 2022). Central Java has a prevalence of 8,700,512 elderly people or 30.4% of the entire population in Central Java (Central Java Health Office, 2021). According to BPS data for Sragen Regency in 2021, the number of the elderly population, both men and women, is 50,942 people. Bendungan Village has an elderly population of 60-69 years of 1527 people (Kedawung Public Health Center 1, 2023).

Old age is one of the factors causing hypertension because as you get older, your blood pressure will also increase (Tambunan, et al., 2021). In old age hypertension often occurs due to loss of flexibility of the arterial walls. This loss of flexibility causes stiffness in the arteries so that they cannot expand properly so that blood is not free to pass through the blood vessels which narrow normally, this causes blood pressure to rise (Triyanto, 2014).

According to data from the World Health Organization (WHO) in 2021, the prevalence is 1.28 billion people with hypertension aged 30-79 years. Data on the prevalence of hypertension in Indonesia according to the Indonesian Ministry of Health shows that the highest increase in prevalence was in the Province of South Kalimantan at 44.13% with hypertension aged > 60 years at 32.5% (Ministry of Health RI, 2019). The prevalence of elderly hypertension in Central Java based on the results of Riskesdas





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



in 2021 is 50.9% (Central Java Health Office, 2021). Sragen Regency, according to Riskesdas 2021 data, ranks 4th with hypertension in the elderly with a cumulative value of 95.1% in 2022. The prevalence of hypertension for ages > 15 years in Sragen is 40.6% (Sragen Health Office, 2022). The prevalence of hypertension aged 60-69 years from each sub-district/village in Kedawung Regency based on Posyandu data shows that the Bendungan sub-district is number 1 with the highest number of elderly people with hypertension with a total of 1,527 elderly people, with a total of 82 elderly people receiving health services, and as many as 9 elderly people suffer from hypertension.

Hypertension is a disease that affects many elderly people, both men and women. Hypertension has an impact if it is not managed properly so it can cause more severe diseases such as damage to the blood vessels of the heart, kidneys, brain, and eyes. The elderly are very susceptible to these complications so the elderly are advised to be able to control hypertension well, to prevent the disease from getting worse (Trisnawan, 2019). There are 2 management of hypertension, namely pharmacology and non-pharmacology. One of the non-pharmacological management is to adopt a healthy lifestyle for hypertension sufferers, one of which is by adding physical activity which can reduce blood pressure (Kurnia, 2020). Types of physical exercise or sports that can be done by the elderly include elderly gymnastics. Elderly gymnastics is a type of sport in which some movements can train bones to stay strong and encourage the heart to work optimally (Ayu, 2021).

Based on Research conducted by Sumartini, et al., (2019) stated that there was a decrease in systolic and diastolic blood pressure both before and after giving Hypertension Gymnastics to the elderly with hypertension in the working area of the Cakranegara Health Center with the results of a decrease in pretest blood pressure an average systolic pressure of 151, 80 mmHg, 94.72 mmHg diastolic to normal blood pressure with an average systolic pressure of 137.13 mmHg, 90.27 mmHg diastolic. This is in line with another study by Istianti and Fijianto (2021) which was conducted in Johosari Village, Kandeman, Batang, and found that Hypertension Gymnastics in the





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



elderly with high blood pressure showed pretest results for systolic pressure of 160-170 mmHg and diastolic pressure of 90 mmHg to normal with systolic pressure of 120 mm Hg and diastolic pressure of 80-90 mm Hg.

Based on the results of a preliminary study conducted on April 12, 2023, using observation and interview techniques with 11 elderly people aged over 60 years at the Elderly Posyandu in Bendungan Village, Kedawung, Sragen, it was found that as many as 9 elderly people had hypertension. There were 3 elderly with mild hypertension, 4 elderly with moderate hypertension, and 2 elderly with severe hypertension. Of the 9 elderly people who had hypertension, as many as 4 elderly people said they were taking antihypertensive medication and participating in gymnastics in the elderly community, 5 other elderly people said they only consumed foods or drinks that lowered blood pressure when they were high and did not know about how to lower blood pressure using the method Hypertension Gymnastics in the Elderly.

Based on the description that has been described, the researcher is interested in researching the Application of Hypertension Gymnastics for Blood Pressure in the Elderly in Bendungan Village, Sragen.

## 2. METHODOLOGY

The type of research used in this application is a case study by analyzing data and processing the results of implementing activities that have been carried out narratively regarding changes in blood pressure in hypertensive clients after carrying out Hypertension Gymnastics using observation sheets. This application uses 2 (two) elderly respondents based on inclusion and exclusion criteria. The inclusion criteria used in this application were aged 60-65 years who suffered from mild hypertension with systolic blood pressure criteria of 140-159 mmHg and diastolic blood pressure of 90-99 mmHg, respondents were able to communicate well and cooperatively followed all instructions and were willing to become respondents. Exclusion criteria used were respondents with verbal communication disorders and hearing loss, respondents who





were taking antihypertensive drugs, respondents with hypertension accompanied by physical abnormalities or physical weaknesses such as broken bones and deformities, and respondents with chronic diseases such as heart disease or stroke. The application was carried out on Mrs. J and Mrs. S for 4 weeks with exercises 2 times a week for 30 minutes. This case study is processed into a table containing the results of blood pressure before and after the implementation of Hypertension Gymnastics.

### 3. RESULT AND DISCUSSION

**Table 1.**  
**Blood Pressure Before Performing Hypertension Gymnastics in Respondents**

NO	Name	Date	Blood Pressure	Category
1	Mrs. J	June 12 <sup>th</sup> , 2023	153/97 mmHg	Mild
2	Mrs. S	June 12 <sup>th</sup> , 2023	155/98 mmHg	Mild

Based on Table 1 shows the data on the results of blood pressure measurements on the two respondents before the implementation of the Hypertension Gymnastics. The blood pressure of the two respondents was included in the category of mild hypertension.

**Table 2.**  
**Blood Pressure After Performing Hypertension Gymnastics in Respondents**

NO	Name	Date	Blood Pressure	Category
1	Mrs. J	July 4 <sup>th</sup> , 2023	131/83 mmHg	Normotension
2	Mrs. S	July 4 <sup>th</sup> , 2023	132/85 mmHg	Normotension

Based on Table 2, shows that in the final blood pressure results after the implementation of Hypertension Gymnastics, blood pressure in both respondents decreased, including in the normotensive category.





**Table 3.**  
**Development of Blood Pressure Before and After Performing Hypertension Gymnastics in Respondents**

No	Date	Name	Before	After
1	June 12 <sup>th</sup> , 2023	Mrs. J	153/97 mmHg	149/90 mmHg
		Mrs. S	155/98 mmHg	153/96 mmHg
2	June 13 <sup>th</sup> , 2023	Mrs. J	149/92 mmHg	147/90 mmHg
		Mrs. S	151/94 mmHg	149/91 mmHg
3	June 20 <sup>th</sup> , 2023	Mrs. J	146/91 mmHg	145/89 mmHg
		Mrs. S	148/94 mmHg	145/92 mmHg
4	June 21 <sup>st</sup> , 2023	Mrs. J	145/90 mmHg	144/89 mmHg
		Mrs. S	143/90 mmHg	141/88 mmHg
5	June 27 <sup>th</sup> , 2023	Mrs. J	143/88 mmHg	141/85 mmHg
		Mrs. S	140/88 mmHg	138/83 mmHg
6	June 28 <sup>th</sup> , 2023	Mrs. J	141/87 mmHg	139/84 mmHg
		Mrs. S	138/88 mmHg	137/85 mmHg
7	July 3 <sup>rd</sup> , 2023	Mrs. J	138/87 mmHg	135/84 mmHg
		Mrs. S	136/86 mmHg	134/83 mmHg
8	July 4 <sup>th</sup> , 2023	Mrs. J	133/84 mmHg	131/83 mmHg
		Mrs. S	134/86 mmHg	132/85 mmHg

Based on Table 3, describes the development of the blood pressure of the two respondents before and after the implementation of Hypertension Gymnastics from the first day to the eighth day. Blood pressure in Mrs. J and Ny S experienced a decrease with the same results with an average systolic of 2 mmHg and an average of 3 mmHg diastolic.

**Table 4.**  
**Comparison of Blood Pressure Before and After the Hypertension Gymnastics in Respondents**

Name	Before	After	Description
Mrs. J	153/97 mmHg	131/83 mmHg	There is a systolic decrease of 22 and a diastolic decrease of 14
Mrs. S	155/98 mmHg	132/85 mmHg	There is a systolic decrease of 23 and a diastolic decrease of 13





Based on table 4, shows the results of a comparison of blood pressure before and after the implementation of Hypertension Gymnastics. Blood pressure results on Mrs. J showed a decrease in systolic of 22 and a decrease in diastolic of 14. The results of blood pressure on Mrs. S indicate a systolic decrease of 23 and a diastolic decrease of 13.

a. Blood Pressure Before the Implementation of Hypertension Gymnastics in the Elderly

Based on the results obtained by the researchers from measuring blood pressure before the Hypertension Gymnastics, it showed that the blood pressure data of the first respondent, namely Mrs. J is 153/97 mmHg while the blood pressure of the second respondent, Mrs. S is 155/98 mm Hg. Blood pressure in both respondents was included in the mild hypertension category. From the results of the interviews conducted with the two respondents, it was found that Mrs. J suffered from hypertension 1 year ago while Mrs. S has suffered from hypertension since 2 years ago. Both respondents complained about the same thing, namely headaches and a neck feeling heavy. Factors causing hypertension in both respondents are also the same, there are age factors, lifestyle, and nutritional patterns.

The age factor explains that both are included in the elderly category, where Mrs. J is 63 years old while Mrs. S is 65 years old. The causal factors for the two respondents were explained by the theory of Asikin, et al (2016), namely the age factor where those over 35 years of age are more at risk of hypertension than those under their age. The age factor is contained in a study conducted by Arisandi and Mardiah (2022) that hypertension in the elderly is due to the aging process in the form of increasing age resulting in a physiological setback where the heart pump is reduced causing the arteries to become stiff and unable to expand when the heart pumps blood.

The second factor is lifestyle or activity patterns including a lack of beneficial physical activity for the body such as exercise. As explained in a study by





Sumartini, et al., (2019) that exercise is recommended for people with hypertension, especially in the elderly, one of them with Hypertension Gymnastics because the movements are light and easy for the elderly to follow. Another study conducted by Hernawan and Rosyid, (2018) explained that exercise such as Hypertension Gymnastics encourages the heart to work optimally causing the cardiac output and respiratory activity to increase, and skeletal muscles to decrease resulting in venous vasodilation which causes blood pressure to decrease.

The last causal factor for the two respondents was the nutritional factor where both of them tended to like food with thick spices and a salty taste. Apart from salty food, Mrs. S likes coffee, during the day she usually consumes coffee in the morning and evening at home, while Mrs. J doesn't like coffee but prefers to drink tea. Research conducted by Yunus, et al., (2023) explains that salt has a comparable relationship with the onset of hypertension, the more the amount of salt in the body, the increase in plasma volume, cardiac output, and blood pressure will occur. As for caffeine consumption itself, it is explained in the results of a study conducted by Zulfitri, et al., (2022) that there is a significant relationship to the habit of consuming coffee which is proven to be a factor causing increased blood pressure in the elderly because coffee contains caffeine which increases heart palpitations. and rising blood pressure.

b. Blood Pressure After the Implementation of Hypertension Gymnastics in the Elderly

After implementing the Hypertension Gymnastics and measuring the results, the respondent's blood pressure was obtained on the last day of application, Mrs. J is 131/83 mmHg and Mrs. S is 132/85 mmHg. According to WHO data (2013), the blood pressure values of the two respondents are a normotensive classification where systolic blood pressure is <140 mmHg and diastolic blood pressure is <90 mmHg.





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



Research conducted by Sumartini, et al., (2019) explains that Hypertension Gymnastics in the elderly is a sport that is structured by always prioritizing heart ability, large muscle movement, and joint flexibility, and incorporating as much oxygen as possible. In addition to increasing feelings of well-being and the ability to cope with stress, other benefits of regular heart exercise are reduced blood pressure, reduced obesity, reduced frequency of rest, and reduced insulin resistance. The results of this study indicate that after doing Hypertension Gymnastics 2 times a week for 4 weeks, the average blood pressure of the elderly has decreased and is included in the pre-hypertension category, namely systolic blood pressure of 120-139 mmHg and diastolic blood pressure of 80-89 mmHg.

Another study conducted by Istianti and Fijianto (2021) showed that giving Hypertension Gymnastics was effective in reducing blood pressure in the elderly. The results showing that Hypertension Gymnastics is effective in reducing blood pressure in the elderly are proven in a study conducted by Hernawan and Rosyid (2018) that the results of this study were that most of the blood pressure before the intervention was prehypertension (39%), and after the Hypertension Gymnastics, most became normal (56%).

Based on some of the explanations above, it can be concluded that the results of applying Hypertension Gymnastics 2 times within 4 weeks with a frequency of 30 minutes of exercise in two respondents showed a decrease in blood pressure from the mild degree of hypertension category to the normotensive category.

c. Development of Blood Pressure Before and After the Implementation of Hypertension Gymnastics in the Elderly

Based on the results of the study, it can be seen that the development of blood pressure before and after the Hypertension Gymnastics was carried out which was observed from the first day to the eighth day of application. The blood pressure results for the two respondents experienced a significant decrease every day, with





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



the blood pressure results being used as an average, Mrs. J and Mrs. S showed the same decrease with an average systolic of 2 mmHg and an average of 3 mmHg diastolic.

The results of research conducted by Sumartini, et al., (2019) explained that after doing elderly Hypertension Gymnastics, the blood pressure of elderly hypertensives decreased compared to before doing elderly Hypertension Gymnastics. After doing Hypertension Gymnastics for the elderly, most of the respondents had pre-hypertension blood pressure where the average systolic blood pressure was 137.33 mmHg, the average diastolic blood pressure was 82.00 mmHg. Another study conducted by Istianti and Fijianto (2021) stated that Hypertension Gymnastics was effective in reducing blood pressure in the elderly with the results showing that first responders were 160/90 mmHg on the first visit and on the seventh visit it was 120/80 mmHg. In the second respondent, the first visit was 170/90 mmHg and the seventh visit was 120/90 mmHg. Based on some of the explanations above, it can be concluded that Hypertension Gymnastics which is applied periodically helps reduce the degree of hypertension in patients.

d. Comparison of Blood Pressure Before and After the Implementation of Hypertension Gymnastics in the Elderly

The results of the exposure to the blood pressure above can be described as there are differences in blood pressure in Mrs. J (63 years) and Mrs. S (65 years) before and after the Hypertension Gymnastics. The blood pressure of the first responder, Mrs. J on the first day before the Hypertension Gymnastics was 153/97 mmHg and after the application, it decreased to 131/83 mmHg, while on Mrs. J decreased in systolic of 22 and diastolic of 14, showed a decrease from mild hypertension to normotension. The results of the difference in the second respondent, namely Mrs. S with the results of blood pressure before the first day of exercise 155/98 mmHg, and after doing the Hypertension Gymnastics was 132/85 mmHg. There was a change in blood pressure in Mrs. S with a systolic of 23 and a decrease in diastolic





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



of 13. The results of the difference in Mrs. The S show a decrease from mild hypertension to normotension.

Research conducted by Hernawan and Rosyid (2018) showed that the results showed that the average pretest systolic blood pressure (151.463) was higher than the posttest systolic blood pressure (130.36). Respondent's systolic blood. The average pretest diastolic blood pressure (95.36) was higher than the posttest diastolic blood pressure (82.14). The results of the study showing a decrease in blood pressure after Hypertension Gymnastics is in line with the benefits described in the theory of Widiyono, et al., (2022) stating that Hypertension Gymnastics can be used as a non-pharmacological therapy in overcoming hypertension because this exercise can be done indoors or outdoors as well as provide benefits for breathing, stretching and muscle flexibility for the elderly.

Based on the description above, it can be concluded that after doing Hypertension Gymnastics 2 times a week for 4 consecutive weeks with a 30-minute cycle, can reduce blood pressure in both respondents from the category of mild hypertension to normotension.

#### 4. CONCLUSION

Based on the results of research on the application of Hypertension Gymnastics therapy to changes in blood pressure in Mrs. J and Mrs. S after doing Hypertension Gymnastics for 8 meetings with a frequency of 30 minutes, it was concluded that there was a decrease in blood pressure in both respondents from the first day in the mild hypertension category to the eighth day which showed normotension results.

#### 5. COMPLIANCE WITH ETHICAL STANDARDS

##### a. Informed consent

This consent statement was given, and the interviewee was informed about the purpose of the nursing activity to be carried out. Researchers provide choices to





respondents, whether respondents are willing or not to do research to become respondents.

b. Anonymity

The author maintains the confidentiality of the respondent's identity by including the respondent's initial name in the research report.

c. Confidentially

The author guarantees the confidentiality of research results and data from case studies and their problems. The identity of the respondent, medical condition, and other information provided to the patient are confidential. This is done to protect patient privacy rights from unrelated and unauthorized parties.

## REFERENCE

- Adiputra, I. M. (2021). *Metodologi Penelitian Kesehatan*. Denpasar: Yayasan Kita Menulis.
- Arisandi, Y., & Mardiah. (2022). Pengaruh Senam Hipertensi Terhadap Penurunan Tekanan Darah Pada Lansia. *Jurnal 'Aisyiyah Medika*, 349-355.
- Asikin, M., Nuralamsyah, M., & Susaldi. (2016). *Keperawatan Medikal Bedah Sistem Kardiovaskular*. Jakarta: Penerbit Erlangga.
- Aspiani, R. Y. (2015). *Buku Ajar Asuhan Keperawatan Klien dengan Gangguan Kardiovaskuler Aplikasi NIC & NOC*. Jakarta: EGC.
- Ayu, N. R. (2021). *Keperawatan Gerontik Lansia dan Permasalahannya*. Jawa Timur: Duta Media Publishing.
- Christy, J., & Bancin, L. J. (2020). *Status Gizi Lansia*. Yogyakarta: CV Budi Utama.
- Dinas Kesehatan Kabupaten Sragen. (2022). *Prevalensi Hipertensi Kabupaten Sragen 2022*. Sragen: Dinkes Kabupaten Sragen.
- Dinas Kesehatan Provinsi Jawa Tengah. (2021). *Buku Profil Kesehatan Provinsi Jawa Tengah 2021*. Semarang: Dinkes Provinsi Jateng.
- Festi, W. P. (2018). *Lanjut Usia Perspektif dan Masalah*. Surabaya: UMSurabaya Publishing.





- Hastuti, A. P. (2019). *Hypertension*. Klaten: Penerbit Lakeisha.
- Hernawan, T., & Rosyid, F. N. (2018). Pengaruh Senam Hipertensi Lansia Terhadap Penurunan Tekanan Darah Lansia Dengan Hipertensi di Panti Wreda Darma Bhakti Kelurahan Pajang Surakarta. *Jurnal Kesehatan, ISSN 1979-7621, Vol. 10, No. 1*.
- Indriana, Y. (2012). *Gerontologi dan Progeria*. Yogyakarta: Pustaka Pelajar.
- Irianto, K. (2015). *Memahami Berbagai Penyakit Penyebab, Gejala, Penularan, Pengobatan, Pemulihan, dan Pencegahan*. Bandung: ALFABETA, cv.
- Istianti, & Fijianto, D. (2021). Penerapan Tindakan Senam Hipertensi Untuk Menurunkan Tekanan Darah Pada Pasien Lansia. *Prosiding Seminar Nasional Kesehatan Lembaga Penelitian dan Pengabdian Masyarakat Universitas Muhammadiyah Pekajangan Pekalongan, 585-589*.
- Kemenkes RI. (2022). *Presentase Lansia Di Indonesia Tahun 2022*. Jakarta: Kemenkes RI.
- Kementerian Kesehatan Republik Indonesia. (2019, May 17). Hipertensi Penyakit Paling Banyak Diidap Masyarakat. *Kemenkes RI*.
- Kurnia, A. (2020). *Self-Management Hipertensi*. Surabaya: CV. Jakad Media Publishing.
- Lina Safarina, N. F. (2022). Senam Lansia Terhadap Tekanan Darah Pada Lansia Dengan Hipertensi. *Jurnal Keperawatan Silampari 5 (2), 1284-1291*.
- Malik, R. (2017). *Fisioterapi Kardiopulmonal*. Jakarta: EGC.
- Moonti, M. A., Rusmianingsih, N., Puspanegara, A., Heryanto, M. L., & Nugraha, M. D. (2022). Senam Hipertensi Untuk Penderita Hipertensi. *Jurnal Pemberdayaan Dan Pendidikan Kesehatan Vol. 2 No. 1 , 44-50*.
- Nurrahmani, U. (2015). *Stop Hipertensi*. Yogyakarta: Familia.
- Prasetyaningrum, Y. I. (2014). *Hipertensi Bukan Untuk Ditakuti*. Jakarta Selatan: FMedia (Imprint AgroMedia Pustaka).
- Puskesmas Kedawung 1. (2023). *Pencatatan dan Pelaporan Kesehatan Lanjut Usia Kabupaten Sragen Tahun 2023*. Sragen: Puskesmas Kedawung 1.
- Putri, R. (2021). *Senam untuk Meningkatkan Fungsi Kognitif Lansia*. Gowa: Pustaka Taman Ilmu.





Publish : Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



- Rury, Dewi Andriari, Hendri Rifqi Alhafis. (2019). Pengaruh Senam Hipertensi Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi. *volume IX no.2*.
- Sari. (2019). *Berdamai Dengan Hipertensi*. Jakarta: Bumi Medika.
- Sari, F., Zulfitri, R., & Nopriadi. (2022). Hubungan Kebiasaan Konsumsi Kopi Dengan Tekanan Darah Pada Lansia Riwayat Hipertensi . *Jurnal Kesehatan*, 138-147.
- Setiati, S., Alwi, I., Sudoyo, A. W., K, M. S., Setiyahadi, B., & Syam, A. F. (2014). *Ilmu Penyakit Dalam Jilid III Edisi VI*. Jakarta: InternaPublishing.
- Sumartini, N. P., Zulkifli, & Adhitya, M. A. (2019). Pengaruh Senam Hipertensi Lansia Terhadap Tekanan Darah Lansia Dengan Hipertensi di Wilayah Kerja Puskesmas Cakranegara Kelurahan Turida Tahun 2019. *Jurnal Keperawatan Terpadu (Integrated Nursing Journal)*, 47-55.
- Sunardi, Y. (2020). *Sehat dan Panjang Umur*. Yogyakarta: Rapha Publishing.
- Tambunan, F. F., Nurmayni, Rahayu, P. R., Sari, P., & Sari, S. I. (2021). *Hipertensi (Si Pembunuh Senyap)*. Medan: CV. Pusdikra Mitra Jaya.
- Tengah, D. J. (2021). *Profil Kesehatan Jawa Tengah Tahun 2021*. Semarang: Dinkes Jateng.
- Tina, Y., Handayani, S., & Monika, R. (2021). Pengaruh Senam Hipertensi Terhadap Tekanan Darah Pada Lansia The Effect of Exercise for Hypertension on Blood Pressure in Elderly. *Jurnal Kesehatan Samodra Ilmu 12 (2)*, 118-123.
- Tjandrakusuma, d. H. (2020). *Lansia Milenial Hidup Sejahtera di Masa Lanjut Usia*. Jakarta: PT Kompas Media Nusantara.
- Trisnawan, A. (2019). *Mengenal Hipertensi*. Semarang: Mutiara Aksara.
- Triyanto, E. (2014). *Pelayanan Keperawatan bagi Penderita Hipertensi Secara Terpadu*. Yogyakarta: Graha Ilmu.
- WHO. (2021). *More Than 700 Million People With Untreated Hypertension*. Geneva, Switzerland: Joint News Release.
- WHO. (2022). *Prevalensi Hipertensi di Dunia Tahun 2022*. WHO.
- Widiyono, Indriyati, & Astuti, T. B. (2022). *Aktivitas Fisik Untuk Mengatasi Hipertensi*. Kediri: Lembaga Chakra Brahmada Lentera.
- Yuniadi, Y., Hermanto, D. Y., & Rahajoe, A. U. (2017). *Buku Ajar Kardiovaskular Jilid I*. Jakarta: CV Sagung Seto.





Publish : Association of Indonesian Teachers and Lecturers

## International Journal of Health Sciences (IJHS)

Journal Homepage : <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 1 | Number 3 | September 2023 |



Yunus, M. H., Kadir, S., & Lalu, N. A. (2023). Hubungan Pola Konsumsi Garam Dengan Kejadian Hipertensi Pada Lansia Di Puskesmas Kota Tengah. *Journal Health & Science*, 163-171.

Zubaili, M., Jayanti, A., Rahmi, A., & Akbar, W. (2019). *PKM-M Ayo Sehat Bersama Para Lansia*. Jakarta: Syiah Kuala University Press.

