

Differences in Dosage of Red Watermelon Juice to Reduce Blood Pressure in Hypertensive Patients in Ngepungrojo Pati Village

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ABSTRACT

Purpose: This study aimed to determine whether different doses of red watermelon juice, namely 150 ml and 250 ml, were effective in reducing blood pressure among hypertensive patients in Ngepungrojo Village, Pati. It was hypothesized that both doses would lower blood pressure, with a possible difference in effectiveness between the two intervention groups.

Research Method: This study used a quasi-experimental design with a pre-test post-test approach involving 32 hypertensive patients selected through total sampling. Respondents were divided into two intervention groups, each receiving 150 ml or 250 ml of red watermelon juice. Blood pressure was measured before and after intervention using a digital sphygmomanometer. Data were analyzed using descriptive statistics, paired sample t-test, and independent sample t-test.

Results and Discussion: Both intervention groups showed significant reductions in systolic and diastolic blood pressure after treatment. In the 150 ml group, blood pressure decreased significantly, and similar results were observed in the 250 ml group. However, no statistically significant difference was found between the effectiveness of the 150 ml and 250 ml doses.

Implications: Red watermelon juice may be considered a simple non-pharmacological intervention to help control blood pressure in hypertensive patients. Further studies with larger samples and stricter control of confounding factors are recommended.

Keywords: red watermelon juice; dosage; blood pressure; hypertension; non-pharmacological therapy; hypertensive patients.

1. Introduction

Hypertension is known as the silent killer, because it is one of the most common causes of death in the world. Increased and prolonged blood pressure can damage blood vessels in target organs such as kidneys, heart, brain, and eyes. Because of its high and ever-increasing prevalence and its association with cardiovascular disease, stroke, diabetic retinopathy, and kidney disease. Making hypertension one of the non-communicable diseases that is an important health problem around the world (Sudayasa et al., 2020)

World Health Organization (WHO) data shows that cases of hypertension in adults are on the rise worldwide. In 2023, there are an estimated 1.28 billion adults aged 30-79 years who suffer from



hypertension. However, some of these sufferers are thought to have hypertension and are unaware of the condition. In addition, less than half of the adult population is diagnosed and treated for hypertension, and only a fraction are able to control their blood pressure optimally. This condition makes hypertension the leading cause of premature death in the world, so a 33% reduction in hypertension incidence between 2010 and 2030 is a global target for non-communicable disease control (WHO, 2023)

In Indonesia, there are an estimated 63 million cases of hypertension and more than 400 thousand deaths due to hypertension. The prevalence of hypertension increases with increasing age with the highest data in the age group of 55-64 years (55.2%). According to the results of Riskesdas in 2018, 34.1% of people with hypertension were diagnosed with hypertension, and 13.3% did not take medication regularly, and 32.3% did not take medication regularly. This suggests that most people with hypertension do not know that they have hypertension, so they do not receive treatment (Riskesdas, 2018)

Based on the results of Riskesdas 2018, it shows that the prevalence of the population over 18 years old in Central Java Province with hypertension is 37.57%. The prevalence of hypertension in women reached 40.17% higher than that of men, namely 34.83%. Meanwhile, the prevalence according to data from the Pati Regency Health Office in 2022 shows that the number of hypertension patients over 15 years old in Pati Regency in women amounted to 172,253, higher than men who amounted to 138,592.

Damage to the target organ due to complications of hypertension depends on the level of increased blood pressure and the length of time the blood condition goes untreated and undiagnosed. Hypertension is considered a major risk factor for cerebrovascular diseases such as stroke and transient heart attack. In addition, hypertension can increase the risk of coronary artery diseases such as myocardial infarction or angina, kidney failure, dementia, and atrial fibrillation. If there are other cardiovascular risk factors in the patient's body, the risk of hypertension will increase, which has an impact on increasing morbidity and mortality rates due to hypertension (Anna O'Neill, 2020)

Hypertension has signs and symptoms that can be distinguished into two, namely, in the absence of specific symptoms, such as no relationship between increased blood pressure and other symptoms. When the doctor examines the patient's arterial blood pressure, hypertension does not have any symptoms, This indicates that hypertension may not be diagnosed if the blood pressure is irregular. The common symptoms of hypertension, such as fatigue accompanied by headache are often said to be common symptoms of hypertension. Hypertension is a disease that causes ongoing problems that can lead to stroke, heart failure, kidney failure, and other fatal diseases. To be able to control hypertension properly, medical teams, patients, families, and the environment must work well together so that complications do not occur by improving treatment outcomes and the quality of life of patients (Rain, 2023; Prayers et al., 2023)

Hypertension is affected by a number of interrelated risk factors. Such as risk factors in people with hypertension that cannot be changed, such as race, gender, heredity (there is a history of hypertension from parents) and age. Then there are the causative factors of hypertension that can be changed, such as obesity (obesity), excessive salt consumption, stress, smoking, lack of physical activity, and excessive alcohol consumption (Ministry Health, 2020)

Hypertension can be treated with both pharmacological and nonpharmacological therapies. Pharmacological therapy involves the use of conventional antihypertensive drugs, but it has some problems, such as high cost and negative side effects. Then there are non-pharmacological controls



to prevent hypertension complications such as physical activity such as exercise and regular exercise help improve blood flow to the heart, improve arterial function and arterial flexibility, and reduce atherosclerosis. For nonpharmacological treatment of hypertension, one of them is by consuming watermelon (Uyuun et al., 2023; Anita O'Neill et al., 2024)

Red watermelon is considered to lower blood pressure because of its content in anti-hypertensive drugs. Some of the ingredients that can be found in watermelon, such as lycopene, which contains antioxidant substances that are good for the skin, potassium, vitamin B6, which can stimulate hormones in the brain to deal with anxiety, and beta carotene, which reduces blood pressure. Watermelon is very rich in water, amino acids, and L-arginine, which helps maintain blood pressure. Containing protein, fiber, and arginine, watermelon can also improve arterial function and lower blood pressure in the aorta (Arianto et al., 2020; Heljemi Nürnü, 2021)

In a study conducted at the Bugangan Salvation Nursing Home in Semarang, yellow watermelon juice given in different doses showed the potential to lower blood pressure in elderly people suffering from hypertension. The results of the paired t test on systolic blood pressure before and after treatment showed significant changes in all three treatment groups (p -value < 0.05), with the largest decrease in the 350 ml dose group. The results of the paired t test on diastolic blood pressure also showed significant changes (p -value < 0.05), with the largest decrease in the 250 ml dose group. Results of the t-test on the average decrease in systolic blood pressure (Caturwati et al., 2016)

Based on the results of data on hypertension patients in Ngepungrojo Village that researchers obtained from the Pati II Health Center in February 2025, there were 33 people who had high blood pressure from 140/80 mmHg to 201/113 mmHg. According to the Pati II Health Center, the cause of the community in Ngepungrejo Village has hereditary factors and diet is a factor that causes high blood pressure in hypertensive patients in Ngepungrojo Village. Usually the patients take captropil as a medicine to reduce blood pressure.

A preliminary survey conducted by researchers with 10 people in Ngepungrejo Village on March 13, 2025. 2 of them have high hypertension. 5 people have low hypertension. And 3 people had normal blood pressure. From the short interview conducted by the researcher, the cause of hypertension suffered was caused by excessive salt consumption, housewives who were less physically active, a history of hypertension owned by the sufferer and from his family, and also stopped taking anti-hypertensive drugs such as captropil or amlodipine.

2. Literature Review and Hypothesis Development

Red watermelon has many ingredients that are useful for lowering blood pressure in people with hypertension, this is also done to minimize the occurrence of complications, such as heart attacks. The content of red watermelon that is useful for lowering blood pressure in people with hypertension, such as potassium, beta carotene, and potassium which are often found in antihypertensive drugs are in red watermelon. The red color in watermelon also indicates the abundance of lycopene in watermelon flesh, which is a compound to reduce inflammation in blood vessels, which can reduce the risk of hypertension and heart attack (Wilda et al., 2022)

Watermelon (*Citrullus lanatus*) has many nutrients, including vitamin A, fiber, and lycopene. Its mineral content includes potassium, sodium, calcium, and magnesium, which help lower blood pressure. The presence of the amino acids L-arginine and L-citrulline, which function to reduce blood pressure, increases this ability. In addition, the flavonoids in watermelon have the potential to stop an enzyme



called Angiotensin Converting Enzyme (ACE), which is responsible for the production of Angiotensin II, which is the cause of hypertension (Agustin et al., 2021). According to research conducted (Purnama Dewi et al., 2023), it shows that red watermelon juice is able to lower systolic and diastolic blood pressure. This is due to its potassium content which plays a role in maintaining blood viscosity, stabilizing blood pressure, and resulting in a synergistic effect with sodium to lower blood pressure.

3. Research Method

The method used in this study uses a quasi experiment, which is a study that aims to find out an influence that arises, as a result of certain treatments that have been given. The population of this study is hypertension patients identified through free health check-up activities organized by the Pati II Health Center in Ngepungrojo Village in February 2025. The total population is 32 people. The sample used in this study used a total sampling technique, i.e. all populations were used as samples for this study. So, the sample of respondents amounted to 32 people. After the data is obtained, then the data can be processed by analyzing descriptively which aims to find out the difference between dependent variables and independent variables. The analysis carried out was univariate analysis and bivariate analysis (Abraham & Supriyati, 2022)

4. Results and Discussion

4.1 Analysis Results

4.1.1 Univariate Analysis

Blood pressure before and after watermelon juice was given in the 150ml group.

Table 1. Distribution of Blood Pressure Before and After Watermelon Juice Is Given in the 150ml Group at the Difference in Dose of Red Watermelon Juice to Reduce Blood Pressure in Hypertensive Patients in Ngepungrojo Pati Village (N 16)

Batch 150ml	Blood Pressure					
		Min	Max	Red	Median	Std. Deviation
Before treatment	Systolic	142	192	158.25	154.50	13.849
	Diastolic	70	100	86.88	88.00	10.178
After treatment	Systolic	126	188	144.75	139.00	17.178
	Diastolic	65	98	82.88	85.50	9.458
Mean difference	Systolic			13.5		
	Diastolic			4		

Source: Primary Data 2025

Based on the table 1, in the 150 ml intervention group, the average systolic blood pressure before treatment was 158.25 mmHg and decreased to 144.75 mmHg after treatment. The systolic minimum decreased from 142 mmHg to 126 mmHg, while the maximum value decreased from 192 mmHg to 188 mmHg. For diastolic blood pressure, the mean before the intervention was 86.88 mmHg and decreased to 82.88 mmHg after the intervention. The diastolic minimum value drops from 70 mmHg to 65 mmHg, while the maximum value decreases from 100 mmHg to 98 mmHg.

Blood pressure before and after watermelon juice was given in the 250ml group



Table 2. Distribution of Blood Pressure Before and After Watermelon Juice Is Given in the 250ml Group on the Difference in Dose of Red Watermelon Juice to Reduce Blood Pressure in Hypertensive Patients in Ngepungrojo Pati Village (N 16)

Batch 250ml	Blood Pressure					
		Min	Max	Red	Median	Std. Deviation
Before treatment	Systolic	131	173	155.88	159.00	12.780
	Diastolic	71	110	86.38	84.50	10.099
After treatment	Systolic	122	168	148.25	149.50	10.970
	Diastolic	68	95	81.81	80.00	6.804
Mean difference	Systolic			7.63		
	Diastolic			4.57		

Source: Primary Data 2025

Based on the table 2, in the 250 ml intervention group, the average systolic blood pressure before treatment was 155.88 mmHg and decreased to 148.75 mmHg after treatment. The systolic minimum value decreased from 131 mmHg to 122 mmHg, while the maximum value decreased from 173 mmHg to 168 mmHg. For diastolic blood pressure, the mean before the intervention was 86.38 mmHg and decreased to 82.06 mmHg after the intervention. The diastolic minimum value drops from 70 mmHg to 72 mmHg, while the maximum value decreases from 110 mmHg to 95 mmHg.

4.1.2 Bivariate Analysis

Analyzing the difference in blood pressure values before in the 150ml intervention group and the 250ml intervention group with after the administration of watermelon juice which was then processed by data from the Normality Test, the T-Test Sample Paired Test to see the difference in the dosage of Red Watermelon Juice before and after from the two groups and the Independent T-Test Sample to see the difference between the two groups through computerized assistance as follows:

Normality Test Results of Data for the 150ml Intervention Group and the 250ml Intervention Group

Table 3. Normality Test Results of the 150ml Intervention Group and the 250ml Intervention Group on the Difference in Dose of Red Watermelon Juice on Blood Pressure Reduction in Hypertension Patients in Ngepungrojo Pati Village (N 32)

Test of Normality (Shapiro-Wilk)		
Batch 150ml	Sig.	
	Pretest	Systolic .773 Diastolic .741
Posttest	Systolic .999	
	Diastolic .144	
Batch 250ml	Sig.	
	Pretest	Systolic .092 Diastolic .729
Posttest	Systolic .213	
	Diastolic .004	

Source: Primary Data 2025

Based on the results of the Shapiro–Wilk normality test, all data in the 150 ml and 250 ml groups, both pretest and posttest, had a p value of > 0.05. Thus, all variables are declared to be normally



distributed and the analysis can be continued using parametric tests (paired t-test and independent t-test).

Differences in blood pressure before and after in the 150ml intervention group and the 250ml intervention group

Table 4. Distribution of Blood Pressure Differences in the 150ml Intervention Group and the 250ml Intervention Group on the Difference in Dose of Red Watermelon Juice to Reduce Blood Pressure in Hypertensive Patients in Ngepungrojo Pati Village (N 32)

Blood Pressure		Red ± s.d	Intervention Group	Intervention Group	P value
			150ml	250ml	Independent
			(16)	(16)	Sample T-Test
Before	Systolic	158.25±13.849	155.50±10.545	0.061	
	Diastolic	91.31±10.970	84.50±6.683	0.783	
After	Systolic	144.75±17.129	131.50±9.158	0.738	
	Diastolic	81.81±6.804	80.88±7.182	0.093	
Differences	Systolic	13.5±3.28	24±1,387		
	Diastolic	9.5±4.166	3.62±0.499		
P Value Paired	Systolic	0.000	0.000		
Sample T-Test	Diastolic	0.043	0.020		

Source: Primary Data 2025

Based on the results of the analysis of blood pressure data in the 150 ml and 250 ml intervention groups, significant differences were obtained through the Paired Sample T-Test statistical test. In the 150 ml intervention group, there was a decrease in systolic blood pressure from 158.25±13.849 to 144.75±11.792 mmHg, with a p value = 0.000 ($\alpha = 0.05$), indicating a significant effect after the intervention. A decrease also occurred in diastolic blood pressure from 91.31±10.970 to 81.88±6.804 mmHg, with p = 0.000. This indicates that the administration of 150 ml of watermelon juice has an effect on reducing blood pressure in respondents.

Meanwhile, the 250 ml intervention group showed a decrease in systolic blood pressure from 154.50±10.545 to 139.63±9.623 mmHg (p = 0.000), and diastolic blood pressure from 84.50±683 to 80.00±6.782 mmHg (p = 0.020). Although both groups showed significant reductions, the difference in the decrease in systolic blood pressure in the 250 ml group was greater than in the 150 ml group with a value of p = 0.000 on the Independent Sample T-Test.

The results of the Independent Sample T-Test on the posttest data showed a value of p = 0.000 ($\alpha = 0.05$), which means that there was a significant difference between the two intervention groups. Thus, it can be concluded that the administration of watermelon juice in both 150 ml and 250 ml doses has an effect on lowering blood pressure, but does not provide a significant difference between doses.

4.2 Discussion



4.2.1 Blood pressure values before and after administration of red watermelon juice in the 150ml intervention group

The results of the study obtained blood pressure values before being given watermelon juice in the 150ml intervention group showed that the mean value of systolic blood pressure was 158.25 mmHg and diastolic 91.31 mmHg, while after being given watermelon juice with a dose of 150ml decreased with a mean systolic value of 144.75 mmHg and diastolic 81.81 mmHg, the difference between systolic blood pressure was 13.5 and diastolic 9.5 in the 150ml intervention group. The minimum and maximum values of blood pressure before the administration of watermelon juice with a dose of 150ml were 142 and 192 mmHg in systolic, while in diastolic 100 and 70 mmHg. This showed a change in blood pressure values for the 150ml intervention group supported by changes in blood pressure values from the decreased mean value.

Hypertension, often referred to as high blood pressure, is characterized by increased blood pressure in the arteries, and prolonged increased blood pressure can damage blood vessels leading to the appearance of serious life-threatening diseases, such as heart failure, kidney failure, and stroke (São Paulo et al., 2025)

A non-pharmacological approach is very important to apply considering the high incidence of hypertension which can increase the risk of serious complications if not treated appropriately. In addition, the long-term use of antihypertensive drugs often causes various side effects such as sleep disturbances, and headaches, so alternative interventions that are safer, easier to apply, and can be carried out independently by the community are needed (Puspa Ningrum et al., 2023)

Watermelon (*Citrullus lanatus*) is a fruit from the Cucurbitaceae family that is easy to find, cheap, and widely consumed by the public. Watermelon can be consumed as a juice, salad, or fresh snack. The fruit is rich in essential nutrients as well as phytochemical compounds such as natural sugars, amino acids (especially L-citrulline and arginine), as well as various carotenoids such as lycopene, phytoene, prolycopene, lutein, and β -carotene. It is this citrulline content that plays a role in increasing the production of nitric oxide (NO), which then causes vasodilation and a decrease in blood pressure (Alshahrani et al., 2023)

In line with the research conducted under the title (Caturwati et al., 2016) Effect of Dosage Variations of Yellow Watermelon (*Citrullus vulgaris* Schard) on Blood Pressure of the Elderly at the Bugangan Salvation Nursing Home in Semarang, showing a decrease in blood pressure after consuming 150 grams of yellow watermelon juice. The results showed the same pattern, namely a decrease in blood pressure before and after the intervention, from an average of 119 mmHg to 117 mmHg. This shows that both red and yellow watermelon juice contain citrulline and arginine which play a role in vasodilation so that it helps lower blood pressure. When compared to the study, the results of the study at a dose of 150 ml in this study still showed a significant decrease in blood pressure.

Based on the characteristics of respondents in Ngepungrojo Village, the 150ml group of male respondents was 3 respondents (18.8%) and the majority of female respondents were 13 respondents (81.2%) while in the 250ml group the male respondents were 5 respondents (31.3%) and the majority of female respondents were 11 respondents (68.7%). This research is strengthened by showing that the incidence of hypertension is more common in women than men. This can happen because women, especially after entering the age of >45 years, experience a decrease in the hormone estrogen which functions to protect the elasticity of blood vessels (Dynasty & Blessed, 2025)



Based on the job characteristics of respondents in the 150 ml intervention group, the majority were housewives, namely 4 respondents (25.0%). Meanwhile, the 250ml intervention group, where the majority of respondents worked as farmers, 8 (50.0%). According to factors related to the workplace, such as working methods, heating techniques, and pesticide use,. Identifying factors associated with the workplace evaluates factors potentially related to hypertension prevalence. In the results of the study with 46% of farmers suffering from hypertension. Farming in locations with higher heat stress is significantly linked to an increased risk of hypertension. Farmers who use pesticide sprays have a higher risk for hypertension (Prihartono et al., 2022)

Based on the educational characteristics, the respondents in the 150 ml group were elementary school graduates, as many as 14 respondents (87.5%). Meanwhile, there were two respondents (12.5%) who had a junior high school education, and no respondents who were not educated. On the other hand, the majority of respondents in the 250 ml group were also elementary education, as many as 14 respondents (87.5%). In addition, there were 2 respondents (12.5%) who did not attend school, and none of the respondents had a junior high school education. According to the study, the relationship between education and hypertension was not statistically significant ($P=0.145$). However, there is a tendency that respondents with low education have a higher proportion of hypertension, although this appears to be more influenced by other factors such as lifestyle and family history of hypertension (Khairani et al., 2025)

In this study, researchers argue that watermelon juice can be used as an alternative treatment that has benefits for lowering blood pressure if done regularly. Watermelon can be consumed in addition to being a juice, it can also be consumed as a salad, or as a fresh snack by cutting. These results show that statistically there is a statistically significant influence before and after the intervention.

4.2.2 Blood pressure values before and after administration of red watermelon juice in the 250ml intervention group

The results of the study obtained blood pressure values before being given watermelon juice in the 250ml intervention group showed that the mean value of systolic blood pressure was 155.50 mmHg and diastolic 84.50 mmHg, while after being given watermelon juice with a dose of 250ml decreased with a mean systolic value of 131.50 mmHg and diastolic 80.88 mmHg, the difference between systolic blood pressure was 24 and diastolic 3.62 in the 150ml intervention group. The minimum and maximum values of blood pressure before the administration of watermelon juice with a dose of 250ml were 134 and 169 mmHg in systolic, while in diastolic it was 70 and 98 mmHg. This showed a change in blood pressure values for the 250ml intervention group supported by a change in blood pressure values from a decreased mean value.

In addition, consuming watermelon juice can lower blood pressure by 4-15%. Even in individuals with normal blood pressure, a decrease of 6-16% can occur after taking it for 7 days. It was also argued that the administration of watermelon juice at a dose of 250ml had a difference in the mean systolic and diastolic blood pressure before the intervention of 168.00 mmHg and 99.40 mmHg, respectively. The mean blood pressure after the intervention decreased significantly to 135.05 mmHg and 85.50 mmHg (Gaol et al., 2025).

This study is in line with the research conducted which showed a decrease in blood pressure after the consumption of 250 grams of yellow watermelon juice. The results showed the same pattern,



namely a decrease in blood pressure before and after the intervention, from an average of 117 mmHg to 115 mmHg (Caturwati et al., 2016)

4.2.3 Difference in blood pressure values in the 150ml intervention group and the 250ml intervention group

Based on the results of the Paired Sample T-Test in the 150 ml intervention group, the p-value for systolic blood pressure was 0.000 and diastolic was 0.043. Both values were smaller than the significance level ($\alpha < 0.05$), so there was a significant difference between blood pressure before and after the administration of 150 ml of watermelon juice. Thus H_0 is rejected and H_a is accepted, meaning that a dose of 150 ml is effective in lowering blood pressure.

In the 250 ml intervention group, the results of the Paired Sample T-Test showed a p-value for systolic of 0.000 and for diastolic of 0.020. The value is also less than $\alpha < 0.05$, so there is a significant change after the administration of 250 ml of watermelon juice. Thus H_0 was rejected and H_a was accepted, which means a dose of 250 ml was also effective in lowering blood pressure.

The effectiveness of both doses was compared using the Independent Sample T-Test. The results showed that the systolic p value before the intervention was 0.061 and the diastolic p 0.783, both greater than $\alpha < 0.05$. This shows that the initial conditions of the two groups are not significantly different. After the intervention, the systolic p value was 0.738 and the diastolic p was 0.093, which is also greater than $\alpha < 0.05$, so it can be concluded that there is no significant difference between the effectiveness of the 150 ml and 250 ml doses.

However, compared to the 150 ml dose, which only decreased systolic pressure by 13.5 mmHg and diastolic pressure by 9.54 mmHg, the 250 ml dose group showed a more significant decrease in systolic pressure by 24 mmHg and diastolic pressure by 3.62 mmHg.

Overall, it can be concluded that both doses of watermelon juice are equally effective in lowering blood pressure, but the 250 ml dose provides more optimal results for a lower blood pressure, but statistically speaking, there is no significant difference between the two groups in independent tests.

The Dose –Response Effect of Watermelon Consumption on Ambulatory Blood Pressure (Singh et al., 2025) study showed that watermelon consumption for four weeks did not provide a significant difference to 24-hour ambulatory blood pressure between the control group and the two intervention groups. The mean blood pressure at 24 hours after four weeks in the control group was 130.2 ± 3.9 mmHg, in the group giving 1 cup of watermelon 152gr was 130 ± 3.2 mmHg, and in the group of 2 cups of 304gr was 124.9 ± 3.9 mmHg, with a p value of > 0.05 so there was no significant difference between groups.

5. Concluding Remarks and Recommendation

The administration of red watermelon juice with a dose of 150 ml or 250 ml is able to lower blood pressure in hypertensive patients. Although both doses showed a significant decrease in blood pressure, there was no statistically significant difference in effectiveness between the 150 ml and 250 ml doses.

Based on the results of the study, it was shown that both groups before the intervention were included in the category of high blood pressure. The 150 ml or 250 ml intervention groups had comparable average systolic and diastolic blood pressure, although the 150 ml group was slightly higher than the 250 ml group.



Based on the results of the Paired T-Test, the administration of 150 ml of watermelon juice to the intervention group showed a significant effect in lowering systolic and diastolic blood pressure, with a p value of < 0.05 . The same was found in the 250 ml intervention group, in which the administration of watermelon juice significantly lowered systolic and diastolic blood pressure. These results show that both doses of watermelon juice are effective in lowering blood pressure. Based on the results of the study, there was no significant difference between blood pressure before and after the administration of watermelon juice in the 150 ml and 250 ml intervention groups ($p < 0.05$). This shows that systolic and diastolic blood pressure decreased significantly after the intervention, thus showing that the administration of watermelon juice at both doses is effective in lowering blood pressure in hypertensive patients.

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