

**THE BENEFITS OF ELDERLY GYMNASTICS ON CHOLESTEROL LEVELS  
AT KAWAN SEIRING POSYANDU IN BAMBU KUNING VILLAGE,  
WORKING AREA OF PUSKESMAS REJOSARI**

**Sherly Mutiara<sup>1\*</sup>, Masriani Situmorang<sup>2</sup>, Marian Tonis<sup>3</sup>, Inka Desla Claudyana<sup>4</sup>**

<sup>1-4</sup> Universitas Awal Bros

E-mail: <sup>1)</sup> [sherly9391@gmail.com](mailto:sherly9391@gmail.com), <sup>2)</sup> [masrianisitumorang23@gmail.com](mailto:masrianisitumorang23@gmail.com),

<sup>3)</sup> [mariantonis676@gmail.com](mailto:mariantonis676@gmail.com), <sup>4)</sup> [claudyanadesla@gmail.com](mailto:claudyanadesla@gmail.com)

**Abstract**

*Elderly gymnastics is a series of regular, directed, and planned movements performed with the aim of enhancing the functional abilities of the body. Regular elderly gymnastics can lower blood cholesterol levels in the elderly. If cholesterol levels decrease, it is highly beneficial for the body as it can reduce the risk of cardiovascular diseases. The objective of this community service implementation is to lower cholesterol levels among the elderly at the Kawan Seiring Posyandu in the Bambu Kuning Village within the working area of Puskesmas Rejosari in 2024. The method of community service implementation involves providing education and active physical activities through elderly gymnastics. There were 10 elderly participants in this community service activity. The results of this service activity show differences in cholesterol levels before and after gymnastics among the elderly, as elderly gymnastics are highly beneficial for human health, including improving the function of the heart, lungs, and blood vessels.*

**Keywords:** *Gymnastics, Elderly, Cholesterol Levels*

**INTRODUCTION**

Gymnastics is a body exercise that is chosen and conceptualized deliberately, carried out consciously and planned, arranged systematically with the aim of improving physical fitness, developing skills, and instilling mental and spiritual values. The interest of gymnastics is because the movements are accompanied by music, bringing joy in doing the movements, so that gymnastics can be used as a means to release both physical and psychological fatigue in addition to improving physical condition.

According to the World Health Organization (WHO), an elderly person is someone who has entered the age of 60 years and above. Elderly is a male or female individual aged 60-69. Aging is a form of condition that occurs in the life of every human being. The aging process means a biological process characterized by progressive and predictable evolution and cannot be avoided accompanied by maturation until it reaches the final phase of life called death (Pangaribuan & Berawi, 2018).

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<sup>1</sup>Universitas Awal Bros

Sherly Mutiara

\*E-mail: [sherly9391@gmail.com](mailto:sherly9391@gmail.com)

Cholesterol is a natural substance present in the body, but unfortunately if it is excessive in the blood it will cause blockages in the blood vessels. This condition will disrupt blood flow and eventually limit blood intake to the heart, insufficient blood intake causes symptoms of chest pain. Most conditions of high total cholesterol levels initially do not cause any symptoms, so many people do not realize it.

According to the World Health Organization (WHO), 17.5 million people worldwide die from coronary heart disease caused by hypercholesterolemia or 31% of the total number of deaths worldwide (WHO 2019). The number of people with hypercholesterolemia in Indonesia in the age group 25-34 years is 9.3% and will increase according to age up to 15.5% in the age group 55-64 years. In Indonesia, the incidence of hypercholesterolemia according to the MONICA I (Multinational Monitoring of Trends Determinants in Cardiovascular Diseases) study was 13.4% for women and 11.4% for men, while in MONICA II there was an increase of 16.2% for women and 14% for men, women being the group most suffering from this problem, namely 14.5% or almost twice the male group (Salim, 2020).

Elderly exercise done regularly can reduce blood cholesterol levels in the elderly. If cholesterol levels decrease, it is very good for the body because it can prevent us from the risk of cardiovascular disease. Aerobic exercise done three times a week for six weeks is said to reduce blood LDL cholesterol levels by about 9%. One of the causes of low HDL cholesterol is lack of movement, the body's muscles will lack oxygen, making the body feel sore and stiff (Kardi, et al, 2020).

Based on data obtained from the Rejosari Health Center in the last three years, in 2021 there were 40 cases of cholesterol, in 2022 there were 36 cases and in 2023 there were 27 cases of cholesterol and while those who routinely participate in elderly gymnastics in 2023 once a week are 15 people. Where in the Rejosari Health Center Working Area the incidence of cholesterol level cases decreases every year and at the Rejosari Health Center holds routine exercises for the elderly once a week for the elderly in the Rejosari Health Center Working Area.

Elderly gymnastics is a series of movements carried out with regular, directed and planned movements that are followed by elderly people with the aim of increasing functional abilities in the elderly with physical deterioration. Elderly gymnastics is low impact aerobic exercise, light to moderate intensity, easy to perform movements, does not pose a risk of injury, is not jerky, rarely changes movements suddenly. One of the efforts to maintain, improve health and physical fitness for the elderly is by doing sports. Sports activities are

very beneficial for human health, including improving the work and function of the heart, lungs and blood vessels (Mamitoho, et al, 2019). The purpose of this community service is to reduce cholesterol levels in the elderly at Posyandu Kawan Along with Bambu Kuning Village, Rejosari Health Center Working Area in 2024.

## **LITERATURE REVIEW**

### **1. Definition of Elderly Gymnastics**

Elderly gymnastics is a series of movements carried out with regular, directed and planned movements that are followed by elderly people with the aim of increasing functional abilities in the elderly with physical deterioration. Gymnastics is a body exercise that is selected and deliberately constructed, carried out consciously and planned, arranged systematically with the aim of improving physical fitness, developing skills, and instilling mental and spiritual values. The interest of gymnastics is because the movements are accompanied by music, bringing joy in doing the movements, so that gymnastics can be used as a means to release both physical and psychological fatigue in addition to improving physical condition.

Elderly gymnastics is a series of regular, directed and planned tonal movements followed by elderly people carried out with the intention of improving physical functional abilities. Elderly gymnastics is specifically designed to train body parts as well as the waist, legs and hands to get a stretch for the elderly, but with movements that are not excessive. Elderly gymnastics can be a routine exercise program that can be done at the elderly posyandu or at home in the community. Elderly gymnastics is done happily to get better exercise results, namely body fitness and mental fitness such as the elderly feeling happy, always happy, can sleep better, the mind stays fresh.

### **2. Benefits of Elderly Gymnastics**

According to Nugroho & Nurdiana (2008), the benefits of elderly exercise are as follows:

- a. Slow down the degeneration process due to age\Facilitate the adjustment of physical health in life (adaptation)
- b. Protect and improve reserve energy for increased needs, such as illness
- c. Exercise 2-3 times a week keeps the body healthy and fresh.

Elderly gymnastics will help the body stay fit and fresh because it trains the bones to stay strong, encourages the heart to work optimally, and helps eliminate free radicals

that roam the body. It can be said to be fit, or in other words have good physical fitness if the heart and blood circulation are good so that the whole body can carry out its functions in sufficient time. Elderly gymnastics in addition to having a positive impact on improving organ function also has an effect on increasing immunity in the human body after regular training.

Regular exercise such as elderly gymnastics can prevent or slow down functional organ loss. In fact, various studies have shown that exercise or exercise such as elderly gymnastics can reduce the risk of various diseases such as hypertension, diabetes mellitus, coronary artery disease and accidents. All gymnastics and light sports activities are very useful for inhibiting the degenerative process. Gymnastics is highly recommended for those entering the elderly (45 years) and the elderly (65 years and over). By participating in elderly gymnastics, the minimum effect is that the elderly feel happy, always happy, can sleep better, the mind stays fresh. Especially because elderly gymnastics is often done in groups so that it provides a feeling of comfort and security with other elderly people in carrying out life activities (Setiawan, 2012).

The benefits of physical health in the elderly physiologically direct impact can help regulate blood sugar levels, stimulate adrenaline and non-adrenaline, improve sleep quality and quantity. Long-term impacts can increase aerobic/cardiovascular endurance, skeletal muscle strength and flexibility of balance and coordination of movement and agility. Psychological impact can help provide a feeling of relaxation, reduce tension and anxiety, increase feelings of pleasure. Long-term impact can improve physical and spiritual fitness as a whole, mental health, cognitive function, appearance and motor function. Direct social benefits can help empower the elderly, increase social and cultural integrity. Long-term impacts can increase cohesiveness and solidarity.

### **3. Elderly Gymnastics Movement**

Elderly gymnastics made by the Minister of Youth and Sports is an effort to improve the physical fitness of the increasing number of elderly groups, so it is necessary to be empowered and carried out properly, regularly and measurably. There are also forms of elderly gymnastics training (Menpora, 2000) as follows:

#### **a. Starting and Warm-up Stance**

The goal is to prepare oneself physically and psychologically to carry out elderly exercises. In the form of muscle stretching and movements in all joints. The starting

attitude, standing upright, facing forward then taking a breath by raising both arms to form the letter V.

b. Core Movement

It consists of movements that aim to strengthen and tone muscles and to improve balance. Begins with walking, clapping, and hand shake transitions of 2x8 counts.

c. Cool-down Movement

The cooling goal works gradually to lower body temperature, heart rate and blood pressure. In the form of muscle stretching movements or slow walking (Suroto, 2004).

Exercise at a frequency of three times a week for 30-60 minutes is appropriate for the elderly and will result in significant improvements. Those who are over 60 years old, in addition to exercising the brain, need to carry out regular exercise to maintain physical fitness, maintain and maintain health in old age. The elderly exercise chosen is a fitness exercise for the elderly with a type of low impact exercise. Factors such as limited mobility and pain can make a difference in the type of exercise in the elderly. Low impact exercise allows for less strain on the body while still providing a means of staying physically active. Exercising in water, either swimming or doing water aerobics, is a good option, as are gentle forms of yoga, pilates, tai chi, stretching, and light weight training. Many exercises can be modified to accommodate needs Low impact exercise is a type of exercise that involves at least one foot on the ground at all times. It is an aerobic exercise that is performed for longer periods of time and works to improve the cardiovascular fitness of older adults, minimizing the risk of injury to the lower body. It is a safe option that can improve bone density for individuals who may have or be at risk for osteoporosis or fractures.

#### 4. Cholesterol

Cholesterol is a type of fat contained in the blood that is beneficial for building healthy cells in the body. Just as important as blood sugar levels, everyone needs to maintain normal cholesterol levels to prevent various health problems, such as stroke and heart disease.

Cholesterol is a fatty compound produced by various cells in the body. Cholesterol in our body comes from two sources: food and liver. Although the body basically needs cholesterol to carry out several body functions, cholesterol levels that are too high can

actually cause various health problems. Some health problems that can occur when cholesterol levels are high include stroke symptoms, heart disease, and blood circulation disorders. Therefore, checking cholesterol levels needs to be done early and regularly. For someone who has a family history of heart disease, it is better to start a cholesterol test from the age of 20. This is done to prevent the risk of heart attack at a young age.

Then, for someone who is not accustomed to smoking or does not have certain diseases, regular cholesterol tests can be carried out starting from the age of 35. If the cholesterol test shows normal numbers, then cholesterol checks can be carried out periodically every 5 years. However, for people with diabetes, heart disease, and kidney problems, cholesterol checks are recommended to be carried out more frequently. The most effective way to check normal cholesterol can be done by using a cholesterol level measuring device or directly visiting a doctor.

## **5. Normal Cholesterol Levels by Type**

Cholesterol is divided into two types, namely good cholesterol (HDL) and bad cholesterol (LDL). HDL prevents atherosclerosis (narrowing of blood vessels due to fat). Conversely, LDL is cholesterol that is one of the main causes of atherosclerosis. Besides LDL and HDL, there is also another form of fat called triglycerides. Here's an explanation of each type of cholesterol and its normal levels.

### **a. Good Cholesterol (HDL)**

Good cholesterol plays a role in protecting the body from various types of heart disease. Therefore, the higher the HDL level, the better for health. The normal cholesterol level for HDL that can help reduce the risk of heart disease is at least 60 mg/dL. Meanwhile, HDL levels less than 40 mg/dL are not beneficial for the heart.

### **b. Bad Cholesterol (LDL)**

As the name suggests, bad cholesterol should ideally be at a low level or at least tolerated by the body, which is less than 100 mg/dL. If the body has LDL levels above 100-129 mg/dL, it can risk causing various health problems such as atherosclerosis, stroke, and heart disease.

### **c. Triglycerides**

In addition to LDL, the body also produces fats called triglycerides which can increase the risk of heart disease. Therefore, it is recommended to maintain normal cholesterol levels for triglycerides, which is less than 150 mg/dL. Meanwhile, the high

limit for triglyceride levels is 150-199 mg/dL. If it exceeds 200 mg/dL, this condition needs to be monitored.

d. Total Cholesterol

Total cholesterol is a combination of LDL, HDL, and triglycerides per deciliter of blood. Typically, a person's cholesterol level is assessed by total cholesterol and HDL. If the total cholesterol level is less than 200 mg/dL, it is within normal limits. However, if it ranges from 200-239 mg/dL, it is considered high. It is categorized as high cholesterol if it exceeds 240 mg/dL.

It should be noted that an individual's cholesterol levels vary depending on daily diet or genetic factors. Before undergoing cholesterol testing, fasting for 9-12 hours is recommended.

## 6. Normal Cholesterol Levels by Age

Apart from the types of cholesterol, normal cholesterol levels can also be differentiated based on a person's gender and age. Where women and men under the age of 19 and over the age of 19 have different normal cholesterol limits. Here is each explanation:

a. Normal Cholesterol Levels for Females Under 19 Years

The normal cholesterol level for females under 19 years old is less than 170 mg/dL, with LDL levels below 110 mg/dL and HDL levels above 45 mg/dL. A female under the age of 19 is considered to have high cholesterol if the blood cholesterol level exceeds 200 mg/dL.

b. Normal Cholesterol Levels for Females Aged 20 Years and Above

Meanwhile, the normal cholesterol level for females aged 20 years and above is 125-200 mg/dL, with LDL levels below 100 mg/dL and HDL levels above 40 mg/dL. It is considered high cholesterol if the level in the blood exceeds 239 mg/dL.

c. Normal Cholesterol Levels for Males Under 19 Years

Similarly to females, the normal cholesterol level for males under 19 years old is less than 170 mg/dL, with LDL levels below 110 mg/dL and HDL levels above 45 mg/dL. A male is considered to have high cholesterol if the blood cholesterol level exceeds 200 mg/dL.

d. Normal Cholesterol Levels for Males Aged 20 Years and Above

Meanwhile, the normal cholesterol level for males aged 20 years and above is 125-200 mg/dL, with LDL levels below 100 mg/dL and HDL levels above 40 mg/dL. It is considered high cholesterol if the level in the blood exceeds 239 mg/dL.

## RESEARCH METHOD

The implementation of this activity was carried out at Posyandu Kawan Along with the Rejosari Health Center Working Area, this activity was carried out on February 19, 2024. The procedure for implementing activities is divided into three stages. First, the implementer submits an activity permit at the community service location, and the second stage the implementer prepares the participants together with the target partners and then carries out community service activities with procedures, namely: 1) measuring participants' cholesterol levels before gymnastics; 2) the implementer provides material on the benefits of gymnastics on cholesterol levels; 3) the implementer together with Puskesmas officers and cadres provide an elderly gymnastics intervention for 15 minutes. The third stage, the implementer conducts an evaluation by measuring cholesterol levels and before the measurement action the participants are rested for 15 minutes.



Figure 1. Banner for the Implementation of Community Service



Figure 2. Implementers' Discussion with Health Center Officers and Cadres



Figure 3. Gymnastic Activity Implementation

## RESULTS AND DISCUSSION

**Table 1. Distribution of cholesterol values before and after exercise**

Cholesterol level	Mean	n	St Deviation
Before	243.67	15	2.946
After	217.70	25	2.753

Based on Table 1, it was found that the mean cholesterol values before gymnastics were 243.67 mg/dL and after gymnastics were 217.70 mg/dL. The results of this community service project align with Hertiana & Astuti (2022), which shows changes in cholesterol levels before and after elderly gymnastics, indicating a decrease.

Astari et al. (2013) also conducted a study on elderly gymnastics, nutrient consumption, and their influence on cholesterol levels. In that study, elderly gymnastics were performed once a week for one month and consistently. In a previous study by Hartini (2017), it was stated that good results are achieved when gymnastics are performed regularly.

Regular elderly gymnastics can reduce blood cholesterol levels in the elderly. A decrease in cholesterol levels is beneficial for the body as it can reduce the risk of cardiovascular diseases. Aerobic gymnastics performed three times a week for six weeks are reported to reduce LDL cholesterol levels in the blood by approximately 9%. One of the causes of low HDL cholesterol is lack of physical activity; consequently, the body's muscles will lack oxygen, causing the body to feel stiff and stiff (Kardi, et al., 2020).

## CONCLUSION

Based on the results of this community service, it is concluded that the mean cholesterol level before gymnastics was 243.67 mg/dL, which decreased to 217.70 mg/dL after gymnastics. This indicates that regular gymnastics can lower cholesterol levels in the elderly.

Further studies could enhance our understanding of the benefits of elderly gymnastics on cholesterol levels by exploring several avenues. Long-term studies tracking cholesterol levels over extended periods would provide insights into the sustained impact of regular gymnastics sessions. Comparing different frequencies and durations of gymnastics could clarify optimal exercise regimens for cholesterol management. Additionally, investigating how dietary changes alongside gymnastics affect cholesterol could offer practical health recommendations. Including diverse demographics in studies would help assess how factors like age and gender influence the effectiveness of gymnastics. Finally, integrating quality of life assessments with cholesterol monitoring would provide a holistic view of the overall

health benefits of elderly gymnastics programs. These avenues of research could refine strategies to promote better health outcomes for elderly individuals through physical activity interventions.

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