



THE EFFECT OF ERGONOMIC EXERCISE ON URIC ACID LEVELS IN THE ELDERLY IN WUNUT VILLAGE, MOJOANYAR DISTRICT MOJOKERTO REGENCY

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ABSTRACT	Keywords
Gout in the community cannot be ignored and requires numerous efforts, including lifestyle changes, developing education and knowledge about gout, and maximizing various methods to control uric acid levels to prevent complications. One preventative measure that can be taken to minimize the occurrence of hyperuricemia is exercise, such as ergonomic exercise. The purpose of this study was to determine the effect of ergonomic exercise on uric acid levels in residents experiencing elevated uric acid levels in Wunut Village, Mojoanyar District, Mojokerto Regency. The research method used was a single-group pre-test-post-test with the Wilcoxon test. The results of the study, which examined the p-value of uric acid levels in respondents after ergonomic exercises on days 1, 2, and 3, showed a p-value of $0.000 < \alpha$ of 0.05. Ergonomic exercises can provide a heart massage due to the rise and fall of the diaphragm, opening blockages and improving blood flow to the heart and throughout the body. This facilitates the removal of uric acid residue.	Gout, ergonomic exercises

INTRODUCTION

1.1 Background

Uric acid is a byproduct of purine metabolism in the body that is normally excreted through the kidneys. However, in older adults, the body's ability to excrete uric acid decreases, leading to its accumulation. High uric acid levels in older adults can lead to various health problems, including gout and gouty arthritis. This condition can cause significant joint pain, swelling, and discomfort in older adults (Selvia &

Wahyuni, 2022). The World Health Organization (WHO) states that the global prevalence of gouty arthritis is 34.2%.

High levels of uric acid in the body, if left untreated for a long period of time, can cause complications, damaging organs, especially the kidneys, as their filters become clogged, resulting in kidney stones and ultimately kidney failure. In addition to damaging kidney function, uric acid can also affect the heart. Uric acid damages the endothelium or coronary blood vessels.

Therefore, efforts must be made to lower uric acid levels to prevent damage from spreading to other organs. (Marhamah et al., 2023) Non-pharmacological therapy can be done in various ways, including relaxation, increased fluid intake, warm compresses, a low-purine diet, and exercise. Exercise is an effective way to lower uric acid levels. One exercise that can be done by the elderly is ergonomic gymnastics. Ergonomic gymnastics is a combination of muscle movements and breathing techniques. These breathing techniques can provide a massage to the heart due to the rise and fall of the diaphragm, opening blockages and improving blood flow to the heart and blood flow throughout the body. This facilitates the removal of combustion waste such as uric acid by blood plasma from cells to the kidneys and large intestine to be excreted in the form of urine and feces (Abdullah & Anissa, 2022)

1.2 Research Objectives

To determine the effect of ergonomic exercise on reducing uric acid levels in the elderly in Wunut Village, Mojoanyar District.

1.3 Research Benefits

1. For Respondents

This study is expected to provide information to the public, especially those with gout, regarding the effect of ergonomic exercise on uric acid levels in the body.

2. For Health Institutions at the Elderly Integrated Health Post (Posyandu)

The results of this study are expected to provide policy recommendations to maintain and improve the continuity of health service programs.

3. For Researchers

To gain the ability to conduct quantitative research and expand the experience of nursing researchers related to ergonomic exercise in gout prevention in elderly gout sufferers.

LITERATURE REVIEW

1. The Concept of Elderly

1.1 Definition of Elderly

The elderly are a group of people entering the final stages of life. Aging occurs in this elderly group, a process characterized by a failure to maintain balance in response to

physiological stress. This failure often manifests as a decline in life expectancy and an increase in individual sensitivity. Aging is the final stage of life and is characterized by impaired adaptation to environmental pressures and is not a disease. The aging process begins at birth and occurs continuously and naturally, experienced by all living things (Yusuf Sukman, 2017).

1.2 Definitions of Elderly

The age range used as a benchmark for elderly varies, generally ranging from 60 to 65 years. Some experts define the following age ranges for elderly:

According to the World Health Organization (WHO), there are four:

Middle age (45-59 years).

Elderly age (60-74 years).

Old age (75-90) years.

Very old age (> 90 years).

1.3 Developmental Tasks of the Elderly

The readiness of older adults to adapt to developmental tasks is influenced by the growth and development process in previous stages. These developmental tasks are as follows:

1. Preparing for declining conditions.
2. Preparing for retirement.
3. Forming good relationships with peers.
4. Preparing for a new life.
5. Adjusting to social life in a relaxed manner.
6. Preparing for their own death and the death of a partner.

1.2 The Concept of Gout

1.2.1 Definition of Gout

Gout, or gout, is an inflammatory joint disease caused by the accumulation of uric acid crystals in the body, especially in the joints. Gout usually affects people over 40 years of age and is more common in men (Abdullah & Anissa, 2022). Gout arthritis is caused by high levels of uric acid in the body. Uric acid crystals accumulate in the synovial membrane and articular cartilage, resulting from inflammation that leads to cartilage erosion, synovial proliferation, and pannus formation, resulting in tophi in the leg bones. Damage to cells and tissues releases various inflammatory mediators.

1.2.3 Classification of Gout

Gout is classified as primary gout and secondary gout. (ELIS PUJI PRATIWI, 2022)

1. Primary Gout: The cause is mostly unknown (idiopathic). It is thought to be related to a combination of genetic and hormonal factors that cause metabolic disorders that can lead to increased uric acid production in the body. Hyperuricemia, or reduced excretion of uric acid from the body, is said to cause primary gout.

2. Secondary Gout: This disease is caused, among other things, by increased uric acid production due to nutrition, namely consuming foods high in purines. Purine is an organic base compound that makes up nucleic acids (the core acids of cells) and belongs to the amino acid group, the building blocks of proteins. Increased uric acid production can also be caused by:

a. Other Diseases

Blood diseases (bone marrow disease, polycythemia). High blood pressure, high blood sugar, and hypertension, diabetes, and high cholesterol can cause the body's organs to decrease in function, preventing them from properly excreting waste products, such as uric acid. Therefore, gout is one of the causes of disease-related issues.

b. Medications

Medications (such as alcohol, cancer drugs, vitamin B12) can inhibit kidney secretion, including uric acid secretion, leading to increased uric acid levels.

c. Other causes include skin conditions (psoriasis), obesity, and high triglyceride levels. People with poorly controlled diabetes often have elevated levels of ketone bodies (a waste product of fat metabolism). Elevated ketone bodies also contribute to elevated uric acid levels. The duration of this increase varies from person to person. Some cases last only one year, while others can last up to 10 years. However, the average is around 1-2 years.

According to (Kusuma, 2021), gout has four clinical stages:

1) Stage I: Increased blood uric acid levels do not show any symptoms or complaints (asymptomatic hyperuricemia).

2) Stage II: Swelling and pain occur in the joints of the feet, fingers, wrists, and elbows (acute gouty arthritis).

3) Stage III: Generally, a person experiences recurrent gout attacks within a year if left untreated (intercritical stage).

4) Stage IV: The buildup of uric acid can expand over several years if left untreated, causing pain, soreness, stiffness, and large, nodular joint swelling (chronic gout).

1.2.2 Signs and Symptoms of Gout

Acute: The initial gout attack presents with severe pain and swelling, progressing rapidly and most often affecting the big toe or big toe. Attacks are sometimes accompanied by fatigue, headache, and fever.

Intercritical: This stage occurs between acute gout attacks, but subsequent inflammatory pain may not occur for months or years.

Intercritical: This stage is a continuation of the acute stage, where intercritical gout is asymptomatic, but clinically there are no signs of acute inflammation.

Chronic: In the chronic stage, tophi (monosodium urate) accumulate in the tissues, particularly in the ears, the bases of the fingers, and the big toes.

Common signs and symptoms of gout include sudden joint pain, usually at night or early morning.

Other symptoms include redness and swelling in the affected area.

Fever accompanied by chills.

Rapid heartbeat.

Initial symptoms of gout typically affect only one joint and last for several days. Symptoms include severe pain, often occurring in the middle of the night before morning. Other symptoms include swelling of the affected joints, red or purplish skin overlying the joints, tightness, smoothness, warmth, and tenderness to movement, accompanied by the appearance of lumps (tophus). Over time, these symptoms can develop.

1.3 The Concept of Ergonomic Exercise

1.3.1 Definition of Ergonomic Exercise

Ergonomic exercise is a combination of muscle movements and breathing techniques. Conscious breathing techniques, utilizing the diaphragm, allow the abdomen

to slowly rise and the chest to expand fully. This breathing technique massages the heart by lifting and lowering the diaphragm, opening blockages and improving blood flow to the heart and throughout the body. This facilitates the removal of waste products, such as uric acid, by blood plasma from cells to the kidneys and large intestine, for excretion in the form of urine and feces. (Marhamah et al., 2023).

Ergonomic gymnastics is a light and easy-to-do exercise that combines breathing and muscle movements, similar to prayer movements. It's not burdensome for the elderly, allowing them to improve their balance control and perform daily activities. Ergonomic gymnastics is performed for at least 15-20 minutes to maximize oxygen to the brain, stimulate the intelligence system, musculoskeletal system, body heating system, uric acid combustion system, electrolyte or ozone production system in the blood, and the immune system. (Riska Yuniarti¹, Shinta², Siska Ayu Ningsih³, 2022).

1.3.2 Principles of Ergonomic Gymnastics

Ergonomic gymnastics consists of five basic movements: open chest, bowing in gratitude, sitting powerfully, sitting burning, and lying down in surrender. Each movement offers extraordinary benefits for maintaining fitness.

The body can relax, expand the chest cavity, and promote normal heart function (Zuliawati, 2023).

1.3.4 Benefits of Ergonomic Exercise

Benefits of ergonomic exercise in reducing uric acid levels:

1. Increases Uric Acid Excretion:

Ergonomic exercise, which consists of light movements, can help improve blood flow and kidney function. Increased blood flow and kidney function will promote uric acid excretion through urine, thereby reducing uric acid accumulation in the blood.

2. Reduces Uric Acid Production:

The movements in ergonomic exercise can help increase metabolism and improve the function of enzymes related to purine metabolism. Improved purine metabolism will reduce uric acid production.

3. Increases Insulin Sensitivity:

Regular ergonomic exercise can help improve insulin sensitivity in the elderly. Increased insulin sensitivity will improve the body's ability to regulate blood sugar levels, which ultimately also affects uric acid metabolism.

4. Weight Loss:

Regular ergonomic exercises can help seniors lose weight. Weight loss reduces stress on joints and tissues and lowers the risk of hyperuricemia (elevated uric acid levels).

5. Reduces Stress and Inflammation:

Ergonomic exercises involving relaxation movements can help reduce stress and inflammation in the body. Reducing stress and inflammation can help prevent increased uric acid levels, as gout is also associated with the inflammatory process (Marhamah et al., 2023).

1.3.4 Indications and Contraindications for Ergonomic Exercise

Indications for ergonomic exercise are:

1. Hypertension
 2. Hyperuricemia
 3. Hypercholesterolemia
- Contraindications for ergonomic exercise are:

1. Fever
2. Dizziness
3. Chest pain and shortness of breath
4. Recent recovery from illness (Lara, 2022).

1.3.5 Factors Influencing Ergonomic Exercise

1. Age, which can influence the occurrence of gout
2. Gender: the number of male patients is three times greater than that of female patients.
3. Food and calorie intake
4. Frequency of ergonomic exercise, which can affect uric acid levels
5. Breathing techniques used in ergonomic exercise, which can unblock and activate sweat glands

Ergonomic exercise can affect uric acid levels by maximizing oxygen supply to the brain, opening the intelligence system, sweat system, body heating system, combustion system, carbohydrate conversion system, electrolyte production system in the blood, body freshness system, immune system against negative energy/viruses, and the

system for removing negative energy from the body. (Marhamah et al., 2023).

RESEARCH METHODS

1. Research Design

This study employed a pre-experimental research design. The type of research used in this study was a one-group pretest-posttest, i.e., an experimental design where the pretest was administered before the intervention.

2. Population

The population in this study was all 50 elderly people with gout in Gadung Village. The sampling technique used was purposive sampling, which refers to sampling based on fixed inclusion criteria (Nursalam, 2020).

3. Sampling

This study employed purposive sampling, which refers to sampling based on fixed inclusion criteria (Nursalam, 2020).

The sampling criteria used by this study were:

1. Inclusion Criteria

Inclusion criteria are criteria that filter population members into samples that meet theoretical criteria that are appropriate and related to the research topic and conditions. The inclusion criteria in this study were:

- Respondents are willing to participate in the research.
- Respondents suffer from mild to moderate gout and can carry out normal and independent activities.
- Elderly people aged 45-59 years
- Respondents who are able to communicate and cooperate

2. Exclusion Criteria

Exclusion criteria involve removing or excluding subjects who meet the inclusion criteria from the study for various reasons (Nursalam, 2020).

- Respondents who refused to participate in the study
- Respondents suffering from gout with complications
- Respondents who were not residents of Pohjejer village.
- Respondents experiencing nervous disorders

Identification of Research Variables and Operational Definitions

- The variables in this study are divided into two:

- The independent variable is one that causes or theoretically tends to influence another variable (Hardani, 2020). The independent variable in this study is ergonomic gymnastics for treating gout.

- The dependent variable is a variable that is structurally considered to be a variable caused by changes in another variable. This dependent variable becomes the "researcher's primary concern" or the researcher's main problem, which then becomes the object of the study (Hardani, 2020). The dependent variable in this study is gout.

Statistical Test Analysis

Statistical Test Analysis: Conducting the Wilcoxon test using SPSS (Statistical Product and Service Solution) 20.0 for Windows with the help of SPSS version 25.0.

RESEARCH RESULTS AND DISCUSSION

Research Results

1. General Data

1. Respondent Characteristics by Age

Table 1. Frequency Distribution of Respondents' Ages: The Effect of Ergonomic Exercise on Uric Acid Levels in the Elderly in Wunut Village, Mojoanyar District, Mojokerto Regency.

NO	AGE	FREQUENCY	PRESENTATION
1	40-45 YEARS	12	31,6%
2	45-50 YEARS	18	47,4%
3	>50 YEARS	8	21,1%
Total		38	100,0
Primary Data source 2026			

Based on Table 1, the frequency distribution of the ages of gout respondents shows that the majority of respondents were aged 45-50 years, totaling 18 respondents (47.4%).

2. Respondent Characteristics by Gender

Table 2: Frequency Distribution of Respondent Gender: The Effect of Ergonomic Exercise on Uric Acid Levels in the Elderly in Wunut Village, Mojoanyar District, Mojokerto Regency.

NO	GENDER	FREQUENCY	PRESENTATION
1	MALE	8	21,1%
2	FEMALE	30	78,9%
	Total	38	100

Primary Data source 2026

Based on table 2, the results of the frequency distribution of the gender of gout respondents are that the majority of respondents are female, amounting to 30 respondents (78.9%).

3. Respondent Characteristics Based on Education

Table 3. Frequency Distribution of Respondents' Education Levels. The Effect of Ergonomic Exercise on Uric Acid Levels in the Elderly in Wunut Village, Mojoanyar District, Mojokerto Regency.

NO	EDUCATION	FREQUENCY	PRESENTAT
1	ELEMENTARY SCHOOL	21	55.3
2	JUNIOR HIGH SCHOOL	11	28.9
3	SENIOR HIGH SCHOOL	6	15.8
	TOTAL	38	100

Primary Data source 2026

Based on Table 3, the frequency distribution of the education level of gout respondents shows that the majority of respondents had an elementary school education, totaling 21 respondents (55.3%).

2. Specific Data

1. Identification of Uric Acid Levels in Ergonomic Gymnastics Pretest Respondents
Table 1. Identification of Uric Acid Levels in the Pretest Before Ergonomic Gymnastics on Uric Acid Levels in the Elderly in Wunut Village, Mojoanyar District, Mojokerto Regency

Pre test uric acid levels	N	Mean	Median	Modus
	38	7.734	7.7	7.9

Ptimary Data Source 2026

Table 1 shows that the mean uric acid level in the elderly before the ergonomic exercise intervention was 7.73 mg/dl.

2. Identification of Uric Acid Levels in Ergonomic Exercise Post-Test Respondents

Table 2. Identification of Uric Acid Levels from Pre-Test to Post-Ergonomic Exercise on Uric Acid Levels in the Elderly in Wunut Village, Mojoanyar District, Mojokerto Regency.

Post test uric acid levels	N	Mean	Median	Modus
	38	5.924	5.8	5.7

Ptimary Data Source 2026

Berdasarkan tabel 2 menunjukkan bahwa kadar asam urat lansia sesudah dilakukan intervensi senam ergonomik adalah dengan mean 5,92 mg/dl.

3. Pengaruh senam ergonomik terhadap kadar asam urat di Deasa Pohjejer

Tabel 3 pengaruh senam ergonomik terhadap kadar Asam Urat Pretest Posttest Senam Ergonomik Terhadap Kadar Asam Urat pada lansia di Desa Wunut Kecamatan Mojoanyar Kab. Mojokerto.

rid Acid level	N	Prosentase (%)	P Value
Negative Ranks	36	94,7%	
Positive Ranks	2	5,3%	0,000
Ties	0	0%	

Based on table 3 analysis of elderly who experienced gout before and after being given ergonomic gymnastics intervention, it is explained that before being given ergonomic gymnastics intervention, 38 elderly suffered from gout. While after being given ergonomic gymnastics intervention, it is explained that the elderly who experienced a decrease in uric acid were 36 elderly and there was an increase in uric acid in 2 elderly. The Wilcoxon Sign Rank Test statistical test shows a p value = $0.000 < \alpha = 0.05$, this means that H_0 is rejected and H_1 is accepted, meaning that there is a significant effect of ergonomic gymnastics on uric acid levels in the elderly in Wunut village.

DISCUSSION

Analysis of the Effects of Ergonomic Exercise on Uric Acid Levels in Wunut Village, Mojoanyar District, Mojokerto Regency

A study of 38 individuals with uric acid levels before ergonomic exercise intervention showed an average of 7.73 mg/dl. The average uric acid levels in the elderly before the ergonomic exercise intervention exceeded normal values, with normal values for women ranging from 2.4-6.0 mg/dl and for men from 3.4-7.0 mg/dl. The uric acid levels in this study exceeded 7 mg/dl.

Gout is a disease caused by the accumulation of monosodium urate crystals in the body. Uric acid is the final metabolic product of purine, a component of nucleic acids found in the nucleus of body cells. Elevated uric acid levels can cause disorders in the human body, such as joint pain, often accompanied by excruciating pain (RISKI ARDHI, 2018).

The aging process can lead to physiological changes that not only affect physical appearance but also function and responsiveness in daily life. In older adults, cellular degeneration occurs due to the aging process, which can lead to organ weakness, physical deterioration, and the emergence of various diseases, such as elevated uric acid levels (Yusuf Sukman, 2017).

Elderly individuals experiencing elevated uric acid levels experience physical changes, including decreased function of various organs due to cell damage, resulting in reduced production of hormones, enzymes, and essential substances. This leads to decreased elasticity, degeneration, and erosion of cartilage around joints, which can lead to decreased flexibility and limited movement (Marhamah et al., 2023).

Based on the above opinion, researchers believe that regular exercise will improve blood circulation and address blockages in blood vessels. This positive effect on the body is that exercise relaxes the mind, reduces and manages stress, and improves the metabolic system, making nutrient distribution and absorption more effective and efficient. A well-functioning

metabolic system reduces the risk of uric acid buildup in the body.

Uric acid levels in elderly individuals following ergonomic exercise intervention in Pohjejer Village averaged 5.92 mg/dl. Uric acid levels after ergonomic exercise intervention decreased on average, with uric acid levels lower than before the intervention.

Ergonomic exercise is a form of exercise whose movements are adapted from prayer (a form of Islamic worship). This exercise, at first glance, resembles yoga because of its simple, fluid movements. It consists of five movements: the first is "open chest," the second is "bowing in gratitude," the third is "sitting in strength," the fourth is "prostration in gratitude," and the fifth is "lying down in surrender" (Yusuf Sukman, 2017). The benefits of ergonomic exercise for people with gouty arthritis include lowering uric acid levels. This reduction in uric acid levels is due to exercise.

Conscious breathing using the diaphragm allows the abdomen to slowly rise and the chest to expand fully. This breathing technique massages the heart due to the rise and fall of the diaphragm, clearing blockages and improving blood flow to the heart and throughout the body. This facilitates the removal of waste products such as uric acid by blood plasma from cells to the kidneys and large intestine for excretion in the form of urine and feces (Kesmas et al., 2018).

Ergonomic exercises are very effective in lowering uric acid levels. This reduction is due to ergonomic exercises improving blood circulation, which stimulates nerves and stimulates the release of endorphins. Endorphins function as natural sedatives, creating a sense of well-being and regulating emotions, thus relieving stress in the elderly. Stress can disrupt the enzyme urikinasase, thus inhibiting uric acid excretion.

Based on the information above, researchers believe that if individuals with hyperuricemia regularly perform ergonomic exercises and maintain a healthy lifestyle, optimal results can be achieved in controlling blood uric acid levels to remain within the normal range. The statistical test results concluded that there was a difference

in uric acid levels after ergonomic exercises, with a p-value of 0.000. From these results, it can be concluded that there was a difference in uric acid levels before and after ergonomic exercises.

Ergonomic exercises can be used to reduce uric acid levels. Ergonomic exercises maximize oxygen supply to the brain, open the intelligence system, sweat system, body heating system, combustion system (uric acid, cholesterol, blood sugar, lactic acid, oxalate crystals), carbohydrate conversion system, electrolyte production system in the blood, body freshness system, and immune system against negative energy/viruses, as well as the excretion system. negative energy from within the body. The movements contained in ergonomic gymnastics are highly effective, efficient, and logical because the sequence of movements resembles the sequence of prayer movements practiced by humans from ancient times to the present day (Purba et al., 2021).

The results of a study conducted by (Komariah, 2015) on "The Effect of Ergonomic Gymnastics on Reducing Uric Acid Levels in Elderly Patients with Hyperuricemia at the Wening Wardoyo Elderly Social Services Unit, Ungaran, Semarang Regency" found that uric acid levels in the intervention group before treatment were 8.2 mg/dl and after treatment were 6.5 mg/dl. The decrease in uric acid levels in the intervention group before and after treatment was 1.7 mg/dl. This indicates that ergonomic gymnastics has an effect on reducing uric acid levels in elderly patients with hyperuricemia. Ergonomic gymnastics is considered effective in reducing uric acid levels. This decrease is due to ergonomic exercises' strong emphasis on breathing, which provides a massage sensation to the heart, thus clearing blockages and facilitating metabolic processes. Furthermore, these exercises relax the body, increasing the body's reabsorption of uric acid. Conscious breathing techniques, performed using the diaphragm, allow the abdomen to slowly rise and the chest to expand fully. This breathing technique massages the heart due to the rise and fall of the diaphragm, clearing blockages and

facilitating blood flow to the heart and throughout the body. This facilitates the removal of waste products, such as uric acid, by blood plasma from cells to the kidneys and large intestine, for excretion in the form of urine and feces (Marhamah et al., 2023).

Researchers believe that ergonomic exercises can lower uric acid levels in patients with hyperuricemia. If ergonomic exercises are made a regular part of your routine, they can improve physical fitness, which in turn can have a positive impact by providing a massage sensation to the heart, clearing blockages and facilitating metabolic processes. Based on the results of interviews with several respondents, they reported a sensation of freshness, health and fitness after carrying out physical activities or ergonomic gymnastics, especially for the elderly who also support pharmacological treatment to overcome increased uric acid levels.

CONCLUSIONS AND SUGGESTIONS

1. Conclusion

Based on the research results, it can be concluded that: The average uric acid level in gout patients before receiving ergonomic exercise intervention in Pohjejer Village was 7.73 mg/dl.

The average uric acid level in elderly gout patients after receiving ergonomic exercise intervention in Pohjejer Village was 5.92 mg/dl.

There is an effect of ergonomic exercise on uric acid levels in elderly people in Pohjejer Village, Gondang District, Mojokerto Regency, with a significant p-value of 0.000.

2. Recommendations

2.1 For Respondents

It is hoped that participants will implement an ergonomic exercise routine before uric acid levels increase and they age. Ergonomic exercise should be performed three times a week to maximize treatment efforts for individuals with hyperuricemia, with the goal of improving their quality of life and preventing potential complications.

2.2 For Healthcare Institutions in Elderly Posyandu

It is hoped that the results of this study can serve as a valuable reference in the educational context, particularly in the

development of evidence-based nursing practice. The information generated from this study is expected to serve as a basis for consideration in the implementation of non-pharmacological therapies to prevent elevated uric acid levels.

2.3 For Educational Institutions

The results of this study have the potential to serve as a reference in the educational context, particularly in the development of evidence-based nursing practice, particularly in the context of the impact of ergonomic exercise.

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