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Swimming Exercise Therapy Method Case Study of Pinched Nerve Sufferenrs

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Abstract

Pinched nerves are a disease experienced by many people in Indonesia. Most suffer during the productive age period of 30-60 years. Sufferers of a pinched nerve will experience that if a pinched nerve occurs in the lower back, there will be sharp pain in one part of the waist, groin, legs, feet, hips or buttocks, and even numbness in the back of the calf or sole of the foot. The aim of this study was to determine the effect of regular swimming on reducing pain in people with pinched nerves. This research design uses direct demonstration and the sampling technique uses incidental sampling. The results of this study were that there was an effect of regular swimming on reducing pinched nerve pain from an initial VAS score of 8 (controlled severe pain) to 2 (mild pain). The conclusions in this study show a significant increase in pain reduction, which is expected in cases of pinched nerves or HNP and good treatment with regular swimming.

How to Cite

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INTRODUCTION

The older you get, the more susceptible you are to disease and various physical complaints, one of which is low back pain, especially in the productive age group, namely 30-64 years. In general, the physical condition of someone who has entered old age experiences a decline (Susanto, 2015). The pain problem that often occurs in the human body is Neuropathic pain (NP), namely pain caused by lethargy or disease in the samotosensory nervous system (Cindy Aisyah Putri, 2021). Hernia Nucleus Pulposus (HNP) or pinched nerve is a health problem that is serious enough to be treated. Then, pinched nerves can attack both men and women, especially the elderly. A pinched nerve is a condition where the protrusion of the intervertebral disc presses on the posterior longitudinal ligament so that it narrows into the vertebral canal (disc protrusion) or the neuleus pulposus is partially detached in the vertebral canal (Vera, 2019).

The effects of a pinched nerve are also quite serious, it can limit a person's movement from being productive in everyday life. If a pinched nerve occurs in the lower back, there is sharp pain in one part of the waist, groin, leg, foot, hip or buttocks, and even numbness in the back of the calf or sole of the foot. This can result in the effects of the body's balance being disturbed and can cause other indications (Sulaiman & Anggriani, 2018). Based on health service data, there are 11.9% of HNP cases in Indonesia and 24.7% have symptoms and signs of HNP (Quamila, 2023).

According to doctors and physical therapists, physiotherapy has been recommended, and swimming can be used as therapy as a healing medium for people with pinched nerves. Physiotherapy is a type of health service that aims to develop, maintain and restore the body's movement abilities and functions throughout the life span (Octaviani Rizky Widyasari, 2020). Likewise Hydrotherapy, hydrotherapy is a treatment using air media, one of which is swimming.

Swimming is a water sport that is done by moving the body to float the body by moving the legs and arms to lift all parts of the body above the surface. Swimming is a sport that competes with the speed of swimming athletes in swimming(Fauzan et al., 2021). Swimming can be used for recreation, exercise or therapy for health. Swimming can improve circulation, endurance, muscle strength and cardiovascular fitness. Swimming promotes healthy circulation by using all the limbs and muscles to move, thereby increasing venous return to the heart as a result of lower extremity activity. Additionally, because the limbs move as propellers, lymphatic drainage can also help reduce pain, discomfort and swelling of joints and tissues. Swimming It is known that currently the parent swimming organization in Indonesia is PRSI. The All Indonesian Swimming Association is an organization that regulates the sport of swimming and was founded on March 21, 1951.

Swimming can be hydrotherapy to increase muscle strength, reduce pain by reducing the pressure of body weight on joints and bones, improve balance, speed up healing, and increase proprioception (joint receptors) (Susanto, 2010). Swimming can make all parts of the body move, it can increase muscle strength and cardiovascular strength, reduce arthritis symptoms, and relieve back pain (Ermin & Fakhruddin, 2021). In fact, lying a lot in bed causes weakness in the muscles and makes the joints tense. Floating in an air pool makes the body and back more relaxed and relaxed and reduces the burden when moving. Because when you are in the air, your weight will usually feel light.

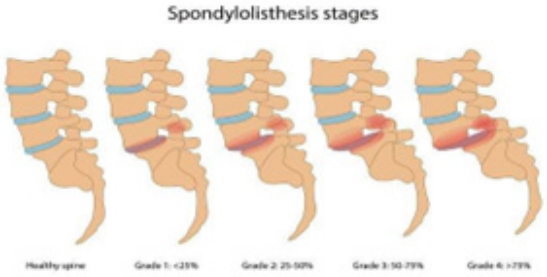

Figure 1. The results of Magnetic Resonance Imaging (MRI) stated HNP Grade 3. Source Alodokter.

Checked by RSDU Dr. H. Moch. Ansari Saleh Banjarmasin On Friday, March 8 2024, Lumbasocral T1WI and T2WI MRI, axial and sagittal slices without contrast were performed with the results:

Alignment: good, no listhesis visible, Curve straightens Intensity of corvus v. Lumbales L1 to L5 are both isointense on T1 and T2WI. There was a change in the intensity of the L5-S1 intervertebral disc, T1W1 isointense and T2WI hypointense with posterocentral extrusion of the L5-S1 intervertebral disc which compressed the dural sac at that level. There was no visible paralumbar mass.

Conclusion: Degenerative intervertebral disc L5-S1 accompanied by grade III posterocentral HNP. Paralumbar muscle spasms.

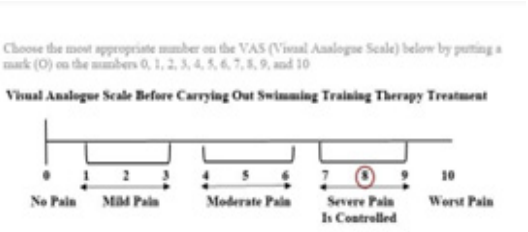

Figure 2. Visual Analogue Scale values before swimming training therapy. Research result

The results of the initial VAS score of 8 showed that the research subject had a controlled severe pain category. These results will be compared with the VAS results later after treatment has been carried out on the research subjects at the 10th - 16th meeting. This action research was carried out 4 meetings a week.

Respondent's statement before carrying out swimming training therapy. The respondent felt a burning and tingling sensation as well as a sharp prick in the thigh to the lower leg, the respondent described the pain experienced in the form of tingling, the respondent found it quite difficult to carry out activities such as lifting heavy loads, for example lifting a bucket full of water, the respondent felt controlled severe pain in when sweeping the page for too long, when the respondent does activities that involve curves in the back, such as spending too long in front of the computer, the pain often arises, the respondent feels that his movement is limited due to back pain and interferes with his daily activities, the respondent feels quite a bit of pain before doing Swimming exercise therapy, respondents felt the sensation of severe pain was controlled.

METHODS

This method uses a qualitative method with the approach used in the case study, namely the application of freestyle swimming training therapy as hydrotherapy using direct demonstrations carried out with samples according to the instructions given using direct demonstrations and incidental sampling techniques which aim to take samples based on chance encounters with researchers and can be used as samples(Sakti et al., 2022).

The sample was taken from the Satria Utama Banjarbaru club, totaling 1 respondent who experienced a pinched nerve and then given the application of freestyle and backstroke exercise therapy in accordance with the inclusion criteria of respondents who were cooperative and willing to become respondents. Before data collection, respondents were given a VAS sheet and questionnaire to fill out. The case study process carried out to obtain this was carried out by reviewing initial results through interviews and using the Visual Analogue Scale (VAS) questionnaire instrument to assess pain (Nasution, 2020). At the first meeting the researchers demonstrated the VAS assessment for the pain scale.

RESULTS AND DISCUSSION

The results of the study showed that there was an effect of providing freestyle swimming training therapy on reducing the pain scale, as evidenced by the sample experiencing a decrease in the pain scale after the intervention and the sample's ability to deal with pain. The measurement data results were taken from the Visual Analogue Scale. This instrument is used to determine the reduction in pain in a pinched nerve.

Figure 3. Descriptive pain intensity scale (Mubarak, W. I., Indrawati, L., & Susanto, 2015)

An explanation of intensity is drawn as follows: Pain intensity on a scale of 0 is no pain, Pain intensity on a scale of 1 to 3, pain such as itching or being shocked or throbbing or twisting or being hit or stinging or sore, Pain intensity on a scale of 4 to 6, such as cramps or stiffness or pressure or difficulty moving or burning or stabbing, Pain intensity on a scale of 7 to 9 is very painful but can still be controlled by the client, Pain insensitivity on a scale of 10 uncontrolled pain (Potter & Perry, 2005)

Before and after treatment the sample will be carried out a VAS test to determine the initial condition before receiving treatment. VAS test will be given when sample VAS measurement sheet Before and after treatment the sample will be carried out a VAS test to determine the initial condition before receiving treatment. The VAS test will be given when the sample has received the 10-16th treatment to determine the results of the treatment. The tools to measure the results of the 16 treatment meetings are using the Visual Analogue Scale and questionnaires.

The criteria in the Visual Analogue Scale sensitivity will be used as a reference to determine

the results after the research subjects have given treatment using the Visual Analogue Scale instrument. When implementing the Visual Analogue Scale instrument, the research subjects will carry out according to the Visual Analogue Scale sensitivity reference which will be used as a reference for the results of the treatment implementation.

Stage 1. Before carrying out swimming training therapy, the research sample filled out the VAS sheet first day of practice, and practice 10,11,12,13,14,15,16.

Table 1. Field Observation Results

Day	VAS
1. Tuesday, 04/23	8 (Severe pain is controlled)
2. Thursday, 04/25	-
3. Saturday, 04/27	-
4. Monday, 04/29	-
5. Wednesday, 05/01	-
6. Friday, 05/03	-
7. Sunday, 05/05	-
8. Tuesday, 05/07	-
9. Thursday, 05/09	-
10. Saturday, 05/11	4 (moderate pain)
11. Monday, 05/13	3 (mild pain)
12. Wednesday,05/15	2 (mild pain)
13. Friday, 05/17	3 (mild pain)
14. Sunday, 05/19	2 (mild pain)
15. Tuesday, 05/22	3 (mild pain)
16. Thursday, 05/23	2 (mild pain)

Stage 2. Warm up before starting swimming training therapy for 5-10 minutes, to increase reflex energy and muscle range. Warming up correctly and for sufficient time will prevent the body from sports injuries that may arise during activities(Dede Kurniasih, 2012).

Figure 4. Picture proof when filling out the VAS

Stage 3. Enter the core material. First, inhale through your mouth and exhale through your nose for 10 repetitions. Second, add a movement to float the body for 5 repetitions. Third, do free leg movements holding the wall or pool ladder for 10 seconds (1 minute rest break for each) 2 repetitions for the first 2 weeks, 4 repetitions in the next 3 weeks. The fourth did 15m free leg movements, 2 repetitions for the first 2 weeks, 4 repetitions in the next 3 weeks. With the help of a back flotation instrument (to keep your waist straight) and a long flotation stick (to maintain body balance), exhale 5 times after each exhale and rest for 1 minute after each breath. Fifth, do 15m back leg movements, 2 repetitions for the first 2 weeks, 4 repetitions in the next 3 weeks. With the help of a back flotation instrument (to keep your waist straight) and a long flotation stick (to maintain body balance), exhale 5 times after each exhale and rest for 1 minute after each breath

Figure 5. Warming up before swimming therapy

Stage 4: Do cool down movements, take a leisurely walk in the water, holding a long float stick for 5 minutes.

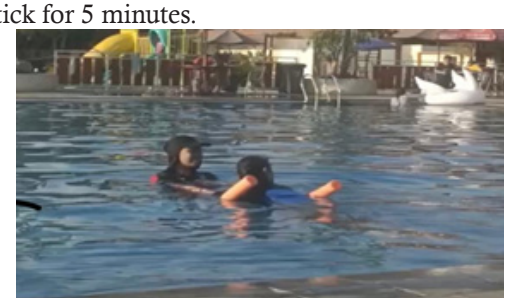

Figure 6. Image of doing swimming exercise therapy

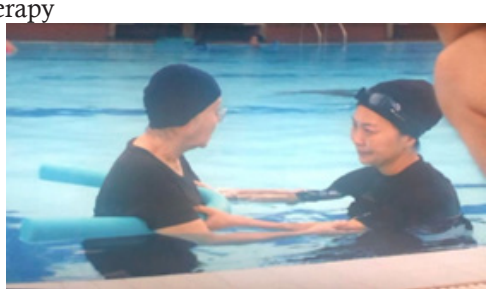

Figure 7. Example of a picture of a leisurely walk in the water. source from the film "how to make millions before grandma dies".

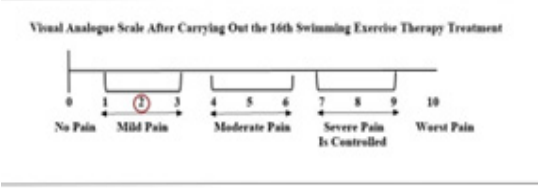

Figure 8. Visual Analogue Scale after 16x swimming training therapy. Research result

The results show the value of the sample that was given swimming training therapy treatment for 16 meetings. The results showed a decrease in the VAS score from 8 (controlled severe pain) to 2 (mild pain).

The results of the study showed that there was an effect of providing swimming exercise therapy on reducing the pain scale, as evidenced by the sample experiencing a decrease in the pain scale after the intervention and the sample's ability to deal with pain. The measurement data results were taken from the Visual Analogue Scale. This instrument is used to determine the reduction in pain in a pinched nerve. According to Ermawan Susanto's research results (2010), exercising in water at waist height can reduce joint tension by up to 50%, and 75% if the water is chest deep. It can be concluded that the water therapy method using cold water is effective on pain variables(Nugroho et al., 2020)

After doing swimming training therapy for 16 meetings. Respondents felt significant changes in their bodies, respondents did not feel a burning sensation and rarely felt tingling or sharp pricks from the thighs to the lower legs, respondents described the pain they experienced as a dull ache, respondents felt mild pain when sweeping the yard for too long, during activities which involves curves in the back, such as spending too long in front of the computer, the pain that is felt rarely occurs, the respondent no longer feels that his movements are limited due to back pain and does not interfere with daily activities, the respondent only feels mild pain after doing swimming training therapy, the respondent feels the level of sensation when this is just mild pain.

CONCLUSION

Based on the research results, it can be concluded that giving swimming training therapy treatment to people with pinched nerves can reduce the intensity of pain from the initial VAS value of 8 (controlled severe pain) after treatment to a VAS value of 2 (mild pain). Therefore, swimming training therapy can be used as an additional therapeutic treatment apart from therapy in hospital to help reduce pain in people with pinched nerves (HNP). To support daily activities as well as busy work in old age, one of them must have a good level of physical fitness, physical condition (Mashud, 2016).

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