

**Journal Educational of Nursing (JEN)**

Vol. 4 No. 1 – January – June 2021; page 57-59

p-ISSN : 2655-2418; e-ISSN : 2655-7630

journal homepage: <https://ejournal.akperrspadjakarta.ac.id>

DOI : [10.37430/jen.v4i1.209](https://doi.org/10.37430/jen.v4i1.209)

Article history:

Received: Mei 19, 21

Revised: Mei 25, 21

Accepted: Juni 12, 21

## **Implementation of Rubber Ball Gripping Exercises on Mr. S with Non-Hemorrhagic Stroke to Increase Muscle Strength at the Darmawan Pavilion, 5th Floor, Gatot Soebroto Army Hospital**

Hendik Wicaksono<sup>1</sup>, Juleha<sup>2</sup>

Nursing Study Program, Gatot Subroto Health College

e-mail: [hendikwitas@gmail.com](mailto:hendikwitas@gmail.com), [jehaaajulsss@gmail.com](mailto:jehaaajulsss@gmail.com)

### **Abstract**

Stroke is one of the diseases that affects the nervous system. Non-Hemorrhagic Stroke is caused by a blockage in the blood vessels which causes a decrease in blood supply to the brain. One of the symptoms that arise due to stroke is a sudden neurological deficit such as muscle weakness which can cause mobility disorders. One of the treatments that can be done is active ROM therapy by holding a ball. This therapy is carried out with a round rubber ball, serrated with elastic properties, can be pressed with force, applied for 15 minutes. Rubber ball holding therapy can stimulate muscle fibers, especially the fingers, to be able to move by practicing gripping and squeezing to stimulate hand movements to help revive brain control over the muscles. During the assessment, the author found that the respondent was experiencing impaired physical mobility. Therefore, the author provides nursing care with non-hemorrhagic stroke, one of which is rubber ball holding exercises. The results obtained were right upper extremity 4444, left upper extremity 5555, right lower extremity 4444 left lower extremity 5555.

**Keywords:** Non-Hemorrhagic Stroke; Rubber Ball; Gripping Exercises; Increased Muscle Strength.

### **Introduction**

Stroke is a disease that affects the nervous system. Stroke occurs when the blood supply to the brain is disrupted, due to some brain cells dying due to blockage or rupture of blood vessels to the brain. Non-Hemorrhagic Stroke is caused by a blockage in the blood vessels which reduces the blood supply to the brain (Andriani et al., 2022 in Sesep et al., 2024).

Stroke can cause paralysis of parts of the body Hemiplegia depending on the location of the brain damage, if there is an injury to the lower part of the brain, the legs and hands are difficult to move. If in the cerebellum, the ability to coordinate body movements is reduced. This

condition makes it difficult for stroke sufferers to carry out daily activities (Nurrani et al., 2023).

The World Health Organization (2018) states that stroke is the second cause of death after heart disease and the third cause of disability after infectious diseases and cancer. Around 15 million people suffer from stroke each year, with one-third of these cases or around 6.6 million resulting in death (3.5 million women and 3.1 million men). Stroke is a bigger problem in low-income countries than in high-income countries. More than 81% of stroke deaths occur in low-income countries (Asih et al., 2021)

Efforts to treat stroke with muscle weakness can be done with

pharmacological therapy, but non-pharmacological therapy can be done with Range of Motion (ROM) exercises and holding a ball. One of the Range of Motion (ROM) therapies in the form of a tight gripping or clenching of the hand applied in rubber ball grip exercises stimulates increased neuromuscular and muscular chemical activity. This will stimulate the nerve fibers of the extremity muscles, especially the parasympathetic nerves to produce acetylcholine, so that contractions occur (Rismawati et al., 2022 in Frisca Indah Yulianti, 2023).

### **Method**

This writing method is a descriptive method using a case study approach method. This study includes one research unit, namely using one subject in the study. This case study aims to analyze the application of rubber ball gripping exercises in patient Mr. S with non-hemorrhagic stroke to increase muscle strength..

### **Results and Discussion**

#### **Focus Data**

Subjective data: the client's family said that the client's right hand and foot were difficult to move, the client's family said that the client was still on bed rest and dizzy, the client's family said that the client had hypertension, the client's family said that the client was slurred speech.

Objective data: the client appeared to be on bed rest, the client appeared weak, the client appeared to have difficulty moving the right hand and foot, the client's activities were assisted by the family, the client appeared to be slurred speech.

The results of the hematology examination on May 03, 2024 were Hemoglobin 11.2 g/dL, Hematocrit 33%, Erythrocytes 4.2 million/ul, Leukocytes 1660/ul Neutrophils 42%, Lymphocytes 45%, Monocytes 11%. TTV BP: 153/89mmHg, N: 73X/minute, S: 36.5°C, SatO2: 97%, GDS 88mg/dL, muscle tone of the upper left extremity 5555, upper right

extremity 3333, lower left extremity 5555, lower right extremity 4444

#### **Nursing Diagnosis**

The diagnosis established in this case study that is in accordance with the data found in the client is impaired physical mobility related to neuromuscular disorders. The author determines this diagnosis because the data found in the client supports the author to be able to establish the diagnosis.

#### **Nursing Intervention**

In determining the objectives, there was a gap between the theory and the author in the field where the theory and journal had a time limit of 5 days. While the author in the field set a time of no more than 1 week. With the reason that the time to achieve the objectives was set at 3 x 24 hours as a reference in measuring the achievement of the final objectives and making it easier to evaluate the nursing care that had been made.

#### **Implementation**

In the field results, theories and related journals did not find any gaps in the implementation section because implementation in the field was carried out based on the plan on the theory of Indonesian nursing intervention standards.

#### **Evaluation**

After nursing actions are carried out, the last step is to evaluate the nursing diagnoses found by conducting both formative and summative evaluations.

#### **Conclusion**

A case study of the application of rubber ball gripping exercises to increase muscle strength carried out by the author on Mr. S on the 5th Floor of the Darmawan Pavilion, Gatot Soebroto Army Hospital, found nursing problems of impaired physical mobility related to neuromuscular disorders by doing rubber ball gripping exercises, then implementation was carried out for 3X24 hours according to the intervention of impaired physical mobility by focusing on rubber ball gripping exercises and the results obtained at the

time of the evaluation were that the objectives were achieved, some problems had not been resolved. This conclusion was obtained based on evaluation data on May 9, 2024, namely that Mr. S's muscle strength increased, Mr. S's body movements could be moved, this was in accordance with the established outcome criteria. If rubber ball gripping exercises are carried out early, it can speed up the recovery process in patients with impaired physical mobility, in accordance with the existing theory that stroke patients can be given rubber ball gripping exercises on the 2nd day after being diagnosed with stroke..

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