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# The Effect of Exercise Mobilization on Independence in Daily Activities in Stroke Patients

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**ABSTRACT**

Long-term functional impairment following a stroke often impairs a patient's ability to do Activities of Daily Living (ADLs). In the acute and chronic stages of stroke, exercise mobilization has been widely advised as a rehabilitation technique to maximize motor recovery and avoid problems connected to immobility. The purpose of this review of the literature is to examine the data pertaining to the efficacy of exercise-based mobilization therapies in enhancing ADL independence in stroke patients. Articles with an emphasis on original research published in authorized or indexed national and international journals between 2015 and 2025 were gathered from the PubMed and Google Scholar databases. A few studies looked at mobilization exercise regimens that were started under expert supervision, including sitting, standing, transfer training, progressive gait exercise, and active or passive range of motion (ROM). Exercise mobilization significantly improves patient independence, as evidenced by higher Barthel Index values, improved mobility performance, and decreased reliance on self-care activities, according to the evaluated evidence. Early organized mobilization was also linked to shorter hospital stays, less problems such muscular weakness and joint stiffness, and better overall rehabilitation results. Excessive mobilization in unstable patients should be avoided, nevertheless, as differences in stroke severity, intervention timing, and training intensity may affect individual therapy outcomes. To sum up, exercise mobilization is a crucial and successful part of stroke rehabilitation that helps restore functional ability and boost independence in ADL. To maximize healing and improve quality of life after a stroke, a progressive exercise program administered early and safely by trained rehabilitation professionals is advised.

**Keywords:** Stroke, Recovery, Rehabilitation, Exercise

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## Introduction

Stroke is described as a neurological impairment related to an CNS (brain, retina, or spinal cord) acute localized damage cord via a vascular cause(Campbell & Khatri, 2020). Understanding that stroke and transient ischemic attack (TIA) are clinical syndromes and that the underlying vascular brain damage can have a variety of mechanisms (related with distinct risk factors and disease processes) is crucial. Therefore, "stroke" and "TIA" are a starting point for logical research and treatment rather than a single, comprehensive diagnosis(Murphy, 2020). According to the World Health Organization, stroke is a clinical condition characterized by abrupt onset of focal (occasionally worldwide) cerebral dysfunction that lasts more than 24 hours or results in death and has no evident cause other than vascular origin(Sumaria et al., 2018). The Greek word "apoplexia," which means to be struck down by a lethal blow, is the source of the word "stroke," which was first used in 1599 to describe the abrupt onset of symptoms when medical professionals used the term "apoplexy." The term "apoplexy" refers to a broad condition in which a patient experiences a "sudden cessation of all menta

functions while remaining being preserved(Coupland et al., 2017). A stroke is an interruption of blood flow in the brain that affects neuron activity. It can happen suddenly in a matter of seconds or rapidly in a matter of hours, with symptoms or signs that correspond to the damaged area(Kudus, 2018) .

People will not exercise unless they have the desire to start and continue exercising. There are two types of motivation: intrinsic and extrinsic. The desire to appear better could be an example of extrinsic motivation in the context of exercise. Extrinsic motivation is when a person engages in an activity to achieve a reward or outcome delivered externally, distinct from the behavior itself(Msn & Fnp, 2019). Exercise is a dynamic energy-demanding activity that not only involves the circulatory, respiratory, and musculoskeletal systems but also impacts the immunological and endocrine systems(Qiu & Fern, 2023). Practice is an action that is repeated consistently in order to acquire maximum proficiency, aimed at molding, sustaining, and increasing performance through regularity and repetition(Ilmiah & Jasmani, 2018). Exercise or physical exercise is essentially a basic life necessity that serves as one of the supports for a person's health in daily life. Exercise can enhance well-being and delay the onset of conditions like heart disease(Panggraita et al., 2021). Physical activity is any activity that results in an increase in physical or mental health as well as the ability to improve one's quality of life so that one can be healthy and happy every day(Romadhoni1 et al., 2022) . Additionally, it has been demonstrated that physical activity promotes a healthy life. As a result, a number of observational studies and firsthand accounts from individuals from various geographical areas demonstrate the synergistic effects of the Med Diet with physical exercise(Dhuli et al., 2022). Physical activity is defined as a type of body exercise caused by skeletal muscle movement that results in an increase in the body's calorie needs or the use of calories in the body is more than the body's energy needs(Purwanto1 & Winarno2, 2023). Training is defined as an endeavor to enhance athletic ability by the integration of theoretical and practical materials, methods, and implementation guidelines with a scientific approach and planned and organized educational concepts in order to meet training objectives on schedule(Gozali et al., 2024) .

Out-of-bed activities during the acute stroke phase are referred to as early mobilization(Filipska-blejder & Jaracz, 2025). The advantages and safety of early mobility during the acute phase of stroke are still up for debate. Patient admission to stroke centers has contributed to the development of effective treatment protocols, and early mobilization has been systematically used to reduce complications and improve functional ability(Mariana et al., 2021). Participating in physical exercise during the first two to five days following a serious illness or accident is known as early mobilization. The length of stay in the intensive care unit (ICU) and hospital, ICU-acquired weakness, the Barthel index (an assessment of activities of daily life), and the frequency of complications are all significantly impacted by early mobilization in critically sick patients(Kanejima et al., 2020). To improve muscle strength, use both active and passive Range of Motion (ROM) joint strengthening exercises. The goal is to find research publications on the variables that affect how well non-hemorrhagic stroke patients can mobilize their muscles using active and passive range of motion (ROM) exercises(Septiana et al., 2023).

**Methodology**

The literature reviewed in this study was obtained from PubMed (a journal search engine platform focused on the Effect of Mobilization Exercise on Independence in Daily Activities in Stroke Patients) and Google Scholar.

Research-based articles published in national and international online journals that have been authenticated or indexed by Sinta Research Dikti and Scopus include all of the papers considered in this study. Published between 2015 and 2025, these articles are original research journals with comprehensive abstracts that are highly relevant to sports and health-related themes.

**Result**

Across the reviewed literature, exercise mobilization consisted of structured out-of-bed physical activities, including sitting, standing, transfer training, progressive gait exercise, and active or passive Range of Motion (ROM) exercises aimed at stimulating neuromuscular recovery. Most interventions were administered within the first 2–5 days after stroke onset and followed planned frequency and progression guided by physiotherapists or rehabilitation professionals. Almost all studies demonstrated functional improvement in ADL, as indicated by significant increases in Barthel Index scores, enhanced mobility performance, and reduced dependency in self-care tasks. Exercise mobilization that involved ROM training was particularly effective in increasing muscle activation, improving extremity function, and facilitating movement required for daily activities. Early exercise mobilization was found to reduce the likelihood of immobility-related problems, such as muscular weakening and joint stiffness. In addition, some studies identified a reduction in length of hospital stay, improved discharge outcomes, and higher rates of functional independence in comparison to conventional care without structured mobilization. However, variations in intervention timing, intensity, and stroke severity produced differences in effect magnitude across studies. A few findings suggested that very early and high-dose mobilization should be carefully monitored to avoid excessive physiological load in unstable stroke patients. Overall, the evidence consistently indicates that exercise-based mobilization contributes positively to the independence of stroke patients in performing ADL. The combination of early initiation, gradual progression, and continuous professional supervision appears to be crucial in achieving optimal functional outcomes.

**Table 1**. Performance Improvement

| Researchers (year) | Journal Source | Research Method | Result |
|---|---|---|---|
| (Romadhoni1 et al., 2022) | JPJO | Data collection using instruments from IPAQ in the form of a questionnaire (International Physical Activity Questionnaire) | Stroke risk ↓ |
| (Filipska-blejder & Jaracz, 2025) | MDPI | (1) research planning, (2) literature and research search, (3) literature selection and choice, (4) analysis of collected data and results, and (5) discussion and conclusions. | cognitive functions ↑ |
| (Kanejima et al., 2020) | MDPI | The PRISMA statement was followed in conducting this systematic review and meta-analysis [19]. Randomized controlled trials (RCTs) examining | Postoperative pneumonia ↓ atrial fibrillation ↓ plural effusions ↓ atelectasis ↓ |

| | | | |
|---|---|---|---|
| | | early mobilization in patients following cardiac arrest surgery were included. | |
| (Septiana et al., 2023) | Independent Healthy Nursing Journal | In this study, 10 of the 177 journals relevant to the research objectives were included and thoroughly reviewed. The 177 journals were collected from two database sources. | Patient Factors ↑ Family Support ↓ Factors Factors of Lack of Nursing Staff ↓ |
| (Purwanto1 & Winarno 2, 2023) | Jurnal Ilmiah ADIRAGA | This research used a correlational approach. Each student took the test twice at Rampal Field in Malang City on May 16, 19, and 26, 2023. | Physical exercise ↓ Physical Fitness ↑ |

**Dicussion**

According to the literature review, stroke patients' independence in activities of daily living (ADL) is positively impacted by systematic mobilization exercises, particularly when they are used during the acute phase under the guidance of qualified rehabilitation staff. It has been demonstrated that mobility exercises such sitting, standing, transfer exercises, progressive walking, and active and passive Range of Motion (ROM) exercises

enhance functional ability following a stroke by promoting neuromuscular recovery. Key markers of the effectiveness of mobility exercise programs include lower reliance on self-care and improved Barthel Index values. These results support the idea that exercise can enhance motor control, strengthen muscle function, and avoid immobilization-related problems such joint stiffness and muscle weakness. Increased extremity muscle activation, which is essential for performing ADLs, has been shown to be greatly influenced by range of motion. Additionally, compared to traditional care without a clear mobilization plan, some studies highlights its additional advantages of decreasing hospital stays, enhancing rehabilitation outcomes, and raising the possibility of patients returning home with greater independence. However, variables in stroke severity, exercise intensity, duration, and time of intervention commencement all affect the results. Premature and intense mobilization in hemodynamically unstable patients can raise physiological stress, according to several studies, hence its application should be carefully considered. All things considered, these results highlight the significance of mobilization exercises as an essential part of stroke recovery, which greatly enhances independence in ADLs. Achieving the best possible recovery results for stroke patients requires early identification of mobility readiness, the creation of a progressive exercise program, and assistance from qualified medical personnel.

**Conclusions**

Based on the literature that has already been completed, it can be concluded that latihan mobilization is an effective rehabilitation intervention that increases daily activities of daily living (ADL) for stroke patients. Engaging in structural activities such as duduk, berdiri, latihan berpindah, berjalan progresif, and latihan Range of Motion (ROM) actif maupun pasif terbukti can enhance neuromuscular pemulihan, increasing functional ability and reducing ketergantungan in self-care. In addition,

effective latihan mobilization can reduce the risk of complications due to immobilization, enhance the pemulihan process, and improve the quality of the rehabilitation process. The effectiveness of interventions is greatly impacted by factors such as length of time spent on therapy, intensity, progression, and patient clinical conditions, which must always be assessed by skilled rehabilitation professionals. As a result, mobilization exercises have to be a crucial part of a stroke rehabilitation program under expert supervision and organized, safe planning. The ultimate goal of rehabilitation, which is to increase patient independence in performing everyday tasks and improve post-stroke quality of life, is anticipated to be supported by the optimal application of mobilization strategies.

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