The Role Of Physical Therapy In Rehabilitating Stroke Patients

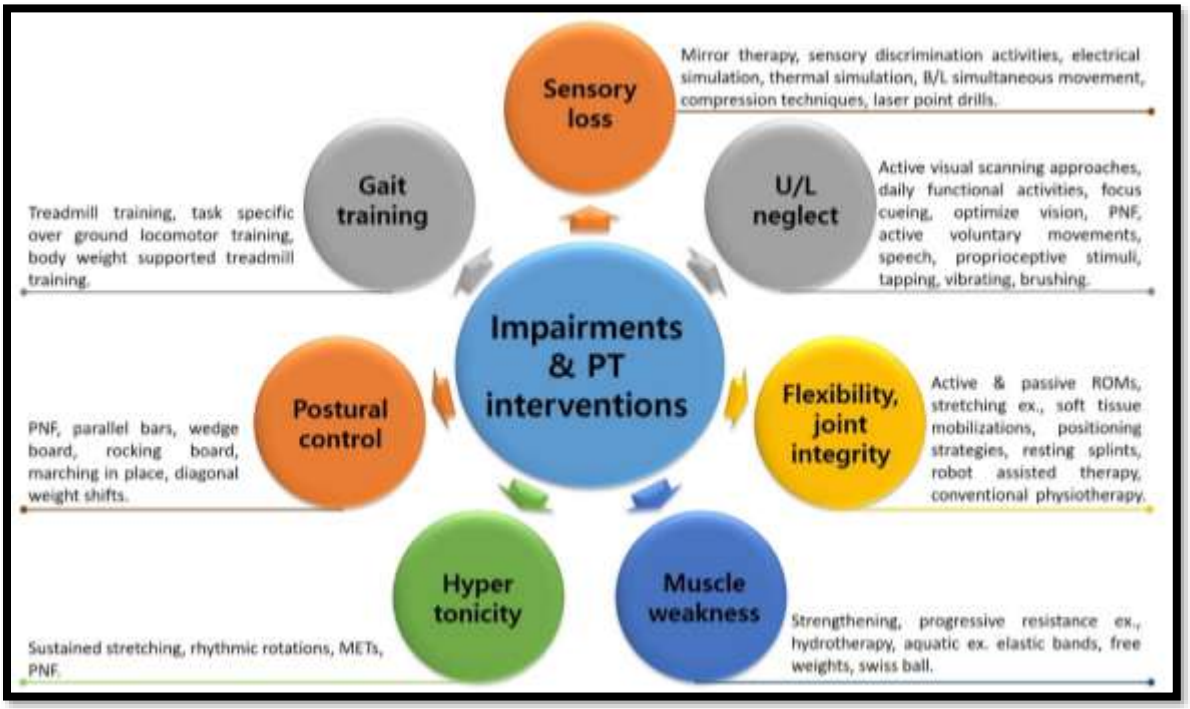
Abed Bin Mohammed Mukanni Alharbi[1],
Physiotherapy- Ibn Sina Hospital[1]

Abstract:
According to WHO and many other related international agencies, a healthy person contains "A state of complete physical, mental, and social well-being not merely the absence of disease." Here the access of health for a normal person leads to complete health care, determination of diseases in advance and a focused approach towards the normal well-being and enjoying basic quality of life. Then on the other hand WHO also relates the perception of healthy human on the basis of culture and value system in which a person is living and also moving towards the self-sustained goals, expectations from self and related environment. It is largely affected by individual's psychological beliefs, physical health and social involvement. This present study evaluates the system of recovery for stroke patients and the main focus will be on the physiotherapy of physical exercise. Study is based on secondary data and takes the reference from previous studies.
Keywords: Physical Therapy, Stroke patients, Rehabilitation.

INTRODUCTION:

As per WHO any given healthy person contains "A state of complete physical, mental, and social well-being not merely the absence of disease." Here the access of health for a normal person leads to complete health care, determination of diseases in advance and a focused approach towards the normal well-being and enjoying basic quality of life. Then on the other hand WHO also relates the perception of healthy human on the basis of culture and value system in which a person is living and also moving towards the self-sustained goals, expectations from self and related environment. It is largely affected by individual's psychological beliefs, physical health and social involvement. It serves as a reference against which an individual or society can measure the different domains of one's own life. It is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, security to freedom, religious beliefs, and the environment.
Cheng et al (2012)
Health is one of the major issues that affects a person's personal and professional life. In the late 70s WHO defined stroke as:
'Rapidly developed clinical signs of focal (or global) disturbance of cerebral function, lasting more than 24 hours or leading to death, with no apparent cause other than of vascular origin'.
As a matter of fact, the cerebrovascular accident or stroke can be considered as one of the major causes of death and also as a leading cause of disability in human body. Stroke rates are highest in low- and middle-income countries. Mortality and disability after stroke are high. Over the past few decades, the percentage of strokes has increased in these countries compared to high-income countries. Strokes are now very common in young people; hemorrhagic strokes are more common than ischemic strokes. According to the World Health Organization, 15 million people suffer a stroke each year worldwide. Of these, 5 million died

and 5 million were left homeless. High blood pressure causes more than 12.7 million strokes worldwide. Stroke rates are decreasing in developing countries, thanks to efforts to lower blood pressure and reduce smoking. However, the overall incidence of stroke remains high due to an aging population. **Shahid et al (2023)** Almost half of all strokes are due to modifiable risk factors (e.g., high blood pressure, diabetes, poor dietary risk factors, obesity, smoking, bad breath, alcohol consumption, hypercholesterolemia, and physical inactivity). Medical management, limited access to health care, and late detection of underlying risks 4. Studies show that stroke patients have a reduced quality of life 5. Despite advances in stroke treatment and prevalence, quality of life and the conditions affected by the disease have received little attention. Stroke is a medical condition that affects individuals as well as healthcare services, resulting in reduced productivity and quality of life. Stroke manifests itself as structural and functional damage that affects the body's functioning. Physical and cognitive impairments are common. Gait, balance, limb functions and psychological problems may cause a decrease in functional capacity. **Barcaccia (2016); Johnson (2016)**



Source: Shahid et al (2023)

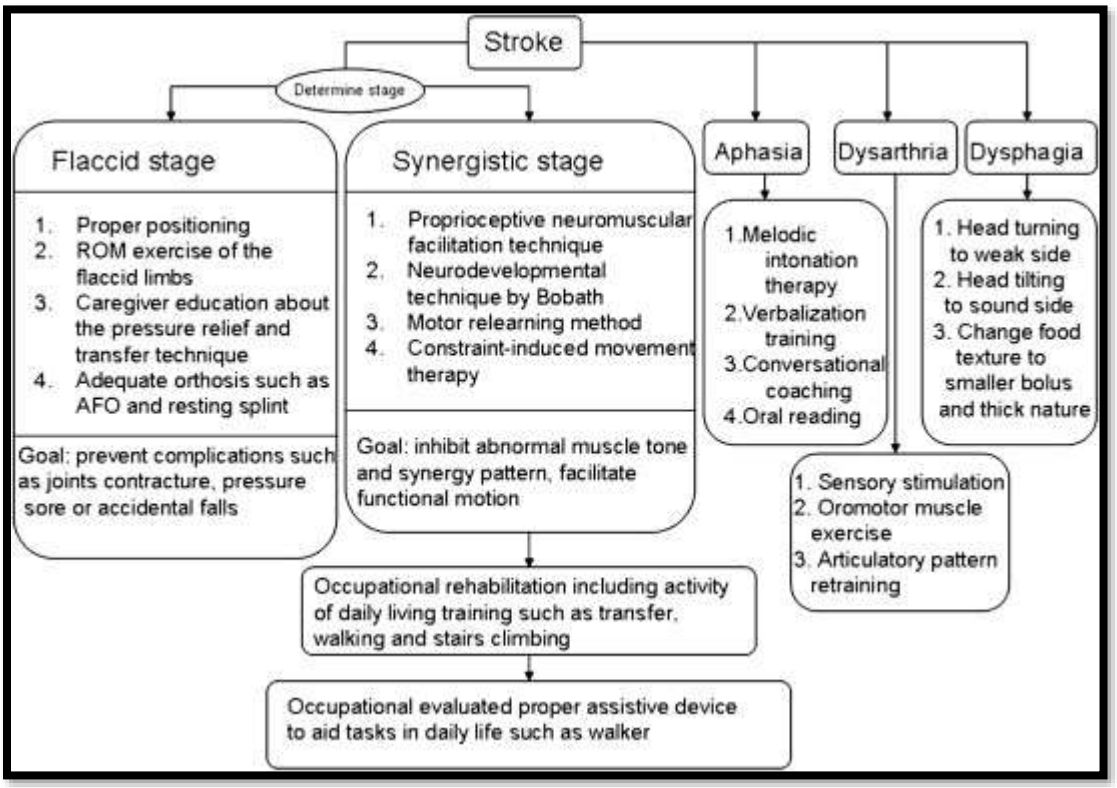
Figure 1: Physical Therapy for Stroke Rehabilitation

There are a number of treatments available for stroke along with medicines, physiotherapy, etc. even there are many cures available in ayurveda and homeopathy as well, and the contribution is considerably great in this regard. **Avan et al (2019)**

Role of Physiotherapy:

Physical therapy is an established area of stroke care, but uncertainty remains about the most appropriate treatment strategy. Stroke often results in a variety of disabilities that have been shown to benefit from rehabilitation, particularly physical therapy. There are many ways to restore freedom to the body and upper and lower extremities. Most members of the stroke care team benefit from recommended physical therapy after stroke. Current evidence suggests that it does not matter which type of treatment is chosen, and that all available modalities will

improve the patient's role. So even if there is a treatment, we cannot identify it at the moment. Therefore, until more evidence is obtained, we should choose the most effective treatment that can be applied to the largest number of patients. **Pulman (2013); Morris (2013)** Physiotherapists play an important role in the multidisciplinary health care team that focuses on improving the work and quality of life of patients with physical and occupational health needs. It is important to evaluate the role of physical therapy in stroke treatment and to understand its importance in terms of human life and well-being of the same.



Source: Cheng et al (2012)

Figure 2: Rehabilitation Protocol for Stroke Patients

Methodologies used:

A number of new age cardio exercises are use worldwide along with other conventional methods of providing therapy in case of post-stroke cases. The main aim of such therapies is to get back the control of upper limb in case of disabilities and faster recovery in other such cases. These therapies are used worldwide and mostly found to be successful. **Pérez-Cruzado et al (2017)**

a. Exercise:

The term exercise refers to regular/forced movement, integration or may be the ease of working actively and even the resistance training. These techniques can be used in anatomical or functional planes. **Egan et al (2002)** This procedure can be done on land or in water. The latter is called "hydrotherapy". The best examples of physical therapy are relaxation, massage, stretching, myotherapy, occupational therapy, floor aerobics, physical exercise and movement, neuromuscular stimulation (support and movement, cold work, a series of neurophysiological processes that will target the area exactly) are related to the principles of injury of neuronal plasticity. It affects the quality of life of paralyzed patients.

b. Physio Method:

For example, the bobath system of treatment is related to the development of neuro treatment and is used for the rehabilitation purpose in many of the developing countries as a substitute costly system of rehabilitation. As a matter of fact this system is having positive effect on the process of recovery and gives suitable results. The main aim of the process is to correct the body posture, inhibition of body and presenting the time lapsed assessment. **Varadharajulu (2017)**

Source: https://www.kavacare.id/en/bobath-therapy-for-stroke/

Figure 3: Bobath System for Stroke Patients

c. Therapy of Movement:

This can be divided in three parts:

A. For hemiplegic upper limb, weight-bearing exercises designed to improve the specific function of the limb (e.g. shaping) for up to 6 hours per day for 2 weeks

b. Glove handle or FU of the healthy body for 90% of standing hours to facilitate use of the weak limb; and

c. Attitudes aimed at improving compliance aimed at transferring the results obtained in the clinic or laboratory to the patient's living environment (e.g. changing the pack)

Main measures is Wheel-28 or Wolf Motor Strength Test, Stroke Patient Arm Movement Assessment Scale and Functional Independence Scale. Limited movement and Bobath technique have similar results in improving the functional capacity, speed and quality of movement of the hemiplegic arm in patients with functional paralysis. Restricted motion appears to be more effective than the Bobath strategy in improving the quantity and quality of use of the affected arm. **Huseyinsinoglu (2012)**

Neuromuscular Functions:

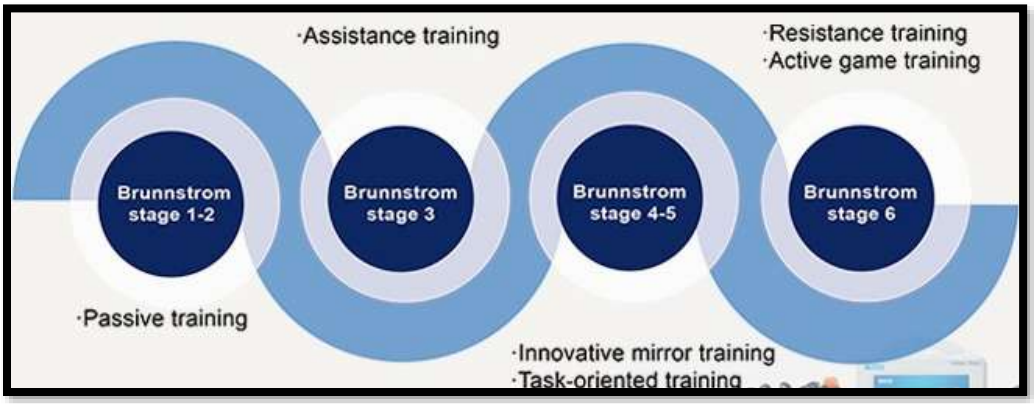
This is for the neuromuscular movement of pelvic region and helps to improve the movement of pelvis so as to check the trunk control and balance. Tremendous changes have been observed via this method in the motor function and recovery of patient in case of rehabilitation from chronic stroke. **Morris (2006)**

Relearning

Also known as Motor Relearning Program and based on analytical concept. This is directed towards the components of missing components of movement and regular improvement by training. The task performed in this system are based on the movement of body while walking and work on the other parts while walking. The basic idea is to improve the neuronal plasticity. **Ribeiro et al (2014)**

Roods System:

Every motor output must have an appropriate and continuous input. Rood's approach follows this idea through a series of original techniques and key points to achieve results. Various safeguards and facilities are used to regain control of the body. Brunnstrom Technique:



Source: https://www.syrebo.com/info/6-stages-of-stroke-recovery-and-the-targeted-t-72787338.html

Figure 4: Brunnstrom's method

The main basis of Brunnstrom's method is to use thinking from

a. To improve movement behavior. Emotional stimulation to inhibit spasms and

b. Functional retraining to improve motor control. An important part of the work is also characteristic of Brunnstrom's approach as a therapeutic tool for neurological diseases. **Kanase (2021)**

Electrotherapy:

A branch of physical therapy that uses low, medium, and high-frequency electricity to achieve therapeutic results for a variety of conditions. Various types of radiation therapy are often used to treat injuries related to stroke. Reducing pain, improving perception, and controlling muscle tone are important uses. Electrical stimulation, heat, wet compresses, and exercise have been shown to improve shoulder subluxation in stroke, a major problem in limb development. **Yoo et al (2015)**

Electrical stimulation is a treatment that uses small amounts of electricity to treat muscles that have been paralyzed or weakened by the brain or spinal cord. Research on its use to relieve foot drop and toe drop in paralysis was first published in the 1970s. In the mid-1980s, a group in Salisbury, England, began considering the use of FES. They initially worked with people with spinal cord injuries. From this initial work, they developed a device that is still in use today for people with multiple sclerosis in the early 1990s. Electrical stimulation of blood vessels causes the muscles that enter the blood vessels to contract. This technique can be used to improve muscle tone, control movement, bowel, bladder and sexual function, posture, standing and walking. FES has become popular in the treatment of shoulder subluxation, spasticity and upper and lower extremity stiffness in hemiplegic patients. **Vispute et al (2018)**

Electromyographic biofeedback:
This is a technique that allows a student to learn the muscles so that they can better regulate their body. Electromyographic biofeedback (EMG-BFB) is a technique that is being considered for use in conjunction with physical therapy to restore motor function in stroke patients. Electromyographic biofeedback helps remember a word puzzle using clues. A mental health professional improves performance by understanding the consequences of past activities. **Nair (2002)**

Routine Physio Training:
Stroke patients have difficulty gaining functional independence to perform activities of daily living. The main goal of physical therapy is to be complete. Muscle spasms make it difficult to achieve voluntary control. Various interventions have been tested and found to be highly effective in achieving positive results. Functional training improves hand functions and activities of daily living in stroke patients. Therapeutic gym includes training equipment for performing functional activities of the lower limbs and upper body. Superdrives, multifunctional fitness machines, wall ladders, shoulder wheels, static bikes, geared parallel bars, active modern training chairs, etc. **Dickens et al (2005)**

Bladder dysfunction:
The outcome of incontinence depends on the duration of the stroke and the assessment. The figures reported are: Week 1 - 60%, Week 6 - 42%, Week 12 - 29%. Made by. Valsalva and Credes manoeuvres are a method used in practice to regain control. Bladder training can be achieved by intermittent catheterization and periodic voiding. **Nair (2002)**

Related Issues:
Stroke can cause many problems, including shoulder pain, liver damage, deep vein thrombosis, and more. Physical therapy should be considered the first treatment option for patients with subacromial impingement syndrome. Both exercise and electrical devices work to relieve pain. Physical exercise and bed rest can help reduce pain. The goal of posture correction is to prevent posture abnormalities, spasticity, and contractures. Normal anatomic alignment of the head, trunk, and limbs should be maintained. Fibrinogen leg scans with I125 markers in hemiplegic patients reveal DVT in 30%–75% of patients in the first week after stroke. Early mobilization of patients may reduce the risk of blood clots and DVT.

CONCLUSION:

The majority of survivors face challenges as a result of their handicap during the challenging and prolonged recovery process following a stroke. There is also evidence that a physiotherapy intervention, combining components from several modalities, significantly outperforms neither no treatment nor a placebo control in the recovery of functional independence after stroke. Physiotherapist has a major role in stroke rehabilitation through physical therapy to concentrate on the problems that impede a patient from completely integrating into society, such as enhancing career support and going back to work

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