

**EFFECT OF SWALLOW THERAPY ON SWALLOWING ABILITY  
AMONG PATIENTS WITH CEREBROVASCULAR ACCIDENT AT  
SRI RAMAKRISHNA HOSPITAL, COIMBATORE.**

**REG. NO. 30091401**

A Dissertation submitted to  
**The Tamilnadu Dr. M.G.R. Medical University,**  
Chennai.

In partial fulfillment of the requirement for the  
Award of the Degree of

**MASTER OF SCIENCE IN NURSING**

**2010**

Certified that this is the bonafide work of

**AMBILY.S**

**COLLEGE OF NURSING**  
Sri Ramakrishna Institute of Paramedical Sciences  
Coimbatore - 641 044.

Submitted in partial fulfillment of the requirement for the award of the degree  
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to The Tamilnadu Dr. M.G.R. Medical University, Chennai.

**College Seal**

**Prof. (Mrs.) SEETHALAKSHMI,**  
B. Sc., R. N., R. M., M. N., M. Phil., (Ph. D).,  
Principal,  
College of Nursing,  
Sri Ramakrishna Institute of Paramedical  
Sciences,

Coimbatore - 641 044,  
Tamilnadu, India.

**COLLEGE OF NURSING**  
Sri Ramakrishna Institute of Paramedical Sciences  
Coimbatore.

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SWALLOW THERAPY FOR SWALLOWING ABILITY

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## **Abstract**

An interventional study was conducted to evaluate the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident at Sri Ramakrishna Hospital, Coimbatore. Quasiexperimental one group pretest post test design is adopted for the study. Purposive samples of 4 were selected. Ongoing assessment of swallowing ability was done using the Mann Assessment of Swallowing Ability (MASA, 2004). The data were analyzed with descriptive and inferential statistical methods. The result shows that there is a significant difference in the swallowing ability before and after the swallow therapy. The study concluded that there is an effect of swallow therapy in increasing the swallowing ability among patients with cerebrovascular accident.

# Chapter I

## Introduction

---

**Effect of Swallow Therapy on Swallowing Ability  
among Patients with Cerebrovascular Accident at  
Sri Ramakrishna Hospital, Coimbatore.**

The central nervous system consisting of brain and spinal cord is a highly specialized system responsible for the control and integration of the body's entire activities. Brain controls most of the voluntary and involuntary activities of the human body. Any disturbance to the brain cells will alter the complete functioning of the human system. This disturbance can lead to decreased blood supply to the brain and oxygen deprivation causing the damage of brain cells.

Cerebrovascular accident occurs when the blood supply to the brain is disturbed in some way. As a result the brain cells are deprived of oxygen. This causes some cells to die and leaves other cells damaged (McMurdo, 2008).

After coronary heart disease and cancers of all types, cerebrovascular accident is the third commonest cause of death worldwide. Several population-based surveys on stroke were conducted from different parts of India. During the last decade, the age-adjusted prevalence rate of stroke was between 250-350/100000. Recent studies showed that the age-adjusted annual incidence rate was 105/100000 in the urban community of Kolkata and 262/100000 in a rural community of Bengal. Hypertension was the most important risk factor. Cerebrovascular accident represented 1.2% of the total deaths in India (Banarjee & Das, 2006).

Although the prevalence of cerebrovascular accident appears to be comparatively less in India, than in developed countries, it is likely to increase in proportionally with the increase in life expectancy. The proportion of cerebrovascular accident in the young is significantly more in India than in developed countries (Sethi, 2002).

An estimated 500,000 first-time cerebrovascular accidents occur each year. The mortality rate has declined about 15% since 1988, but cerebrovascular accident leaves about 30% of its victims with mental or physical disabilities that require ongoing assistance with activities of daily living (Phipps, 2009).

An article entitled signs and symptoms of cerebro vascular accident drawn from Elsevier publishers suggests that cerebrovascular accident is a leading cause of serious long-term disability. The major problem of cerebrovascular accident is the paralysis of swallowing muscles leading to swallowing difficulty which is known as dysphagia.

Swallowing is one of the most complex neuromuscular interactions in the human body and is controlled by many nerves and muscles. It involves the mouth, throat and esophagus (Dugdale, 2009).

An article entitled normal swallowing mechanism drawn from Wikipedia suggest that swallowing is as necessary for the life as breathing. Under normal circumstances, the human beings depend on swallowing to obtain the nutrients that they need to survive. Swallowing, known scientifically as deglutition, is the process in the human or animal body that makes something pass from the mouth, to the pharynx,



into the esophagus, with the shutting of the epiglottis. In the human body, it is controlled by swallowing reflex.

An article entitled dysphagia drawn from Wikipedia reveals that swallowing problems can occur in all age groups, resulting from congenital abnormalities, structural damage and medical conditions. Swallowing problems (dysphagia) may be classified as oropharyngeal or esophageal. Oropharyngeal dysphagia refers to difficulty in the passage from the mouth to the esophagus. In esophageal dysphagia, there is a disordered passage of food through the esophagus.

Following a cerebrovascular accident, weakened muscles in the mouth or throat, a loss of sensation in the tongue, poor muscle coordination, or the inability to cough all impair swallowing. Weakened muscles may delay swallowing or result in an incomplete swallowing. The signs and symptoms of swallowing problems include excessive drooling, food falling out of the mouth, clumsiness in getting food to the back of the mouth, difficulty starting or completing a swallow, food remaining in the mouth after swallowing, frequent throat clearing, coughing, or choking after eating or drinking, voice that sounds wet or gurgling, complaints of food or drink sticking in the throat (Udesky, 2009).

The neurological insult following a stroke may leave the survivor with a chronic illness encompassing a lifetime of recovery. Stroke recovery is a complex phenomenon involving a person, whose world was suddenly changed as a new, unexplored world evolves. In this new world, the stroke survivors face life-altering changes. Unlike other diseases the processes may affect only a specific organ or organ systems (Van hook, 2009).

## 1.1. NEED FOR THE STUDY

One of the major needs of the human body is the nutritional need. When a person develops swallowing problems he may not be able to maintain the normal nutritional status and this can lead to malnutrition.

Swallowing problems can lead to life threatening infection in the lungs. One in 17 people will develop some form of swallowing problems in their lifetime. Swallowing problems are a common complaint among older individuals and the incidence is higher in patients who have had cerebrovascular accident. Difficulty with swallowing is the sensation that food is stuck in the throat, or from the neck down to just above the abdomen behind the breastbone i.e. sternum (Dugdale, 2009).

An article entitled swallowing disorders after a stroke in Stroke Connection Magazine explains that, swallowing problems often occur as a result of cerebrovascular accident. It may occur up to 65% of patients with cerebrovascular accident and is associated with poor outcome. Dysphagia after cerebrovascular accident is associated with increased mortality, higher dependence and longer hospitalization.

A study conducted to reveal the effect of swallow therapy among cerebrovascular accident patients with persistent pharyngeal dysphagia showed a positive effect (Permsirivanich, et al., 1996).

A study was conducted among patients treated in the multidisciplinary Dysphagia Clinic in Salisbury District Hospital who were treated primarily by

swallowing therapy and they showed complete recovery, resolution of their symptoms or did not require treatment (Singh, 1993).

Another study was conducted to know the effect of swallowing therapy among patients with neurological disorders and concluded that 90% of patients improved with swallow therapy (Bartolome & Neumann, 1993).

If someone had a cerebrovascular accident, the damaged speech and movement is usually obvious. But for some survivors of cerebrovascular accident, having trouble swallowing can be invisible- but an extremely disabling aftereffect. Early detection and management of swallowing problems in neurological patients with neuromuscular weakness is necessary to prevent complications and decrease the number of deaths associated with swallowing problems (Udesky, 2009).

Swallowing problems if left unrecognized and untreated can be life threatening. Impaired swallowing can lead to malnourishment, dehydration, choking, or aspiration pneumonia. Proper therapy can usually treat swallowing problems so that people can once again eat comfortably.

Based on the above factors the researcher decided to do a further study on the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident.

## **1.2. STATEMENT OF THE PROBLEM**

EFFECT OF SWALLOW THERAPY ON SWALLOWING ABILITY  
AMONG PATIENTS WITH CEREBROVASCULAR ACCIDENT AT SRI  
RAMAKRISHNA HOSPITAL, COIMBATORE.

### **1.3. OBJECTIVES**

- 1.3.1. Assessment of swallowing ability among patients with cerebrovascular accident.
- 1.3.2. Administration of swallow therapy among patients with swallowing inability.
- 1.3.3. Assessment of swallowing ability after swallow therapy among patients with cerebrovascular accident.

### **1.4. OPERATIONAL DEFINITIONS**

#### **1.4.1. Swallow Therapy**

Swallow therapy helps to strengthen the muscles of swallowing and thereby improving the swallowing ability.

#### **1.4.2. Swallowing Ability**

Swallowing ability is the ability of the patient to successfully initiate and complete the three phases of swallowing ability i.e., the oral, pharyngeal and esophageal phases.

#### **1.4.3. Cerebrovascular Accident**

Cerebrovascular accident is the sudden death of the brain cells that occurs as a result of oxygen deprivation due to impairment of blood flow to the brain by blockage or rupture of an artery to the brain.

### **1.5. CONCEPTUAL FRAMEWORK**

In the present study the researcher has adopted Orlando's Theory of Deliberative Nursing Process. This theory consists of the patient behavior, the nurse's

reaction, the nurse activity and the ultimate outcome i.e., the patient's response to the nursing care.

Through this theory the nurse thoroughly assess the client's need, recognize the impact of that need on the client's level of health and then act deliberately to meet the need, ultimately reducing the client's distress.

### **Patient behavior**

The patient behavior may represent a need for help. The patient who cannot resolve a need feels helpless and the patient's behavior reflects this feeling. The patient behavior can be verbal or non verbal.

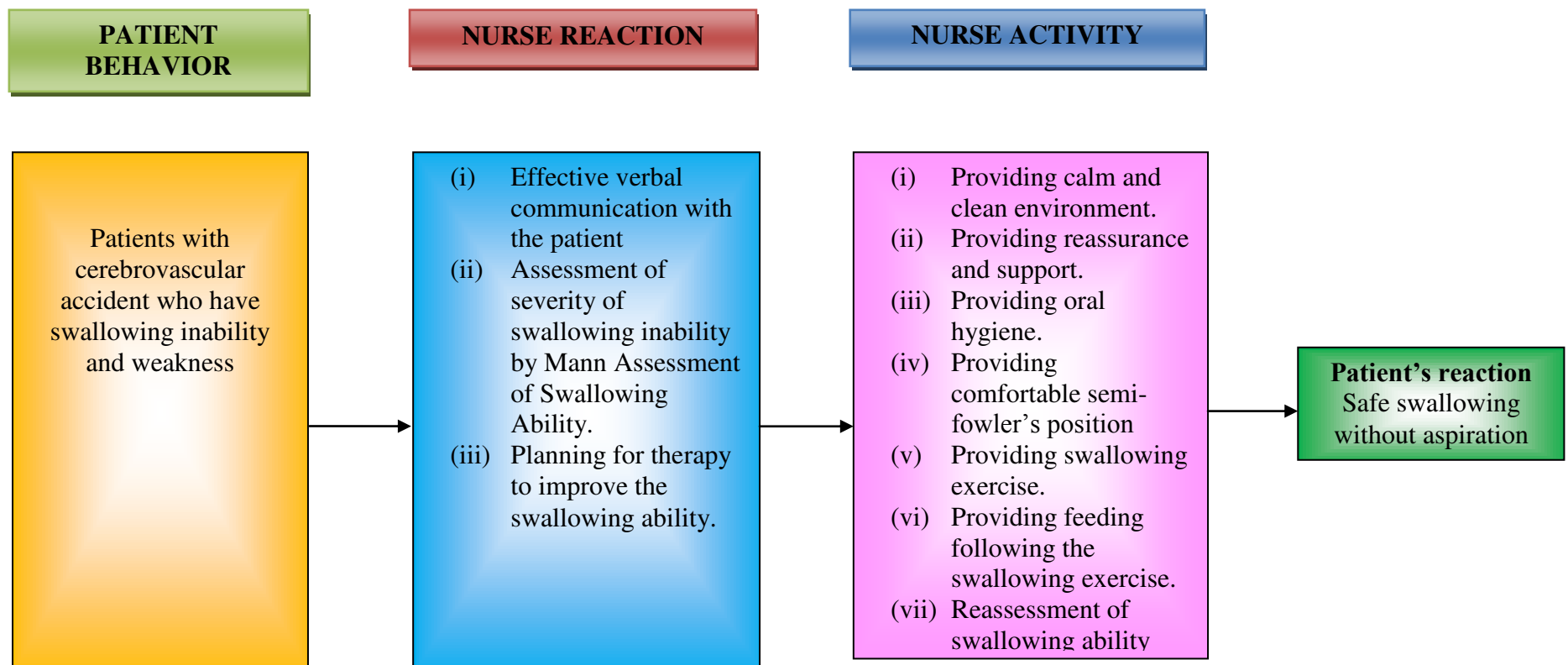
### **Nurse reaction**

Nurse's reaction to a patient's behavior forms the basis for determining how a nurse acts. Here, the nurse needs to communicate clearly to the patient.

### **Nurse activity**

Nursing activity is whatever the nurse says or does for the benefit of the patient. It occurs after the nurse interprets the patient's behavior.

**FIG. 1.1.**  
**ORLANDO'S NURSING PROCESS THEORY (1961)**



## **1.6. PROJECTED OUTCOME**

The administration of swallow therapy will improve the swallowing ability among patients with cerebrovascular accident who have swallowing inability.

# Chapter II

## Review of Literature

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## **REVIEW OF LITERATURE**

In the present chapter the researcher reviewed the related literature in order to understand the patients with cerebrovascular accident having swallowing inability. It consists of the following subjects.

- 2.1. Literatures related to cerebrovascular accident.
- 2.2. Literatures related to normal swallowing mechanism.
- 2.3. Literatures related to swallow therapy and dysphagia.

### **2.1. LITERATURES RELATED TO CEREBROVASCULAR ACCIDENT**

Cerebrovascular accident occurs when blood supply to parts of the brain is disrupted, causing brain cells to die. When blood flowing to the brain is impaired, oxygen and glucose cannot be delivered to the brain (Wedro, 2010).

The symptoms of cerebrovascular accident depend on which part of the brain is affected. Common symptoms may include paralysis of a part of the body, total or partial loss of vision, loss of the ability to speak or to understand speech and paralysis of swallowing muscles (Eure, 2010).

An article entitled cerebrovascular accident drawn from Wikipedia suggests that cerebrovascular accident can be classified into two major categories: ischemic and hemorrhagic. Ischemic stroke are those caused by the interruption of the blood supply, while hemorrhagic stroke are those which results from rupture of a blood vessel or an abnormal vascular structure. 87% of strokes are caused by ischemia and the remaining by hemorrhage.

A study conducted by Ed Edelson (2009) finds that the risk of a hip or thigh bone fracture is doubled for people who have cerebrovascular accident. The overall risk of fractures was 1.96 times higher for all stroke survivors and 2.12 times higher among women who had strokes.

A study conducted by the Harvard researchers found that women can dramatically slash their risk for both ischemic as well as hemorrhagic strokes by simply walking regularly (Baker, 2010).

Another study conducted by O'Donnell. et.al. (2010) suggests that ten risk factors such as hypertension, current smoking, waist-to-hip ratio, diet, regular physical activity, diabetes mellitus, alcohol intake, psychosocial stress and depression, cardiac causes and ratio of apolipoproteins B to A1 are associated with 90% of the risk of stroke. Targeted interventions that reduce the blood pressure and smoking are physical activities and a healthy diet and hence could substantially reduce the burden of stroke.

A study was conducted by Ritky, Kumar & Scremin (1996) to determine the clinical outcome of dysphagia after cerebrovascular accident and correlated the clinical outcome with the initial severity and location of the lesion. The study concluded that the improvement of dysphagia secondary to stroke is related to the anatomical location of the lesion, with better recovery in single cortical stroke and worse in multiple strokes. Improvement of dysphagia is not related to age or initial severity of dysphagia.

## **2.2. LITERATURES RELATED TO NORMAL SWALLOWING**

### **MECHANISM**

Swallowing is one of the most complicated tasks performed by the nervous system. It occurs in three sequential phases that require the carefully coordinated function of muscles in the mouth, pharynx, larynx, and esophagus, all of which are under the control of cranial nerves. In turn, cranial nerves are controlled by processing centers in the brain where the information related to swallowing is processed. These centers include areas located in the cerebral cortex, medulla oblongata, and the cranial nerve nuclei (Vega, 2009).

#### **2.2.1. Nerves for swallowing**

The cranial nerves involved in swallowing are:

- (i) Trigeminal (cranial nerve V)
- (ii) Facial (cranial nerve VII)
- (iii) Glossopharyngeal (cranial nerve IX)
- (iv) Vagus (cranial nerve X) (Vega, 2009)

#### **2.2.2. Muscles of mastication**

The muscles of mastication are:

- (i) Temporalis
- (ii) Masseter
- (iii) Medial Pterygoid
- (iv) Lateral Pterygoid
- (v) Buccinator
- (vi) Orbicularis Oris

### **2.2.3. Muscles of the tongue**

- (i) Extrinsic tongue muscle
- (ii) Intrinsic tongue muscle (Aviv, 2010)

## **2.3. LITERATURES RELATED TO SWALLOW THERAPY AND DYSPHAGIA**

Swallow therapy, a common form of rehabilitation is divided into indirect therapy and direct therapy. Indirect therapy includes exercises to strengthen the swallowing muscles and direct therapy includes exercises to perform while swallowing.

There are a number of exercises for specific muscles or muscle groups in the oral cavity and pharynx that can be effective in remediating specific swallowing disorders. For patients with weakness in facial and labial muscles, resistance and range of motion exercises can be very useful. These exercises can be quite effective in improving tongue strength and coordination.

A study conducted by Bartolome, & Neumann (1993) to know the effect of swallow therapy among patients with neurological disorders concluded that 90% of patients improved with swallow therapy.

A study conducted by Loge Mann (1993), on the effect of range of motion exercises for the lips and tongue showed a positive effect after 2-3 weeks.

A study conducted by Permsirivanich, et.al. (1996) on swallow therapy among patients with cerebrovascular accident having persistent pharyngeal dysphagia showed a positive effect.

A study conducted by Neumann, Bartolome, Buchholz, & Prosiegel (2000) to show the effect of swallow therapy in 58 patients with neurological disorders concluded a successful outcome, as defined by exclusively oral feeding.

The results of swallow therapy applied to 66 patients suffering from neurological disorders by Neumann (2000) suggest that swallow therapy is effective for patients with neurological disorders.

A study was conducted by Shaker et al., (2002) to evaluate the effect of a novel rehabilitative exercise on restoration of deglutition in a group of patients with deglutitive failure caused by abnormal upper esophageal sphincter opening manifested by post swallow residue and aspiration necessitating tube feeding. The patients were provided with hyoid muscle strengthening exercise and concluded it to be effective in restoring oral feeding in patients with deglutitive failure.

A study conducted by Shaker & Antonik (2006) in 31 subjects, shows that there was a significant increase in the magnitude of the anterior excursion of the larynx, the maximum antero-posterior diameter and the cross-sectional area of the upper esophageal sphincter opening after Shaker exercises.

A study was conducted by Kiger, Brown & Watkins (2006) to compare the outcomes of dysphagia management using Vitalstim therapy versus traditional swallow therapy. Outcomes were analyzed for changes in oral and pharyngeal phase dysphagia severity and progression from non-oral to oral intake. The result showed no statistically significant difference in outcomes between the therapies which proved that the traditional swallow therapy is effective in managing swallowing problems.

Another study conducted by Singh, Brock bank, Frost & Tyler (2006) among patients treated in the Multidisciplinary Dysphagia Clinic in Salisbury District Hospital on swallow therapy showed complete recovery and resolution of their symptoms.

A study conducted by Carnaby (2006) found that, as a result of high intensity swallowing therapy that included compensatory swallowing strategies, safe feeding advice, dietary modifications and swallowing exercises, a high proportion of acute stroke patients with clinical signs of dysphagia achieved a functional swallowing and returned to a normal diet.

A study conducted by Robbins, Kays, Gangnon, Hind, Gentry, & Taylor (2007) on the effect of lingual exercise in stroke patients with dysphagia indicate that lingual exercise enables acute and chronic dysphagic stroke patients to increase lingual strength with associated improvements in swallowing pressures, airway protection, and lingual volume.

# Chapter III

## Methodology

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## **METHODOLOGY**

The present study was designed to assess the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident. The methodology of the present study includes research design, setting, population, criteria for sample selection, variables of the study, materials for data collection, validity of the tool, hypothesis, pilot study, main study and technique of data analysis and interpretation.

### **3.1. RESEARCH DESIGN**

The research design selected for the study is descriptive design and quasi-experimental one group pretest-post test design.

### **3.2. SETTING**

The settings of the study are Neuroward, Deluxe Ward, and Special Wards of Sri Ramakrishna Hospital, Coimbatore. The Neuro ward has a total bed strength of 30, Deluxe wards have a bed strength of 60 and Special wards have a bed strength of 82.

### **3.3. POPULATION**

The population of the present study was patients admitted at Sri Ramakrishna Hospital with cerebrovascular accident who has swallowing inability. The annual statistics of patients with cerebro vascular accident at Sri Ramakrishna Hospital was 300.



### **3.4. CRITERIA FOR SAMPLE SELECTION**

#### **3.4.1. Inclusion Criteria**

- 1) Patients with cerebro vascular accident who have swallowing inability.
- 2) Both gender.

#### **3.4.2. Exclusion Criteria**

- 1) Unconscious patients.
- 2) Disoriented patients.

### **3.5. SAMPLING TECHNIQUE**

Purposive sampling technique was used for sample selection.

### **3.6. VARIABLES OF THE STUDY**

#### **3.6.1. Dependent Variable**

Dependent variable is swallowing inability among patients with cerebrovascular accident.

#### **3.6.2. Independent Variable**

Independent variable is the swallow therapy.

### **3.7. MATERIALS**

#### **3.7.1. Demographic data profile**

The demographic data profile consists of sample number, age, sex, education, duration of symptoms of dysphagia, localization of lesion, and mini mental status examination.

### 3.7.2. The Mann Assessment of Swallowing Ability (MASA, 2004).

The Mann Assessment of Swallowing Ability was created for working in the area of neurogenic swallowing disorders to both diagnose and map swallowing outcome. The examination covers 24 clinical items that evaluate oromotor/ sensory components of swallowing, pre requisite learning skills, such as cooperation and auditory comprehension, baseline cranial nerve function and functional assessment of swallow. It can be administered in 15-20 minutes.

### 3.7.3. Administration of the Tool

The patient's baseline data necessary for the study was collected from the patient, family members, and the records.

A mini mental status examination was done on the first day of data collection to assess the level of consciousness of the patient.

The swallowing ability was assessed by Mann Assessment of Swallowing Ability (MASA, 2004) consisting of 24 items with a maximum score of 200.

### Scoring Key

Severity Grouping	MASA Score – dysphagia	MASA Score- aspiration
No abnormality detected	≤178-200	≤170-200
Mild	≤168-177	≤149-169
Moderate	≤139-167	≤148
Severe	≤138	≤140

### **Interventional Procedure**

Step 1: Explained the intervention and obtained consent from the patient's relatives.

Step 2: Assessment of level of consciousness of the patient by mini mental status examination.

Step 3: Make the patient to sit in a semi fowler's position.

Step 4: Assessment of severity of swallowing inability by Mann Assessment of Swallowing Ability (MASA, 2004).

Step 5: Grouping the swallowing inability into mild, moderate and severe based on the scoring in the tool.

Step 6: Provide swallow therapy that includes swallowing exercises like Shaker exercise, Hyoid lift maneuver, Effortful swallow, Supraglottic swallow, Super supraglottic swallow and tongue exercises before feeding.

Step 7: Provide feeding and assess for risk of aspiration.

### **3.8. VALIDITY OF THE TOOL**

The Mann Assessment of Swallowing Ability (MASA, 2004) was validated under the guidance of experts in the specialized area.

### **3.9. HYPOTHESIS**

H<sub>1</sub>: There will be a significant difference in the swallowing ability before and after the swallow therapy.

### **3.10. PILOT STUDY**

Pilot study was conducted to find out the feasibility and practicability of the study. Pilot study was conducted at Neuro ward of Sri Ramakrishna Hospital with three samples. The severity of swallowing inability was assessed using Mann

Assessment of Swallowing Ability. Then swallow therapy consisting of swallowing exercises and tongue exercises were administered. Ongoing assessment was done using the same scale. The results revealed that there was an improvement in the swallowing ability after the intervention.

### **3.11. MAIN STUDY**

The main study was conducted from June 10<sup>th</sup> to July 10<sup>th</sup> at Sri Ramakrishna Hospital, Coimbatore.

Four samples with swallowing inability were selected for the study. Demographic data was collected from each sample followed by the assessment of severity of swallowing inability using the Mann Assessment of Swallowing Ability. Swallow therapy which includes the swallowing exercises was then administered to the patients. The exercises were Shaker exercise, Hyoid Lift Maneuver, Effortful swallow, Supraglottic swallow, Super supraglottic swallow and tongue exercises. Followed by the exercise the samples were provided with feeding and checked for aspiration. Ongoing assessment was done using the same tool.

### **3.12. TECHNIQUE FOR DATA ANALYSIS AND INTERPRETATION**

Descriptive statistics and inferential statistics were used for analysis and interpretation.

# Chapter IV

## Data Analysis and Interpretation

---

## **DATA ANALYSIS AND INTERPRETATION**

The present chapter includes methods for analysis of data. The study was conducted at Sri Ramakrishna Hospital, to assess the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident. The severity of swallowing inability was assessed by using Mann Assessment of Swallowing Ability (MASA, 2004). The data was computed using inferential statistics.

### **SECTION 1**

#### **4.1. ANALYSIS OF THE DEMOGRAPHIC DATA**

The demographic data of patients with cerebrovascular accident who have swallowing inability in terms of age, gender, education, duration of symptoms of dysphagia, cognitive status, localization of lesion, and mini mental status examination are presented in tables.

**TABLE 4.1.**  
**DISTRIBUTION BY DEMOGRAPHIC DATA**

(N=4)

Demographic Data	No. of patients	Percentage (%)
Age in years		
40 – 60	1	25
60 – 80	3	75
Gender		
Male	2	50
Female	2	50
Education		
Primary	3	75
Diploma	1	25
Duration of symptoms of dysphagia (in days)		
1 – 4	3	75
4 – 8	1	25
Cognitive status		
Normal	4	100
Localization lesion		
Brainstem stroke	2	50
MCA infarct	2	50
Mini MSE		
Normal	4	100

Age distribution shows that 25% of the patients belong to the age group 40-60 years and 75% belongs to the age group 60-80 years. Distribution of patients by gender shows 50% as males and 50% as females. Distribution of patients by education shows that 75% of patients have completed the primary education and 25% completed diploma. Distribution of patients by duration of symptoms of dysphagia reveals 75% of patients have symptoms within 1-4 days and 25% have symptoms within 4-8 days. Distribution of patients by cognitive status reveals 100% of patients to be normal. Distribution of patients by localization of lesion shows 50% with brainstem stroke and 50% with middle cerebral artery (MCA) infarct. Distribution of mini mental status examination shows all the patients (100%) to be normal.



## **SECTION - II**

### **4.2. ANALYSIS ON SWALLOWING ABILITY AMONG PATIENTS WITH CEREBROVASCULAR ACCIDENT**

Initial assessment was done to ensure the patient's wellbeing. A mini mental status examination was done to know the level of consciousness and orientation of the patients. All the patients had normal mental status.

Each patient was initially assessed for swallowing inability using the Mann assessment of Swallowing Ability (MASA, 2004). The first patient was found to have mild dysphagia. The second and third patients were having severe dysphagia. The fourth sample had moderate dysphagia.

Among the patients, two patients with severe dysphagia were on Ryles tube feeding. Four patients were taught and demonstrated about the swallowing exercise. Daily three sessions of the exercise was provided for the patients followed by feeding and were assessed for aspiration while feeding.

**TABLE 4.2.**  
**COMPARISON OF SWALLOWING ABILITY BEFORE AND AFTER**  
**THE SWALLOW THERAPY USING THE MANN ASSESSMENT OF**  
**SWALLOWING ABILITY**

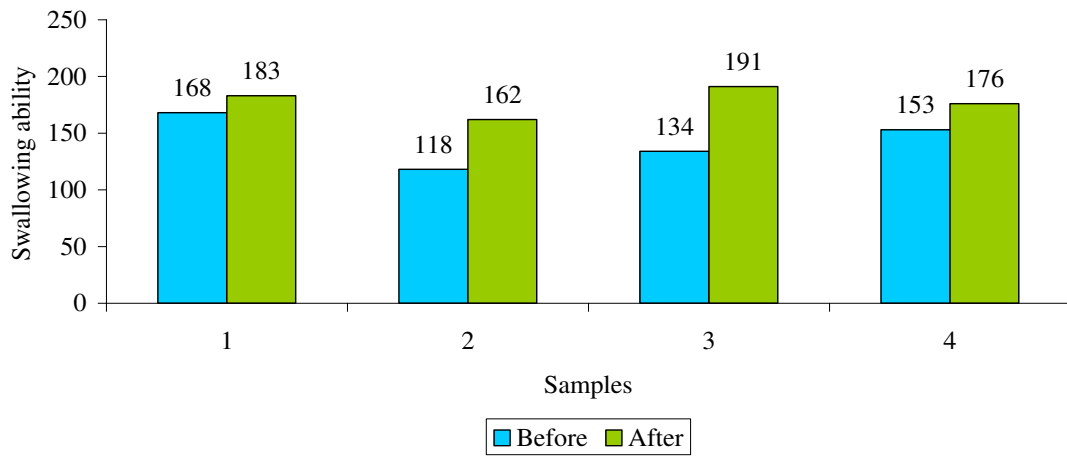
(N=4)

Sample No.	Swallowing ability	
	Before	After
1	168	183
2	118	162
3	134	191
4	153	176

The above table shows that the first patient had mild dysphagia with a score of 168 which was increased to 183 after the therapy. The second patient had severe dysphagia with a score of 118 increased to 162 after the therapy. The third patient had severe dysphagia with a score of 134 that was increased to 191 after the therapy and the fourth patient had moderate dysphagia with a score of 153 increased to 176 after the therapy.

For the first patient with mild dysphagia, the swallowing ability was improved within 10 days. Second sample with severe dysphagia improved after 22 days. Third sample with severe dysphagia improved within 16 days. Fourth patients with moderate dysphagia improved after 12 days.

**FIG. 4.1.**  
**COMPARISON OF SWALLOWING ABILITY BEFORE AND AFTER**  
**THE SWALLOW THERAPY USING THE MANN ASSESSMENT OF**  
**SWALLOWING ABILITY**



**TABLE 4.3.**  
**ANALYSIS OF SWALLOWING ABILITY BEFORE**  
**AND AFTER SWALLOW THERAPY**

(N=4)

Swallow therapy	Mean	Mean %	SD	Mean difference	't'
Before	143.25	71.62	21.83		
After	178.00	89	12.30	34.75	3.600*

**\*significant at 0.05.**

The above table shows the computed mean and respective standard deviation of scores obtained before and after the administration of swallow therapy. The data shows an increase in the mean score from 143.25 to 178 with a mean difference of 34.75 after the therapy. This suggests an improvement in the swallowing ability after the therapy. Thus the hypothesis **'There will be a significant difference in the swallowing ability before and after the swallow therapy'** is accepted.

# Chapter V

## Results and Discussion

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## **RESULTS AND DISCUSSION**

The study was conducted in neuro ward, deluxe ward, and special wards of Sri Ramakrishna Hospital, Coimbatore. The main focus of the study was to improve the swallowing ability of the patients with cerebrovascular accident who have swallowing inability. Initial assessment was done using Mann Assessment of Swallowing Ability (MASA, 2004) to find out the swallowing inability and was grouped into mild, moderate, and severe. After assessment swallow therapy was provided to the patients in three sessions followed by feeding during which the risk of aspiration was assessed. Ongoing assessment was done till termination of care.

Proper therapy can treat swallowing disorders so that people can eat once again comfortably. The main focus of swallow therapy is to improve the swallowing ability of the patients (Udesky, 2009).

### **5.1. FINDINGS RELATED TO DEMOGRAPHIC DATA**

#### **5.1.1. Age**

In relation to age distribution majority of the patients (75%), with swallowing inability were in the age group of 60-80 years and 25% of the patients were in the age group of 40-60 years. Three patients in the age group of 60-80 years took 10 days, 22 days and 16 days respectively for improvement of swallowing ability and one patient in the age group of 40-60 years improved the swallowing ability within 12 days.

#### **5.1.2. Gender**

Among the 4 patients, both the males (50%) and females (50%) are equally affected.

### **5.1.3. Education**

Among the 4 patients, 3 patients (75%) had primary education and 1 patient (25%) had completed diploma.

### **5.1.4. Duration of symptoms of dysphagia**

Among the 4 patients, 75% had the onset of symptoms within 4 days and 25% had symptoms within 8 days.

### **5.1.5. Cognitive status**

In relation to cognitive status all the patients (100%) had normal cognitive status.

### **5.1.6. Localization of lesion**

In the present study, the results show that, 50% of the patients had brainstem infarct and 50% had middle cerebral artery infarct. This is related to the study conducted by Ritky, Kumar, & Scremin (1996) which concluded that the improvement of dysphagia secondary to stroke is related to the anatomical location of the lesion with better recovery in single cortical strokes and worse in multiple strokes.

### **5.1.7. Mini mental status examination**

In relation to mental status all the patients (100%) had normal mental status.

## **5.2. INITIAL ASSESSMENT OF SWALLOWING ABILITY AMONG PATIENTS WITH CEREBROVASCULAR ACCIDENT**

Initial assessment was done to ensure the wellbeing of the patients. A mini mental status examination was done to assess the level of consciousness and orientation of the patients. The mental status examination reveals all the patients had

normal and good level of consciousness and orientation. The patients were then assessed for swallowing inability using the Mann Assessment of Swallowing Ability (MASA, 2004).

Among the 4 patients one had mild dysphagia (168/200), two patients had severe dysphagia (118/200 & 134/200), and one patient had moderate dysphagia (153/200).

After assessment of the swallowing inability, swallow therapy was provided to the patients in three sessions which includes, the swallowing exercises like Shaker exercise, Hyoid lift maneuver, Effortful swallow, Supraglottic swallow, Super supraglottic swallow and tongue exercises.

The patients were seated in a semi fowler's position, then taught and demonstrated the swallowing exercises and encouraged to perform the exercises. Followed by the exercise feeding was provided and assessed for risk of aspiration. The patients with severe dysphagia were on Ryles tube feeding. For one patient oral feeding was tried on the 4<sup>th</sup> day, but the patients got aspirated, so tried after the 10<sup>th</sup> day and the patient tolerated the oral feed. The Ryles tube was taken on the 12<sup>th</sup> day. The third patient with severe dysphagia started oral feeding on the 6<sup>th</sup> day. The other two patients with mild and moderate dysphagia were on oral feeding and had no risk of aspiration.



### **5.3. ONGOING ASSESSMENT OF SWALLOWING ABILITY AMONG PATIENTS WITH CEREBROVASCULAR ACCIDENT**

Ongoing assessment was done to assess the improvement in the swallowing ability that was rated using the Mann Assessment of Swallowing Ability (MASA, 2004) based on the improvement of the ability to swallow. Swallowing and tongue exercises were provided according to the tolerance level of the patients.

### **5.4. COMPARISON OF THE SWALLOWING ABILITY BEFORE AND AFTER THE SWALLOW THERAPY**

The swallowing ability of the patients were assessed initially using the Mann Assessment of Swallowing Ability (MASA, 2004) followed by the administration of swallow therapy which includes swallowing exercise. Ongoing assessment was done to assess the improvement in the swallowing ability and scoring was done based on the improvement. The swallowing ability before and after the swallow therapy were then compared based on the scoring in the Mann Assessment of Swallowing Ability (MASA, 2004) which showed an improvement in the swallowing ability. The first patient with mild dysphagia regained the normal swallowing ability after 10 days of intervention. The second patient with severe dysphagia improved to a moderate level after 22 days of intervention. The third patient with severe dysphagia regained the normal swallowing ability after 16 days of intervention. The fourth patient with moderate dysphagia improved after 12 days of intervention.

As specified in the review of literature about a study conducted by Robbins, Kays, Gangnon, Hind, Gentry, & Taylor (2007) on the effect of lingual exercise in stroke patients with dysphagia which increased the lingual strength with associated

improvement in swallowing pressures, the present study also shows a positive effect of lingual exercise on the swallowing ability.

Paired 't' test was used to prove the significance of the therapy. Table 4.2. depicts the swallowing ability before and after the swallow therapy. Table 4.3. shows a mean percentage of 89% after the swallow therapy which was greater than the mean percentage of approximately 72% before therapy. As per the present study, there is an indication that there is a positive effect on the swallowing ability after the swallow therapy for patients with cerebrovascular accident who have swallowing inability. Hence, the hypothesis '**There will be a significant difference in the swallowing ability before and after the swallow therapy**' is accepted.

Thus the present study is in line with the studies conducted by Bartolome, & Neumann (1993), Loge Mann (1993), Permsirivanich. et.al (1994), Neumann, Bartolome, Buchholz, & Prosiegel (2000), Kiger, Brown, & Watkins (2006), Singh, Brock band Frost, & Tyler (2006), Carnaby (2006), Robbins, Kays, Gangnon, Hind, Gentry, & Taylor (2007), that proved the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident.

The present study assessed the effect of swallow therapy that includes the swallowing exercises on the swallowing ability and the result is in line with the study conducted by Shaker & Antonik (2006) that shows a positive effect of Shaker exercise on the swallowing ability. Another study conducted by Shaker et. al (2002) to assess the effect of hyoid muscle strengthening exercise on swallowing ability proved to be effective in restoration of oral feeding which strongly supports the benefits of swallow therapy in patients with swallowing inability.

# Chapter VI

## Summary and Conclusion

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## **SUMMARY AND CONCLUSION**

The present chapter summarizes the major findings, limitations, implications in the field of nursing education, nursing practice, nursing research and recommendations.

The study was conducted to identify the effect of swallow therapy on swallowing ability among patients with cerebrovascular accident. The study design was descriptive design and quasi experimental (one group pre-test and post-test design). The data was collected for a period of thirty days at Sri Ramakrishna Hospital, Coimbatore. The study was conducted on 4 samples. The swallowing ability was assessed using the Mann Assessment of Swallowing Ability (MASA, 2004) before and after the swallow therapy

### **6.1. MAJOR FINDINGS OF THE STUDY**

1. The swallowing ability was found to be reduced before the administration of swallow therapy. The patients were assessed with mild, moderate and severe dysphagia.
2. After the administration of swallow therapy, the swallowing ability was found to be improved among the patients with cerebrovascular accident. The patient with mild dysphagia improved within 10 days, second and third patients with severe dysphagia improved within 22 & 16 days respectively, and the fourth patient with moderate dysphagia improved within 12 days

3. The significant difference was identified by comparing the swallowing ability before and after the swallow therapy using the Mann Assessment of Swallowing Ability (MASA, 2004).

## **6.2. LIMITATIONS**

1. The study was limited only to patients with cerebrovascular accident.
2. The effect of the therapy on other conditions is not identified.

## **6.3. IMPLICATIONS**

### **6.3.1. Nursing Education**

Cerebrovascular accident is the third commonest cause of death worldwide. The swallowing problems often occur as a result of cerebrovascular accident that may be invisible but become extremely life threatening. Early detection and management is necessary to prevent complications.

Swallowing exercise is a traditional method of swallow therapy that can improve the swallowing ability of patients with swallowing inability. This is a physical rehabilitation method which in practice will help the nurses to improve the patient care comfort and provide better quality of life for the patients. Thus it is appropriate to incorporate physical medicine into nursing curriculum.

### **6.3.2. Nursing Practice**

As swallowing inability is a major problem faced by neurological patients swallow therapy can be administered as an adjunctive to other physical exercises to promote comfort and wellbeing of the patients.

### **6.3.3. Nursing Research**

The nursing research need to focus on the evidence based and holistic practice by understanding the different and varied techniques that can bring about significant physical and psychological outcomes for patients with cerebrovascular accident.

The nursing research intends to offer an up to-date suggestion in implementing proper technique of swallow therapy as one of the nursing care for improving the swallowing ability and thereby the quality of life.

### **6.4. RECOMMENDATIONS**

1. All staff nurses can be trained to implement swallow therapy as a nursing intervention for swallowing inability.
2. An extensive experimental study can be conducted for large number of samples in the health setting.
3. Further research can be conducted with help of other swallowing assessment scales.
4. Further research can be carried out to find out the effect of swallow therapy on other disease conditions.
5. The primary care givers can be trained to practice swallow therapy in home setting.

### **6.5. CONCLUSION**

Cerebrovascular accident is one of the leading causes of death worldwide. Swallowing inability is a major problem faced by these patients which can be life threatening if left untreated. Swallow therapy is one of the traditional non pharmacological therapies that can be performed without any special equipment, it is

cost effective, and do not compromise with the patients' privacy. Hence swallow therapy is proved to be one of the effective traditional therapies to improve the swallowing ability of patients with swallowing disorders.

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## ANNEXURE - I

### Paired 't' test

To test the hypothesis, 't' test was applied to findout the significant difference in the swallowing ability before and after swallow therapy.

$$t = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}}$$

$$SD = \sqrt{\frac{\sum (d - \bar{d})^2}{n - 1}}$$

$\bar{d}$  = Mean of difference between pretest and post test score

SD = Standard deviation of the pre-test and post test score

n = Number of samples

# MINI MENTAL STATUS EXAMINATION

## 1. Orientation

- a. Ask the patient the year, season, date, day and month. (5 Points)
- b. Ask the patient where is he / she now. (5 Points)

## 2. Registration

- a. Make the patient to repeat three words. ( 3 Points)

## 3. Attention and Calculation (5 Points)

- a. Give the patient simple calculation.
- b. Ask the patient to subtract consequently 7 from 100.

## 4. Recall

- a. Ask the patient to repeat the three words previously told. (3 Points)

## 5. Language

- a. Point two objects and ask the patient to name it. (2 Points)
- b. Ask the patient to repeat a sentence. (1 Point)
- c. Make a three stage command and ask the patient to do it. (3 Point)
- d. Ask the patient to read a sentence and do it. (1 Point)
- e. Ask the patient to write a sentence on a paper. (1 Point)
- f. Ask the patient to copy a design on a paper. (1 Point)

FORMAT FOR CONTENT VALIDITY

Name of the expert : RAJALAKSHMI. B.  
Address : P.P.G. COLLEGE OF NURSING,  
COIMBATORE.

Total content for the tool :  Adequate/  Inadequate

Kindly validate each tool and tick wherever applicable.

Sl. No.	No. of tool selection	Strongly agree	Agree	Need modification	Remarks
1.	Section - 1		✓		
2.	Section - 2		✓		
3.	Section - 3		✓		
4.	Section - 4		✓		
5.	Section - 5		✓		

Date: 08.06.2010.

Signature of the Expert

**FORMAT FOR CONTENT VALIDITY**

Name of the expert : Prof. Sonia Das

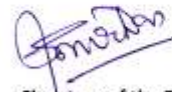
Address : Principal,  
K.G. College of Nursing,  
K.G. Hospital,  
Coimbatore.

Total content for the tool : Adequate/Inadequate

Kindly validate each tool and tick wherever applicable.

Sl. No.	No. of tool selection	Strongly agree	Agree	Need modification	Remarks
1.	Section - 1		✓		
2.	Section - 2		✓		
3.	Section - 3		✓		
4.	Section - 4		✓		
5.	Section - 5		✓		

Date: 7/6/2010.



Signature of the Expert



**FORMAT FOR CONTENT VALIDITY**

Name of the expert : Dr. K. Asokan M.D., D.M. (NEURO)

Address : Chief Neurologist  
Sri Ramakrishna Hospital  
Coimbatore

Total content for the tool : Adequate/ Inadequate

Kindly validate each tool and tick wherever applicable.

Sl. No.	No. of tool selection	Strongly agree	Agree	Need modification	Remarks
1.	Section - 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Section - 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Section - 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Section - 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Section - 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Date:

  
Signature of the Expert

## APPENDIX – I

### LETTER SEEKING PERMISSION FOR CONDUCTION OF RESEARCH STUDY

**From,**  
Ms. Ambily .S,  
MSc. Nursing 1<sup>st</sup> Year  
Sri Ramakrishna College of Nursing  
Coimbatore

**To**  
**Dr. K. Asokan, M.D. (Med)., DM (Neuro).,**  
Chief Neurologist,  
Sri Ramakrishna Hospital,  
Coimbatore.

**Through the Principal**  
Sri Ramakrishna College of Nursing  
Coimbatore

**Subject:** Letter Requesting Permission for Conduction the Research Study

**Respected Sir,**

I S. Ambily doing my M.Sc. Nursing 1<sup>st</sup> Year in Sri Ramakrishna College of Nursing, as a part of my curriculum requirement under Dr. M.G.R. University to conduct Research, I have selected "Effectiveness of Swallowing Therapy on Swallowing Ability among patients with Cerebro Vascular Accident in Sri Ramakrishna Hospital, Coimbatore" for my research study.

I hereby request you to permit me for conducting the research during the month of April and June-2010 in your well established hospital. I assure you that, I will adhere to your rules and regulations. So, kindly do the needful for me. I am grateful to you, when I have been given an opportunity to do my research in your centre.

Coimbatore

Date: 9/12/09

Thanking you

For   
PRINCIPAL  
College of Nursing,  
Sri Ramakrishna Institute of Paramedical Sciences  
Coimbatore - 541 044.

Yours Sincerely

  
(S. AMBILY)

## APPENDIX – II

### LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL

From  
**Ambily.S,**  
M.Sc Nursing II year,  
College of Nursing,  
Sri Ramakrishna Institute of Paramedical Sciences,  
Coimbatore -44.

Through  
**The Principal,**  
College of Nursing,  
Sri Ramakrishna Institute of Paramedical Sciences,  
Coimbatore -44.

To  
Dr. K ASOKAN M.D., DM(NEURO)  
CHIEF NEUROLOGIST  
SRI RAMAKRISHNA HOSPITAL  
COIMBATORE.

Sub: Requisition for tool Validation --reg.

Respected Sir,

I have selected a project work topic entitled, "EFFECT OF SWALLOW THERAPY ON SWALLOWING ABILITY AMONG PATIENTS WITH CEREBROVASCULAR ACCIDENT AT SRI RAMAKRISHNA HOSPITAL, COIMBATORE" for the requirement of M.Sc. Nsg Degree, the following tools are tend to be used. Hence, I request you to kindly give valuable suggestion and necessary modification in the same.

Thanking you,

Yours faithfully,

  
PRINCIPAL  
College of Nursing,  
Sri Ramakrishna Institute of Para-medical Sciences  
Coimbatore - 641 044



## APPENDIX – III

### DEMOGRAPHIC DATA SHEET

Sample No.	:	
Age	:	
Gender	:	Male/female
Education	:	
Date of admission	:	
Duration of symptoms of dysphagia	:	
Cognitive status	:	
Localization of lesion	:	

## **THE MANN ASSESMENT OF SWALLOWING ABILITY (MASA, 2004)**

### **ASSESSMENT PARAMETERS**

#### **Alertness**

Alert

Drowsy

Difficult to rouse by speech or movement

#### **Cooperation**

Cooperative

Fluctuating cooperation

Reluctant

Unable to cooperate with interaction

#### **Auditory comprehension**

No abnormality detected on screening

Follows ordinary conversation with little difficulty

Follows simple conversation/instructions with repetition

Occasional motor response if cued

No/minimal response to speech

#### **Respiration**

Chest clear, no evidence of clinical/radiographic abnormality

Sputum in the upper airway or other respiratory condition, such as asthma/bronchospasm, chronic obstructive airway disease

Fine basal rales/self-clearing

Coarse basal rales, receiving respiratory therapy/physical therapy

Frequent suctioning/respiratory therapy/  
suspected infection/ respirator dependent

### **Respiratory rate for swallow**

Able to control breath rate for swallow

Some control/ incoordination

No independent control

### **Aphasia**

No abnormality detected on screening

Mild difficulty finding words/ expressing  
ideas

Expresses self in a limited manner/short phrases or words

No functional speech sounds or undecipherable single words

Unable to assess

### **Apraxia**

No abnormality detected on screening

Speech accurate after trial or error, minor searching movements

Speech crude/detected in accuracy or speed on command

Significant grouping/inaccuracy, partial or irrelevant responses

Unable to assess

### **Dysarthria**

No abnormality detected on screening

Slow with occasional hesitation and slurring

Speech intelligible but obviously detected in rate/range/  
strength/coordination

Speech unintelligible

Unable to assess

**Saliva**

No abnormality detected on screening

Frothy/expectorated into cup

Drooling at times, during speech while side lying, when fatigues

Some drool consistently

Gross drooling. Unable to control drooling, open mouth posture, needing bib protection

**Lip seal**

No abnormality detected on screening

Mild impairment, occasional leakage

Unilaterally weak, poor maintenance restricted movement

Incomplete closure, limited movement

No closure, unable to assess

**Tongue movement**

Full range of movement/no abnormality detected

Mild impairment in range

Incomplete movement

Minimal movement

No movement

**Tongue strength**

No abnormality detected on screening

Minimal weakness

Obvious unilateral weakness

Gross weakness

**Tongue coordination**

No abnormality detected on screening

Mild incoordination

Gross incoordination

No movement/unable to assess

### **Oral preparation**

No abnormality detected on screening

Lip or tongue seal, bolus escape

Minimal chew/ tongue thrust bolus projected forwards

No bolus formation/ no attempt

Unable to assess

### **Gag**

No abnormality detected, strong symmetrical response/  
Hyperreflexive

Diminished bilaterally

Diminished unilaterally

Absent unilaterally

No gag response noted

### **Palate**

No abnormality detected on screening

Slight asymmetry noted, mobile

Unilaterally weak, inconsistently maintained

Minimal movement, nasal regurgitation, nasal air escape

No spread or elevation

### **Bolus clearance**

Bolus fully cleared from mouth

Significant clearance, minimal residue



Some clearance, residue

No clearance

### **Oral Transit**

No abnormality detected on screening, triggers rapidly within 1 second

Delay greater than 1 second

Delay greater than 5 seconds

Delay greater than 10 seconds

No movement observed/unable to assess

### **Cough reflex**

No abnormality detected on screening, strong reflexive cough

Weak reflexive cough

None observed/unable to assess

### **Voluntary cough**

No abnormality detected on screening, strong clear cough

Cough attempted but bovine, hoarse in quality

Attempt inadequate

No attempt/unable to assess

### **Voice**

No abnormality detected on screening

Mild impairment, slight huskiness

Hoarse, difficulty with pitch/volume control

Wet/gurgling vocal quality

Aphonic/unable to assess

### **Trach**

No trach required

Fenestrated trach in situ or uncuffed

Cuffed trach in situ (including those with periods of cuff deflation)

**Pharyngeal phase**

Immediate laryngeal elevation and complete clearance of material

Laryngeal elevation mildly restricted, slow initiation of rise, incomplete clearance of material

Incomplete laryngeal elevation, jerking uncoordinated progression, pooling/gurgling on phonation

No swallow initiated/unable to assess

**Pharyngeal Response**

No abnormality detected on screening

Coughing before/during/after the swallow has triggered

No coping, gurgling

**MASA SCORE CUTOFF FOR SEVERITY GROUPINGS OF DYSPHAGIA AND ASPIRATION**

<b>Severity Grouping</b>	<b>MASA Score – dysphagia</b>	<b>MASA Score- aspiration</b>
No abnormality detected	≤178-200	≤170-200
Mild	≤168-177	≤149-169
Moderate	≤139-167	≤148
Severe	≤138	≤140

## **SCORING KEY**

### **Alertness**

10=Alert

8=Drowsy

5 =Difficult to rouse by speech or movement

### **Cooperation**

10=Cooperative

8=Fluctuating cooperation

5=Reluctant

1=Unable to cooperate with interaction

### **Auditory comprehension**

10=No abnormality detected on screening

8=Follows ordinary conversation with little difficulty

6=Follows simple conversation/instructions with repetition

4=Occasional motor response if cued

2=No/minimal response to speech

### **Respiration**

10=Chest clear, no evidence of clinical/radiographic abnormality

8=Sputum in the upper airway or other respiratory condition, such as asthma/bronchospasm, chronic obstructive airway disease

6=Fine basal rales/self-clearing

4=Coarse basal rales, receiving respiratory therapy/physical therapy

2=Frequent suctioning/respiratory therapy/ suspected infection/ respirator dependent

### **Respiratory rate for swallow**

5=Able to control breath rate for swallow

3=Some control/ incoordination

1=No independent control

### **Aphasia**

5=No abnormality detected on screening

4=Mild difficulty finding words/ expressing ideas

3=Expresses self in a limited manner/short phrases or words

2=No functional speech sounds or undecipherable single words

1=Unable to assess

### **Apraxia**

5=No abnormality detected on screening

4=Speech accurate after trial or error, minor searching movements

3=Speech crude/detective in accuracy or speed on command

2=Significant grouping/inaccuracy, partial or irrelevant responses

1=Unable to assess

### **Dysarthria**

5=No abnormality detected on screening

4=Slow with occasional hesitation and slurring

3=Speech intelligible but obviously defective in rate/range/ strength/coordination

2=Speech unintelligible

1=Unable to assess

### **Saliva**

5=No abnormality detected on screening

4=Frothy/expectorated into cup

3=Drooling at times, during speech while side lying, when fatigues

2=Some drool consistently

1= Gross drooling. Unable to control drooling, open mouth posture, needing bib protection

### **Lip seal**

5=No abnormality detected on screening

4=Mild impairment, occasional leakage

3=Unilaterally weak, poor maintenance restricted movement

2=Incomplete closure, limited movement

1=No closure, unable to assess

### **Tongue movement**

10=Full range of movement/no abnormality detected

8=Mild impairment in range

6=Incomplete movement

4=Minimal movement

2=No movement

### **Tongue strength**

10=No abnormality detected on screening

8=Minimal weakness

5=Obvious unilateral weakness

2=Gross weakness

### **Tongue coordination**

10=No abnormality detected on screening

8=Mild incoordination

5=Gross incoordination

2=No movement/unable to assess

### **Oral preparation**

10=No abnormality detected on screening

8=Lip or tongue seal, bolus escape

6=Minimal chew/ tongue thrust bolus projected forwards

4=No bolus formation/ no attempt

2=Unable to assess

### **Gag**

5=No abnormality detected, strong symmetrical response/hyperreflexive

4=Diminished bilaterally

3=Diminished unilaterally

2=Absent unilaterally

1=No gag response noted

### **Palate**

10=No abnormality detected on screening

8=Slight asymmetry noted, mobile

6=Unilaterally weak, inconsistently maintained

4=Minimal movement, nasal regurgitation, nasal air escape

2= No spread or elevation

**Bolus clearance**

10=Bolus fully cleared from mouth

8=Significant clearance, minimal residue

5=Some clearance, residue

2=No clearance

**Oral Transit**

10=No abnormality detected on screening, triggers rapidly within 1 second

8=Delay greater than 1 second

6=Delay greater than 5 seconds

4=Delay greater than 10 seconds

2=No movement observed/unable to assess

**Cough reflex**

5=No abnormality detected on screening, strong reflexive cough

3=Weak reflexive cough

1=None observed/unable to assess

**Voluntary cough**

10=No abnormality detected on screening, strong clear cough

8=Cough attempted but bovine, hoarse in quality

5=Attempt inadequate

2=No attempt/unable to assess

**Voice**

- 10=No abnormality detected on screening
- 8=Mild impairment, slight huskiness
- 6=Hoarse, difficulty with pitch/volume control
- 4=Wet/gurgling vocal quality
- 2=Aphonic/unable to assess

**Trach**

- 10=No trach required
- 5=Fenestrated trach in situ or uncuffed
- 1=Cuffed trach in situ (including those with periods of cuff deflation)

**Pharyngeal phase**

- 10=Immediate laryngeal elevation and complete clearance of material
- 8=Laryngeal elevation mildly restricted, slow initiation of rise, incomplete clearance of material
- 5=Incomplete laryngeal elevation, jerking uncoordinated progression, pooling/gurgling on phonation
- 2=No swallow initiated/unable to assess

**Pharyngeal Response**

- 10=No abnormality detected on screening
- 5=Coughing before/during/after the swallow has triggered
- 1=Not coping, gurgling



## **SAMPLE – 1**

### **Day 1**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 82 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/100 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have mild swallowing difficulty. The score was 168 out of 200. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Aten 25 mg, T. Syndopa 110 mg, T. Citromacalut. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. There was no risk of aspiration. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

### **Day 2:**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg,

T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw. Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.

### **Day 3**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise and feeding given. Administered medications as per the doctor's order. Provided juice. Vital signs were checked and recorded. All the vitals were normal. Second session of swallowing exercise provided and feeding given. No risk of aspiration. Provided milk. Vital signs were checked and recorded. All the vitals were normal. Provided catheter care. Administered medications. Third session of swallowing exercise was provided and feeding given,

### **Day 4**

Vital signs were checked and recorded. Assessment of swallowing ability was done and provided swallowing exercise and feeding given. Administered medications. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Second sessions of swallowing exercise provided and feeding given. Patients made to sit on a chair and provided tea and biscuit. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

## **Day 5**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. There is no risk of aspiration. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient has no complaints. Provided exercise to upper and lower limbs. Patient is seated on a chair. Administered medications. Third session of swallowing exercise was provided and feeding given. No aspiration was noted.

## **Day 6**

Vital signs were checked and recorded. Swallowing ability assessment done and swallowing exercise provided. Feeding given. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient is seated on a chair. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration.

## **Day 7**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Provided exercise and assisted the patient in walking. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

**Day 8**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise. Feeding given. Administered medications. Provided tender coconut water. Vital signs were checked and recorded. Second session of swallowing exercise was provided and feeding given. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

**Day 9**

Vital signs were checked and recorded. Assessment of swallowing ability done and swallowing exercise provided. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise was provided. Vital signs were checked and recorded. Provided tea. Administered medications. Third session of swallowing exercise was provided and feeding given.

**Day 10**

Vital signs were checked and recorded. Assessment of swallowing ability done and provided swallowing exercise. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided. Provided tea. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **SAMPLE – 2**

### **Day 1**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 72 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/90 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have severe swallowing difficulty. The score was 118 out of 200. The patient was on Ryles tube feeding. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Amlong 5 mg. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

### **Day 2:**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg, T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw.

Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.

### **Day 3**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise and feeding given. Administered medications as per the doctor's order. Provided juice. Vital signs were checked and recorded. All the vitals were normal. Second session of swallowing exercise provided and feeding given. No risk of aspiration. Provided milk. Vital signs were checked and recorded. All the vitals were normal. Provided catheter care. Administered medications. Third session of swallowing exercise was provided and feeding given,

### **Day 4**

Vital signs were checked and recorded. Assessment of swallowing ability was done and provided swallowing exercise and feeding given. Administered medications. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Second sessions of swallowing exercise provided and feeding given. Patients made to sit on a chair and provided tea and biscuit. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

## **Day 5**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. There is no risk of aspiration. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient has no complaints. Provided exercise to upper and lower limbs. Patient is seated on a chair. Administered medications. Third session of swallowing exercise was provided and feeding given. No aspiration was noted.

## **Day 6**

Vital signs were checked and recorded. Swallowing ability assessment done and swallowing exercise provided. Feeding given. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient is seated on a chair. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration.

## **Day 7**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Provided exercise and assisted the patient in walking. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 8**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise. Feeding given. Administered medications. Provided tender coconut water. Vital signs were checked and recorded. Second session of swallowing exercise was provided and feeding given. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 9**

Vital signs were checked and recorded. Assessment of swallowing ability done and swallowing exercise provided. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise was provided. Vital signs were checked and recorded. Provided tea. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 10**

Vital signs were checked and recorded. Assessment of swallowing ability done and provided swallowing exercise. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided. Provided tea. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 11**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 72 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/90 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have severe swallowing difficulty. The score was 118 out of 200. The patient was on Ryles tube



feeding. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Amlong 5 mg. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

## **Day 12**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg, T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw. Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.

**Day 13**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise and feeding given. Administered medications as per the doctor's order. Provided juice. Vital signs were checked and recorded. All the vitals were normal. Second session of swallowing exercise provided and feeding given. No risk of aspiration. Provided milk. Vital signs were checked and recorded. All the vitals were normal. Provided catheter care. Administered medications. Third session of swallowing exercise was provided and feeding given,

**Day 14**

Vital signs were checked and recorded. Assessment of swallowing ability was done and provided swallowing exercise and feeding given. Administered medications. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Second sessions of swallowing exercise provided and feeding given. Patients made to sit on a chair and provided tea and biscuit. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

**Day 15**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. There is no risk of aspiration. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient has no complaints. Provided exercise to upper and lower limbs. Patient is seated on a chair. Administered medications. Third session of swallowing exercise was provided and feeding given. No aspiration was noted.

**Day 16**

Vital signs were checked and recorded. Swallowing ability assessment done and swallowing exercise provided. Feeding given. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient is seated on a chair. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration.

**Day 17**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Provided exercise and assisted the patient in walking. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

**Day 18**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise. Feeding given. Administered medications. Provided tender coconut water. Vital signs were checked and recorded. Second session of swallowing exercise was provided and feeding given. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

**Day 19**

Vital signs were checked and recorded. Assessment of swallowing ability done and swallowing exercise provided. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise was

provided. Vital signs were checked and recorded. Provided tea. Administered medications. Third session of swallowing exercise was provided and feeding given.

### **Day 20**

Vital signs were checked and recorded. Assessment of swallowing ability done and provided swallowing exercise. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided. Provided tea. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

### **Day 21**

Vital signs were checked and recorded. Assessment of swallowing ability done and swallowing exercise provided. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise was provided. Vital signs were checked and recorded. Provided tea. Administered medications. Third session of swallowing exercise was provided and feeding given.

### **Day 22**

Vital signs were checked and recorded. Assessment of swallowing ability done and provided swallowing exercise. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided. Provided tea. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

### **SAMPLE – 3**

#### **Day 1**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 72 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/90 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have severe swallowing difficulty. The score was 118 out of 200. The patient was on Ryles tube feeding. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Amlong 5 mg. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

#### **Day 2:**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg, T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw.

Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.

### **Day 3**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise and feeding given. Administered medications as per the doctor's order. Provided juice. Vital signs were checked and recorded. All the vitals were normal. Second session of swallowing exercise provided and feeding given. No risk of aspiration. Provided milk. Vital signs were checked and recorded. All the vitals were normal. Provided catheter care. Administered medications. Third session of swallowing exercise was provided and feeding given,

### **Day 4**

Vital signs were checked and recorded. Assessment of swallowing ability was done and provided swallowing exercise and feeding given. Administered medications. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Second sessions of swallowing exercise provided and feeding given. Patients made to sit on a chair and provided tea and biscuit. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

## **Day 5**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. There is no risk of aspiration. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient has no complaints. Provided exercise to upper and lower limbs. Patient is seated on a chair. Administered medications. Third session of swallowing exercise was provided and feeding given. No aspiration was noted.

## **Day 6**

Vital signs were checked and recorded. Swallowing ability assessment done and swallowing exercise provided. Feeding given. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient is seated on a chair. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration.

## **Day 7**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Provided exercise and assisted the patient in walking. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 8**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise. Feeding given. Administered medications. Provided tender coconut water. Vital signs were checked and recorded. Second session of swallowing exercise was provided and feeding given. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 9**

Vital signs were checked and recorded. Assessment of swallowing ability done and swallowing exercise provided. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise was provided. Vital signs were checked and recorded. Provided tea. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 10**

Vital signs were checked and recorded. Assessment of swallowing ability done and provided swallowing exercise. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided. Provided tea. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 11**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 72 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/90 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have severe swallowing difficulty. The score was 118 out of 200. The patient was on Ryles tube



feeding. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Amlong 5 mg. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

## **Day 12**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg, T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw. Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.

**Day 13**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise and feeding given. Administered medications as per the doctor's order. Provided juice. Vital signs were checked and recorded. All the vitals were normal. Second session of swallowing exercise provided and feeding given. No risk of aspiration. Provided milk. Vital signs were checked and recorded. All the vitals were normal. Provided catheter care. Administered medications. Third session of swallowing exercise was provided and feeding given,

**Day 14**

Vital signs were checked and recorded. Assessment of swallowing ability was done and provided swallowing exercise and feeding given. Administered medications. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Second sessions of swallowing exercise provided and feeding given. Patients made to sit on a chair and provided tea and biscuit. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

**Day 15**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. There is no risk of aspiration. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient has no complaints. Provided exercise to upper and lower limbs. Patient is seated on a chair. Administered medications. Third session of swallowing exercise was provided and feeding given. No aspiration was noted.

**Day 16**

Vital signs were checked and recorded. Swallowing ability assessment done and swallowing exercise provided. Feeding given. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient is seated on a chair. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration.

## **Sample - 4**

### **Day 1**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 72 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/90 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have severe swallowing difficulty. The score was 118 out of 200. The patient was on Ryles tube feeding. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Amlong 5 mg. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

### **Day 2:**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg, T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw.

Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.

### **Day 3**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise and feeding given. Administered medications as per the doctor's order. Provided juice. Vital signs were checked and recorded. All the vitals were normal. Second session of swallowing exercise provided and feeding given. No risk of aspiration. Provided milk. Vital signs were checked and recorded. All the vitals were normal. Provided catheter care. Administered medications. Third session of swallowing exercise was provided and feeding given,

### **Day 4**

Vital signs were checked and recorded. Assessment of swallowing ability was done and provided swallowing exercise and feeding given. Administered medications. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Second sessions of swallowing exercise provided and feeding given. Patients made to sit on a chair and provided tea and biscuit. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

**Day 5**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. There is no risk of aspiration. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient has no complaints. Provided exercise to upper and lower limbs. Patient is seated on a chair. Administered medications. Third session of swallowing exercise was provided and feeding given. No aspiration was noted.

**Day 6**

Vital signs were checked and recorded. Swallowing ability assessment done and swallowing exercise provided. Feeding given. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Patient is seated on a chair. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given. No risk of aspiration.

**Day 7**

Vital signs were checked and recorded. Assessment of swallowing ability was done. Swallowing exercise provided and feeding given. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided and feeding given. Provided exercise and assisted the patient in walking. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 8**

Vital signs were checked and recorded. Swallowing ability assessment done and provided swallowing exercise. Feeding given. Administered medications. Provided tender coconut water. Vital signs were checked and recorded. Second session of swallowing exercise was provided and feeding given. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 9**

Vital signs were checked and recorded. Assessment of swallowing ability done and swallowing exercise provided. Administered medications. Provided milk. Vital signs were checked and recorded. Second session of swallowing exercise was provided. Vital signs were checked and recorded. Provided tea. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 10**

Vital signs were checked and recorded. Assessment of swallowing ability done and provided swallowing exercise. Administered medications. Provided juice. Vital signs were checked and recorded. Second session of swallowing exercise provided. Provided tea. Vital signs were checked and recorded. Administered medications. Third session of swallowing exercise was provided and feeding given.

## **Day 11**

Explained the procedure and got consent from the patient. Vital signs were checked. Temperature : 98.6°F, pulse : 72 beats/min, Respiration : 22 breaths/min, Blood pressure : 150/90 mm of Hg. Assessment of swallowing ability was done using Mann Assessment of swallowing Ability (MASA) scale and found to have severe swallowing difficulty. The score was 118 out of 200. The patient was on Ryles tube

feeding. Taught and demonstrated the swallowing exercises and encouraged to do the exercises and provided feeding. Administered medications Inj. C. Mac 1 gm IV, Inj. Pantocid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, T. Amlong 5 mg. Provided passive exercise. Provided juice with supervision. Second session of swallowing exercise was provided and feeding given. Patient was comfortable. Patient was made to sit in a semi flowers position. Provided passive exercise to the patient. Provided juice. No risk of aspiration. Vital signs were checked and recorded. Provided catheter care with betadine solution. Administered medications. Provided milk. Third session of swallowing exercise was provided and feeding given. No risk of aspiration and the patient was comfortable.

## **Day 12**

Vital signs were checked and recorded. Temperature : 98.6 ° F, Pulse : 78 beats/min, Respiration : 20 breaths/min, BP : 140 / 90 mm of Hg. Assessment of swallowing ability was done and the patient found with mild swallowing inability. Provided swallowing exercise and feeding given. Patient was comfortable. Administered medications. Inj. C. Mac 1gm IV, Inj Pantoid 40 mg IV, Inj. Storax 4 ml in 100 ml NS IV, Inj. Rejunex lamp IV, Inj. Enoxsave 0.2 ml Sc, T. Aten 25 mg, T. Syndopa 110 mg and T. Citromacalut. Provided tender coconut water using straw. Provided passive exercise and changed the position. Vital signs were checked and recorded. All the vitals were normal. Provided second session of swallowing exercise and feeding given (rice with rasam). No risk of aspiration. Provided tender coconut water. No risk of aspiration. Patient is made to sit in a chair on doctor's order. Vital signs were checked and recorded. All the vitals were normal. Provided milk. No risk of aspiration. Administered medications. Third session of swallowing exercise was provided. Patient was comfortable.



## APPENDIX - IV

### CERTIFICATE OF TAMIL EDITING

#### TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation, "Effect of Swallow Therapy on Swallowing Ability among Patients with Cerebrovascular Accident at Sri Ramakrishna Hospital, Coimbatore" done by Ambily.S II year M.Sc Nursing, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, has been edited for Tamil language appropriateness.

Name : R. Kala den  
Designation : Teacher [M.A. Bred. Tamil]  
Name of the Institution : Mani Idr See School  
Signature : R. Kala den


MANI HIGHER SECONDARY SCHOOL  
PAPPANAICKENPALAYAM,  
COIMBATORE-641 026.

## APPENDIX - V

### CERTIFICATE OF ENGLISH EDITING

### TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation, "Effect of Swallow Therapy on Swallowing Ability among Patients with Cerebrovascular Accident at Sri Ramakrishna Hospital, Coimbatore " done by Ambily.S II year M.Sc Nursing, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, has been edited for English language appropriateness.

Name : Mrs Jessy Mathew  
Designation : Assistant Professor  
Name of the Institution : Hindusthan College of Arts & Sc.  
Signature : 

**JESSY MATHEW, MAM, M.Phil**  
Assistant Professor  
Hindustan College  
Coimbatore.



4. Bring the tip of the tongue to the very back of the roof of your mouth, and keep it there for about 10 seconds. Repeat this exercise 5 to 10 times.

5. Move the tip of your tongue across the roof of your mouth from the very front (just behind your upper teeth) to the very back (to where the soft palate is located). Do this 10 times, bringing it as far back as possible each time. Repeat the exercise 5 to 10 times.

6. Press the inside of each cheek with the tip of your tongue, repeat the exercise 5 to 10 times.

7. Stick your tongue out as far as you can, using its tip, press up against a spoon or some other clean object. Do this for 5 seconds. Repeat this exercise 10 times.

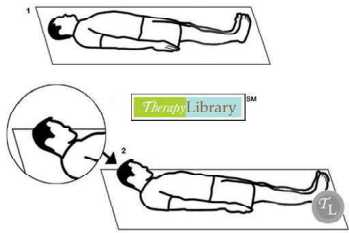
## **INSTRUCTIONAL MODULE ON SWALLOWING EXERCISE**

Prepared by  
**AMBILY.S**  
II M.Sc Nursing,  
CON, SRIPMS.

## SWALLOWING EXERCISES

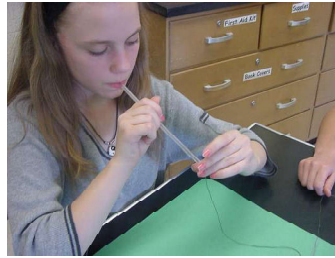
### SHAKER EXERCISE

Lie flat on your back and raise your head as trying to fixate your gaze on your toes. While doing this, make sure not to raise your shoulders. This simple exercise improves swallowing ability if it is performed three to six times per day.



### HYOID LIFT MANEUVER

Place a few small pieces of paper over a blanket or a towel. Then place a straw in your mouth and suck one of the pieces of paper to its tip. Keep sucking on the straw to keep the paper attached, bring it over a cup or a similar container and stop sucking. This will release the paper into the container. The goal is to place about 5 to 10 pieces of paper into the container.



### EFFORTFUL SWALLOW

The purpose of this exercise is to improve the contact among the different muscles used during the act of swallowing. This exercise consists of swallowing. As you do it, try to squeeze all of the muscles of swallowing as hard as you can. Perform this exercise 5 to 10 times, 3 times per day.

### SUPRAGLOTTIC SWALLOW

Try this exercise without food first. This exercise consists of 3 simple steps. First, take a deep breath. Hold it as you swallow, then cough to clear any residues of saliva or food which might have gone down past your vocal cords. Breathe after each cough swallow session.

### SUPER SUPRAGLOTTIC SWALLOW MANEUVER

This exercise is just like the supraglottic maneuver. After taking a deep breath, bear down while swallowing. The pressure generated helps with swallowing and increases the strength of your swallowing muscles. Breathe after each cough swallow session.

### TONGUE EXERCISES

1. Open your mouth as wide as you can, and touch the tip of your tongue to your upper teeth or to the front of the palate. Do this for 3 to 5 seconds, and repeat 5 to 10 times.
2. Again, open your mouth and touch the tip of your tongue to the back of the roof of your mouth. Keep your tongue back for 3 to 5 seconds, and repeat 5-10 times.
3. Stick your tongue out as far as you can, and leave it there for approximately 10 seconds. Do this 5 to 10 times.

நிலையயைத் தொடர்ந்து 10 நொடிக்கு வைக்க வேண்டும். இவ்வாறு 5 - 10 முறை செய்ய வேண்டும்.



4. நாக்கின் முனையை வாயின் பின்புறம் கொண்டு செல்ல வேண்டும். 10 நொடிக்கு நிலையாக வைக்க வேண்டும். இந்த உடற்பயிற்சியை 5 முதல் 10 முறை செய்ய வேண்டும்.

5. நாக்கின் நுனியை மெல்லிய அன்னாளை தொடும்படிக்கு வைக்கவேண்டும். இதனை 10 முறை செய்யவேண்டும். கூடுமானால் 5 முதல் 10 முறை இப்படி செய்ய வேண்டும்.

6. வாயின் உள்பக்க கன்னப்பகுதியை நாக்கினால் தொடவேண்டும். இருப்பக்கத்திலும் இதுபோல் தொடவேண்டும். இதனை 5 முதல் 10 முறை செய்ய வேண்டும்.

7. நாக்கை எவ்வளவு முடியுமோ அவ்வளவு வெளியே நீட்டி கரண்டி அல்லது ஏதாவது சுத்தமாக பொருளை அழுத்த வேண்டும். இதனை 5 நொடிக்கு தொடரவேண்டும். இந்த முறையை 10 தடவை செய்ய வேண்டும்.

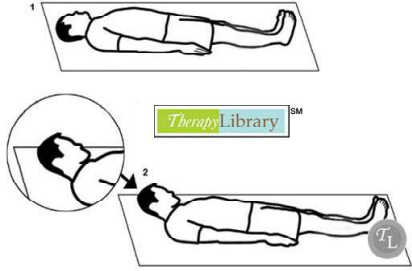
# விழுங்குதல் தொடர்பான உடற்பயிற்சி

Prepared by  
**AMBILY.S**  
II M.Sc Nursing,  
CON, SRIPMS.

## விழுங்குதல் தொடர்பான உடற்பயிற்சி

### சேகர் உடற்பயிற்சி

தளர்வான நிலையில் படுக்க வேண்டும். தலையானது சற்று உயர்வாக மற்றும் நிலையாக இருக்குமாறு பார்த்து கொள்ள வேண்டும். இந்நிலையில் தோள்பட்டையானது உயர்வாக இருக்க கூடாது. இந்த சிறிய உடற்பயிற்சியானது வழங்கும் திறனை அதிகரிக்கிறது. இந்த உடற்பயிற்சியை நாள் ஒன்றுக்கு 6 முறை செய்ய வேண்டும்.



### ஹயோயிட் லிப்ட் உடற்பயிற்சி

சிறிய காகிதத் துண்டுகளை எடுத்து ஒரு போர்வையின் மீதோ அல்லது ஒரு துண்டின் மீதோ வைக்க வேண்டும். சிறிய ஊது குழாயை வாயில் வைத்து காகிதத் துண்டுகளை உறிஞ்ச வேண்டும். இவ்வாறு உறிஞ்சும் போது காகித துண்டுகள்



குழாயின் முனையின் அருகில் வந்து சேருகிறது. இத்துண்டுகளை ஒரு பாத்திரத்தில் விட வேண்டும். இந்த பயிற்சியால் குறைந்தது 5 முதல் 10 காகித துண்டுகளை பாத்திரத்தில் போட முயற்சிக்க வேண்டும்.

### மிகவும் சிரமமான விழுங்குதல்

விழுங்குவதற்கு தேவையான தசையை இறுக்கமாக வைத்து கொள்ள வேண்டும். இந்த முயற்சியை 5 முதல் 10 தடவை தினமும் 3 முறை செய்ய வேண்டும்.

### சுப்ராகுலோட்டிக் விழுங்குதல்

இம் முறையானது முதலில் உணவு இல்லாமல் செய்ய வேண்டும். இம்முறையில் 3 படிநிலைகள் உள்ளன. முதலில் ஆழ்ந்த அழுத்தமான மூச்சை எடுக்க வேண்டும். இந்த மூச்சை வெளியே விடாமல் எச்சில் விழுங்குவது போல் விழுங்க வேண்டும். பிறகு இருமல் மூலம்

உணவுப்பொருளோ, எச்சிலையோ வெளியேற்ற வேண்டும். ஒவ்வொரு முறையும் இருமி விழுங்கும் போதும் மூச்சு விடவேண்டும்.

### சிறந்த சுப்ராகுலோட்டிக் விழுங்குதல்

இந்த உடற்பயிற்சியானது சுப்ராகுலோட்டிக் முறையைப் போன்றது. ஆழ்ந்த மூச்சு எடுத்த பிறகு ஏற்படும் விழுங்குதலை தொடங்க வேண்டும். இம்முறையில் ஏற்படும் அழுத்தம் விழுங்குத் தசைகளின் சக்தியை அதிகரிக்கிறது. ஒவ்வொரு முறை செய்யும் போதும் மூச்சு விடவேண்டும்.

### நாக்கு உடற்பயிற்சி

1. வாயைத் திறந்து நாக்கின் நுனியானது மேலே உள்ள பல்லில் படும் படி செய்ய வேண்டும். இவ்வாறு 3 - 5 நொடிக்கு 5 - 10 முறை செய்ய வேண்டும்.
2. பின்பு மறுபடியும் வாயைத் திறந்து நாக்கின் நுனியானது வாயின் பின்புறம் தொட வேண்டும். இம்முறையில் நிலையாக 3 - 5 நொடிக்கு செய்ய வேண்டும். இதை 5 - 10 முறை செய்ய வேண்டும்.
3. நாக்கினை வெளியே நீட்டி நிலையாக வைக்க வேண்டும் (முடிந்த வரை) இவ்வாறு இதே