THE INFLUENCE OF PILATES WITH A NEW BOBATH CONCEPT ON A PATIENTS WITH HEMIPLEGIS SINISTRA EC POST STROKE HEMORRHAGE AGAINST THE POSTURE

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ABSTRACT

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Nur Hasanah, Svarga E-motion Sanctuary

The background: The good posture is desire of everyone, because with good posture would be very helpful daily activities become more efficient. This affected strongly by its core muscle that is the muscles in between other transverse abdominus. Parameters posture a person affected by a lot of things such as habits, the environment, disease, work, clothing and many others. However, to get the good posture will be difficult, because the development of technology, life style and the bad habits. And a bad life style can also cause various ailments that capable of effecting our posture. It's like a vicious cycle that does not never ending. But if we want to improve life style we all this could be better. One disease is leaving a symptom of the remaining posture is a stroke. Pilates is one of the sport that support repair posture referring to the postural muscles. A stroke patient who is still in the phase of flaccid would be very difficult to do pilates, for that reason this research was conducted to look at “The Influence Of Pilates With A New Bobath Concept On A Patients With Hemiplegi Sinistra Ec Post Stroke Hemorrhage Against The Posture” Objective: to know the influence of pilates with a new bobath concept on a patients with hemiplegi sinistra ec post stroke hemorrhage against the posture. Subject: Subject research Mr. Usm, aged 77 years. The result: After about four weeks given therapy in a merger a method of new bobath concept with pilates referring to postural control and its core muscle the result is the posture and the pattern of the way patients improved, patients become better, the patient capable of walking farther without the use aids tripod. Conclusion: This research stated that the merger of two a method of therapy is very good. New bobath concept applied at the start of training and to stimulate nerve endings in a member of the motion of the weak. After that pilates help strengthen muscles already in the stimulation. Because these two things exactly referring to postural control and its core muscle so in any process will also support each other to get the best results for patients.

Password: Posture, Pilates, New Bobath Concept
PREFACE

Alhamdulillahi robbil’alamin just because Him this paper has finished with a headline “THE INFLUENCE OF PILATES WITH A NEW BOBATH CONCEPT ON A PATIENTS WITH HEMIPLEGI SINISTRA ec POST STROKE HEMORRHAGE AGAINST THE POSTURE”. And thank a lot for:

1. Father and mother, My lovely Brothers and sister and my big family.
2. BASI Pilates has opened my mind about pilates, this great knowledge.
3. Mrs. Ellen Kurniawan Lie and Miss. Stephani for giving me the opportunity to learn a lot of new things.
4. Mrs. Abigail Angkawijaya, thank a lot for the learned about pilates and every lesson, quote and anything about life and Mr. Ariston for help us to get deep feel the movement. Mr. Agus who has taught me many things about bobath, this amazing knowlegde.
5. Svarga Holistic Health Center and my lovely friends Citra, Muti, Olen, Ica, Fitri, Bu Neneng, Agnes, Maria, Dyta, Shinta, Windi, Isti already provide motivation, inspired, as well as the thesis that it can be solved.

The author realized that paper is still far away from perfect. I hope the suggestions and feedback from the readers to make this paper be better. So, my hopes may be beneficial to all parties.

Bandung, January 20th, 2014

Author
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CHAPTER 1

PREFATORY

A. The Background Problem

The changing of human posture happens during era globalization of the world. It happens due to the development of science, technology, habit or because of diseases. Posture means the position of the body where we stand, sitting, on his back or prone lying. Posture consist of good posture and bad posture. Posture could affect the body, in general good posture leads to healthy body, and vice versa. Pain in the shoulder, lower back, the knees, feet also could influence our posture. Stroke is one disease that have symptoms remaining on posture. A stroke is an defects that occurred in the central nervous system that is the brain, stroke can cause part or all of motion felt paralysis. According to cause a stroke divided into:

1. A stroke hemorrhage, consists of: Intra Cerebral Hemorrhage, it because of hypertension, aneurysma and atretioveneus malformation and sub Arachnoid Hemorrhage.

2. A stroke non hemorrhage (ischemic), because of arteriosclerosis and often associated with: diabetes mellitus, hypercholesterolemia, uric acid, hyperaggregation thrombocyte.

3. Embolic stroke, a clot formed (usually in the heart) and flows through the blood vessels into the brain, and stopped at the flow of blood vessels narrow and into a block in its sections. This caused a stroke.

The early and appropriate treatment of the disease leads to significant recovery. Most of stroke sequel will affect the posture and the gait pattern. The various of treatment and methods is done to get the best results.

However, a wide range of the best therapy would not be successful if not supported by a good life style anyway. We can keep our daily habits in the activities related to posture,
diet, adequate rest and exercise. One of the exercises that support the improvement of posture is pilates.

Pilates is a physical movement of the body to improve the muscle strength, flexibility and coordination with the core as foundation of the movement. Ten principles of the movement in the pilates is: Awareness, balance, breath, center, concentration, control, efficiency, flow, harmony, and precision (Isacowitz, 2011)

The statement from the Pilates Anatomy is pilates can be for anyone (Isacowitz, 2011). In my opinion pilates is good treatment for stroke patient. But for stroke patient who are still in phase flaccid would be very difficult, especially for them who have secondary the problem for example, shoulder pain pain, knees upper back tight and others.

New bobath concept is approach to solve problems, consists of assessment and treatment of individuals by affecting tonus, movement and functions because a disorder of the central nervous system. The goal of treatment is to optimize function by improving postural control and selective movement through facilitation. (IBITA, 1995).

Pilates and new concept bobath’s refers to posture as the base of treatment and core muscle as the basis of a bodily posture. Approach new bobath concept and ten principles of movement in pilates is easier for therapy of stroke patients to achieve maximum results. Hence researchers interested to convene about case study THE INFLUENCE OF PILATES WITH A NEW BOBATH CONCEPT ON A PATIENTS WITH HEMIPLEGI SINISTRA ec POST STROKE HEMORRHAGE AGAINST THE POSTURE.

B. Synthesis Problem

The formulation of issues of this paper is: What is the influence of pilates with a new bobath concept on a patients with hemiplegi sinistra ec post stroke hemorrhage against the posture?
C. Research Purposes

The purpose of the research is: to understand the influence of pilates combined with a new bobath concept on a patients with hemiplegi sinistra ec post stroke hemorrhage against the posture.

D. Benefit Research

The result of this research is expected to give the benefits:

1. For researchers were able to improve understanding about new bobath concept, pilates, and stroke.

2. For educational institutions, will add goodness science physiotherapy.
CHAPTER II
A LITERATURE STUDY
A. Studies the Theory

1. Stroke

Stroke is an abnormality focal neurological or global of a sudden, with symptoms length lasted for more than 24 hours ( or died ), and is caused by a disorder of the vascular (WHO, 2005).

Stroke is an acute injury on the brain vascular. This meaning that stroke is an sudden injury and severe in blood vessels in the brain, can be caused by obstruction, constriction, or rupture a blood vessels. All this will cause a lack of insufficient blood supply. Symptoms of stroke may be seen, or not (silent a stroke), depending on the places and the size of damage (Feigin, 2006 ).

Stroke non hemorrhagic impaired the circulation of blood to the brain caused by the presence of the obstruction, by a blood cloth a narrowing of an artery or several arteries that leads to the brain. Stroke could be caused by embolus that is detached from the heart or of an artery extracranial that causes obstruction in one or several arteries intracranial (Feigin,2006).

Stroke or “brain attack” occurs when a blood clot blocks the blood flow in a vessel or artery or when a blood vessel breaks, interrupting blood flow to an area of the brain. When either of these things happens, brain cells begin to die. When the brain cells die because of stroke, then the brain lost abilities to controlled on the affected areas, such as speech, movement, and memory. The specific abilities lost or affected depends on the location of the stroke and on its severity.

2. Posture

Posture is the position in which we hold our bodies while standing, sitting, or lying down. Good posture is the correct alignment of body parts supported by the right amount of
muscle tension against the gravity. Without posture and the muscles that control it, we would simply fall to the ground.

Normally, we do not consciously maintain good posture. Instead, certain muscles involuntary do it for us. Several muscle groups, including the hamstrings and large back muscles, are critically important in maintaining good posture. While the ligaments help to hold the skeleton together, these postural muscles, when functioned properly, prevent the forces of gravity from pushing us over forward. Postural muscles also maintain our posture and balance during movement.

Posture also controlled by the brain, there is reticula formation which located on the medulla spinalis. The characteristic of reticula formation is involuntary, but the brain can control it to be voluntary. Therefore we can improve the awareness to controlled our posture to be aligned.

3. **Anatomy of The Central Nervous System**

The nervous system are composed by smallest components namely nerve cells or neuron. Neurons this is to transfer impulses. A nerve cell consisting three main part which are cell bodies, dendrites and neurit (axon). The central nervous system there are:

a) **Cerebrum**

This part of the brain is the main and the largest is cerebrum, located in the anterior part of the cranium and superior the area above the brainstem and the cerebellum. Cerebrum consisting of the cerebral hemispheres right and left, joined in the middle by the corpus callosum. Each hemisphere have cortex divided into 4 parts. The frontal lobe, occipitalis lobes, temporal lobe.
b) Brainstem

The brainstem is the posterior part of the brain, joining and structurally continuous with the spinal cord. Brainstem can be divided into three parts: the midbrain, pons, and medulla. The upper portion of the brainstem is the midbrain (mesencephalon), located somewhat below the cerebrum. The midbrain is the center for visual reflexes. Pons is located between the midbrain and medulla. The most caudal or inferior portion of the brainstem is the medulla oblongata (myelencephalon). The medulla is continuous with the spinal cord. The medulla is the center for automatic control of respiration and heart rate.

The brainstem provides the main motor and sensory innervation to the face and neck via the cranial nerves, and all fiber tracts from the spinal cord and peripheral nerves to and from higher centers of the brain go through this area. The brainstem also plays an important role in the regulation of cardiac and respiratory function. It also regulates the central nervous system, and crucial in maintaining consciousness and regulating the sleep cycle. The brainstem has many basic functions including heart rate, breathing, sleeping, and eating.
c) Cerebellum

Cerebellum or “little brain”, is located in the posterior portion of the cranium behind the pons and medulla. It is covered superiorly by the posterior portion of the cerebrum. The main functions of the cerebellum are the center of coordination and the accuracy of central control muscle movements properly conduct impulses from the muscles right and left hemispheres of the body.

d) Spinal Cord

A continuation of the medulla, the spinal cord runs within the vertebral canal from the foramen magnum to the cone-shaped conus medullaris at approximately the level of the second lumbar vertebra.

The spinal cord is the main pathway for information connecting the brain and peripheral nervous system. The length of the spinal cord is much shorter than the length of the vertebral column. The spinal cord is protected by three layers of tissue, called spinal meninges, that surround the canal. In the spinal cord there are some tracts that brings information from the brain.

Figure 2.3. Cross section of spinal cord and the three types of neurons. (From Clinical Kinesiology and Anatomy, ed 4, 2006).
**Brain protection and Brain Blood Supply**

a) Brain Protection

The brain has basically three levels of protection: bony, membranous, and fluid. Surrounding the brain is the skull, made up of several bones with joints fused together for greater strength. Within the skull are three layers of membrane, called meninges, that cover the brain and provide support and protection. The thickest, most fibrous, tough outer layer is called the dura mater, the middle, thinner layer is called arachnoid or, less commonly, arachnoid mater. The inner, delicate layer is called the pia mater, which carries blood vessels to the brain. These cranial meninges are continuous with the spinal meninges that surround the spinal cord. Between the layers of the arachnoid and pia mater is the subarachnoid space through which circulates cerebrospinal fluid. The main function of the cerebrospinal fluid is shock absorption.

b) Brain Blood Supply

The blood supply to the brain comes from branches of the internal carotid and vertebral arteries. The right and left common carotid arteries arise from the aortic arch and run the length of the neck in an anterior lateral position. At about the level of the jaw, each divides into the external and internal carotid arteries. The external carotid arteries supply the scalp, dura, and skull.

Impaired blood flow through these critical radicular arteries, especially during surgical procedures that involve abrupt disruption of blood flow through the aorta for example during aortic aneursym repair, can result in spinal cord infarction and paraplegia.
Figure 2.4. Circulation of cerebrospinal fluid. The arrows indicate flow. (From Clinical Kinesiology and Anatomy, ed 4, 2006)

B. New Bobath Concept and Pilates

1. New Bobath Concept

Bobath concept at first developed by Mrs. Karel Bobath by means of assessment and diagnosis own. She was born in Berlin, Germany in 1906. Bobath concept in been used as the base of others some approach which initially only from an assumption. Old concept of this method through facilitationed and handling to activation of abnormal reflex facilitate and relearning normal movement. While the concept of his new approach is solution problems with assessment and treatment of individuals by affecting tonus, movement and functions because the central nervous system.

The goal of treatment is to optimize function by improving postural control and selective movement through facilitation. (IBITA, 1995).
2. Pilates

Pilates at first was developed by Joseph Hubertus Pilates. He was born in a small town near Dusseldorf (Mönchengladbach), Germany in 1883. He has little sickly like as the rickets, rheumatic fever and asthma. There were motivated him to improving endurance to get better. So he practiced bodybuilding, gymnastics, diving and other physical pursuits.

In 1912 when the second world war II, Joseph Pilates traveled to England. He trains soldiers existing at camp shelter who have no hand feet and hurt. He was practiced and training program fitness for the german national who has disease and helping others after wartime. After the war, German Government invited Joseph Pilates to train the new German Army, but he was deciced to leave for America. On the way over to the United states, Joseph met Clara who soon after became his wife.

In 1926 Joseph and Clara Pilates set up the first Pilates studio in New York City. A varied and diverse population frequented the studio, including the elite of New York society, circus performers, gymnasts and dancers. Over the course of his career, Joseph Pilates developed over 600 exercises for the various pieces of apparatus he invented.

As long time the developing of the world make the development of pilates too, from this revealed BASI pilates. BASI have the block system, which make a easier learning pilates, either we ’re as teacher or as a student. So, I prevented use the BASI pilates

a. 10 principles movement of pilate

We have 10 principles of pilates there are: awareness, balance, breathing, center, control, concentration, efficiency, flow and harmony.

b. Gerakan pilates Mat BASI block system

1. Pelvic Curl (preparation: pelvic rocking)
Strengthening the abdominals and hamstrings. Learned neutral pelvic and neutral spine, posterior and anterior tilt. Learned pelvic lumbar stabilization, hamstring control and spinal articulation.

2. Spine Twist Supine

Strengthening the abdominals, learned to pelvic lumbar stabilization, spinal rotation and abdominals control with oblique emphasis.

3. Chest Lift

Strengthening the abdominal and learned to pelvic stability, for controlled the movement when walking. For the client strengthening the adductor muscle too.

4. Chest Lift With Rotation

Strengthening the abdominal and oblique emphasis, helped the client to balancing the body between right and left side.

5. Single Leg Lifts and Leg Changes

Learned the hip disassociation and pelvic lumbar stabilization.

c. Footwork on the reformer

Learned awareness to feel the tripot of the feet, this for stimulated the muscles of the feet. Learned the alignment of the legs and cocontraction of hamstrings with quadriceps.

The exercise all about pelvic lumbar stabilization and spinal articulation, because if the pelvic stable this affect the neutral spine, and this make the patient get center of the body.

C. Framework

Patient hemiplegi sinistra ec post stroke hemorrhage is still in flaccid phase have the problem, there are posture changed, the pattern of the gait was changed and muscles tight.
Combined new bobath concept and pilates (BASI block system) has a good affect for the patient posture and release the muscles tight.

![Diagram of the framework concept]

**D. The Framework Concept**

Patient hemiplegi sinistra ec post stroke hemorrhage is still in flaccid phase given treatment new bobath concept to stimulate the nerve and release the muscles tight, and given pilates for 4 weeks. On the first and second weeks will be greater use of approach new bobath concept because the condition of the patient is still in phase flaccid, while for pilatesnya is the application of 10 principles of movement and motion some course. On the third and fourth weeks given pilates if the condition of the patient had been possible. Expected after treatment for a month of training, there is an influence upon posture. Both treatment was influenced by some factors which is this:
1. A factor in the frequency and control (intensity the duration of movements) of the truth.

2. Factor uncontrolled form of activity, motivation.

![Diagram](image)

**Figure 2.6 The framework concept**

**E. Hypothesis**

Based on a study of pustaka and researchers assign hypothesis as follows: there is the influence of pilates with a new bobath concept on patients with hemiplegi sinistra ec post stroke hemorrhage against the posture.
CHAPTER III
CLINICAL STATUS

A. Common Patient Information

This chapter will explain the clinical status of a patient. Patient berinitial (Mr. Usm), 77 years old, male, lives in the village of panyingkiran 06 / 03, kitiran depan, Bandung. Before he was suffering a stroke work daily as the manager of local mosque in his place.

B. Subjective Assessment

1. Medical diagnostics: Hemiplegi sinistra e.c post stroke hemorrhage.

2. The main complaint and History of disease

The main complaint: Mr. Usm complained that his left legs felt heavy when walking and his left hand could not move.

History of disease: About 4 months ago the patient experience sudden extreme weakening of his whole body, then the patient was taken to hospital. Being hospitalized the patient went to the bathroom by himself and fell, after that the patient was unable to move his left extremities. Various types of medicines have been taken, a variety of therapy also has been done, but the patient felt just only a little improvement. A physiotherapy then refer him to do therapy with new bobath concept and pilates.
3. Hereditary Disease

   The patient has hereditary disease of diabetes mellitus.

4. Social Status

   Environmental residence of the patient is facilitating the patient in doing daily activity, as the floor was coated by carpet.

C. Objective Assessment

1. Vital Sign
   a. Blood Pressure : 160/80 mmHg
   b. Pulse : 80 x / minutes
   c. Respiratory rate : 20 x / minutes

2. Inspection / observations
   a. Swelling formed on the left hand.
   b. Gait analysis shows that patient still using aids tripot, and put more weight to the right side.

3. Palpation
   a. There are penetration pain on the left wrist, and also on the distal of the left fingers especially on the ring finger and the little finger.
   b. There are pain in the shoulder and the left elbow when flexi shoulder (passive movement)

4. Functional Ability
   a. Functional ability of the patient in generally was obstructed.
D. Purpose of Therapy And Exercise Program

1. Short-term purpose
   a. Reduce the pain in upper extremities of the left, such as shoulder, wrist and finger.
   b. Reduce swelling in the left hand.
   c. Build patient’s awareness about balance, breathing, center of the body, concentration and how to control the movements.

2. Long-term purpose
   a. Posture correction
   b. The patient walks without the tripod.
   c. Increases patient awareness about, balance, breathing, center of the body, concentration and how control the movements.
### E. The Implementation Of Therapy And Exercise

<table>
<thead>
<tr>
<th>Date</th>
<th>New Bobath Concept</th>
<th>Pilates</th>
<th>Result / Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 26th - 28th, 2014</td>
<td><strong>Position : Lying Supine</strong>&lt;br&gt;1. Externally rotated left shoulder + shrugs (Bobath+Pilates), stimulated intrinsic muscles of the left hand, stimulated palmar flexors muscles and lumbrical muscles.&lt;br&gt;2. Stimulated plantar and dorsi flexed muscles then combined with pilates about actived the tripot on heels and learning the awareness.</td>
<td><strong>1. Breathing : inhale thru the nose, exhale thru the mouth. Breathing and when exhale said A.</strong>&lt;br&gt;2. Pelvic rocking (Pilates) : Learning anterior and posterior pelvic tilt.&lt;br&gt;3. Pelvic Curl</td>
<td>After therapy patient felt the legs was lightly when walking.</td>
</tr>
<tr>
<td>August 29th - 30th, 2014</td>
<td><strong>Position : Sitting position</strong>&lt;br&gt;1. Stimulated intrinsic muscles of the left hand, stimulation palmar flexors muscles and lumbrical muscles.&lt;br&gt;2. Stimulated intrinsic muscles of the left leg combined with pilates about actived the tripot on heels and learned the awareness and squeezing inner thighs with chibal.</td>
<td><strong>1. Strengthening inner thighs with ci ball and then squeezing inner thighs with weight ball → Learned the balancing muscles leg and awareness.</strong></td>
<td>When the patient sitting :&lt;br&gt;▪ Increasing the awareness to sitting upright, center of the body, the aligment of the legs (knees and ankle is oneline).</td>
</tr>
<tr>
<td>Date</td>
<td>Notes</td>
<td></td>
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</tr>
</tbody>
</table>
| August 31st, 2014 | Sitting position  
2. Externally rotated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand.  
3. Release rotator cuff muscle and left latissimus dorsi.  
4. Stand up exercise from sitting position in the chair.  
5. Walked with guide on the pelvic |
|               | 1. Strengthening inner thighs with chi ball. Learned to awareness.  
2. Standing position (standing cues)  
3. Learned balancing the muscle of the legs, learned awareness with: shifted to the right, left, leaned forward and backward. |
|               | Results:  
- After therapy patient felt the legs was lightly when walking.  
- Awareness of Center of the body was increasing. |
| September 4th, 2014 | Home work: standing 5’,10’,15’: done  
1. Externally rotated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand. |
|               | 1. Learned ten principles of movement.  
2. Standing cues. |
|               | Results:  
- The body of a patient balance was increased.  
- The strength of muscles of the legs was increased. |
| September 5th and 6th 2014 | Sitting position (keep awareness the upright position)  
Home work: standing 20 minutes → done  
1. Externally rotatated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand.  
2. Stimulated intrinsic muscle feet, dorsal flexors and eversor muscles (bobath). Actived the tripot on the heel (pilates and bobath)  
3. Standing to sitting position  
4. Stimulated hamstring and quadriceps muscle.  
5. Walked | 1. Learned to ten principles of movement.  
2. Standing cues. | Results:  
- The body of a patient balance was increased.  
- The strength of muscles of the legs was increased.  
- When the patient standing, he could standing upright. |
|---|---|---|
| September 11th - 14th 2014 | 1. Externally rotated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand.  
2. Standing upright, Walked. | 1. Pelvic rocking, then pelvic curl  
2. Spine twist supine (assisted movement)  
3. Chest lift  
4. Chest lift with rotation  
5. Single leg lift and for the left leg is assisted movement.  
Each 3 repetition every movement. (September, 12th without single leg) | Results:  
- The body of a patient balance was increased.  
- The strength of muscles of the legs was increased.  
- When the patient standing, he could standing upright.  
- The patient feel slept better. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
<th>Results</th>
</tr>
</thead>
</table>
| September 22<sup>nd</sup> - 25<sup>th</sup> 2014 | 1. Externally rotated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand. (bobath).  
                             2. Stimulated intrinsic muscle left leg and plantar flexor left foot (bobath).  
                             3. Exercise: From sitting position to standing, daily activity.  
                             4. Standing and walked | 1. Pelvic Curl  
                             - After therapy patient felt the legs was lightly when walking.  
                             - The patient capable of being up and down the stairs after four month ago. |
| September, 26<sup>th</sup> 2014                                | The patient fell and trauma injury on the left shoulder.                     |                                                                         |
| October 1<sup>st</sup> - 3<sup>th</sup>, 2014                | 1. Externally rotated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand.  
                             Stimulated intrinsic muscle left leg and plantar flexor left foot  
                             Exercise: From sitting position to standing, daily activity. Standing and walked. | 1. Pelvic Curl  
                             - After therapy patient felt the legs was lightly when walking. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity Description</th>
<th>Results</th>
</tr>
</thead>
</table>
| October 4th, 2014 | Walked exercise on the others background of the floor to nerve stimulated thru the feet. (Remind the awareness, balancing, center)                   | 1. Footwork on the reformer with jumpboard → parallel heels, parallel toes. (Learned 10 principles of movement)  
2. Pelvic Curl                                                                                                                     |
|                 |                                                                                                                                                      | Results:                                                                                                                                                                                                  |
|                 |                                                                                                                                                      | • After therapy patient felt the legs was lightly when walking.                                                                                                                                              |
| October 5th, 2014 | Walked exercise on the others background of the floor to nerve stimulated thru the feet. (Remind the awareness, balancing, center)                   | 1. Footwork on the reformer → parallel heels, parallel toes  
2. Pelvic Curl                                                                                                                     | Results:                                                                                                                                                                                                  |
|                 |                                                                                                                                                      | • After therapy patient felt the legs was lightly when walking.                                                                                                                                              |
|                 |                                                                                                                                                      | • Patient not used the tripod.                                                                                                                                                                              |
| October 9th-10th 2014 | Sitting position (keep awareness the upright position)  
Home work: standing 20 minutes → done  
1. Externally rotatated left shoulder + shrugs (pilates), stimulated intrinsic muscle left hand and palmar flexor left hand, stimulated lumbrical left hand.  
2. Stimulated intrinsic muscle feet, dorsal flexors and eversor muscles. Actived the tripot on the heel (pilates and bobath)  
3. Walked |                                                                                                                                                       | Results:                                                                                                                                                                                                  |
|                 |                                                                                                                                                      | • After therapy patient felt the legs was lightly when walking.                                                                                                                                              |
|                 |                                                                                                                                                      | • Patient not used the tripod.                                                                                                                                                                              |
| October 11<sup>th</sup> - 12<sup>nd</sup>, 2014 | Walked exercise on the others background of the floor to nerve stimulation thru the feet. (Remind the awareness, balancing, center) | 1. Footwork on the reformer → parallel heels, parallel toes  
2. Pelvic Curl  
3. Hip work → Turn in – turn out, Up-down (extension) | Results:  
- After therapy patient felt the legs was lightly when walking.  
- Patient not used the tripod.  
- The patient get more balance when walked. |
| October 13<sup>th</sup> - 19<sup>th</sup>, 2014 | 1. Externally rotated left shoulder + shrugs (Bobath+Pilates), stimulated intrinsic muscles of the left hand, stimulated palmar flexors muscles and lumbrical muscles.  
2. Stimulated plantar and dorsi flexed muscles then combined with pilates about actived the tripot on heels and learning the awareness.  
3. Exercise : From sitting position to standing, daily activity.  
4. Standing and walked. | 1. Breathing : inhale thru the nose, exhale thru the mouth. Breathing and when exhale said A.  
2. Pelvic rocking : Learning anterior and posterior pelvic tilt.  
3. Pelvic Curl | Results:  
- Posture was increased be better.  
- The body of a patient balance was increased.  
- The strength of muscles of the legs was increased.  
- The patient feel slept better. |
CHAPTER IV
DISCUSSIONS

A. Initial State of the Patient

This research was carried out in the region of Panyingkiran 06/03 Titiran depan, Bandung and Svarga E-motion Sanctuary Bandung, on August 26th until October 19th, 2014 to know the influence of pilates with a new bobath concept on an individual with hemiplegi sinistra ec post stroke hemorrhage against the posture with the patient was Mr.Usm.

The initial state of the patient was the patient was still using aids tripod to walk. The initial assessment was weakening of his left body part and decrease balance, resulting a shift of weight bearing to his right side.

B. Discuscions

Research on “THE INFLUENCE OF PILATES WITH A NEW BOBATH CONCEPT ON A PATIENTS WITH HEMIPLEGI SINISTRA ec POST STROKE HEMORRHAGE AGAINST THE POSTURE.”, that was Mr.Usm as the patient given by a method of new bobath concept and the implementation of 10 principles of movement will be more helpful in getting the best result. On second week there will be many uses of new bobath concept to stimulate nervous system. Then pilates was given to stimulated and strengthen the muscles. Pilates was done by the therapist with assisted movement because his muscles that stil weak.

On the third week the patient fell on his left side. The patient experienced subluxtation in his left shoulder. It made the patient ’ s progression decline and the motivation of the patients was decreased too, its affected the result of a therapy.
The merger of two methods is significant because after about 4 weeks given in the treatment of new bobath concept and pilates. The patient obtained a significant change in the posture and the gait of the patient was significantly improved. Physical activity of patient outside therapy and exercise program also shows improvement. Also, motivation of the patient and support of the family also affects success both this method.

C. Evaluation

The evaluation have been doing to a patient on the date of August 29th, 2014. This is initial state of the patient.

<table>
<thead>
<tr>
<th>Postural Analysis:</th>
<th>Musculoskeletal Analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The nose, chin and sternum uneven midline sagittal axis.</td>
<td>▪ Decrease strength of left hip internally rotated.</td>
</tr>
<tr>
<td>▪ The left shoulder is lower than the right side (right shoulder compensation).</td>
<td>▪ Left pelvic is externally rotated.</td>
</tr>
<tr>
<td>▪ The left hand is longer than the right hand.</td>
<td>▪ No co-contraction on left quadriceps and hamstrings.</td>
</tr>
<tr>
<td>▪ The body weight shifted to right side.</td>
<td>▪ Tightness of</td>
</tr>
<tr>
<td>▪ The ASIS and the PS are not in transversal plane. (the left ASIS is higher than the right ).</td>
<td>▪ Right upper trapezius</td>
</tr>
<tr>
<td></td>
<td>▪ Right Latissimus dorsi</td>
</tr>
<tr>
<td>Postural Analysis:</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>The lobe of ear, shoulder, elbow and wrist uneven midline frontal axis.</td>
<td></td>
</tr>
<tr>
<td>Head forward</td>
<td></td>
</tr>
<tr>
<td>Through bodies of cervical vertebra.</td>
<td></td>
</tr>
<tr>
<td>The greater trocanter of femur is unline with the knee and the maleolus lateralis.</td>
<td></td>
</tr>
<tr>
<td>The left leg forward and externally rotated.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Postural Analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The left shoulder is lower than the right side (right shoulder compensation).</td>
</tr>
<tr>
<td>The left hand is longer than the right hand.</td>
</tr>
<tr>
<td>The body weight shifted to right side and twist to the left side.</td>
</tr>
<tr>
<td>The left leg forward and externally rotated.</td>
</tr>
</tbody>
</table>
### September, 6th 2014

<table>
<thead>
<tr>
<th>Postural Analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The nose, chin and sternum uneven midline sagittal axis.</td>
</tr>
<tr>
<td>▪ The left shoulder is a bit lower than the right side (right shoulder compensation) better than before.</td>
</tr>
<tr>
<td>▪ The left hand and the right hand is same.</td>
</tr>
<tr>
<td>▪ The body weight still shifted to right side.</td>
</tr>
<tr>
<td>▪ The ASIS and the PS are in transversal plane.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Postural Analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The lobe of ear, shoulder, elbow and wrist even midline frontal axis.</td>
</tr>
<tr>
<td>▪ Head forward</td>
</tr>
<tr>
<td>▪ The greater trocanter of femur is still unline with the knee and the maleolus lateralis.</td>
</tr>
<tr>
<td>▪ The left leg still externally rotated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analysis Posture:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Head not align.</td>
</tr>
<tr>
<td>▪ The body still shifted to the left side.</td>
</tr>
<tr>
<td>Date</td>
</tr>
<tr>
<td>--------------</td>
</tr>
</tbody>
</table>
| September 11<sup>st</sup>, 2014 | Postural Analysis:  
  - The nose, chin and sternum uneven midline sagittal axis.  
  - The left shoulder is lower than the right side (right shoulder compensation).  
  - The left hand is longer than the right hand.  
  - The body weight shifted to right side.  
  - The ASIS and the PS are not in transversal plane. (the left ASIS is higher than the right ).  |
| October 19<sup>th</sup>, 2014  | Postural Analysis:  
  - The lobe of ear, shoulder, elbow and wrist even midline frontal axis.  
  - Head forward  
  - The greater trocanter of femur is still unline with the knee and the maleolus lateralis.  
  - The left leg still externally rotated.  |
|                          | Analysis Posture:  
  - Head not align.  
  - The shoulder not high same level.  
  - The body still shifted to the left side.  
  - The left leg still externally rotated.  |
<table>
<thead>
<tr>
<th>Postural Analysis:</th>
<th>Analysis Posture:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The nose, chin and sternum uneven midline sagittal axis.</td>
<td>▪ The lobe of ear are same with the shoulder.</td>
</tr>
<tr>
<td>▪ The left shoulder is lower than the right side (because trauma on the left shoulder).</td>
<td>▪ The knee already straighten, but hyperextend.</td>
</tr>
<tr>
<td>▪ The left hand is longer than the right hand.</td>
<td>▪ The greater trocanter of femur is unlined with the knee and the maleolus lateralis.</td>
</tr>
<tr>
<td>▪ The body weight shifted to right side.</td>
<td>▪ The ASIS and the PS are not in transversal plane. (the left ASIS is higher than the right).</td>
</tr>
<tr>
<td>▪ The ASIS and the PS are not in transversal plane. (the left ASIS is higher than the right).</td>
<td>▪ The strength of hip internally rotators, hip flexors, hip adductors of the left leg was increased.</td>
</tr>
<tr>
<td>▪ The muscle</td>
<td>▪ Upper trapezius and latissimus of the right arm was release.</td>
</tr>
</tbody>
</table>
D. The Limitation of Research

The limitations of research that could affect the results of this research was among other:

1. Therapist couldn’t controlled physical activity of the patient outside a therapy and exercise program.
2. The limitations of time in research as well as limited number of respondents which satisfies the criteria.
CHAPTER V

CONCLUDING

A. Conclusion

Research on “THE INFLUENCE OF PILATES WITH A NEW BOBATH CONCEPT ON A PATIENTS WITH HEMIPLEGIC SINISTRA EC POST STROKE HEMORRHAGE AGAINST THE POSTURE.”, that was performed in Panyingkiran and Svarga E-motion Sanctuary conclusion: The merger of two methods is very good because after more or less 4 weeks given in the form of a method of treatment new bobath concept and pilates obtained a change in the posture and the pattern of the way the patient becomes better. But physical activity of patient outside therapy and exercise program also affect success both this method. Besides motivation and spirit of patient or family also affect success of both this method.

B. Result

1. Objectives results:
   a. Patient’s posture is more alignment
   b. Swollen in the left hand depopulate
   c. The patient able to walk without the use of a tripod
   d. Increased functional ability of the patient
   e. The patient is capable of going up and down the stairs after four months.
   f. The patient capable of walking farther without the use aids tripod.

2. Subjectives results:
   a. The patients felt while walking his legs felt lighter
   b. The patients felt the body is more comfortable.
   c. The patient comment of increase sleeping quality.
C. Suggestions

Considering the weaknesses that exist in the study of this case suggested to further done research with observing:

1. The subjects of the research more
2. A period of time that research longer
3. To control a bully other variable that can refract the results of research among other activities influence the subjects.
REFERENCES

American Chiropractic Association, 2006; Tips to Maintain Good Posture, Healthy Living Jurnal, May-June 2006


Members Of The British Bobath Tutor Association: Bobath Concept Theory and Clinical Practice in Neurological Rehabilitation; United Kingdom ; Wiley Blackwell; page 1,2 and 3, 2009
