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# **ROBE - Resource oriented body examination - workshop for physiotherapy students**

DEGREE PROGRAMME IN PHYSIOTHERAPY  
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ROBE - Resource oriented body examination - workshop for physiotherapy students		
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<p>Abstract</p> <p>Resource-oriented Body Examination is a clinical assessment tool for psychosomatic physiotherapy treatment. Through the assessment the physiotherapist collects information about the patients' current stage taking into the consideration the posture, breathing, passive and active movements and muscular consistency of the patient in order to decide what kind of therapy the patient has resources for that moment.</p> <p>The aim of this thesis is to increase the knowledge of the Resource-oriented body examination as a part of psychosomatic physiotherapy. The objective of the thesis was to provide a learning material for the psychosomatic physiotherapy course in Satakunta University of Applied Sciences.</p> <p>The thesis was implemented as a practice-based operational thesis. The process started with collecting the theory behind the assessment and attending on the course about the Resource-oriented Body Examination in Tampere University of Applied Sciences. Based on the theory and the course the workshop and learning material was created.</p> <p>The workshop was piloted for 10 physiotherapy students and based on the feedback there was a great interest on the topic. The learning material will be available in the Moodle platform as a recorded Power point presentation.</p>		
<p><u>Key words</u></p> <p>resource-oriented body examination, psychosomatic physiotherapy, norwegian psychomotor physiotherapy</p>		

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## REFERENCES

## 1 INTRODUCTION

Physiotherapy has been part of the treatment in the mental health field for 50 years. Physiotherapy treatment alongside to psychotherapy can build a connection between the mind and the body as they are in constant interaction and influence on each other. The physiotherapy gives observation and evaluation tools for the assessment part of the patient overall situation in the beginning of the treatment. The physiotherapist has a role not only on the assessment but also the treatment. Physical activity, therapeutical exercise and body and movement awareness has been proven to improve the mental health. (Probst & Skjaerven, 2017, p.2-9).

Resource oriented body examination is a clinical reasoning tool where the physiotherapist assesses the patient's posture, breathing, mobility and body composition and build the physiotherapy plan based on that. It has been created by Norwegian psychiatrist Berit Bunkan in 1960. The resource-oriented body examination is used as a part of psychosomatic physiotherapy, and it is used to increase the effectiveness of psychotherapy. (Heinonen & Valkama, 2010, p.7-9).

This thesis was requested by the Degree program of the physiotherapy to have a clinical reasoning tool introduced as a part of psychosomatic physiotherapy course. The workshop was available for ten physiotherapy students and the study material will be part of the course material in the Moodle platform.

## 2 AIM AND OBJECTIVE

Aim of the thesis is to increase knowledge about resource-oriented body examination as a part of psychosomatic physiotherapy. The objective is to provide learning material about Resource-Oriented Body Examination (ROBE) for the psychosomatic physiotherapy course in Satakunta University of Applied Sciences.

## 3 THE ROLE OF PHYSIOTHERAPIST IN MENTAL HEALTH

Physiotherapy has been recognized as a part of mental health field for 50 years. One of the main roles of the physiotherapist is to promote health and as it is said “there is no health without mental health”. Patients coming to physiotherapy are suffering from chronic pain, neurological and musculoskeletal disorders etc. which always have emotions included and that is why it is important to take all the aspects including the mental health into consideration in the rehabilitation program. (Probst & Skjaerven, 2017, p.2-9).

As the disease have effect on the mental health and so has the emotions and mind on the physical aspect. One of the approaches to physiotherapy in mental health is psychosomatic physiotherapy which address that the physical conditions are results from the psychological factors. It addresses that the illness/disease is the persons way to adapt to the environment which is arising from the communication of the subconscious and conscious mind. In other words, it means that the traumas and emotions which we are not aware of arise on the consciousness through the body as a physical symptom. These symptoms can be for example pain, fatigue, hyperventilation, sweating etc. (Probst & Skjaerven, 2017, p.2-11).

Physiotherapy has variety of different tools to observe and evaluate the patients physical and mental health together and address what are the needs for the rehabilitation. (Probst & Skjaerven, 2017, p.3). The physiotherapist pays attention to the reactions of the body and mind to different assessment tools and helps the patient to understand and be aware about the reactions. The patient receive help on understanding the body and mind reactions and gets assistance on approaching her/his own feelings. The goal is to improve the overall performance in daily life by giving means of coping and better the self-efficacy of the patient by improving the self-awareness. (Pimiä, 2015, p.11-14). The interventions can be physical activity, conscious movement, relaxation techniques, respiratory exercises and body awareness techniques. (Probst & Skjaerven, 2017, p.2-9).

The roots of psychosomatic physiotherapy in Finland are from Swedish Basic Body Awareness Therapy (BBAT) and Norwegian psychomotor physiotherapy (NPMP). The specialization studies of psychosomatic physiotherapy have been available in Finland since 1993. (Härkönen, et al. 2016, p.8). According to the Finnish psychosomatic physiotherapy association (PSYFY) the therapy is psychosomatic when the mind and body are seen as an entity, there is continuous interaction between the patient and therapist and that the experience and experimental learning of the patient is the base of the treatment. (Website of Suomen psykofyysisen fysioterapian yhdistys).

The base of the psychosomatic physiotherapy is to encounter the patient in continuous interaction and dialogue. The therapy process is experimental learning process where the posture, tension in the body, movements and the reactions of the body and mind are assessed. Based on the findings the physiotherapist and the patient can make a conclusion how are the persons resources to cope with the everyday life. The main goal of the therapy is that the person finds through the experiences coping patterns and ways to operate on the daily life and that the patient understand her/himself better through the experiences. (Rautamies, 2007, p.51-63).

The therapy is affected by the therapist`s human perception, encountering the patient with open mind, patients body image and motivation. (Rautamies, 2007, 51-63). It is

essential for the physiotherapist to work on her/his self-image in order to help and understand the patient. It has been said that the therapist can help the patient as far as she/he is with herself in the process. (Jaakkola & Lähteenmäki, 2007).

#### 4 RESOURCE-ORIENTED BODY EXAMINATION

The development of Resource oriented body examination started in Norway in 1960 by physiotherapist and psychologist Berit Bunkan. The roots of Resource oriented body examination are in Norwegian psychomotor physiotherapy. (Heinonen & Valkama, 2010, p.7-9). The main goal of the examination and treatment is to release mentally focused physical tension of the body by treating and exploring the body in constant interaction with the patient. (Jaakkola & Maljanen, 2021). During the examination the patient becomes aware of the bodily sensations and reactions and through the awareness patient starts to feel safer in her/his body. (Heinonen & Valkama, 2010, p.7-9).

The examination is made by observing the patient's posture, breathing, movements and muscular consistency. The examination includes also autonomic nervous system reactions, body awareness, muscular tenderness, skin stiffness and the patients emotional experience during the examination. (Bunkan et al., 2004). The assessment methods used are observation, passive and active movements, and palpation. (Heinonen & Valkama, 2010). The examiner evaluates each section separately on the assessment form on scale minor to many resources. The measures are intra-tester reliability which means the measures are based on the stability of repeated measurements by the same examiner. (Jaakkola & Maljanen, 2021).

The resource-oriented body examination is used to collect information of people who has musculoskeletal problems, chronic pain and mild mental disorders. Based on the examination the therapist decides whether the patient has resources to start supportive or more intensive therapy. (Heinonen & Valkama, 2010, p.7-9). The supportive

therapy is concentrating on basic movement, grounding and looking for positive and safe experiences. The intensive therapy includes breathing exercises, practising to express the emotions and social interaction exercises. With the supportive therapy the therapist is helping the patient finding safety and comfort in the body and when the patient has resources for the intensive therapy the exercises are more intensive, and the goal is to seek change and liberation. (Jaakkola & Maljanen, 2017). In addition, the therapist can follow the progress of the therapy by repeating the examination by seeing the changes happening in the body. (Heinonen & Valkama, 2010, p.7-9).

As mentioned above the theory of resource-oriented physiotherapy is based on the Norwegian psychomotor physiotherapy. Norwegian psychomotor physiotherapy has been created by physiotherapist Aadel Bulow-Hansen and psychiatrist Trygve Braatoy in the 1940s. (Ekerholt & Gretland, 2017). Norwegian psychomotor physiotherapy (NPMP) is body-oriented physiotherapy approach where the aim is to increase body awareness. The main idea is that respiration, posture, muscle tension is related to the emotional stage of the patient. (Dragesund & Råheim, 2007). The therapist is helping the patient to release the muscle tension by understanding the unprocessed and unconscious emotional experiences. There is constant interaction in biological, physical, psychological and social aspect of human being and every section influences each other. (Ekerholt & Gretland, 2017).

The patients in Norwegian psychomotor physiotherapy have been normally suffering from the discomforts for a longer period and that is why the therapy is taking longer time. All the clinical findings must put into entirety with the body and with the past and current life situation. The physiotherapist is assessing the posture in lying down, sitting and standing position and the patients active and passive movement how is the body assisting or resisting gravity. Through the assessment the physiotherapist is assessing the breathing, motor control, autonomic nervous system reactions and asking the patients feelings and emotions arising from the assessment. While the physiotherapist is noticing for instance that in certain position the patient is holding the breath, the therapist can ask the patient is she/he aware about it and if the patient is able to begin to breathe normally after the notice it shows that the patient have



resources. If the patient is not able to react on the notice it might show that the patient's resources are low. (Ekerholt & Gretland, 2017).

There was study made in Norway at 2009-2010 about the effect of the NPMP on the subjective health complaints and psychological symptoms. The result of the study was that the Norwegian psychomotor physiotherapy has potential to reduce the health complaints and psychological symptom. They used in the study non-randomized waiting list-controlled design where there were 40 patients in the treatment group and 22 in the waiting list group. The waiting list group started the treatment after waiting 6 months for 6 month of time and the treatment group had treatment for 12 months. In the treatment group all the measured symptoms reduced during the first 6 month, but the life quality was reduced comparison to the waiting list -group. After 12 months the treatment group improved all the measures including the quality of life and symptoms like depression, insomnia and fatigue were reduced. (Breitve, et al. 2010).

## 5 ROBE ASSESSMENT

The resource-oriented body examination starts with interview collecting the background information on the assessment form. It is preferred that the assessment is made in underwear but if the patient is uncomfortable the physiotherapist can also palpate through clothes. After that the physiotherapist start the assessment with the posture, breathing, body composition and movement where the order might vary depending on the patient. The physiotherapist and the patient are making the findings in constant interaction. The physiotherapist can use as a scale of the result segment no loaded to really loaded or numbers from 0 to 6. The emphasis of the assessment is on breathing and movement. (Heinonen & Valkama, 2010, p.7-9).

The physiotherapist is observing through the assessment the patient's autonomic nervous system reactions, emotional reactions, body awareness and overall sensations arising from the assessment in order the patient becoming aware about them. In addition, it is important to consider how the patient is communicating and taking contact. The social skills and support from the interpersonal relationship can increase the resources. (Jaakkola & Maljanen, 2017).

The conclusion made from the assessment tells how intensive therapy the patient has resources for. (Bunkan et al. 2004, p.22-28). The assessment gives overall picture of the patient if the patient has resources for supportive or intensive therapy. The method can give information about the prognosis and give important information about the changes happening in the patient's body. (Heinonen & Valkama, 2010, 7-9).

## 5.1 Posture

There are several factors affecting on the posture: neurophysiological, biomechanical and psycho-emotive factors. Posture is body's automatic way to adapt to the force of gravity and it is maintained by the bones, joints, contraction of the skeletal muscles and various stimuli from the nature when the there is happening continuous adjustment of the neuromuscular system. The ideal posture is that the body is maintaining balance with maximum stability, minimal energy consumption and avoiding cause over stress on the anatomical structures. (Carini et al. 2017, p.11-18).

Any posture which is asymmetrical in relation to the central line indicates that there is abnormal tension somewhere in the body. In the ideal posture the tension is balanced between front and back side of the body equally. The spine curves are adapted according to the position of the lower extremities and pelvis. The position of the upper extremities, shoulders and head has also effect on the overall posture. Everyone has his/her personal posture which start to form itself from the childhood. The posture can be affected by physical factors like musculoskeletal injuries and psychological factors

like emotions, unprocessed traumas and stress level. The posture can also give information about the patient's overall attitude toward life. (Bunkan, 1996, p.41-59).

There is a lot of debate about the factors affecting on the posture but there are some common features that most of the studies are agreeing on: congenital growth, nutrition, and life habits. Most of the debate is about the emotional and psychosocial effects on the posture. Bunkan has introduced 3 main types of posture according to the psychological stage. There is evidence that stress and uncertainty of life has effect on the body posture. This type of posture is called flexor posture. Common factor is strong contraction of the flexor muscles especially abdominals, inversion of the upper limbs, flexion of the elbows, pronation of the arms, tying hands front, flexion of knees, spine and pelvis, weakness in the lower extremities and holding the breath. (Bunkan, 1996, p.41-59).

Second type of the posture is collapsed posture. Sometimes it is hard to separate from the flexor position, the main separating factor is that in collapsed posture the muscles are hypotonic and in the flexor they are hypertonic. In collapsed posture the pelvis and head are front relative to the central axel. The third type of posture what Bunkan is mentioning in her book is extension type. There the person is extending him/herself in order to cover the insecurity. This posture can be separated from the ideal posture with the muscle tension. As mentioned before in the ideal posture there is balanced muscle tone between the extensors and flexors but in extended posture there is increased muscle contraction in the extensor muscles. (Bunkan, 1996, p.41-59).

Even there is theory of the three different types of posture, most of the postures have factors from each posture type. There are also other factors affecting on the posture: the culture, social life and, breathing which will be introduced later. (Bunkan, 1996, p.41-59).

While assessing the posture from the resource point of view it is important to pay attention the leg position. The position of the legs can give information about the person resources to cope with the life from the body-mind point of view and how is

the person facing the life. In addition, the leg position is affecting on the overall posture and that is why it gives to the physiotherapist information. (Bunkan, 1996, p.41-59).

In resource-oriented body examination the posture assessed in the standing, sitting and laying down. It begins by asking the patient to stand in her/his typical standing posture. After that the physiotherapist asks the patient to take the standardized assessment posture where feet are hip width apart, the legs are parallel, knees are straightened and talocrural joint is in 90 degrees. The weight should not be on the toes, in the posture patient is able to move their toes without changing the posture. The posture is assessed relative to the vertical axis. The vertical axis start from the atlanto occipital joint, goes through cervix and thoracic junction, cut the lower part of sacrum, middle of the lower limbs until talocrural joint. (Bunkan, 1996, p.41-59).

The physiotherapist is assessing the symmetry and weight distribution of the body from the front, back and lateral direction. After that the physiotherapist is paying attention if there is deviations relation to the central and vertical axis, if there is findings she marks where and how much. Two other important marks are the spine and pelvis: how are the spinal curves (lumbar lordosis, thoracic kyphosis and cervical lordosis) and is the pelvis tilt forwards or backwards. (Bunkan, 1996, p.41-59).

After assessing the standing posture, the physiotherapist repeats the assessment in the sitting and laying down posture and pays attention if there are changes when the gravitation is eliminated. When the patient is laying down the physiotherapist is paying attention if the legs are separated or tied together and if the sacrum, shoulder blades and the knees are touching the mat. If the patient's posture was tensed in the standing posture and the patient is able to relax when lying down, it shows that the patient has resources. In the sitting position the physiotherapist is observing how the patient is holding the posture, where the hands are situated and what happens to the spinal curves. (Bunkan, 1996, p.41-59).

During the assessment the physiotherapist and the patient are in constant interaction and the physiotherapist is asking from the patient does she/he agree with the findings which gives information about the body awareness of the patient. The posture

observation starts from the first moment the patient walks in because often the patient doesn't feel comfortable during the assessment which might effect on the results. (Bunkan, 1996, p.41-59).

The posture is giving information about the past and current life situation and as mentioned before there is several factors affecting on it. The factors indicating the resources are the flexion, extension and collapsed posture, and ability to the change. For instance, when asking the patient to extend the spine she/he can do it, it refers that the patient has resources. The posture is one of the 4 main parts of the assessment, and it is marked on the line from a little to many resources. The variables are based on the physiotherapist intuition. (Bunkan, 1996, p.41-59).

## 5.2 Breathing

Breathing is a unique vital function which is regulated by the autonomic nervous system and at the same time we can affect on the breathing voluntarily. (Ekerholt & Bergland, 2008). Emotions are affecting on our breathing involuntarily so when we learn to regulate our breathing, we can handle emotions better. (Roxendal & Winberg, 2002). When person wants to forget negative trauma or emotion, they tend to tense their breathing and when they learn to breath and move more freely the emotions gets released. (Bunkan, 1996, p.60). Bunkan has said based on her clinical experience if during the physiotherapy treatment the breathing is not changing there will not be crucial change in the rehabilitation. If the breath and tension in the body stays the same, the issues will come eventually back. (Keskinen, 1986).

The movement of our main breathing muscle diaphragm cause pressure change between the chest and abdominal cavity. When we inhale the pressure inside abdominal cavity increases and in the chest cavity decreases. Due to the the low pressure in the chest cavity the airflow happens from the upper respiratory tract to the chest cavity. During the exhale the pressure change is opposite. During the inhale there happens oxygen transport to the body and during the exhale the carbon dioxide and

other gaseous metabolites are leaving the body. The breath is important vital function, and it is regulated by three systems: in the brain medulla oblongata is receiving chemical and nerve messages in order to know the need of inhale and exhale. Due to this system even when person is unconscious the breathing doesn't stop. The second system is autonomic nervous system which effect on the respiratory rate and the third is voluntary regulation by using the respiratory muscles. (Aalto, 2018, p.54-55).

The breathing, metabolism of the body and autonomic nervous system are in constant interaction with each other. Stress and uncomfortable emotions are affecting directly to our breathing and diaphragm is one of the first muscle reacting to the emotions. (Aalto, 2018, p.54). Emotions like sadness, happiness, anxiety and fear are affecting directly to the autonomic nervous system and through that to the breathing. The rate of the breathing is changing already before we are even conscious about the emotion. (Ekerholt, 2011). The emotions are changing the rhythm, depth, regularity and location of the breath. (Bergland & Ekerholt, 2008). When the stress or emotion is lasting for a longer time, it is causing imbalance in the autonomic nervous system which can cause hormonal imbalance and that leads to difficulties to the body's ability to maintain health. (Aalto, 2018, p.54).

As mentioned earlier diaphragm is our main respiratory muscle. Diaphragm is attached to xiphoid process of the sternum, inside the lower ribs and to the spinal vertebrae T12-L3. Aorta, inferior vena cava and esophagus are going through diaphragm and pericardium and the glissonian sheath which contains the liver are attached to the diaphragm. In addition, the lungs, stomach, spleen, pancreas and kidney are close to the diaphragm. The diaphragm is moving approximately 10 cm down during the inhale when it is working optimally, and it is moving at the same time our internal organs, spine and soft tissues with the movement. When the diaphragm is tensed the movement is compensated with auxiliary respiratory muscles which are situated in the neck shoulder area which is not very optimal way to breathe, and it cause tension and possible musculoskeletal issues in this area. In addition, the nerves innervating to the diaphragm are situated in the cervical spine, so when the diaphragm is not functioning optimally it can cause pain in the area. (Aalto, 2018, p.55-57).

During the resource-oriented body examination the breath is assessed through the test battery during the posture, movement and muscular consistency assessment. The emphasis is on the movement what happens during the breathing in standing, sitting and laying down posture. The optimal breathing movement is happening in the lower ribs, stomach and sternum is moving slightly up and outwards. The main muscles moving during the inhalation are diaphragm and the outer intercostal muscles. In addition, there is some muscle activation in the upper respiratory muscles in the neck and shoulder but during the optimal breath it is barely seen from outside. During the exhalation the inspiration muscles relax, and the chest cavity goes down and the pressure moves from the chest cavity to the stomach cavity. From outside the abdomen goes slightly inwards during exhalation. (Bunkan, 1996, p.60-75).

When there is disturbance in the breathing pattern the inhalation happens more voluntarily. During the forced inhalation the muscles around nostrils and vocal cords, back extensors, sternocleidomastoid, scalene and pectoralis major and minor contract. That cause movement upwards in the shoulder and chest area. When exhale is done forced, we use abdominals and internal intercostals. This is causing tension and shortening in the abdominal muscles. (Bunkan, 1997, p.60-75).

As mentioned earlier diaphragm is reacting to our emotions. When we are crying, laughing or feeling anxious the movement of the diaphragm is changing. During stressful situation we breathe automatically more in and we breath less out. This can tense our diaphragm on the inhalation position. (Aalto, 2018, p.55). When the person has the inhalation posture the chest area is widened and the stomach is tensed. (Bunkan, 1996, p.73). According to psychiatric Tryggye Braatsy when the person is breathing with the upper part of the lungs it can mean that the person is afraid or has instability in the feelings. (Lindberg, 1989). When the thoracic area is tensed and is staying in the exhalation position for a longer time it can show that the person feels weak and has a need for protection. If we compare that to the inhalation posture where the thoracic area is high which can tell that the person is covering the insecurity which can appear outward as aggressive or prevented behaviour. (Herrala, et al. 2010, p.82).

The physiotherapist is also paying attention on the breathing rate. In optimal situation person is breathing 12-20 times per minute. When person is stressed or tensed the breathing rate can become faster or it can slow down. (Bunkan, 1997, p.74).

There are several factors affecting on the breath, and we need to always remember while assessing the breath to make the situation comfortable for the patient and still there might be change in the breathing pattern just due to the assessment situation. The breathing is assessed on the segment on scale from little to many resources. The resources are rated by the breathing posture, respiratory muscles used, flexibility of the thoracic area, respiratory rate and the natural breaks between inhalation and exhalation. If the person is not using the diaphragm during the inhalation but for example while yawning there is movement in the abdomen area, it shows that the person has some resources. It is also important to pay attention if the exhalation phase is passive like it is supposed to be. In addition, small, superficial and frequent breathing can give signal that the person is lacking resources. All the findings are compared to the symptoms and to the other clinical findings before making any conclusions. (Bunkan, 1997, p.60-75).

### 5.3 Movements

The third part of resource-oriented body examination is movement assessment. The movement tests give information about the range of motion, muscle function and self-movement. The tests are connected to the patient's deeper resilience behind the muscular movement, and it shows the person's ability to adapt to the situation and if she/he is feeling safe. (Bunkan, 1996, p.76). The test pattern includes main joint movement tests, spinal mobility assessment and movements which show how the patient is able to relax during the passive movement. In addition to those the balance and flexibility is assessed because tensed muscle cause instability in the posture which can lead to musculoskeletal pain. (Heinonen & Valkama, 2010, p.7-9).



The movement test part includes active and passive movements. Passive movements tested in standing posture are movement of shoulder girdle by pulling the shoulder backwards and then seeing what happens to the arm when it is free. Second test is for continuation of the movement of the arm when the physiotherapist is abducting the shoulder then letting it go. There the physiotherapist can see if the patient is able to let the arm go or does the patient tense the arm when the physiotherapist drop the arm. In the ideal case the patient is letting the movement happening without helping the physiotherapist and on the other hand not tensing any muscles and resisting it. The movement continuation of the whole body is assessed at last in standing posture. The patient is standing still, and the physiotherapist is applying little bit force on the sacrum of the patient and then the physiotherapist is observing how is the movement of the whole body: is it stiff or is it wavelike movement. This can show how the patient is letting the movement flow through the body and the physiotherapist can see the body part where the movement is stopping. The patient is asked to let the movement flow through the body without stopping it. If the patient is losing the balance, it is a sign of a tension somewhere in the body. (Bunkan, 1996, p.76-93).

The assessment of the passive movements continues in forward fold position where the patient is flexing from hips backwards and rounding the spine. In this position the physiotherapist is rotating the thoracic spine, free movement of the shoulder joint and flexion and rotation of the cervical spine. While the patient is in the forward fold position the physiotherapist is paying attention on the flexibility of the back and the spinal curves. (Bunkan, 1997, p.76-93).

The assessment is continuing in the supine position by assessing the passive shoulder joint movement in flexion position. The physiotherapist is holding with the other hand from the wrist and other arm is facilitating the chest area. Physiotherapist is assessing if the patient can let the hand move freely without assisting the movement or is the patient possibly resisting the movement. If the patient is assisting or resisting the movement, it shows that he/she is not able to be passive. The passive range of motion assessment continues with hip and knee joint flexion by observing the same principals as in the shoulder joint assessment. The last part of the assessment in supine position is the cervical spine passive flexion and rotation. (Bunkan, 1997, p.76-93).

The fourth position where the movement is assessed is sitting position. First the patient is asked to lean forwards and curve the spine where the physiotherapist is assessing the position of the head, upper back and middle back. After that patient is asked to straighten the back slowly and the physiotherapist is observing is the movement happening in the whole spine or is there parts which stay stiff. In addition, the physiotherapist is assessing if the pelvis area is staying stable while straightening the spine. Last part in the sitting position is knee lift where the physiotherapist is paying attention on the movement control. (Bunkan, 1997, p.76-93).

The last part of the movement assessment is walk -analysis and balance. The balance is assessed by standing with one leg having the other hip 90 degrees of flexion. The physiotherapist is timing 15 seconds and sees if the patient is able to stay in the position during that time. During analysing the walking part, the physiotherapist is paying attention to the rotation of the upper body, reciprocal movement of the upper and lower limbs. According to Berit Bunkan people with mental disorders have reduced upper body rotation during walking. (Bunkan, 1996, p.76-93).

The movement analysis has two parts: what the physiotherapist is seeing and what the patient is feeling which is connected to the body awareness of the patient. The physiotherapist is always telling out loud what she is seeing and then asking from the patient if she/he is feeling the same. The patient is asked to be as relaxed as possible and always to express if something feels uncomfortable. Through the examination the physiotherapist is paying attention how the movement is affecting on the breathing. (Bunkan, 1996, 76-93).

Overall, during the movement analysis, the physiotherapist is observing how is the ability of the patient to let the other person move her/his body and react to the gravity. The physiotherapist can see and feel if the patient is able to surrender to the movement, is the patient assisting, resisting or totally floppy. The end feel of the movement is also important: it can be inflexible, flexible or over flexible. In addition, the physiotherapist can see continuation of the movement after she/he is letting go the grip. Either the movement continues free, disturbed or more broadly. (Jaakkola & Maljanen, 2017).

The movement section is analyzed on segment from little to many resources. The freedom of the movement, wide range of motion and elastic flexibility are indicating that the patient has good resources. All the movement part is repeated always 3 times and when the patient is able to feel the same things that the physiotherapist is finding and can make a change for the following repetitions it shows that the patient has some resources. When the movement is stiff or floppy it can show that the resources of the person are low and that the patient is suffering from long term emotional stress. (Bunkan, 1997, 76-93).

#### 5.4 Muscular consistency

The fourth and the last main part of the assessment is the muscle consistency. The assessment is made by palpating the certain muscle groups in laying down position where the gravity is eliminated, and the entire body is relaxed. We need to remember that when there are no resources, we can't expect the person to relax the muscles. The term muscular consistency is little bit misleading because we are assessing the whole soft tissue including skin and all the subcutaneous tissues underneath the skin including the muscles. That is why it is important that when palpating the grip is firm in order to feel through the tissues. The main idea behind the muscle consistency assessment is that tensing the muscles is one of the most common defense mechanisms. (Bunkan, 1997, p.95-106).

There can be many different reasons for the muscular tension in our body. The tension can be caused because of emotional/psychological, neurological factors or mechanical which can be work related for instance. In the resource-oriented body examination the emphasis is on the emotional and psychological muscle tension. The tension can be caused by endogenous or exogenous factors. The endogenous factors can be personality, individual response method or mental health issues. Examples of exogenous factors could be stress and excessive load. (Jaakkola & Maljanen, 2017). During the assessment the physiotherapist is comparing the other clinical findings with

the findings from the palpation and the conclusion is made after the tension is matching with the clinical finding. (Bunkan, 1996, p.95-106).

During the palpation the physiotherapist is mainly paying attention on the size of the muscle if there is difference between sides, muscle tension and if the patient is feeling discomfort during the assessment. The physiotherapist is marking with colors on the assessment form if the muscular tension is very high or is the tension below the normal muscle tone. From the picture the physiotherapist can see if the tension or lack of muscle tone is symmetric or affecting only certain muscle groups. When the physiotherapist is doing the palpation, she/he is asking if the patient is feeling the same. If the findings of the physiotherapist and the feeling of the patient is matching it tells that the patient has good body awareness. Emotional and autonomic nervous system reactions are also marked down. (Bunkan, 1996, p.96-106).

Through the assessment it is important to also pay attention to the skin. Skin is our largest organ. Along the skin there is approximately 640 000 sensory receptors which means it is very important sensory organ. Through the skin we are sensing pain, temperature and pressure. In addition, the skin plays important role in our metabolism. The skin colour, temperature, moisture and elasticity can give information about the overall health of the patient. Some of the autonomic nervous system reactions are also visible on the skin. According to Bunkan we can also predict the tone of the muscle based on the skin tightness. Underneath tight skin is tight muscle and when the skin is loose the muscle under is the same, but there are expectations. (Bunkan, 1996, p.96-106).

### 5.5 Autonomic nervous system reactions

The autonomic nervous system is divided into parasympathetic and sympathetic division. (Derricson & Tortora, 2017, p.460). The autonomic nervous system is connected to our breathing, muscles, posture and movement. (Bunkan, 1996, p.22). It is also regulating the function of many internal organs, the heartbeat for instance. The parasympathetic division is responsible for the “rest and digest” responses and the

sympathetic for the “flight and fight” response. The internal organs have nerve branches from both divisions, depending on the nerve message, one of the divisions increase or decrease the activation of the organ in order to maintain the health. (Derricson & Tortora, 2017, p.460).

Stephen Porges created polyvagal theory at 1995 which is explaining the connection between social behaviour and autonomic nervous system. Porges introduced term neuroception, which is measuring whether we are feeling safe or not. Regarding on that, our autonomic nervous system takes the action. If person has experienced trauma in their lives, the system might have been affected and body`s sensitivity to feel danger has increased or decreased. (Porges, 2007).

According to Porges, the autonomic nervous system has two divisions, but it responds to the signals and sensations through three pathways. The sympathetic division is located in the middle of the spinal cord, and it is activated when the neuroception is sensing danger. The parasympathetic has two pathways, which are located in nerve called Vagus. The vagus is divided into ventral vagal and dorsal vagal pathways. The ventral vagal is the optimal state, where person is feeling safe and can engage socially. The dorsal pathway is activated when the neuroception is sensing extreme danger. That difference between the sympathetic and the parasympathetic dorsal pathway is that the sympathetic activates the action mode and the parasympathetic dorsal pathway is activated when the persons actions are frozen or numb. (Porges, 2007).

During the resource-oriented body examination the autonomic nervous system reactions are assessed through all the four main parts of the assessment. Those reactions can tell important information about the alertness of the patient, and about how the person is sensing safety and danger. The reactions are assessed before, during and after the assessment. Those reactions can be for instance: changes in the color of the skin, temperature of the body, swelling, sweating or freezing, smell or changes in the breath. The goal is to create overall picture of the symptoms and make a conclusion regarding on that. (Bunkan, 1996, p.108-119).

## 5.6 Body Awareness

Body awareness is very crucial part of our resources in life. The more we are aware of our body and the better the body image is the more we have resources. (Maljanen & Jalkanen, 2017). Body awareness means our ability to sense and be aware about our bodies. (Body Awareness: Definition & Explanation, 2017). The awareness from the body parts is crucial for the overall situation, it tells if the patient has connection to the body parts and if they are part of their self-image. The body awareness is assessed through the whole assessment by comparing the findings of the physiotherapist and the patient. (Bunkan, 1996, p.143-154).

## 5.7 Rehabilitation plan

Based on the resource-oriented body examination the physiotherapist decides whether the therapy will be supportive or intensive therapy. According to the results of the assessment the physiotherapist will make a conclusion how much resources the patient has. If the resources are very little, the therapy starts with supportive therapy where the main goal is to strengthen the base of support of the ground and create positive experiences and strengthen the feeling of security. When the patient is trusting his/her legs it is safer to receive the emotions arising from the treatment. If there are more resources the goal of the physiotherapy is make bigger changes for instance with breathing, interaction exercises and practicing to express emotions. (Bunkan, 1996, p.177-179).

# 6 THESIS PROCESS AND METHODS

The thesis was implemented as a practice-based operational thesis. The reason to choose this method was to provide information in the workshop and study material which has updated information about the topic. Theory of the thesis was based on the

literature about the resource-oriented body examination, on the research about physiotherapist role on the mental health field and in addition the author took part in ROBE I and ROBE II seminar organized by Tampere university of applied sciences.

## 6.1 Schedule

The schedule can be seen in Table 1. The thesis process started with choosing the topic. The author had a interest in the field of psychosomatic physiotherapy and the teacher of the psychosomatic physiotherapy in the English program suggested that in the course there is a need for a tool how to assess a patient in the psychosomatic physiotherapy. The teacher suggested the Resource Oriented body examination and the author agreed. The thesis research permission was signed on March 2022.

After the topic was decided the author found the available courses for the topic and there was a course starting on the December 2021. The author took part for the course on December 2021 and the second part of the course was supposed to happen on January 2022 but due to the global pandemic situation the course got postponed to April 2022 where the author also attended. Together with the teacher the author decided to keep the workshop with the original plan due to the authors clinical practice period. The knowledge of the ROBE I was enough to build the base of the assessment and the ROBE II deepened the practical knowledge of the assessment.

The process itself started already before attending to the course in Tampere University of applied sciences by collecting the literature about the topic. From November 2021 to February 2022 the author was collecting and writing the theory of the Recourse oriented body examination. The march 2022 the author built the workshop and Friday 11<sup>th</sup> of March the workshop took place.

After the workshop the author started clinical practice period for 5,5 months and during that time the thesis was not progressing. The original plan to finish the thesis on august 2022 got delayed with one month. Finally, the thesis was finished on September 2022 and ready to be presented October 2022.

Table 1. Schedule.

November 2021	Thesis plan ready & presented
December 2021, January 2022	ROBE I 10.12 Collecting literature
January 2022, February 2022	Theory
March 2022	Workshop + learning material
August 2022	Finishing the thesis
September & October 2022	Thesis ready & Presentation

## 6.2 Workshop & study material

The workshop was held in Satakunta University of Applied sciences on March 11<sup>th</sup>. The workshop was open for all the student who were part of the degree program of physiotherapy. There were 10 spots available for the workshop and within two days there was 10 enrollments. All the 10 enrolled students showed up to the workshop.

The workshop included practical and theoretical parts. The workshop started with short body awareness practice and breath exercise as a introduction to the theme. The theory part of the workshop started about psychosomatic physiotherapy, which I decided to include to the material as there were participants from the 1<sup>st</sup> and 2<sup>nd</sup> year who weren't participated on the psychosomatic physiotherapy course yet. The second part of was the theory and history of the Resource oriented examination.

The examination part itself was a combination of theoretical and practical parts. The theory part concluded what and why we look in the posture, breathing, movement, muscle consistency, autonomic nervous system reactions and body awareness. After the theory I showed the part of the assessment with one volunteer of the participants and then everyone was practicing with a pair to make those findings. In the end of each part, we concluded the findings together by discussing as a group.



The third part was about the rehabilitation plan and what kind of treatment is chosen to the patient regarding to the findings of the examination. This part was more theoretical as the time for the workshop was limited.

In the final part of the workshop there was time for the questions of the participants. The participants were asked to fill a feedback questionnaire about the workshop. The questionnaire included five questions in order to conclude if the aim of the workshop was reached. The aim was to increase the knowledge about Resource oriented body examination among the physiotherapy students. The first question was about their previous knowledge about the topic. As a result, two out of ten (20%) had heard about the examination before.

Second question was to find out what kind of new information the participants learnt during the workshop. Three (30%) answered that their knowledge about the physiotherapy work in mental health field increased. Four participants (40%) mentioned that they learnt a lot about the connection of the breathing and posture to the emotions. The rest 30% mentioned various things which were not specific.

The third question was about the expectations of the workshop. Nine out of 10 (90%) answered that the workshop filled their expectations. There was a additional question what did not match their expectations and the one who answered no, said that the information received was higher than expected.

Fourth question was to find out if the workshop increased the interest in the field of psychosomatic physiotherapy. Ten participants (100%) answered that their interest on psychosomatic physiotherapy increased.

The last question was a open question to find out what would the participants like to learn more in the future. Seven out of ten (70%) answered that they would like to deepen their knowledge on the official Resource oriented body examination course in order to use it in the future with the patients. Two participants (20%) wished more practical practice on the assessment. One participant (10%) mentioned the need to

understand better in what kind of patients the Resource-oriented body examination can be used.

Based on the feedback the aim of the workshop was reached. Regarding on the feedback in the future the workshop could be longer, and the time used for the practical parts could be longer. In addition, the theory could be more connected to the practice by taking a patient case as an example when going through the theory. The workshop would have worked probably better as a part of psychosomatic course, but there was no possibility to include it on the course at that moment. On the other hand, the aim was to increase the knowledge around the topic and the participants receive a different perspective to physiotherapy already in the beginning of the studies.

The study material power point built for the workshop will be available for the future psychosomatic physiotherapy course in the degree program of Physiotherapy in the Moodle platform.

## 5 DISCUSSION

The whole thesis process was a great learning experience and supported the process of becoming a physiotherapist for the author of the thesis. It was the first experience for the author to collect evidence-based information and create a workshop. When choosing the topic, it was clear for the author that the topic will be on the psychosomatic physiotherapy field and the author had taken part on additional seminars regarding the psychosomatic physiotherapy during the studies so there was a understanding on the basics of the topic.

When collecting the material there is a lot of literature and articles available about the psychosomatic physiotherapy. The material regarding the Resource oriented body examination was mostly available in Norwegian language which took more time to go

through due to the translation issues which was the biggest challenge on the process for the author.

Based on the literature the author could build the base of the theory of the Resource oriented body examination assessment and when the first seminar took place in Tampere university of Applied Sciences the overall picture of the assessment became clearer and there was also lot of practical training on the assessment. It was a great learning experience to take part on the seminar where was many physiotherapists who had experience of the psychosomatic physiotherapy for many years. The seminar gave the base for the practical part of the workshop and holding the workshop without attending on the seminar would have been very challenging.

The whole process of building the workshop first in theory took a lot of time, but it was really rewarding during the workshop to be able to share the knowledge the author gained during the process. The workshop itself was also learning experience and based on the feedback this kind of workshops could be organized in the future.

On the opinion of the author of the thesis the strength of this thesis is the theoretical background on the Resource oriented Body-Examination. The author found information from the most relevant sources concerning the topic. In addition, the workshop received good feedback and the aim of the thesis which was to increase the knowledge of the Resource oriented body examination was achieved.

The study material will be introduced in the Moodle platform as a recorded lecture and power point for the future physiotherapy students. This could have been better if the author would have created learning material by using for example the H5P, but it would have been very time consuming because most of the time went on the creating the workshop.

For the future it would be great to learn more about the treatment part based on the ROBE assessment. One possible future thesis topic could be creating a learning material and workshop on the Comprehensive body examination.



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