FIZIOWEB

MYOSKELETAL MEDICINE FOR PHYSIOTHERAPISTS

Textbook of the certified course

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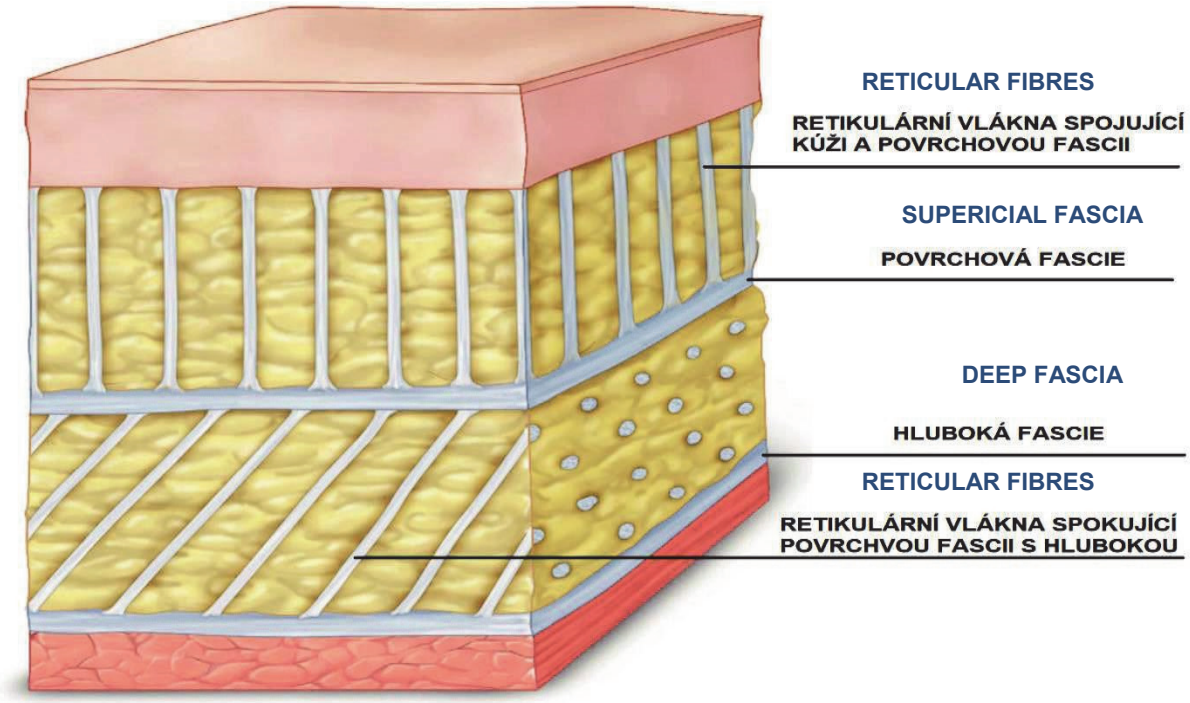
DIAGNOSTICS AND THERAPY OF CONNECTIVE TISSUES

The term "diagnostics and therapy of connective/soft tissues" mainly means examination and therapy of the connective tissue of the skin and subcutaneous tissue, aponeurotic fasciae, own fasciae of muscles, tendons and periosteum.

FUNCTIONAL ANATOMY OF THE SKIN AND SUBSKIN

The skin is a protective barrier between the external and internal environment of the organism. Its other function is regulation of body temperature (thermoregulation) and storage (fat, vitamins etc.), excretory (sebaceous and sweat glands) and resorption functions. Sensory functions responding to thermal (Ruffini corpuscles), cold (Krause corpuscles), pressure (Meissner corpuscles), traction and pressure (Vater-Paccini corpuscles) and pain (free nerve endings) stimuli are of fundamental importance for diagnosis and therapy. This is where the somatosympathetic reflexes that affect the lumen of blood vessels also come from. The efferent innervation of the skin is mediated by the sympathetic part of the autonomic nervous system.

The property we are investigating is the extensibility of the skin and subcutaneous tissue. This is mainly due to the elastic properties of the superficial fascia, which divides the fatty tissue into a superficial and deep layer, and individual reticular networks that penetrate the fatty tissue and connect the skin to the superficial fascia and then to the deep fascia.



FUNCTIONAL ANATOMY OF FASCIA

From a histological point of view, fascia is a "dense connective tissue" forming aponeuroses, joint capsules and fibrous structures of muscles (*endomysium, perimysium, epimysium*), ligaments, tendons, sheaths of tendons, nerves, blood vessels and periosteum.

Fascia is important as an anatomical barrier (immunity), stabilizers (e.g. plantar aponeurosis, iliotibial tract etc.), limits of movement (e.g. dorsolumbar fascia) or as a medium transmitting the force of contractile elements of muscles (epimysium). In addition to the above, sensory information from the proprioceptors located in the fascia is essentials for controlling muscle tone and movement.
Thus, any disorder of the fascia negatively affects the overall function of the muscle. Given that fascia always extends over multiple segments, it also significantly contributes to further chaining of functional and structural pathology.

SOFT – TISSUE DIAGNOSTICS AND THERAPY

These structures include contractile and non-contractile tissues of the musculoskeletal system, the diagnostics and therapy of which is of fundamental importance in manual therapy. We can therapeutically influence the skin, subcutaneous tissue, fascia and muscles by stroking, stretching, creasing, pressure or reflexology. Individual methods will be described in more detail below.

SKIN DIAGNOSTICS AND THERAPY

Head discovered on the skin in certain sections of the spine places with increased sensitivity to pin pricks, the so-called hyperalgic zones (HAZ). Today, these places are not searched with a sharp object (this method relies exclusively on the patient's data and reactions), but by palpation methods. We examine hyperalgic zones on the surface layers of the skin using the skin friction (drag) method. It's like we're caressing the skin with our fingertips. In the HAZ area, we then palpate the increased resistance (friction) of the skin. In this area, we also usually find its reduced ductility.

Based on the localization and boundaries of the hyperalgic zones, we infer a disorder in the segment (Head's skin zone), a disorder of the sensory part of the peripheral nerve, root, visceraldisorder, etc.

During the next, more targeted examination and subsequent therapy, we proceed by placing our hands on the examined area. The thumbs are as parallel as possible, they define the examined (treated) area, the other fingers and palms are also in contact with the skin. We slightly increase the pressure of the palms and several thumbs to prevent the hands from sliding on the skin. By pulling the hands away from each other with minimal force, we stretch the limited area of the skin, after reaching pretension (the first increased resistance of the tissues), the hands stop, and then we spring faster and with a slightly higher force in the same direction as when stretching the skin to pretension. We perceive the physiological barrier as elastically flexible. HAZ is characterized by a higher resistence of the skin to stretching.

Skin is a soft tissue, so we can never find a literally hard barrier, but we judge the degree of elasticity. For the assessment between a normal finding and a pathological barrier, the quality of the suspension after reaching the preload is decisive. In most cases, the overall stretchability of the HAZ is also smaller than in the case of a physiological finding, but we do not measure this stretch in any way. In order to perform the technique correctly, it is necessary, where possible, to examine the same area symmetrically on the opposite side (of the same size and in the same direction).

The degrese of elasticity of the skin, subcutaneous tissue and fascia is very individual, and therefore we do not assess the physiology or pathology of the finding based on quantification, but only by assessing the barrier after reaching pretension on both sides of the given examined area. Smaller areas of the skin are examined by stretching with only the fingers. Reduced skin elasticity is also found in the area of active scars. The examination and treatment is the same as the examination and treatment of the skin.

The of technique therapy is the same as for the examination. After reaching the first barrier, however, we just hold this pretension and wait for the so-called release phenomen, when we can perceive the increase in skin elasticity (the hands move slightly away from each other). When performed correctly, we do not increase the force of the pull. The therapy time is determined by the time when we feel the release phenomen, usually within 60 seconds. After the therapy, we should perform a control examination to check the change in elasticity. These general procedures also apply to other soft tissue techniques.

DIAGNOSTICS AND THERAPY OF THE SUBSKIN

For the examination of subcutaneous tissues, we use skin waves according to Leube – Dicke, which are created by dipping a finger perpendicularly into the skin and moving it perpendicularly to the course of the dermatomes. We can also use the well-known Kibler's fold.

During the therapy, we treat places of increased resistance by forming a horseshoe-shaped "C" or "S"-shaped skin fold between our fingers, and after reaching the barrier, we wait for the release phenomen. It is important to stretch the eyelash with minimal force (not to press) until the barrier is reached. We also treat scars extending into the subcutaneous tissue in the same way.

DIAGNOSTICS AND THERAPY OF THE FASCIA

The basic property that we investigate in fascia is the displacement of the individual layers against each other. We perform this technique by applying pressure to the examined area with our palms and fingers (or just fingers) (the deeper the structures we want to examine, the more pressure we use) and moving the tissues over the surface of the body. The principle is the same as the examination and treatment of the skin. We move the hand to the pretension and then spring it. During therapy, we hold in pretension and wait for the release phenomen.

TECHNIQUE OF STRETCHING IN WOOL (FOLDING TIISSUE)

This technique used on the subcutaneous tissue (HAZ) is also suitable for scars, muscles and tendons. The goal is to stretch the fascial tissues, we use it in the case of pathological shortening of muscles, when simple stretching (stretching technique) may be impossible, because a direct pull is very painful and causes a defensive contraction of the muscle. When stretching in wool, the method of grasping is determined by the size of the tissue being stretched, from a tweezers hold to a full hand grip. We always try to apply pressure on the largest possible surface so that the grip is not painful or uncomfortable.
We use two methods:

1.) Stretching into an "S". The hands act perpendicular to the longitudinal axis of the stretched tissue, each in the opposite direction. The maximally stretched part lies between the hands (fingers).

2.) Stretching into a “C”. We bend the stretched tissue into an arc, when both thumbs press into the center of the concavity. With this technique, the maximum stretch is in the middle of the arc on the convex side.

When examining with this technique, we stretch to pretension, but then we no longer stretch, we only monitor the amount of possible stretching. The therapy is the same as for other soft tissues,we wait for the release phenomen from the barrier.

SKIN FRICTION EXAMINATION (SKIN DRAG)

Patient position: He (she) is lying on their back.
Position of the therapist: He (she) stands next to the couch facing the patient's head.
Execution: The therapist places the hand with the fingertips on the nape of the neck or upper back next to the spine, slowly moving the hand caudally to the lower back.
Errors: Great fingers pressure. Slow or fast movement of the hand along the back.
Comment:HAZ can generally be examined all over the body using skin friction. This is especially important in the back area. We can perform the examination gradually with one hand on both sides or with both hands at the same time.

SKIN STRETCHING

Patient position: He (she) lies on their back or on their stomach depending on the location being examined.
Position of thetherapist: Stand as close as possible to the examination site.
Execution: The therapist places the hands so that the thumbs, which are as parallel as possible, define the examined (treated) area, the other fingers and palms are also in contact with the skin. It will slightly increase the pressure of the palms and multiple thumbs to prevent the hands from sliding on the skin. Pulling the hands away from each other with minimal force, it stretches the examined area of the skin, after reaching the pretension it springs back. Smaller areas of skin are examined by stretching using only the fingers.
Therapy: Waiting barrier technique.

INTERDIGITAL SKIN AREAS

Patient position: He (she) is lying on their back.
Position of the therapist: He stands by the examined limb.
Execution: The therapist grasps two adjacent fingers (hands or feet) so that the thumbs reach the metacarpals (metatarsals). He slightly separates them from each other and then performs an examination or treatment of the skin in the interdigital space with the tipsofthethumbs.
Therapy: Waiting barrier technique.
Errors: Stretching the skin is done only by spreading the fingers.
Comment: Interdigital HAZ findings may occur in root syndromes. According to their location, we can determine the root irritation segment. Stretching of the HAZ is particularly important for residual symptoms in rootsyndromes, when the root is no longer compressed. It is often used together with soft tissue treatment between the metacarpals (metatarsals).

STRETCHING OF THE SUBSKIN / SCARS

Patientposition: He (she) lies on his back or on their stomach depending on the location being examined.
Position of the therapist: Stand as close as possible to the examination site.
Execution: Depending on the nature of the subcutaneous tissue or scar, the grip is chosen. We stretch in two basic ways into "C" and "S" (see the technique of stretching in a wave).
Therapy: Waiting barrier technique.
Errors: Too much pressure of the wool between the fingers.
Comment: Stretching in woolis primarily a therapeutic technique for an already detected HAZ or scar.

The video also shows a demonstration of the traditional Kibler's lash, which, on the other hand, is primarily a diagnostic technique – but its repetition can also have a therapeutic effect.

The technice increases the elasticity of the reticular network in adipose tissue and superficial fascia.

STRETCHING IN THE WAVE - MUSCLES

Patientposition:He (she) lies on his back or stomach or sits - depending on the examined locality.
Positionofthetherapist: Stand as close as possible to the area under investigation.
Execution: The therapist grasps the muscle between the fingers or with the palm of the hand, depending on the size of the muscle, and stretches it into an "S".
Therapy: Waiting barrier technique.
Errors: Excessive muscle tension.
Comment: We do not use the "C" technique on the muscles because it would mean inappropriate pressure of the thumbs on the muscle and a possible defensive contraction.

When examining the stiffness of the muscle, we only test the degree of stretching into a wave and we no longer spring from the pretension. The technique is aimed at increasing the elasticity of the aponeurotic and epimysial fascia of the respective muscles.

STRETCHING IN THE WAVE – ACHILLES TENDON

Patientposition: He (she) is lying on their stomach. The foot is off the table or the lower leg is supported and is in semiflexion.
Position of the therapist: He stands at the patient's feet**.**
Execution: The therapist grasps the Achilles tendon with both hands with the thumb and forefinger, as flat as possible. Performs stretching in the wave.
Therapy: Waiting barrier technique.
Errors: The pressure of the fingers is too strong and causes pain.

STRETCHING IN THE WAVE – SOFT TISSUE UNDER THE ACHILLES TENDON

Patient position: He (she) is lying on their stomach. The foot is off the table or the lower leg is supported and is in semiflexion.
Position of the therapist: stands at the patient'sfeet.
Execution: The therapist places their thumbs in the space between the lower leg and the Achilles tendon. The thumbs are passed by a few centimeters and pressed against each other to form an "S" shaped wave. It is also possible to apply pressure with only one thumb (extending to "C")
Therapy: Waiting barrier technique.
Errors: The pressure of the thumbs is too strong and causes pain.

THORACOLUMBAR FASCIA

Patientposition: He (she) is lying on their stomach, his head resting on his forehead.

Position of the therapist: He (she) stands next to the couch towards the patient's head or feet, depending on the intended direction of movement. During therapy, it is better to stand on the treated side.

Execution: During the examination, the therapist places both hands on the back symmetrically to the left and right, parallel to the spine (fingers point cranially or caudally). On the examined side, he presses slightly against the chest and then shifts to pretension and then springs. The examination is carried out on each side separately. Areas of examination in both cranial and caudal directions are from the shoulder blades to the lumbosacral junction. During the therapy, he puts one hand on the treated area and the other under it (he just leans on the patient to improve his stability, it's not fixation!). With the therapy hand, push slightly ventrally and move into pretension. Next, he waits for the release phenomen. After completing the therapy in the basic direction, it can change the direction of displacement diagonally.

The same technique can be performed on other areas of the chest and pelvis.

Lateral fascia of the chest: The patient lies on the stomach, the active hand of the therapist is placed on the lateral side of the chest in a cranial or caudal direction, the other is placed on the back to improve stability.

Ventral fascia of the chest: The patient lies on his back, the therapist examines the shift of the fascia on the front of the chest in various locations, including the sternum (outside the breast area). The direction of displacement is cranially and caudally, possibly also diagonally.

Gluteal Fascia: The patient lies on his stomach, the therapist places his hands on the buttocks and examines or treats the shift in the cranial and caudal direction.
Therapy: Waiting barrier technique.
Comment: The technique loosens the "sticking" of the aponeurotic fascia with the muscle's own epimysial fascia, whichlies beneath it. This is due to an increase in the viscosity of hyaluronic acid, which allows these fascial layers to slides moothly.

CLAVIPECTORAL FASCIA

Patient position: He (she) is lying on their back.
Position of the therapist:He (she) stands on the treated side**.**
Execution: The therapist's hand, which is closer to the patient's head, holds his upper limb in slight abduction. With the other hand with out stretched fingers, the therapist palpates the ribs from the lateral side in the axilla area (fingers must be outside the pectoral muscle). Then he moves his fingers and with them the fascia along the chest towards the sternum. During the examination, after reaching the preload, it brakes, during the treatment, it waits in the preload.
Therapy: Waiting barrier technique.
Errors: Finger pressure into the muscles.
Comment: The examination is performed in the entire area of the fascia (two to three locations) and the direction of stretching is performed not only perpendicular to the axis but also slightly caudal or cranially.
This technique frees up the space between the pectoralis major fascia and the clavipectoral fascia, surrounding the pectoralis minor muscle and the chest bones.

SURFACE CERVICAL FASCIA

Patient position: He (she) sits on a chair or on a lounger.
Position of the therapist: He (she) stands behind the patient. With one hand she grabs his head so thatit he fixed well and prevented her from turning. The other hand is placed on the neck so that the fingers point to one side and the thumb to the opposite (in the direction of the planned examination).
Execution: The therapist lightly clasps his hand on the neck (overall - thumb, fingers and palm) and moves the fascia around the axis of the neck in the direction of the thumb.
Therapy: Waiting barrier technique.
Errors: Insufficient fixation of the head. Excessive pressure with the fingers or thumbs on the neck muscles.
Comment: The technique releases the shift between the aponeurotic fascia of the neck and the epimysial fascia of the superficial neck muscles.

SURFACE CERVICOTHORACAL FASCIA

Patient position: He(she) sits on a chair or on a lounger.
Position of the therapist: He stands behind the patient. He places his palms on the area of the upper trapezius so that the fingers point forward and the thumbs almost touch in the area of the CTh transition.
Execution: The therapist applies gentle pressure against the chest. Then he performs a rotational shift of the fascia around the axis of the spine, while at the same time prompting the patient to actively resist turning the trunk.
Therapy: Waiting barrier technique.
Errors: The therapis tdoes not work with the entire surfaces of the palms and fingers. The therapist allows the patient to simultaneously rotate the trunk.
Comment: The technique releases the shift between the aponeurotic fascia of the upper chest and the epimysial fascia of the trapezius muscle.

FASCIA OF THE SCALP

Patient position: He (she) sits on a chair or on a lounger.
Position of the therapist: He stands next to the patient and fixes his head with one hand.
Execution: The therapist reaches through the hair to the skin with the fingertips of the other hand and examines the shift of the scalp against the skull. It starts at the junction of the neck and the hairy part of the head and progresses all over the head. The therapy is carried out in a similar way, waiting in pretension for the phenomen of release. An alternative technique is to grab the hair at the roots and clench the hand into a fist. This will cause the skin to pull back slightly. The hair pull always goes in the direction of the barrier.
Therapy: Waiting barrier technique.
Errors: The therapist's fingers slide through the hair. The therapist pulls the patient's hair painfully.
Comment: The technique improves the shift between the skin layer, the subcutaneous layer and the superficial fascia of the head (galea capitis). Or also between the superficial and deep fascia of the head (epicranial fascia).

FASCIA OF THE EAR AND GLABLES

Patient position: He (she) sits on a chair or on a lounger.
Position of the therapist: Stands.
Execution - earfascia: Thetherapistplaces a hand close around the ear and slides the fascia in different directions from its center.
Execution - glabellafascia: The therapist grasps the root of the nose under the skin. It pulls it away from the skull and moves it or rotates it.
Therapy: Waiting barrier technique.
Comment: The technice improves the shift between the skin layer, the subcutaneous layer and the superficial fascia of the head (galea capitis), or between the superficial and deep fascia of the head (epicranial fascia).

STRETCHING OF THE LATERAL FASCIAS OF THE TRUNK

Patient position: He (she) is sitting on a deck chair.
Position of the therapist: He stands behind the patient.
Execution: The therapist rests the patient's back against his chest and creates a hypomochlion with his thigh at the level between the ribs and the pelvis on the untreated side. On the patient's side, he fixes the pelvis with one hand behind her ridge, with the other hand he elevates the patient's upper limb and fixes it by grasping the arm and chest. With this hand, he bends the patient's trunk towards the untreated side in top retension.
Therapy:PIR
Errors: Insufficient fixation of the pelvis on the treated side. Insufficient fixation of trunk and pelvis on the untreated side.
Comment: The technique stretches the aponeurotic fascia in the area of the lateral part of the trunk and the epimysial fascia of the muscles that are simultaneously stretched (m. quadratus lumborum, m. latissimus dorsi, mm. intercostalis and others).

DEEP FASCIAS OF THE LIMB

LOWER LIMB

Patient position: He (she) is lying on his back. The treated lower limb is bent and rested with the foot on the mat.
Position of the therapist: He (she) is standing next to the lounger.
Execution: The therapist grasps and squeezes the soft tissues around the longitudinal axis of the limb in the area of the thigh and lower leg with both hands. It then performs a rotational movement of the muscles and soft tissues around the longitudinal axis of the limb. During examination (treatment) in the area of the lower leg, the therapist faces the patient, while treating the thigh the opposite.
Therapy: Waiting barrier technique.
Comment: During the examination with this technique, we move the soft tissues and muscles into pretension and assess the size of this shift (we do not perform the springing from pretension technique). Therapy is already standard, waiting in anticipation.

The technique relaxes the movement between the aponeurotic fascia of the limb and the epimysial fascia of the respective muscles and mainly aims to relax the fascial connection between the muscles, bones of the limb and intermuscular septa.

UPPER LIMB

Patient position: Sitting or lying down.
Position of the therapist: He (she) stands next to the patient.
Execution: The therapis tgrasps the patient's upper limb distally from the examined (treated) area. He places the other hand on the treated part of the limb, presses and performs a rotational movement of the muscles and soft tissues around the longitudinal axis of the limb in the area of the arm or forearm.
Therapy: Waiting barrier technique.
Comment: The technique relaxes the movement between the aponeurotic fascia of the limb and the epimysial fascia of the respective muscles and mainly aims to relax the fascial connection between the muscles, bones of the limb and intermuscular septa.

SUPERFICIAL FASCIA IN THE INQUINA AREA

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands next to the couch facing the patient's feet.
Execution: The therapist places his fingers in the inquina. Examines and treats the fascia in th emediocaudal direction.
Therapy: Waiting barrier technique.

"SOFT HEEL" FASCIA

Patient position: Lies on stomach, knee in 90° flexion.
Position of the therapist: He (she) stands next to the couch on the side of the treated limb.
Execution: The therapist grasps the patient's foot with one hand so that he fixes the heel bone with his fingers. With the thumb of the other hand, he creates pressure just above the heel bone and pushes the fat pad towards the imaginary center of the heel. The examination is carried out from. several places - from the dorsal, medial and lateral edgeoftheheel.
Therapy: Waiting barrier technique.
Errors: The pressure is not directed parallel to the heel bone, but into it.
Comment: We examine and treat the mobility of the fat pad under the heel bone. There is a release of motion between the fat pad of the heel and the plantar fascia underneath.

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DIAGNOSIS AND THERAPY

MUSCLES

DIAGNOSIS OF FUNCTIONAL MUSCLE DISORDERS

Muscles form a powerful movement component ensuring active stability of the segment (postural function) and movement. When examining the muscle, we focus on the following:

MUSCLE TONE

We examine muscle tone at the level of the entire muscle and its sub-parts. We evaluate it as rigidity, spasticity, hypertonus or local hypertonus (so-called "trigger point"; TrP), normotonus or hypotonus. There is no absolute standard for assessing muscle tone and it must always be related to the quality of movement function.

Muscle hypertonus must be further divided into hypertonus structural , which arises on the basis of a lesion of central motoneurons (loss of inhibitory effect on the cells of the anterior horns of the spinal cord) and on hypertonus functional , which can arise both on the basis of functional changes in some structures innervated from the same segment, as well as in other levels of the CNS.

Within functional hypertension we single out hypertonus affected by the limbic system, hypertonus affected by a disorder at the level of segmental, partial muscle spasms (TrPs), reflex contractures during painful irritation, muscle stiffness ("muscle tightness") etc. The clinical manifestation of structural hypertonus is spasticity or rigidity.

Hypertonus affected by the limbic system

The limbic system is the highest level that affects muscle tone. An increase in muscle tone on the basis of the limbic system occurs in a wide range of physiological and non-physiological situations (e.g. during concentration, stressful situations, etc.). Characteristic of this type of hypertonicity is its limitation to the respective landscape, not to muscle groups, and also the smoothness of the transition between hypertonic and normotonic areas, which is very difficult for the therapist to palpate.

Hypertonus affected by the limbic system is most often localized in the area of the neck muscles and shoulder girdle, these areas are used in psychology to test concentration, and also in the lumbosacral-pelvic area (i.e. pelvis, pelvic floor, coccyx). The therapy is based on total relaxation. Psychorelaxation methods are used (Feldenkrais method, Progressive muscle relaxation according to Jacobson, Autogenic training according to Schultz, HRV biofeedback, EEG biofeedback, AVS devices, breathing relaxation techniques and others).

Hypertonus affected by a disorder at the segmental (interneuron) level

The disorder at the level of interneurons was first described by nurse Kenny in poliomyelitis. Characteristic of this type of hypertonus is its limitation to a certain muscle group or muscle (it affects the entire muscle). Furthermore, it is a physiological attenuation of the antagonists, which are hypotonic, and frequent spontaneous soreness of the affected muscles, especially after unusual exertion.

During therapy, our goal is to increase the tone of hypotonic muscle groups (antagonists), with simultaneous attenuation of hypertonic muscle groups (agonists or synergists). We use the PIR technique by facilitating the relevant hypertonic muscle with a moderate to moderate contraction with relatively strong resistance. In the following depression, we activate the hypotonic antagonist to normalize the reciprocal relationships. Since these are basically functional changes of the trunk, relaxation as such is enough and we need minimal stretching. If we apply stretching, then it is slow, gentle and non-violent

Partial muscle spasms (trigger points)

Trigger point (TrP) is defined by Travellová and Simons (1985) as follows: “TrP in skeletal muscle is determined by localized deep palpation tenderness as a stiff muscle bundle (induration). In the place of greatest deep hyperalgesia, the patient involuntarily dodges. We induce a localized twitch, i.e. a visible contraction of the part of the muscle in which this bundle is located. To induce a twitch, it is best to stretch the relaxed muscle slightly and strum it with quickly palpating fingers".

TrPs are an expression of changes in muscle tension and are one of the most common sources of pain in the musculoskeletal system. In principle, it is a several millimeter sized region of the muscle, which contains muscle fibers with a reduced threshold of irritability. They are preferentially and uneconomically withdrawn by free effort. At the edge of individual TrPs, there are fibers in attenuation, i.e. weakened.

From the trigger point, we not only cause local pain, but also referred pain. This is characteristic for each muscle and is therefore very important diagnostically. Fibers that are in permanent spasm are first in a state of functional change. At the same time, however, there is compression of the superficial fibers and fascia, as the subfascial bag does not release. This compression leads to ischemia and a pH shift to an acidic state. Irritation, edema and inflammatory changes occur. True inflammatory changes are only a relatively late manifestation of these dysregulatory tonus changes (Janda 1982).

From the point of view of palpation, surface palpation by moving the skin ("rolling") is most often used. This is used for muscles that are accessible from only one direction (e.g.*m. infraspinatus*). We palpate the muscle against the bone that is under it. With a moving finger, we create an eyelash on the skin of the examined person. We apply pressure perpendicular to the course of the muscle fibers. For muscles that can be grasped between the fingers (e.g. *pars superior trapezius muscle*,*m. sternocleidomastoid*,*m. pectoralis major*) we use the palpation technique with forceps.

Reflex contractures during painful irritation

These are tonus changes of the "muscular defense" type - e.g. paravertebral contractures in acute lumbago, contractures of the neck muscles and sternocleidomastoid muscle in acute torticollis or appendicitis. This type of hypertonus is characterized by its limitation to the respective landscape, not to the muscle. This landscape corresponds to nociceptive stimulation. Another characteristic feature is the presence of spontaneous pain, which is summed up by pressure or stretching (for example, with appendicitis, the patient lies on his side with bent knees).

Muscle stiffness – muscle shortening (muscle tightness)

This is muscle hyperactivity that arises as part of the rebuilding of dynamic stereotypes during simultaneous changes in the fibrous stroma. It is therefore a change in elasticity on the basis of morphological reconstruction. This type of hypertonia is characterized by stiffness that is limited to a certain muscle group. Spontaneous tenderness is not present, but palpable tenderness may be present. Furthermore, there is a change in the quality of muscle strength. In the first phase, the muscle is relatively stronger. However, due to the suppression of the contractile elements, the muscle weakens, so that in the final stages, the muscle strength of the muscle decreases. Nevertheless, it is often mistakenly thought that a shortened muscle must be a stronger muscle. In therapy, we use PIR again, but with the knowledge that we want to stretch and affect structural changes in the entire muscle. So we facilitate with maximum resistance and then in the muscle tension attenuation phase we practice significant stretching. Another possible technique is stretching In wave.

Muscle hypertonus is a general term that is insufficiently differentiated. This is also a frequent reason for therapeutic failures, as interventions in the hypertonic terrain are too general. One such example is the application of muscle relaxants. Their application reduces the tone mainly in normotonic or hypotonic muscles, while the tone of hypertonic muscles decreases only slightly, and thus the muscle imbalance actually worsens. This applies both to imbalance between individual muscles and to intermuscular imbalance.

MUSCLE TROPHICS

We evaluate muscle trophicity on the scale of hypertrophy - eutrophy - hypotrophy.
Muscle trophism may not reflect muscle strength or the quality of muscle involvement in a movement stereotype.

MUSCLE CONFIGURATION

We evaluate the configuration of the muscles mainly by aspects - visible contours, shape and relief, especially of the surface parts of the muscles.

MUSCLE POWER

For the analytical assessment of muscle strength, it is appropriate to use the Jand or Kendall muscle test. However, muscle strength alone does not express the quality of muscle involvement in movement stereotypes.

When it comes to the reduction of muscle strength, it is not possible to differentiate clinically between muscle weakness and muscle weakness. Therefore, we describe four etiological groups:

1. Weakening of shortened muscles
When a muscle is slightly shortened, its muscle strength increases. However, from moderate to significant shortening, the muscle is weakened at the same time. Hypertrophy of interstitial tissue occurs here, which results in a change in muscle elasticity and an influence on vascular microcirculation. Repeated strengthening of the muscle leads to further vascular compression and retraction of the fascial sac. From the point of view of vascular supply, we distinguish four groups of muscles:
-the muscle has one supply artery and a poor network of capillaries
-the muscle has several supply arteries and a poor network of capillaries
-the muscle has one artery and a rich network of capillaries
-the muscle has several arteries and a rich network of capillaries

The actual vascular supply is realized in layers. The greatest ischemic sensitivity is then in the superficial layers of the fascia. The result of ischemia is a loss of contractile elements, and this actually results in a loss of muscle strength.

2. Weakening of stretched muscles
A muscle that has been stretched over a long period of time atrophies because the sarcomeres in this muscle shorten.

3. Weakening of muscles with trigger points
This condition is the most common. During contraction, the muscle uses its potential uneconomically and is generally weakened.
However, according to Travell, this weakening is not accompanied by muscle atrophy.

4. Arthrogenetic weakening
This condition disrupts the relationship between the joint and the muscle (e.g. atrophy*m. gluteus* with SI joint dysfunction). It is a reflex weakening of the muscle in joint dysfunction.

MUSCLE LENGTH
The length of the muscles is the result of the stress history of the muscle and expresses both the limitation of the range of motion and the quality of the movement stereotype.
For assessment, it is possible to use the ordinal hypermobility – normobility – hypomobility scale according to Janda or the continuous scale according to Smékal using angles for assessment, or distance. Muscle length has a significant effect on muscle strength (see paragraph above).

THERAPY PRINCIPLES OF FUNCTIONAL MUSCLE DISORDERS – TRIGGER POINTS
In the MUSCLE DIAGNOSIS AND THERAPY chapter, we only deal with the methods we use in the treatment of trigger points or shortened muscles, which are the content of this course.

The most widespread method of muscle relaxation is postisometric relaxation (PIR). The principle of PIR is muscle relaxation, which follows about 10 seconds of light isometric contraction of the treated muscle against the therapist's resistance. In the relaxation phase, the therapist observes and tests the relaxation of the muscle and, based on it, determines the length of this phase – it is as long as the relaxation deepens. Muscle tone decreases gradually. It must be emphasized that the therapist does not forcefully increase the relaxation. When repeating the cycle, we start from the achieved relaxed position, that is, we do not "leave the acquired terrain". We repeat the therapy 3-5 times depending on whether the relaxation deepens or not. In the event of therapeutic failure, the time of the isometric phase can be extended, thereby deepening the relaxation.

A different procedure is used to stretch shortened muscles. In this case, it is advisable to use much greater resistance against the isometric contraction, and then perform an intensive stretch using post-isometric attenuation.

The reason for this different procedure is a more precise distinction between functional (reversible) changes and structural ones. If it is only a region of muscle fibers in spasm (TrP), passive stretching is inappropriate because it will trigger a stretching reflex that will not allow perfect relaxation. However, if the muscle is structurally (connectively) shortened, passive stretching is necessary. We must therefore distinguish myofascial pain as a manifestation of a functional disorder from structural dystrophic changes (Lewit 2003).

It is advisable to combine the technique (PIR) with other facilitation or inhibition techniques, e.g. eye gaze and breathing. By looking at the forehead, we can facilitate the erecting reaction, by looking to the side, rotation etc. Most muscles significantly increase their tone during inspiration, and on the contrary, decrease their tone during expiration. However, some groups of muscles behave in the opposite way - e.g. masticatory muscles, trunk erectors in the lumbar region etc.

Gaymans' knowledge about the mobilizing effect of inspiration and expiration during lateroflexion as a result of alternating facilitation and inhibition in individual segments of the spine is also important. Even segments are classified as inspiratory-expiratory (facilitation occurs during inhalation, attenuation occurs during exhalation), and odd segments are classified as expiratory-inspiratory (facilitation occurs during exhalation, attenuation occurs during inhalation). However, this rule does not apply absolutely in all individuals and its strength decreases in the caudal direction.

In addition to the PIR method, we can also use the anti-gravitational relaxation (AGR) method according to Zbojan. By adjusting the position of the body (segment), we use gravity both in the isometric phase and in the relaxation phase. This technique is used with success in autotherapy (Hofta 1996). The isometric phase is extended to about 20 seconds

A technique that can be based on basic positions in PIR pretension is the technique of reciprocal inhibition, which is based on the fact that the muscle relaxes when its antagonist is activated. Intermittent isometric activation is used here.

An additional technique for TrPs therapy is pressura, i.e. applying pressure. We apply moderate pressure to the preload and wait for the release phenomenon. During the therapy, we can also change the direction of our pressure according to the reaction of the tissue.

MUSCLES OF THE HEAD, NECK AND TRUNK

MASTURATION MUSCLES – M. TEMPORALIS, M. MASSETER, MM. PTERYGOIDEI MEDIALIS ET LATERALIS

Patient position: he (she) is lying on his back.
Position of the therapist: He stands behind the patient. He fixes his head in the forehead area with one hand. The thumb and thenar of the other hand are placed on the patient's chin just below the lower lip.
Execution: The patient opens his mouth with the assistance of the therapist's hand - he only helps the opening of the mouth. The relaxation phase is associated with deep breathing and yawning. The isometric phase then consists of exhalation, when the therapist prevents the automatic closing of the mouth. The described technique applies to the temporalis and masseter muscles.
Variant for m. pterygoideus lateralis – maximum opening of the mouth and shift of the lower jaw to the treated side.
Variant for m. pterygoideus medialis – slight opening of the mouth and shift of the lower jaw to the treated side.
Facilitation: Exhale.
Inhibition: A breath.
The most common mistakes: The patient's head is tilted. The therapist does not consistently insist on correct breathing synkinesis.

M. DIGASTRICUS

Patient position: he (she) is lying on his back.
Position of the therapist: Stands or sits behind the patient's head.
Execution: The therapist places the fingers of both hands, preferably the index or middle finger, just below the angle of the lower jaw. The palpating fingers are in flexion at the MCP joint and extension at the IP joints. The other fingers are free in the palm. The direction of the fingers is perpendicular to the axis of the neck exactly opposite each other. By pressing one finger against the other, which is relaxed, the therapist moves the tongue in a lateral direction. The therapy is the same – pressure against the other hand.
Isometrics: By pressing the tongue against the upper palate, or slightly opening the mouth.
Facilitation: It isn't.
Inhibition: It isn't.
The most common mistakes: Improper lingual palpation. Too much pressure on the uvula in the relaxation phase. Fingers press too much against each other. The fingers are not against each other.
Comment: With TrP in the venter posterior, movement is limited and we feel increased resistance.

M. MYLOHYOIDEUS (m. digastricus – venter nterior)
Patient position: he (she) is lying on his back.
Position of the therapist: Stands or sits behind the patient's head.
Execution: With the finger of one hand, preferably the index or middle finger, the therapist palpates the muscles under the chin. With the other hand, the therapist can fix the patient's head over the forehead. At the TrP site, the therapist pushes in the cranial direction – into preload.
Isometrics: By pressing the tongue against the upper palate, or slightly opening the mouth.
Facilitation: It isn't.
Inhibition: It isn't.
The most common mistakes: Too much pressure. Fingers press against each other.

INFRAHYOID MUSCLES

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands behind the patient.
Execution: The patient, on the treated side, puts his hand under the buttocks - this fixes the scapula. The therapist places the palm of his nearer hand on the upper part of the sternum and presses dorsally and caudally. With the other hand, he grasps the patient's head and performs a tilt and bow from the treated side.
Isometrics: A slight opening of the mouth.
Facilitation: A breath.
Inhibition: Exhale.

M. LONGUS COLLI

Patient position: he (she) is sitting on a deck chair**.**
Position of the therapist: He stands behind the patient.
Execution: The therapist places his closer hand on the shoulder of the treated party. With the other hand, he grasps the patient's head and performs a tilt and bow from the treated side.
Isometrics: Flexion of the cervical spine – head to palm pressure.
Facilitation: A breath.
Inhibition: Exhale.

SUBOCPITAL MUSCLES

Patient position: He is lying on his back.
Position of the therapist: stands at the patient's head. One hand is under the patient's head. The palm of the other hand is placed on his forehead, the fingers pointing over the eyes to the nose.
Execution: Using both hands, the therapist makes a circular movement of the head that brings the chin closer to the neck - imagine that the head is a ball and the axis of rotation runs through the middle of the ears.
Isometrics: Eyes look up.
Facilitation: A breath.
Inhibition: Exhale.
The most common mistakes: The pressure of the upper hands is directed directly against the couch, not in a circle. Lower hand does not help movement.

M. OBLIQUUS CAPITIS INFERIOR

Patient position: he (she) is lying on his back.
Position of the therapist: It stands at the patient's head. He places his palms on the patient's temples.
Execution: The therapist turns the head to the side, away from the localized Trp.
Isometrics: Eyes look to the opposite side, slight rotation.
Facilitation: A breath.
Inhibition: Exhale.
The most common mistakes: Instead of a pure rotation of the cervical spine, a simultaneous tilt of the head is performed.

MM. SCALES

Patient position: He (she) is sitting on a deck chair.
Position of the therapist: stands behind the patient, more on the affected side. His back rests against his chest.
Execution: The therapist fixes the upper ribs on the treated side with one hand. With the other hand, he turns the patient's head to the non-treated side and tilts it slightly – this is actually a tilt in rotation. The hand is placed on the head in the area of the ear. The forearm points to the lower jaw.
Isometrics and Facilitation: Look up and take a deep breath. With hands on ribs, the therapist strongly resists inhalation.
Inhibition: Looking down or in front of you, exhaling. The therapist simultaneously compresses the ribs caudally with their hands on the ribs. The hand on the head only fixes the position.
The most common mistakes: Big head tilt. The hand on the ribs does not resist the breath. In the relaxation phase, excessive pressure is applied to the head.
Note: Sometimes rotation, even with slight extension, is associated with neck pain. It can be a disorder of the lower cervical spine or cervicothoracic transition. Then do not perform this technique – it is necessary to address the joint disorder.

M. STERNOCLEIDOMASTOIDEUS

Patient position: he (she) is lying on his back.
Position of the therapist: It stands at the patient's head.
Execution: The therapist grasps the patient's head in the area of the temples and cheeks. The patient moves so that his head and neck are off the couch. The therapist then rotates the patient's head away from the localized TrP – the treated muscle is facing you. The rotation should not be maximum. Next, the therapist lowers the head towards the ground. He performs bowing in rotation, to such an extent that he sees sufficient muscle tension.
Isometrics: A slight elevation of the head.
Facilitation: A breath.
Inhibition: Exhalation and relaxation of the head – gravity acts, which the therapist directs by holding the head.
The most common mistakes: Maximum rotation. Pronounced bow.

M. ERECTOR SPINAE C

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands behind the patient. He places the ipsilateral hand over the shoulder and scapula, palpates the TrP site with his finger. He places his other hand on the top of his head.
Execution: The therapist performs flexion, rotation, or lateroflexion of the head to the untreated side. The range of motion is such that the therapist feels the pull under the finger – palpating TrP.
Isometrics: Looking up, possibly a slight straightening of the cervical spine.
Facilitation: A breath.
Inhibition: Exhale, look down.
Errors: Large ranges of head movements – especially more pronounced rotation or lateroflexion directs tension to the levator scapulae muscle, in the latter case to the upper part of the trapezius muscle.
Note: The lower the TrP, the greater the head tilt required.

M. ERECTOR SPINAE TH AND THL

Patient position: He sits astride the edge of the lounger – if this position is not possible, he sits on the lounger. The hands are behind the head (at the back of the head).
Position of the therapist: Stands on the untreated side, sideways to the patient. He slips the closer hand between his torso and the farther arm and places it on his shoulder. He puts his other hand on his back and palpates Trp with his finger(s).
Execution: Using pressure on the shoulder, the therapist performs flexion, rotation and possibly lateroflexion of the trunk, away from the found TrP.
Isometrics: The eyes look upwards, possibly also a slight active straightening of the torso.
Facilitation: A breath.
Inhibition: Exhale, look down.
Errors: Excessive rotation, flexion or lateroflexion of the trunk relative to the pelvis – the movement is not targeted at the TrP site.
Note: The more caudal the TrP is, the greater the trunk flexion. We can perform maximum trunk rotation only for TrP in the area of the ThL transition – fingers placed on the back can well palpate the preload at the TrP site.

M. ERECTOR SPINAE LS

Patient position: She is lying on her untreated side. The hand of the upper upper limb is placed on the abdomen at the navel. The lower upper extremity is placed with the arm on the couch – the flexion of the arm is around 60-80 degrees and the forearm at a right angle.
Position of the therapist: He stands next to the couch, facing the patient.
Execution: The therapist must first adjust the initial position of the patient. The lower limb of the patient is in semiflexion, the upper limb hangs over the couch – the pelvis must be slightly tilted ventrally. If there is insufficient flexion of the lumbar spine, the therapist pulls the lower arm of the patient towards him, thereby increasing the flexion of the lumbar spine. The therapist then positions himself so that the patient's upper and lower limbs are between his thighs.

Next, the therapist passes his hand, which is closer to the patient's head, under the patient's upper limb and places his fingers at the TrP site. The second hand is then placed close to the fingers of the first hand so that the forearm is directed diagonally across the hip. In this way, the therapist stands as close as possible to the patient, but does not have to look at his hands.
Isometrics: Pressure of the patient's upper leg against your thigh. View of the eyes on the opposite side.
Facilitation: A breath
Inhibition: Exhale, look down.
Errors: This technique is relatively difficult and many mistakes can be made. The most important thing is the correct initial position of the pelvis and lumbar spine.

M. QUADRATUS LUMBORUM

Patient position: He lies on his untreated side, across the sunbeds. The pelvis is at the rear edge of the couch and the hand of the upper upper limb grabs the couch behind the head – auxiliary fixation of the chest. The lower leg is in 90 degree flexion at the hip and knee. On the contrary, the upper and lower limb is in extension, hanging entirely behind the table.
Position of the therapist: It stands behind the patient's back, closer to the head. The closer hand is placed on the lower ribs, the palm of the other hand rests on the ridge of the pelvic bone.
Execution: The therapist's hand, which is placed on the ribs, performs a pull in the cranial direction – fixing the lower ribs.

The other hand, which is placed on the pelvis, pushes in a caudal direction.
Isometrics: Movement of the pelvis cranially against hand pressure or abduction in the hip joint.
Facilitation: A breath.
Inhibition: Exhale.

M. RECTUS ABDOMINIS

Patient position: He sits on the front edge of the lounger and carefully lies on his back. The lower extremity on the treated side hangs freely from the couch, the other is supported by a leg on an attached chair. The head is supported by a pillow, the buttocks on the treated side by a pillow or a folded towel.
Position of the therapist: It is not precisely determined. It helps the patient to take the starting position and supports the pillows.
Execution: This is an anti-gravity technique that the patient performs on his own. The therapist only gives instructions.
The preload is caused by the weight of the lower limb, which increases the lumbar lordosis.
Isometrics: Flexion in the hip joint of the lower limb on the treated side or raising the head above the couch.
Facilitation: It is not used.
Inhibition: It is not used.
Note: This technique cannot be performed often because of pain in the hips in the starting position. The facilitative or inhibitory effect of breathing is more complex in the case of the abdominal muscles. The inhibitory effect of exhalation is mainly for the necessary relaxation of the erector spinae muscle. Therefore, we do not recommend using targeted breathing for this technique.

M. LEVATOR ANI, M. COCCYGEUS

Patient position: he (she) is lying on his stomach. Toes pointing towards each other, heels apart (internal rotation at the hip joints).
Position of the therapist: It stands sideways on any side of the couch towards the patient's head, closer to the feet.
Execution: The therapist crosses his forearms and places his hands with his palms on the lower part of the buttocks (at the level of the coccyx), pressing slightly in the cranial and lateral direction.
Isometrics: Retraction of the anus.
Facilitation: A breath.
Inhibition: Exhale.
The most common mistakes: A lot of pressure on the buttocks. Hand pressure too outward.
Note: This is a basic technique. The issue of pelvic floor muscle therapy is very broad and is not the content of this course.

MUSCLES OF THE SHOULDER PLEXUS

M. TRAPEZIUS – UPPER PART

Patient position: he (she) iș lying on his back.

Option A

Position of the therapist: He stands next to the couch, on the untreated side. The contralateral hand (left, if the muscle is being treated on the right side) is placed under the shoulder of the treated side so that the palm rests on the mat and the fingers point caudally. This fixes the shoulder so that it does not rise.

Execution: With the other hand, the therapist bends the patient's head towards him.

Option B

Position of the therapist: Sits or stands behind the patient's head. With the hand on the treated side, he pushes the arm in a caudal direction.

Execution: The therapist places the other hand under the patient's neck and head and performs a bow from the fixed shoulder.

Isometrics: Shoulder pressure on the therapist's forearm – the patient performs shoulder elevation.

Facilitation: A breath.

Inhibition: Exhale.

Errors: Insufficient shoulder fixation. Head rotation.

M. LEVATOR SCAPULAE

Option A
Patient position: He lies on his back, his head on the edge of the table. The upper limb on the treated side is braced and flexed at the elbow.
Position of the therapist: It stands at the patient's head. With his thigh or pelvis, he pushes his elbow caudally in the axis of the humerus, thereby achieving depression of the scapula.
Execution: The therapist grasps the patient's head with both hands and performs cervical spine flexion, lateroflexion and rotation from the treated side.
Isometrics: Forearm pressure on the thigh – the patient performs the elevation of the scapula.
Option B
Patient position: he (she) is lying on his back.
The position of the therapist: Stands behind the patient's head. With the hand on the treated side, he pushes the shoulder and scapula in a caudal direction.
Execution: The therapist places his other hand under the patient's neck and head and prestresses as in option A.
Isometrics: Forearm pressure on the shoulder – the patient performs the elevation of the scapula.
Facilitation: A breath.
Inhibition: Exhale.
Errors: Insufficient shoulder fixation.

M. TRAPEZIUS – MIDDLE AND LOWER PART, MM. RHOMBOIDEI
Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands behind the patient. The hand on the treated side helps to fix it trunk and palpates the TrP site with the thumb. With the other hand, he grabs the patient's upper limb on the treated side. She has her forearm in flexion (approx. 90 degrees) – the therapist supports her with his forearm and holds it above her elbow.
Execution: The therapist moves the patient's arm in front of his body – performs horizontal adduction.
The position of the arm for the middle part of the trapezius muscle is about 90 degrees, for the lower part of the trapezius muscle around 120 degrees and for mm. rhomboidei around 60 degrees. These data are indicative, and a more accurate position will help you determine the other hand, which palpates the tension of the fibers in the TrP area.
Isometrics: Elbow and upper arm pressure against the therapist's fingers.
Facilitation: A breath.
Inhibition: Exhale.
Errors: Inability to target the stroke to the TrP site.

M. SUPRASPINATUS

Patient position: he (she) is sitting on a deck chair.
Variant in front of the body
Position of the therapist: He stands behind the patient. The hand on the treated side helps to fix the trunk, the fingers are placed in the place of the muscle. With the other hand, he grasps the patient's upper limb on the treated side above the elbow.
Execution: The therapist moves the patient's arm in front of his body, into adduction.
Variant behind the body
Position of the therapist: He stands behind the patient. The hand on the opposite shoulder helps to fix the trunk. With the other hand, he grasps the patient's upper limb on the treated side below and above the elbow.
Execution: The therapist pulls the patient's arm into adduction. Isometrics:
Elbow and upper arm pressure against therapist's fingers/palm.
Facilitation: A breath.
Inhibition: Exhale.
Note: The variant behind the body is more advantageous in terms of obtaining preload. If the patient has limited or painful movement in the shoulder joint, we choose the variant in front of the body. Direct palpation of the pretension of the muscle is not possible, even in the case of the variant in front of the body. Hand in place of m. supraspinatus only fixes the trunk.

M. INFRASPINATUS, M. TERES MINOR

Sitting variant

Patient position: he (she) is sitting on a deck chair.
The position of the therapist: Stands behind the patient. With the hand on the treated side, he helps to fix the trunk, his fingers are in the place of the muscle. With the ipsilateral hand, grasp the patient's upper limb on the treated side above and below the elbow so that the thumb is on the dorsal surface of the forearm and points directly distally – towards the wrist. Approximately 90 degrees of flexion is maintained in the elbow joint on the treated side.
Execution: The therapist moves the patient's arm in front of his body, into adduction. The arm is at approximately a 45 degree elevation – diagonally in front of the body.
Isometrics: The patient pushes with the forearm against the therapist's thumb – the patient performs external rotation of the shoulder.
Facilitation: A breath.
Inhibition: Exhale.
Errors: Bad position of the thumb that will not allow isometrics into external rotation.
Comment: In the relaxation phase, the stretch should be performed by adduction of the arm, not internal rotation - i.e. by pressing the thumb into the forearm.

Variant lying on the back

Patient position: he (she) is lying on his back.
Position of the therapist: He stands behind the patient, on the treated side. He fixes the shoulder with his closer hand, especially against protraction and elevation. The more distant hand grasps the treated upper limb in the area of the elbow so that the thumb is on top of the forearm and points in its axis.
The treated upper limb of the patient is almost in 90 degree flexion of the arm and forearm. The patient lies on the stretcher so that only the elbow and forearm are outside the stretcher. In the modified version, he fixes the shoulder with his forearm and holds the patient's forearm and wrist with the other hand.
Execution: The therapist performs an internal rotation in the shoulder – pressure with the thumb on the forearm towards the floor. In the modification, the therapist chooses only the effect of gravity.
Isometrics: The patient pushes with the forearm against the therapist's thumb – performs external rotation in the shoulder.
Facilitation: A breath.
Inhibition: Exhale.
Errors: Bad position of the thumb, which will not allow to perform isometrics into external rotation. Insufficient shoulder fixation.

M. SUBSCAPULARIS

Patient position: he (she) is lying on his back. The arm is in 90° abduction, the elbow in 90° flexion.
Position of the therapist: He stands next to the couch on the side of the treated upper limb, facing the patient's head.
Execution: The therapist fixes the shoulder with one hand. With the other hand, he grasps the treated upper limb so that the elbow rests in his palm and the thumb is placed on the volar side of the forearm, pointing distally. The therapist then rotates the forearm toward the floor, thereby performing external rotation at the shoulder joint.
Isometrics: Forearm pressure against the thumb of the therapist's hand.
Facilitation: A breath.
Inhibition: Exhale.
Errors: The technique is also performed in a painful position in external rotation. Incorrect grip in the area of the elbow and forearm.

M. DELTOIDEUS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands behind the patient. The hand on the untreated side helps to fix the trunk.
Execution: The therapist grasps the patient's upper limb on the treated side with his other hand. This consists of approximately 90 degrees of flexion in the elbow joint so that the therapist supports the forearm and holds the treated upper limb above the elbow. During relaxation, the forearm is freely in semiflexion. -
Back part of m. deltoid – the therapist performs horizontal adduction of the arm (above the elbow in front of the neck).
Front part of m. deltoid – the therapist will perform the arm extension. -
Middle and back part of m. deltoid – the therapist will adduct the arm in front of the body.
Middle and front part of m. deltoid – the therapist will adduct the arm behind the body.
Isometrics: Upper extremity pressure against the therapist's fingers. At the front of m. deltoideus, this movement is directed into flexion in the shoulder joint, when treating other parts of the m. deltoid into abduction at the shoulder joint.
Facilitation: A breath.
Inhibition: Exhale.

M. PECTORALIS MAJOR

Patient position: He lies on his back, the treated side is on the edge of the couch.
Position of the therapist: He stands next to the couch on the side of the treated upper limb, facing the patient's head.
Execution: The therapist palpates the TrP or painful points in the sternum area with his closer hand. With the other hand, he grasps the treated upper limb like this, that the patient's elbow rests in his palm and fingers. The thenar or thumb is located on the medial epicondyle of the humerus. Forearmis in about 90 degrees of flexion.
The therapist then moves the arm into abduction and external rotation. For TrP in the clavicular part of m. pectoralis major is abducted below 90 degrees. Furthermore, the more caudal the TrP is located, the greater the abduction. For the abdominal part of m. pectoralis major can be abducted up to 130 degrees. Palpation of muscle fiber tension in the area of the treated TrP is important for precise targeting of the technique, i.e. the position of the arm.
Isometrics: Press the medial epicondyle against the thenar of the therapist's hand into adduction.
Facilitation: A breath.
Inhibition: Exhale.
Errors: Poor grip in the elbow area.

M. PECTORALIS MINOR

Patient position: He lies on his back, the treated side is on the edge of the couch.
Position of the therapist: It stands on the treated side, near the patient's head.

In the video, a more distant muscle is wrongly treated!

Execution: The therapist places a hand, closer to the legs, on the front of the shoulder so that the thenar is directly on the processus coracoideus. He places the other hand on 2-5. rib near sternum, fingers point caudally. The hand on the shoulder pushes the scapula into retraction and the hand on the ribs slightly dorsally and towards the sternum.
Isometrics: Shoulder pressure against the palm – into protraction.
Facilitation: A breath.
Inhibition: Exhale.
Errors: Bad hand position.

M. LATISSIMUS DORSI, M. TERES MAJOR

Patient position: She is lying on her untreated side. The lower limbs are in slight semiflexion, the trunk can be supported by a pillow.
Position of the therapist: Stands behind the patient.
Execution: The therapist grasps the upper limb and guides it to maximum elevation. The forearm is in approximately 90 degrees of flexion. The arm should be in external rotation – the thumb is pointing towards the ground. Next, the therapist fixes the chest with one hand and maintains the position of the braced upper limb in pretension with the other hand by pressing the arm above the elbow.
Isometrics: Pressure of the arm against the palm into adduction.
Facilitation: A breath.
Inhibition: Exhale.

M. SERRATUS ANTERIOR

Patient position: She is lying on her untreated side. The lower limbs are in slight semiflexion. The torso can be supported by a pillow and is slightly rotated backwards.
Position of the therapist: Stands behind the patient.
Execution: The therapist grasps the upper limb and brings it to maximum elevation, the forearm is in approximately 90 degrees of flexion. With one hand, he fixes the chest by pressing on the lower ribs caudally. With the other hand, he then maintains the position of the braced upper limb in pretension by pressing into the arm above the elbow.
Isometrics: Pressure of the arm against the palm into adduction.
Facilitation: A breath.
Inhibition: Exhale.

M.TRICEPS BRACHII

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: Stands behind the patient.
Execution: The therapist grasps the upper extremity being treated and brings it to maximum elevation and at the same time the forearm to maximum flexion. Pushes into the upper arm with one hand and maintains elevation. He holds the hand and wrist with the other hand.
Isometrics: Pressure with the forearm into the hand into extension in the elbow joint.
Facilitation: It isn't.
Inhibition: It isn't.

M. BICEPS BRACHII

Caput longum

Patient position: She is standing.
Position of the therapist: Stands sideways on the untreated side, behind the patient's back.
Execution: The therapist grasps the far upper limb by the arm with one hand and places his other hand on the patient's arm up to the forearm. He leads it obliquely behind the back so that the hand is at the level of the intergluteal groove – the arm is in extension and adduction. The forearm may not be in full extension, but is in maximum pronation (palm facing the ground).
Isometrics: Turning the forearm into supination (palm up).
Facilitation: It isn't.
Inhibition: It isn't.

Caput breve
Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side, facing the legs.
Execution: The therapist grasps the treated upper limb above the elbow. He holds her in the shoulder area with his other hand. Performs slight abduction of the arm and supination of the forearm.
Isometrics: Flexion of the forearm against gravity**.**
Facilitation: It isn't.
Inhibition: It isn't.

M. CORACOBRACHIALIS

Patient position: She is standing.
Position of the therapist: He stands sideways on the treated side, behind the patient's back.
Execution: The therapist grasps the far upper limb by the arm with one hand and places his other hand on the patient's arm up to the forearm. He leads it obliquely behind the back so that the hand is at the level of the intergluteal groove – the arm is in extension and adduction. The forearm is in slight flexion and in an intermediate position between pronation and supination (palm facing backwards).
Isometrics: Arm pressure into elbow flexion.
Facilitation: It isn't.
Inhibition: It isn't.

FOREARM AND HAND MUSCLES

M. BRACHIALIS

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side, facing the patient's feet.
Execution: The therapist grasps the treated upper limb above the elbow. He holds her in the shoulder area with his other hand. Performs a slight abduction of the arm while still keeping the forearm in the middle position (the thumb is facing the ceiling).
Isometrics: Flexion of the forearm against gravity.
Facilitation: It isn't.
Inhibition: It isn't.

M. BRACHIORADIALIS

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side, facing the patient's head.
Execution: The therapist performs a slight abduction in the shoulder – the elbow is supported by the closer hand and the other hand holds the wrist and forearm. Bring the forearm into maximum extension and pronation.
Isometrics: Supination of the forearm.
Facilitation: It isn't.
Inhibition: It isn't.

M. PRONATOR TERES

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side, facing the patient's head.
Execution: The therapist will perform a slight abduction in the shoulder supporting the elbow with the closer hand and holding the wrist with the other. Bring the forearm into maximum extension and supination.
Isometrics: Pronation of the forearm.
Facilitation: It isn't.
Inhibition: It isn't.

M. SUPINATOR

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side, facing the patient's head.
Execution: The therapist grasps the patient's arm with his closer hand. She holds his wrist and forearm with her other hand. The therapist performs slight abduction at the shoulder and full extension at the elbow, and then brings the arm into maximum internal rotation and pronation.
Isometrics: Supination of the forearm.
Facilitation: It isn't.
Inhibition: It isn't.
Notes: ***CAUTION! ON THE VIDEO THERE IS A DESCRIPTION OF THE M. BRACHIORADIALIS (THE TECHNIQUE IS THE SAME)***

M. EXTENSOR CARPI RADIALIS LONGUS ET BREVIS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist, with his closer hand, grasps the treated upper limb by the elbow. He places his other hand on the back of the patient's hand and keeps the treated forearm in extension and pronation. By applying pressure to the hand, he performs palmar flexion and ulnar adduction of the wrist.
Isometrics: Dorsiflexion of the wrist.
Facilitation: It isn't.
Inhibition: It isn't.

M. EXTENSOR CARPI ULNARIS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient**.**
Execution: The therapist grasps the treated upper limb above the elbow with his closer hand. He places his other hand with the palm on the dorsum of the hand and keeps the treated forearm in flexion and supination. By applying pressure to the hand, it performs palmar flexion and radial duction of the wrist.
Isometrics: Dorsiflexion of the wrist.
Facilitation: It isn't.
Inhibition: It isn't.

FINGER EXTENSIONS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist grasps the treated upper limb above the elbow with his closer hand. He places his other hand on the dorsum of the hand and places his fingers over the patient's fingers. The patient's forearm is in flexion and supination. By applying pressure to the hand and fingers, the therapist performs palmar flexion of the wrist, flexion of the metacarpophalangeal joints and all interphalangeal joints of the fingers except the thumb.
Isometrics: Dorsal flexion of the fingers and wrist.
Facilitation: It isn't.
Inhibition: It isn't.
Errors: The therapist's fingers do not extend over the patient's fingers, so flexion does not occur in all joints.

WRIST FLEXORS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist supports the elbow of the treated upper limb with one hand. The fingers of the other hand are placed in the patient's palm and the treated forearm is kept in extension and supination. It pushes into the palm towards dorsiflexion of the wrist.

To target the m. flexor carpi radialis will add pressure to the ulnar duction.
To target the m. flexor carpi ulnaris will add pressure to the radial duction.
Isometrics: Palmar flexion of the wrist.
Facilitation: It isn't.
Inhibition: It isn't.

FLEXORS OF THE FINGERS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist supports the elbow of the treated upper limb with one hand. He places his other hand on the patient's palm and fingers, away from the thumb. Maintains the treated forearm in extension and supination. By applying pressure to the hand and fingers, the therapist performs dorsiflexion of the wrist, dorsiflexion of the metacarpophalangeal joints and all interphalangeal joints of the fingers except the thumb.
Isometrics: Palmar flexion of the wrist and fingers.
Facilitation: It isn't.
Inhibition: It isn't.
Errors: The therapist's fingers do not extend beyond the patient's fingers, i.e. to the last joint of the fingers.

M. ABDUCTOR POLLICIS LONGUS, M. EXTENSOR POLLICIS LONGUS ET BREVIS

Patient position: he (she) is sitting on a deck chair
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist grasps the upper limb by supporting the patient's elbow on the treated side with his closer hand. The patient puts his thumb in his palm and clenches his hand into a fist. The therapist then grabs it to maintain a grip and pushes it into the ulnar duct.
Isometrics: Thumb abduction.
Facilitation: It isn't.
Inhibition: It isn't.

M. FLEXOR POLLICIS LONGUS

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist supports the elbow of the patient's treated upper limb with one hand. With the other hand, he grasps the thumb, including the thenar. The therapist pushes the thumb - in all its joints, including the wrist - into extension.
Isometrics: Pressure of the thumb into the palm – into flexion.
Facilitation: It isn't.
Inhibition: It isn't.
Note: The detail shows the version without elbow fixation.

THENAR MUSCLES

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist grasps the treated hand of the patient – one hand holds the fingers and palm, the other hand holds the thumb and thenar. The therapist moves the treated thumb into extension and abduction.
Isometrics: Adduction of the thumb.
Facilitation: It isn't.
Inhibition: It isn't.
Note: The detail shows the version without elbow fixation.

HYPOTHENAR MUSCLES

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist grasps the patient's hand – one hand holds the fingers and palm, the other hand holds the little finger and hypothenar. Moves the little finger into extension and adduction, or abduction.

To target the flexor muscle and abductor digiti minimi muscle the therapist moves the little finger into extension and adduction.

To target the m. flexor and m. opponens digiti minimi the therapist moves the little finger into extension and abduction.
Isometrics: Flexion of the little finger.
Facilitation: It isn't.
Inhibition: It isn't.

MM. LUMBRICALES

Patient position: he (she) is sitting on a deck chair.
Position of the therapist: He stands on the treated side, sideways to the patient.
Execution: The therapist grasps the patient's hand – one hand holds the palm, the other hand holds the fingers away from the thumb. Treated fingers are in flexion in the interphalangeal joints and in extension in the metacarpophalangeal joints.
Isometrics: Flexion in the metacarpophalangeal joints.
Facilitation: It isn't.
Inhibition: It isn't.

MUSCLES OF THE LOWER LIMBS

M. ILIOPSOSAS

Patient position: He sits on the front edge of the lounger and lies on his back. The lower limb on the treated side hangs freely from the couch. He grabs the other lower limb under the knee and pulls it to the chest – this will equalize the lumbar lordosis.
Position of the therapist: He stands on the opposite side of the lounger. With one hand, it helps to fix the pelvis through the pressure on the leg of the bent lower limb. The other hand is placed with the palm above the knee of the treated lower limb.
Execution: The therapist presses the palm above the knee into extension in the hip joint.
Isometrics: Flexion in the hip joint.
Facilitation: A breath.
Inhibition: Exhale.

M. QUADRICEPS FEMORIS (m. rectus femoris, mm. vasti medialis, lateralis et intermedius)

Patient position: he (she) is lying on his stomach.
Position of the therapist: He stands sideways on the couch side of the treated lower limb, towards the patient's head.
Execution - m.rectus femoris: The therapist raises the lower leg to about 90 degrees of flexion. With the closer hand, he supports the thigh above the knee and with his forearm, arm and shoulder he presses into the lower leg and instep of the patient, at the same time he raises the thigh above the pad and increases the flexion of the lower leg. The other hand pushes from above into the buttocks, thereby fixing the pelvis.
Execution – mm. vasti medialis, lateralis et intermedius: The therapist grasps the patient's leg above the ankle with the nearer hand and flexes the knee. The other hand rests on the buttocks, but fixation is not as necessary as with the rectus femoris muscle.

To target therapy to m. vastus medialis the therapist flexes the lower leg obliquely outward.
To target the m. vastus lateralis the therapist flexes the leg in the opposite direction – inward.
Isometrics: Extension in the knee joint.
Facilitation: A breath.
Inhibition: Exhale.

M. GLUTEUS MAXIMUS

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side facing the patient.
Execution – variant A: The therapist grasps the treated lower limb with the nearer hand by the lower part of the lower leg and places the other hand on the knee. Performs hip flexion while simultaneously flexing the knee joint.
Execution – variant B: The therapist grasps the treated lower limb with the lower part of the lower leg with the closer hand and places the other hand on the knee. Performs hip flexion while simultaneously flexing the knee joint, as well as simultaneous hip adduction - this technique is more targeted at the lateral TrP.
Isometrics: Pressure of the treated lower limb against the hand on the knee - extension in the hip joint.
Facilitation: A breath.
Inhibition: Exhale.

ABDUCTORS OF THE HIP JOINT – MM. GLUTEI MEDIUS ET MINIMUS, M. TENSOR FASCIA LATAE

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the edge of the couch of the untreated lower limb, facing the couch.
Execution: The therapist grasps and bends the patient's proximal lower limb and places it over the treated lower limb. From the inside, he then passes his forearm under the shin of the treated lower limb, places his fingers and palm on the outside of the knee and thigh. The other hand fixes the pelvis by palm pressure in the area of the anterior spina. The therapist performs pure adduction at the hip joint.
Isometrics: Pressure of the treated lower limb against the hand on the knee – abduction in the hip joint.
Facilitation: A breath.
Inhibition: Exhale.

ADDUCTORS OF THE HIP JOINT

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the edge of the couch closer to the treated lower limb, facing the couch.
Execution – gracilis muscle: The therapist grabs the far lower leg of the patient and moves it with the heel to the edge of the couch - this position fixes the pelvis. From the outside, he then passes his forearm under the shin of the treated lower limb, places his fingers and palm on the inner part of the knee and thigh. The other hand helps fix the pelvis by applying palm pressure to the anterior spina area. The therapist performs pure abduction at the hip joint.
Execution – single joint adductors: The therapist grabs the far lower limb of the patient and moves it with the heel to the edge of the couch – this position fixes the pelvis. Next, he rests the treated lower limb so that the lower leg hangs from the couch. With one hand, he fixes the pelvis in the area closer to the anterior spina, and places the other hand on the inside of the popliteal fossa. The therapist performs pure abduction at the hip joint.
Isometrics: Pressure of the treated lower limb against the hand on the knee – adduction in the hip joint
Facilitation: A breath
Inhibition: Exhale**.**
The most common mistakes: Pure abduction in the hip joint is not performed – in the technique for the gracilis muscle, abduction is often performed with external rotation in the hip joint.

FLEXORS OF THE KNEE JOINT - M. BICEPS FEMORIS, M. SEMITENDINOSUS, M. SEMIMEMBRANOSUS

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the edge of the couch with the untreated lower limb facing the couch, closer to the feet.
Execution – biceps femoris muscle: The therapist grasps the treated leg of the patient with the hand that is closer to the head - the palm points to the foot and the fingers over the outer edge to the instep. He lifts the treated lower limb into flexion in the hip joint, with slight adduction and internal rotation – the knee joint is in extension. The other hand helps maintain the position.
Isometrics: Pressure of the treated lower limb into extension, or external rotation in the hip joint.

Execution – semitendinosus and semimembranosus muscles: The therapist grasps the treated lower limb by the heeland lifts it into hip flexion. With the other hand, by pressing on the knee, he maintains the extension in the knee joint. In the final phase of flexion, the therapist performs slight abduction and external rotation in the hip joint.
Isometrics: Pressure of the treated lower limb into extension, or internal rotation in the hip joint.
Facilitation: A breath.
Inhibition: Exhale.
The most common mistakes: Excessive internal rotation and especially adduction in the hip joint – biceps femoris muscle. Excessive abduction and external rotation – semimuscles.

EXTERNAL ROTATORS OF THE HIP JOINT, M. PIRIFORMIS

EXTERNAL ROTATORS AS A WHOLE

Patient position: he (she) is lying on his stomach.
Position of the therapist: He stands on the treated side, against the couch.
Execution: The therapist grasps the lower limb by the inner ankle with one hand. Performs 90 degrees of knee flexion and external rotation of the lower leg – internal rotation at the hip joint.
Isometrics: Pressure against the toes - external rotation in the hip joint.

M. PIRIFORMIS

Patient position: he (she) is lying on his back.
Position of the therapist: He stands on the treated side, against the couch.
Execution: The therapist grasps the treated lower limb by the heel and knee with one hand. He performs 90 degrees of hip and knee flexion, and then rotates the lower leg inwards – external rotation at the hip joint. After reaching the preload, the therapist further increases the flexion in the hip joint.
Isometrics: Pressure against the hand on the heel – internal rotation in the hip joint.
Facilitation: A breath.
Inhibition: Exhale.
Note: Stretching of the piriformis muscle is performed into external rotation. In most movements, it is an external rotator, but when the hip is flexed above 90 degrees, it becomes an internal rotator of the hip joint – an inversion of function.

M. TIBIALIS ANTERIOR

Patient position: he (she) is lying on his back.
Position of the therapist: It stands on the treated side, towards the patient's feet.
Execution: The therapist places his closer hand on the knee of the treated lower limb. With the other hand, he grasps the foot by the instep and performs plantar flexion and eversion (pronation) of the foot.
Isometrics: Foot pressure against the hand – into dorsiflexion.
Facilitation: It is not used.
Inhibition: It is not used.

EXTENSORS (DORSAL FLEXORS) OF THE FINGERS - M. EXTENSOR DIGITORUM LONGUS, M. EXTENSOR HALLUCIS LONGUS

Patient position: he (she) is lying on his back.
Position of the therapist: It stands on the treated side, towards the patient's feet.
Execution – extensor digitorum longus muscle: The therapist places his closer hand on the knee. He places the other hand on the instep and fingers andperforms a movement into plantar flexion.
Execution – extensor hallucis longus muscle: The therapist places his closer hand on the knee. He places his other hand on the instep and thumb andperforms a movement into plantar flexion.
Isometrics: Finger or thumb pressure into dorsiflexion.
Facilitation: It is not used.
Inhibition: It is not used.
The most common mistakes: The therapist's fingers do not reach the end joints of the fingers or the end joint of the thumb.

PERONEAL MUSCLES – MM. PERONEI LONGUS ET BREVIS, M. PERONEUS TERTIUS

Patient position: he (she) is lying on his back.
Position of the therapist: It stands on the side of the untreated lower limb, towards the patient's feet.

MM. PERONEI LONGUS ET BREVIS

Execution: The therapist places one hand on the lower leg. With the other hand, he grasps the treated leg from the plantar side behind the forefoot. By pressing into the foot, he does dorsiflexion and then supination (inversion) of the foot.
Isometrics: Foot pressure against hand pressure – into plantar flexion and eversion.

M. PERONEUS TERTIUS

Execution: The therapist places one hand on the lower leg. With the other hand, he grasps the instep of the leg being treated and by applying pressure to the foot, he does dorsal flexion, and then supination (inversion) of the leg.
Isometrics: Foot pressure against hand pressure – into dorsiflexion and eversion.
Facilitation: It is not used.
Inhibition: It is not used.

FLEXORS (PLANTAR FLEXORS) OF THE LEG (ANKLE JOINT) – M. GASTROCNEMIUS, M. SOLEUS, M. TIBIALIS POSTERIOR

Patient position: He lies on his stomach, legs off the couch.

M. GASTROCNEMIUS

Position of the therapist: Stands behind the patient's feet.
Execution: The therapist places one hand on the foot outside the toes. With the other hand, he holds the lower leg and by applying pressure to the foot, he performs a dorsiflexion of the leg.
Isometrics: Foot pressure against hand pressure – into plantar flexion.

M. SOLEUS, M. TIBIALIS POSTERIOR

Position of the therapist: He stands at the patient's feet on the longer side of the couch, closer to the treated side.
Execution: The therapist grasps the lower leg of the treated lower limb and brings it into 90 degrees of flexion. Next, he grasps the heel and palm and with his forearm pushes the leg into dorsiflexion.
Isometrics: Foot pressure against hand pressure – into plantar flexion.
Facilitation: It is not used.
Inhibition: It is not used.
Note: To target the medial part of the soleus muscle, push the leg more into external rotation of the lower leg. To target the lateral part of the soleus, push the leg more into internal rotation of the lower leg. And to target the tibialis posterior muscle, push the leg more into eversion.

PLANTAR FLEXORS OF THE TOES AND MUSCLES OF THE FOOT - M. FLEXOR DIGITORUM LONGUS, M. FLEXOR HALLUCIS LONGUS, M. FLEXOR DIGITORUM BREVIS, M. QUADRATUS PLANTAE, M. ABDUCTOR HALLUCIS

Patient position: He lies on his stomach, legs off the couch.
Position of the therapist: He stands on the treated side, at the patient's feet.
Execution – flexor digitorum longus muscle: The therapist grasps and lifts the leg of the treated lower limb into 90 degrees of knee flexion. He grabs the heel with one hand and the foot and toes with the other. Performs dorsiflexion of the foot and toes outside the big toe.
Execution – flexor hallucis longus muscle: The therapist grasps and lifts the leg of the treated lower limb into 90 degrees of knee flexion. He grabs the heel with one hand and the foot and toes with the other. Performs dorsiflexion of foot and toe.
Execution – flexor digitorum brevis muscle, quadratus plantae muscle: The therapist grasps and lifts the leg of the treated lower limb into 90 degrees of knee flexion. He grabs the heel with one hand and the foot and toes with the other. Performs a dorsiflexion of the toes and pulls the heel away from the toes.
Execution – abductor hallucis muscle: The therapist grasps and lifts the leg of the treated lower limb into 90 degrees of knee flexion. He grabs the heel with one hand and the foot and toes with the other. Performs dorsiflexion and adduction of the thumb and pulls the heel away from the thumb.
Isometrics – flexor digitorum longus muscle: Plantar flexion of the ankle joint and toes.
Isometrics – flexor hallucis longus muscle: Plantar flexion of the ankle joint and big toe.
Isometrics – flexor digitorum brevis, quadratus plantae: Plantar flexion of all digits except the big toe.
Isometrics – abductor hallucis muscle: Plantar flexion and abduction of the big toe.
Facilitation: It is not used.
Inhibition: It is not used.

DIAGNOSIS AND THERAPY JOINTS INTRODUCTION

PRINCIPLES OF EXAMINATION AND THERAPY OF JOINTS

The basic goal in joint therapy is to ensure sufficient mobility and stability of the movement segment. We evaluate mobility according to the range of movement and the presence of the so-called joint play. The basis of our course is the examination and therapy of joint play. Basically, two techniques can be used to restore joint clearance – mobilization or thrust technique.

During examination and treatment, we respect the following principles:

1. We fix one bony part of the joint, mostly proximal (caudal on the spine). We move the other bony part of the joint, usually the distal part (cranial od the spine).
2. The patient's position must be comfortable and stable.
3. The joint capsule and ligaments must be loose and the joint must not be in a "locked" position.
4. The therapist takes a stable position, his forearm is as far as possible in the "direction" of the springing.
5. The grip of both the fixed and the mobilized part of the segment is as close as possible to the joint space.
6. When mobilizing, we usually spring in the direction where we have examined the limitation of joint play or where we apply traction.

EXAMINATION

Joint play examination is a specific examination of passive movement in the joints of the limbs or spine. These are mostly movements that cannot be performed actively - translational movements (shifts), distraction of joint surfaces, angulation. Where this is not possible, we also investigate functional movements in the sense of flexion, extension, rotation etc. targeted to one segment (especially the spine).

The principle of examining the joint play is based on the fact that with a normal joint, when using adequate force, we never reach the extreme position suddenly, but we can increase the range of motion by slightly increasing the pressure. Thus, we can evaluate the physiological and pathological barrier.

When applying gentle pressure, we first reach a position where we feel a slight increase in resistance. We call this "first stop" taking up the slack. From this achieved position, the normal joint, when the pressure increases, springs softly. In pathological conditions, we encounter a sudden hard resistance, we call this condition joint blockade. Joint block is not a mechanical joint disorder, but its meaning is mainly reflexive. Blockage in the joint, especially in the spinal segment, is accompanied by reflex changes in the skin and muscles. Its most common symptom is pain.

THERAPY

Repetitive mobilization

The basic technique is repetitive joint mobilization. Gradual, non-violent restoration of joint movement in the direction of its limitation of joint play. We perform it based on the results of the examination of joint play, when we find its limitation in a certain direction. It is performed after reaching the preload, with repeated rhythmic movement in the direction of the barrier - limited joint play. With most joints, after releasing the pressure, we do not return to the neutral position, we do not release the pretension (first stop).

We use this technique preferentially where translational movements or angulations are involved. A variant of repetitive mobilization is "shaking", which differs by a faster frequency of movement – it is used, for example, when mobilizing into a angulation.

During joint mobilizations, methods of muscle facilitation and inhibition are used with action on certain muscles or muscle groups:

Postisometric relaxation (PIR)
This technique is described in more detail under "Muscle Diagnosis and Therapy". As a joint technique, it is mainly used where we perform functional movement in a segment - e.g. flexion of the Th spine. These are techniques where simultaneous muscle relaxation plays an important role in restoring joint freedom.

We start the mobilization by moving into pretension (first stop). The isometric phase follows, which is performed by active movement against resistance, or by eyes movement. At the end, this phase is mostly supported by a breath. The mobilization itself is accompanied by voluntary relaxation associated with exhalation. We repeat the therapy 3-5 times.

Traction
From a mechanical point of view, it is the action of force on a segment in its longitudinal axis. Ultimately, this means moving the contact surfaces of the joint apart. The importance of traction therapy lies both in the mechanical release of the joint and in influencing proprioception from the fibrous structures of the joint capsule and ligaments with a reflex effect on the tension of the muscles around the joint.

We use traction most often in painful conditions in the area of the axial organ (especially in acute conditions such as acute cervical myalgia or acute lumbago, but also in a number of structural joint disorders of peripheral joints (arthrosis). Before the actual traction, we first perform a so-called traction test. If this test is a relief, we can talk about its indication. Traction is contraindicated in cases where during the traction test there is an increase in pain, radiation of pain to the limb(s), paresthesia in the limbs and in the area of the cervical spine causing dizziness. Traction can be performed using the PIR technique or intermittently (similar to repetitive mobilization).

Technique - waiting in the „point“ of first stop (taking up the slack)
This technique is mainly used in soft tissue and fascia therapy. For the therapy of joints or non-articular connections, we use it where the movement is mainly affected by myofascial structures - metacarpal connections, etc. After reaching the pretension, we wait for the release of the tissues – the phenomenon of release.
This technique does not combine with breathing synkinesis.

Repetitive isometric muscle contraction
By regular rhythmic contraction of the muscle, we can achieve immediate mobilization under certain conditions. This is, for example, the mobilization of the first and second ribs, which can be induced by rhythmic contraction of the scalene muscles.
Joint mobilization uses methods of muscle facilitation and inhibition with an effect on the muscle system as a whole.

Respiration
We use the facilitating and inhibiting effect of breathing on the muscular system. In general, we can say that inspirium acts in the opposite way from exspirium. Inspirium usually has a facilitating effect, while exspirium has an inhibitory effect on skeletal muscle tone. That's why we usually combine inspiration with isometric resistance and expiration with relaxation.
However, there are exceptions. E.g. during extension in the thoracic region of the spine, maximal expirium facilitates the thoracic erector of the trunk and therefore effectively mobilizes the thoracic region of the spine into extension.

Eyes movements
Eyes movements facilitate movement of the head and trunk in the direction of gaze and inhibit movement in the opposite direction. This is especially true for trunk and head movements into flexion and extension, as well as rotations.

INDICATION OF MOBILIZATION

- Clinical findings of functional joint blockades supported by other ancillary examinations according to the client's condition.
- Chronic joint diseases of a degenerative nature - joint arthrosis.
- Conditions after injuries and after long-term fixations.

GENERAL CONTRAINDICATIONS OF MOBILIZATION

- Febrile and septic conditions.
- Acute joint inflammation or acute worsening of joint disease - the joint is swollen, red, painful, the skin over the joint is warmer than the surrounding area.
- Tumor joint processes.
- Specific joint inflammation.
- Articular ankylosis.
- Acute trauma, even in the case of an unproven fracture by any of the imaging techniques. It is necessary to take into account the fact that during trauma there is also an injury to the soft tissues around the joint.

FIZIOWEB

DIAGNOSIS AND THERAPY

PERIPHERAL JOINTS

UPPER LIMB

INTERPHALANGEAL JOINTS OF THE HAND

Patient position: He (she) is sitting.
Position of the therapist: He (she) sits or stands opposite the patient and grasps the mobilized arm so that he can fix it well to the mat or to his trunk.
Execution:

Dorsovolar shift: The therapist begins the examination with a mild distraction behind the distal phalanx. He then moves the phalanx in a dorsal direction and gently springs it. The fixed, i.e. proximal part of the segment is held dorsovolarly.

Lateromedial shift: The grasping of the proximal and distal parts of the segment is latero-medial. After distraction, the therapist stretches laterally and medially.

Rotation: The grip is either dorsovolar or lateromedial. After distraction, the therapist performs a rotational movement of the distal phalanx around its longitudinal axis.

Angulation: The grip is latero-medial. Angulation is performed by the therapist using the thumb or index finger. And so that on the side to which he wants to angle, he puts it from the side at the level of the joint gap as a hypomochlion. In this maneuver, the joint space opens on one side and closes on the other.

Technique: Diagnostic and therapeutic, repetitive mobilization.
Errors: Fixation is too far from the joint space. The therapist moves the joint into flexion or extension.

METACARPOPHALANGEAL JOINTS

Patient position: He (she) is sitting.
Position of the therapist: He sits or stands opposite the patient and grasps the mobilized arm so that he can fix it well to the mat or to his trunk.
Execution: The therapist examines and mobilizes dorsovolar joint play, lateromedial joint play, joint play, and rotation. Angulation is not possible, but distraction alone with simultaneous mild volar flexion is often effective.
Technique: Diagnostic and therapeutic, repetitive mobilization.
Errors: Fixation is too far from the joint space. The therapist moves the joint into flexion or extension.

METACARPS – VENTRO-DORSAL SHIFT

Patient position: He (she) is sitting.
The position of the therapist: He (she) sits or stands opposite the patient and grasps the mobilized arm so that he can fix it well to the mat or to his torso.
Execution: The therapist performs a mutual shift of the heads of the metacarpals in the dorsal and volar direction. It can perform this movement by moving one metacarpal head (or fixing the entire metacarpal) and moving the other (second) dorsally. The same will be done by the caller. We can also use a "scissors" feel in the area of the heads of the metacarpals.
Technique: Diagnostic and therapeutic, waiting in pretension.

METACARPS – DORSAL FAN

Patient position: He (she) is sitting.
Position of the therapist: He (she) sits or stands opposite the patient and grasps the mobilized arm so that he can fix it well to the mat or to his trunk.
Execution: The therapist places both thumbs and thenars on the dorsum of the patient's hand, the other fingers are inserted into the patient's palm.
The fan is performed by pulling the thumbs laterally apart and pressing the other fingers into the palm at the same time.
Technique: Therapeutic only, waiting in pretension.
Errors: It is not expected an myofascial release, but the hands slide like a massage.

METACARPS – PALMAR FAN

Patient position: He (she) is sitting.
Position of the therapist: He (she) sits or stands opposite the patient and grasps the mobilized arm so that he can fix it well to the mat or to his trunk.
Execution: With the same grip, press the thumbs into the dorsum and spread the palm with the other fingers. We can also perform the volar fan by turning the hand into supination and proceeding in the same way as for the dorsal fan. With the same grip, press the thumbs into the dorsum and spread the palm with the other fingers. We can also perform the volar fan by turning the hand into supination and proceeding in the same way as for the dorsal fan.
Technique: Therapeutic only, waiting in pretension.
Errors: It is not expected an myofascial release, but the hands slide like a massage.

THUMB CARPOMETACARPAL JOINT

Patient position: He (she) is sitting.
Position of the therapist: He sits or stands opposite the patient and grasps the mobilized arm so that he can fix it well to the mat or to his trunk.
Execution: The therapist grasps the trapezium bone between the thumb and forefinger dorso-volarly and firmly fixes it. The forearm is in pronation. He grasps the base of the 1st metacarpal between the thumb and forefinger of the other hand, holds the patient's thumb with the other fingers and performs the distraction. It springs in a dorsal and then a volar direction. We can also investigate and mobilize in rotation.
Technique: Diagnostic and therapeutic, repetitive mobilization.
Errors: Incorrect palpation of the axis of the trapezium and the base of the 1st metacarpal.
Comment: In this joint, the trapezium axis communicates with the 1st metacarpal. The trapezium axis is palpated by running a finger along the styloid process of the radius distally. Our finger fits into a small depression that corresponds to the lateral side of the scaphoid bone. Distal to this depression, we palpate the expansion again, and this means that we have found the trapezium axis.

BASIC ORIENTATION IN THE WRIST AREA

Orientation in this area is very important for wrist mobilization.

We find the radiocarpal joint by performing maximum dorsiflexion. The deepest fold of skin that forms on the dorsal side of the wrist is at the level of this joint.

The carpometacarpal joint is found at maximum volar (palmar) flexion of the wrist. The deepest skin fold that forms on the volar side is at the level of this joint.

During dorsiflexion, the distal row of carpal bones moves against the proximal row in the volar direction.

During volar (palmar) flexion, the proximal row of carpal bones moves dorsally against the radius.

Therefore, with limited dorsiflexion, we move the distal row of carpal bones relative to the proximal volar, and with limited volar flexion, we move the proximal row of carpal bones dorsally relative to the radius.

During lateral duction, the 1st metacarpal is brought closer to the radius so that the lateral part of the scaphoid axis tilts volarly, and the trapezium axis and trapezoid axis also tilt in the volar direction.

In medial duction, the proximal row of carpal bones moves laterally.

RADIOCARPAL JOINT

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands next to the patient and fixes the proximal part of the segment to the pad.
Execution - radiocarpal joint: The treated forearm of the patient is in supination, resting on the table. The therapist fixes the distal end of the forearm close to the joint space with one hand and grasps the proximal row of carpal bones with the other hand. Performs a distraction and springs in the dorsal direction.
Technique: Diagnostic and therapeutic, repetitive mobilization.
Errors: Insufficient or incorrect fixation of the proximal part of the segment.

MEDIOCARPAL JOINT

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands next to the patient and fixes the proximal part of the segment to the pad.
Execution: The treated forearm of the patient is in pronation, resting on the table. The therapist fixes the proximal row of carpal bones with one hand and grasps the distal row with the other hand. Performs distraction and flexion in the volar direction.
Technique: Diagnostic and therapeutic, repetitive mobilization.
Errors: Insufficient or incorrect fixation of the proximal part of the segment.
Comment: With limited ulnar duction, we mobilize in the dorsal direction and emphasize the medial part of the radiocarpal joint.

With limited radial duction, we mobilize in the volar direction and emphasize the lateral part of the intercarpal joint.

INTERCARPAL JOINTS

Patient position: He (she) is sitting.
Position of the therapist: Sitting or standing.
Execution: The therapist grasps the patient's upper limb so that the forearm is in pronation. One bone is fixed between the thumb and forefinger of one hand, the adjacent bone is grasped in the same way and the volar is stretched. The opposite direction is performed by changing the bone that is fixed to the one that is mobilized and vice versa. We can also use a "scissors" feel with advantage.
Technique: Diagnostic and therapeutic, repetitive mobilization.
Errors: The therapist does not palpate the individual bones carefully enough, and so it happens that he holds the same bone in both hands or the bones he grasps are not adjacent to each other.

OS CAPITATUM – TRACTION

Patient position: Standing or sitting on a lounger. The treated forearm is in pronation.
The position of the therapist: Sits or stands facing the patient on the side of the treated upper limb.
Execution: The therapist first performs maximal volar flexion, in which he feels the os capitatum - as the top of the wrist arch. He then places both thumbs over each other on the os capitatum and places his fingers in the patient's palm. He will ask him to completely relax the hand and bring the wrist into a slight dorsiflexion. He performs the distraction in the axis of the forearm and gently shakes his entire upper limb in this position. At the same time, the os capitatum protrudes slightly ventrally.
Technique: Only therapeutic - impact mobilization.
Errors: Improper palpation. Too vigorous execution. Slow execution.

RADIOULNAR JOINT DISTAL

Patient position: He (she) is sitting. The treated forearm is in supination.
Position of the therapist: Sits or stands facing the patient.
Execution: The therapist grasps the distal end of the radius between the thumb and forefinger with one hand. With the other hand, he grasps the distal end of the ulna in the same way. One hand is always fixing, and the other moves in the volar direction, in case of limitation of the joint clearance in the given direction of the springs. For one direction we fix the radius, for the other the ulna. We can also use a "scissors" touch.
Technique: Diagnostic and therapeutic - waiting an myofascial release or repetitive mobilization.

RADIO-ULNAR JOINT PROXIMAL

Patient position: He (she) is sitting. The treated forearm is in the middle position.
Position of the therapist: Stands or sits opposite the patient.
Execution: The therapist grasps the forearm distally with one hand, or fixes it by leaning against his torso. He grasps the proximal end of the radius with his other hand. The movement of the radius towards the ulna during examination and mobilization is performed in the direction of pronation or supination.
Technique: Diagnostic and therapeutic - waiting an myofascial release or repetitive mobilization.
Errors: Poor radio localization. Insufficient fixation of the distal part of the forearm.
Movement into pronation or supination is performed by both bones of the forearm.

ELBOW JOINT – SHIFT

Patient position: He (she) is sitting.
Position of the therapist: He (she) faces the patient. He grasps his treated upper limb by resting the medial side of the supinated forearm against his chest from the side, and with a fork formed by the thumb and the other fingers, he fixes the proximal end of the forearm from the lateral or medial side just below the joint space.
Execution: The therapist slightly flexes the patient's elbow so that the joint is not locked. The other hand grasps the distal end of the arm with a fork from the medial side and springs it in the lateral direction or vice versa. The forearm of this therapist's HK must point perpendicular to the patient's arm.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: The position of the hands is far from the joint space. Excessive forearm flexion. Full forearm extension.

ELBOW JOINT – ANGULATION

Patient position: He (she) is sitting.
Position of the therapist: He (she) faces the patient. He grasps the treated upper limb just above the wrist, brings the forearm into supination and fixes it to his torso. Bring the elbow into minimum flexion so that it is not locked.
Execution: The therapist's other hand creates a hypomochlion at the level of the articular cleft of the elbow. Contact is either the fork between the thumb and forefinger or the base of the palm. The therapist's forearm points perpendicular to the longitudinal axis of the patient's upper limb. The pressure is in the direction of the forearm.
Technique: Diagnostic and therapeutic. Shaking technique or repetitive mobilization.
Errors:The therapist uses the patient's forearms as levers. Excessive forearm flexion. Full forearm extension.
Comment: With a painful lateral epicondyle, springing is limited in the lateral direction and with a painful medial epicondyle in the medial direction.

ELBOW JOINT – TRACTION IN THE AXIS OF THE ARM

Patient position: He (she) is lying on his back. The treated elbow is in 90° flexion and the forearm in supination.
Position of the therapist: He(she) stands on the side of the treated upper limb. With one hand, he fixes the distal end of the arm to the table, with the other hand he grasps the proximal end of the patient's forearm.
Execution: The therapist performs traction in the axis of the humerus.
Technique: Therapeutic only. Traction, or repetitive traction.

ELBOW JOINT – TRACTION IN THE FOREARM AXIS

Patient position: He (she) is lying on their back. The treated elbow is in 90° flexion and the forearm in supination.
Position of the therapist: stands on the side of the treated upper limb. Fix the distal end of the arm to the table with one hand, grasp the forearm above the wrist with the other hand.
Execution: The therapist performs traction in the axis of the forearm. At the same time, it can deviate the forearm in a medial direction (opens the radiohumeral joint) or in a lateral direction (opens the humeroulnar joint).
Technique: Therapeutic only. Traction, or repetitive traction.
Errors: Insufficient fixation of the humerus.

ELBOW JOINT – TRACTION TO FLEXION

Patient position: He (she) is lying on his back. The treated elbow is in 90° flexion and the forearm in supination.
Position of the therapist: stands on the side of the treated upper limb. With one hand, he fixes the distal end of the arm to the table, with the other hand he grasps the proximal end of the patient's forearm.
Execution: The therapist performs a slight distraction in the axis of the humerus, and then flexes the forearm while the distraction is still maintained.
Technique: Therapeutic only - repetitive traction.
Errors: Release of traction during the performed movement.

ELBOW JOINT – SHAKING INTO EXTENSION

Patient position: He (she) is sitting.
Position of the therapist: sits between the patient's arm and torso, back to armpit. He grasps the outstretched upper limb just above the elbow with both hands. The forearm is in supination and the patient's upper limb is completely relaxed.
Execution: The therapist gently flexes the forearm with light upward force, and then lets it fall freely into extension.
Technique: Only therapeutic - shaking mobilization.
Errors: Too much range of motion or too much flexion of the patient's arm - shaking into extension can be painful.
Comment: The greater the flexion of the arm, the greater the force acting on the joint.

SHOULDER JOINT – CAUDAL SHIFT

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist grasps the ipsilateral arm of the patient by palpation. Then he brings it into 90° abduction and slight horizontal adduction so that the shoulder joint is in the middle position. He places his other hand with the radial edge of the index finger and the second metacarpal on the head of the patient's humerus and presses it caudally.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Instead of caudal springing, abduction in the shoulder joint increases. Greater abduction than 90°. Insufficient horizontal adduction.

SHOULDER JOINT – SHIFTS

Patient position: He (she) is sitting. The treated arm is in 90° abduction and slight horizontal adduction.
Position of the therapist:He stands facing the treated upper limb of the patient and places the lower part of the treated arm on his shoulder.
Execution - ventral springing: The therapist places one palm on the head of the humerus from the dorsal side and the other palm on the ventral side of the shoulder joint, with the index finger at the place of the processus coracoideus. The fingers of both hands point cranially. The hand on the ventral surface of the shoulder is fixing, the other hand is springing in the ventral direction.
Execution - dorsal springing: The therapist places one palm on the scapula from the dorsal side, with the index finger at the glenoid fossa, and the other palm on the ventral side of the shoulder joint in the area of the humeral head. The hand on the dorsal side is fixing, the other hand is springing in the dorsal direction.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Incorrect position of the therapist's fixing or springing hand - too far or vice versa on the joint gap. Too much spring range.
Note: Springing ventrally or dorsally are only two basic directions. By changing the position of both upper limbs, we can perform springing in any direction - e.g. dorsocaudal.

SHOULDER JOINT – VENTRAL SHIFT IN SUPINE

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands on the side of the treated upper limb. He supports the patient's arm from below with his forearm and places his fist under the head of the humerus.
Execution: The therapist embraces the fossa glenoidealis with the other hand, the edge of the index finger is approximately at the place of the processus coracoideus. The scapula springs in a dorsal direction, and thus the head of the humerus moves ventrally.
Technique: Therapeutic - repetitive mobilization.

SHOULDER JOINT – DORSAL SHIFT IN PRONE

Patient position: He (she) is lying on his stomach.
Position of the therapist: He (she) stands on the side of the treated upper limb. He supports the patient's arm from below with his forearm and places his fist under the head of the humerus.
Execution: The therapist wraps the glenoideal fossa with the other hand. The scapula springs in a ventral direction, and thus the head of the humerus moves dorsally.
Technique: Therapeutic - repetitive mobilization.

SHOULDER JOINT – SITTING TRACTION

Patient position: He (she) sits on a lounger or stands.
Position of the therapist: He (she) stands with his back to the patient and slides his ipsilateral arm into his armpits. She grasps his treated upper limb with one hand above the elbow and the other above the wrist.
Execution: The therapist performs mild traction in the axis of the arm and forearm. He then asks the patient to gently pull the arm against - pulling the head of the humerus towards the fossa. After relaxation, the therapist performs traction again. Traction can be increased if the therapist performs a slight elevation and protraction of his shoulder.
Technique: Therapeutic. Traction with post-isometric relaxation - the isometric phase is supported at the end by inhalation and the relaxation phase by exhalation.
Errors: The therapist places the treated upper limb of the patient over his shoulder. The therapist does not wait for the patient to relax and tries to forcefully pull out the treated upper limb.

SHOULDER JOINT – LYING TRACTION (IN SUPINE)

Patient position: He (she) lies on his back at the edge of the couch on the treated side.
Position of the therapist: He (she)) sits on the same edge of the couch and tucks his hip into his armpit. He grasps the patient's treated upper limb with one hand above the elbow, the other hand above the wrist, and guides it in front of his body.
Execution: The therapist performs mild traction in the axis of the arm and forearm. He then asks the patient to gently pull the arm against - pulling the head of the humerus towards the fossa. After relaxation, the therapist performs traction again.
Technique: Therapeutic. Traction with post-isometric relaxation - the isometric phase is supported by inhalation and the relaxation phase by exhalation.
Errors: The therapist does not wait for the patient to relax and tries to forcefully pull out the treated upper limb.

ACROMIOCLAVICULAR JOINT – DORSAL SHIFT

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands next to the table on the side of the treated joint, facing the patient. With one hand, he fixes the head of the humerus and the scapula from the dorsal side (pulls the "arm" ventrally). The thenar of the other hand is placed on the clavicle and the main pressure is applied near the acromioclavicular joint.
Execution: The therapist lightly presses the clavicle in a dorsal direction.
Technique: Diagnostic and therapeutic - repetitive mobilization (preload is applied).
Errors: Painful contact with the thenar on the clavicle.

ACROMIOCLAVICULAR JOINT – CRANIOCAUDAL SHIFT

Patient position: He (she) is lying on his back. The treated elbow is in 90° flexion.
Position of the therapist: He (she) stands on the treated side. With one hand, he fixes the patient's elbow in his palm, and with the other hand, he rests the hypothenar on the cranial edge of the clavicle.
Execution: The therapist lightly pushes both upper limbs against each other (the collarbone moves in the caudal direction).
Technique: Diagnostic and therapeutic - repetitive mobilization (preload is applied).
Errors: Painful hypothenar contact on the clavicle.

ACROMIOCLAVICULAR JOINT – TRACTION

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands on the treated side, facing the couch. He grabs with one hand
the patient's upper limb by the arm above the elbow, possibly by the forearm and brings it into the abduction position of about 45°. The other hand is placed on the patient's collarbone with the hypothenar.
Execution: The therapist applies pressure towards the sternum with the hand placed on the collarbone. Thus the clavicle is fixed. With the other hand, he performs traction on the arm, which he maintains and at the same time performs gentle circumduction movements in one and the other direction.
Technique: Therapeutic only - traction.
Errors: Painful hypothenar contact on the clavicle.

STERNOCLAVICULAR JOINT – DORSAL SHIFT

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands next to the table on the treated side. With one hand, form a fork between the thumb and flexed index finger and gently grasp the clavicle near the sternoclavicular joint. The other hand places the palm on the thus created fork.
Execution: The therapist moves the clavicle dorsally with the pressure of the other hand.
Technique: Diagnostic and therapeutic - repetitive mobilization (preload is applied).
Errors: Painful or uncomfortable pressure on or around the collarbone.

STERNOCLAVICULAR JOINT – CROSS PALPATION (FEEL)

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands next to the table on the untreated side. He places one hand in a palm on the sternum, fingers pointing caudally. The other hand with the hypothenar on the clavicle, fingers pointing cranially (toward the shoulder).
Execution: The therapist performs springing with both hands at the same time, as if opening the sternoclavicular joint.
Technique: Therapeutic - repetitive mobilization.
Errors: Instead of moving the hands apart, the therapist applies pressure in the dorsal direction.

SCAPULOTHORACIC JOINT – PRONE POSITION

Patient position: He (she) is lying on his stomach. The head is turned towards the treated side.
Position of the therapist: He (she) stands on the treated side facing the patient's head.
Execution: The therapist abducts the patient's ipsilateral arm to 90°, supports the patient's arm with the ipsilateral forearm, and grasps the patient's shoulder with his hand. The other hand places the palm firmly on the shoulder blade. The therapist performs a circular movement that starts from the trunk and his legs - both hands move as one unit.
Technique: Diagnostic and therapeutic - passive movement with moderate pressure (it is not a right joint).
Errors: The therapist's hands circle against each other.
Comment: If the patient cannot lie on his stomach or if he does not abduct the arm, we mobilize the scapula lying on the untreated side.

SCAPULOTHORACIC JOINT – SIDE LYING

Patient position: lies on the opposite (untreated) side.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist passes one hand through the patient's armpit and places the palm on the scapula being treated. With the other hand, he grasps the shoulder of the same upper limb. The therapist performs a circular movement that starts from the trunk and his legs - both hands move as one unit. This is the same movement as in prone mobilization.
Technique: Diagnostic and therapeutic - passive movement with moderate pressure (it is not a right joint).
Errors: The therapist's hands circle against each other.

LOWER LIMB

INTERPHALANGEAL JOINTS OF THE LEG

Patient position: He (she) is lying on his back.
Position of the therapist: stands at the feet, on the treated side.
Execution: With one hand, the therapist fixes the proximal joint between the thumb and the other hand, in the same way, fixes the distal joint.

Dorsoplantar shift: The therapist begins the examination with mild distraction behind the distal phalanx. Then he moves the phalanx in a dorsal or plantar direction and gently springs it. The fixed (proximal) part of the segment is held dorso-volarly.

Lateromedial shift: The grasping of the proximal and distal parts of the segment is latero-medial. After distraction, the therapist stretches in a lateral or medial direction.

Rotation: The grip is either dorsovolar or lateromedial. After distraction, the therapist performs a rotational movement of the distal phalanx around its longitudinal axis.

Angulation: The grip is latero-medial. Angulation is performed by the therapist using the thumb or index finger. And so that on the side to which he wants to angle, he puts it from the side at the level of the joint gap as a hypomochlion. In this maneuver, the joint space opens on one side and closes on the other.

Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Fixation is too far from the joint space. The therapist moves the joint into flexion or extension.

METATARZOPHALANGEAL JOINTS – SHIFTS

Patient position: He (she) is lying on his back.
Position of the therapist: stands at the feet, on the treated side.
Execution: The therapist fixes the metatarsus between the thumb and forefinger with one hand. With the other hand, he fixes the proximal joint of the finger in the same way. The therapist examines and mobilizes dorsoplantar displacement, lateromedial displacement and rotation. Angulation is not possible, but distraction alone is often effective with simultaneous mild plantar flexion.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Fixation is too far from the joint space. The therapist moves the joint into flexion or extension.

METATARZOPHALANGEAL JOINTS – TRACTION IN THE PLANTAR DIRECTION

Patient position: He (she) is lying on his back.
Position of the therapist: stands at the patient's feet. He grasps the basal joint of the little finger between the thumb and bent index finger dorsoplantarly. The thumb is on the dorsum and the index finger is close to the joint gap of the plantar. The other hand fixes the corresponding metatarsal.
Execution: The therapist will perform a distraction and thereby obtain a bias. He then increases traction and simultaneously performs plantar flexion through the hypomochlion, which is formed by the bent index finger.
Technique: Therapeutic - traction.
Errors: Painful contact with the index finger that creates a hypomochlion.
Notes: ***CAUTION! ON THE VIDEO THERE IS A DESCRIPTION OF "METATARZOPHALANGEAL JOINTS - MOVEMENTS" (THE TECHNIQUE IS THE SAME)***

INTERMETATARSAL JOINTS – SHIFTS

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands at the feet, facing the patient.
Execution: The therapist grasps the adjacent metatarsals. One hand fixes, the other moves in the plantar direction. To examine or treat the opposite direction, the fixing and moving hand are exchanged. A "scissors" feel can also be used with advantage.
Technique: Diagnostic and therapeutic. Waiting for an myofascial release of the metatarsal joints. Repetitive mobilization for therapy in the area of the metatarsal heads.

INTERMETATARSAL JOINTS – DORSAL FAN

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands at the feet, facing the patient.
Execution: The therapist places both thumbs and thenars on the dorsum of the patient's foot, the other fingers are plantar. The dorsal fan is performed by pulling the thumbs laterally apart and pressing the other fingers into the planta at the same time.
Technique: Therapeutic - waiting in pretension.
Errors: It is not expected in pretension, but the hands slide like a massage.

INTERMETATARSAL JOINTS – PLANTAR FAN

Patient position: He (she) is lying on his back.
Position of the therapist: stands at the feet, facing the patient.
Execution: The therapist places both thumbs and thenars on the dorsum of the patient's foot, the other fingers are plantar. The plantar fan is performed by pressing the thumbs into the dorsum of the patient's feet and spreading the plantar with the other fingers.
Technique: Therapeutic – waiting in pretension.
Errors: It is not expected in pretension, but the hands slide like a massage.

TARZOMETATARSAL JOINTS

Patient position: He (she) is lying on his back.
Position of the therapist: stands at the feet on the treated side.
Execution: With one hand, the therapist grasps one metatarsal with tweezers, close to the joint space. With the other hand, he grasps the corresponding tarsal bone in a similar way. One hand always fixes and the other moves in the plantar direction. For the opposite direction, the hands switch tasks.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Poor localization of bones.

INTERTARSAL JOINTS – SHIFTS

Patient position: He (she) is lying on his back.
Position of the therapist: They stand at the patient's feet on the treated side or against the patient.
Execution: The therapist grasps the adjacent tarsal bones with both hands at the same time, using tweezers. One hand always fixes and the other hand makes a shift in the plantar direction. For the opposite direction, the hands switch tasks.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Poor localization of bones.

TARZOMETATARSAL AND INTERTARSAL JOINTS – SHAKING

Patient position: He (she) is lying on his stomach. The lower leg being treated is directed obliquely upwards at an angle of around 60°.
Position of the therapist: He (she) stands at the patient's feet. She grasps his treated leg with both hands, placing her thumbs over each other on the mobilized bone in the plantar. The other fingers are placed on the dorsum. In the ankle joint, the foot is in the middle position.
Execution: The therapist slightly presses on the mobilized bone, performs slight traction in the direction of the lower leg (the patient's thigh is slightly above the mat) and then rhythmically shakes the foot.
Technique: Therapeutic - shaking mobilization.
Errors: The therapist does not properly palpate the bone he wants to mobilize. Too much amplitude of movement. Contact in the planta is painful. The position of the foot is not in the middle position, but in plantar flexion. The movement is mainly through the ankle joint.

SUBTALAR JOINT

Patient position: He (she) is lying on his stomach. The treated lower limb is in 90° knee flexion.
Position of the therapist: He (she) stands by the side of the patient on the treated side. With one hand, she grasps his instep and the distal part of the lower leg, fixing the talocrural joint as well. He grabs the heel with his other hand.
Execution: The therapist moves the patient's heel against the instep lateromedially into supination and pronation and into plantar and dorsiflexion.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Insufficient fixation of the talus.

SUBTALAR JOINT – TRACTION

Patient position: He (she) lies on his back, the treated leg is outside the couch.
Position of the therapist: He (she) stands at the side of the patient, on the treated side. Fixes with one hand from above his instep and the distal part of the lower leg in such a way that it also fixes the talocrural joint. With the other hand, he grasps the heel from the posterior side.
Execution: The therapist pulls the heel anteriorly (in the direction of the patient's toes).
Technique: Therapeutic - traction, or traction with impact.
Errors: Insufficient fixation of the talus. Excessive dorsiflexion at the talocrural joint.

TALOCRURAL JOINT – SHIFT

Patient position: He (she) is lying on his back. The treated lower limb is bent and the heel rests on the mat.
The position of the therapist: Stands next to the couch at the patient's feet, on the treated side. With one hand, he grasps the distal part of the lower leg from the anterior side. He supports the heel with his other hand and keeps the leg in a neutral position with his forearm.
Execution: The therapist applies pressure to the distal end of the lower leg in a dorsal direction.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: The mobilizing hand holds the talus at the same time as the tibiofibular fork, and mobilization of the upper hock is therefore not possible. The pressure is not in the direction of displacement perpendicular to the lower leg and dorsiflexion of the leg occurs.

TALOCRURAL JOINT – TRACTION

Patient position: He (she) lies on his back with his foot outside the lounger, or at the end of the lounger.
Position of the therapist – variant A: He (she) stands at the patient's feet. Clasped hands are placed on the instep of the patient so that the thumbs are on the foot.
The position of the therapist – option B: Stands at the patient's feet. He holds the patient's instep with one hand and the patient's heel with the other.
Execution: The therapist keeps the ankle in a neutral position, around 90°. The therapist performs a pull in the axis of the lower leg.
Technique: Therapeutic - traction.
Errors: During traction, especially at the moment of impact, the neutral position of the leg is not maintained and the therapist performs a movement into dorsal or plantar flexion.

TALOCRURAL JOINT – TRACTION IMPACT

Patient position: He (she) lies on his back with his foot outside the lounger, or at the end of the lounger.
Position of the therapist: He (she) stands at the patient's feet. Clasped hands are placed on the instep of the patient so that the toes are on the foot. The second holding option is holding the patient's instep with one hand and the patient's heel with the other.
Execution: The therapist keeps the ankle in a neutral position, around 90°. The therapist performs a pull in the axis of the lower leg.
Technique: Therapeutic - traction with impact.
Errors: During traction, especially at the moment of impact (acceleration), the neutral position of the leg is not maintained and the therapist performs a movement into dorsal or plantar flexion.

TIBIOFIBULAR JOINT

Patient position: He (she) is lying on his back. The treated lower limb is bent and rested with the foot on the mat.
Position of the therapist: He (she) places the toe of the patient's leg and fixes the upper part of the tibia from the medial side with one hand.
Execution: The therapist grasps the head of the fibula with the other hand so that the bent index finger is in the popliteal fossa and the thumb reaches the anterior surface of the fibula. The first hand, which fixes the tibia, places the thumb on the thumb nail of the other hand. By joint movement of both hands – along the circumference of the lower leg, the therapist performs a shift in the posterior or anterior direction.
Technique: Diagnostic and therapeutic - waiting in pretension or repetitive mobilization.
Errors: Painful pressure contact between thumb and forefinger.

PATELOFEMORAL JOINT

Patient position: He (she) is lying on his back. Both lower limbs are stretched and relaxed.
Position of the therapist: He (she) stands next to the couch, on the side of the treated lower limb. He grasps the upper edge of the patella between the thumb and forefinger and gently presses the patella against the femur with the other hand.
Execution: The therapist examines the gliding movement of the patella in all directions.
Technique: Diagnostic and therapeutic - passive movement with pressure on the joint. Errors:A lot of pressure on the patella. Rubbing of the patella in large circles throughout its entire range.
Comment: In the case of the patella, it is not a typical blockage, however, if the joint clearance is limited, we feel that the patella is rubbing or as if it is stuck. To restore mobility, we perform small circular movements with light pressure on the patella in the area where we detect increased resistance - "rubbing" of the patella.

KNEE JOINT – ANTERIOR SHIFT

Patient position: He (she) is lying on his back. The treated lower limb is bent and rested with the foot on the mat.
Position of the therapist: He (she) places the toe of the patient's leg and places both hands on the proximal part of the lower leg (fingers from behind, thumbs on the tuberosity of the tibia).
Execution: The therapist moves the tibia anteriorly in a direction perpendicular to the axis of the lower leg.
Technique: Diagnostic and therapeutic, repetitive mobilization. However, it is primarily a diagnostic technique to determine pathological increased mobility, e.g. in LCA disorders (anterior drawer test)

KNEE JOINT – POSTERIOR SHIFT

Patient position: He (she) is lying on his back. The treated lower limb is bent and rested with the foot on the mat.
Position of the therapist: He (she) places the toe of the patient's leg and places both hands on the proximal part of the lower leg (fingers from behind, thumbs on the tuberosity of the tibia).
Execution: The therapist moves the tibia posteriorly in a direction perpendicular to the axis of the lower leg.
Technique: Diagnostic and therapeutic, repetitive mobilization. However, it is primarily a diagnostic technique to determine pathological increased mobility, e.g. in the case of a LCP disorder (posterior drawer test)

KNEE JOINT – ANGULATION

Patient position: He (she) is lying on his back.
Position of the therapist – angulation medially (variant A): He (she) stands next to the couch on the side of the treated lower limb. He grabs the lower leg above the ankle and secures it to his torso. It keeps the lower limb in minimal flexion.
Design – angulation medially (variant A): The therapist stretches the base of the palm of the other hand, or the edge formed by the thumb and forefinger, on the lateral surface of the knee in a medial direction.
Position of the therapist – angulation laterally (variant B): He (she) sits on a couch between both of the patient's legs. With one hand, he fixes the lower leg to his body. The other hand is placed with the root of the palm on the medial side of the knee.
Design – angulation laterally (variant B): The therapist uses the root of the palm, or the edge formed by the thumb and forefinger, on the medial surface of the knee in a lateral direction.
Technique: Diagnostic and therapeutic - repetitive mobilization or shaking mobilization.
Errors: The therapist uses the lower leg as a lever. Full extension or excessive flexion in the knee joint. The pressure does not go directly against the bilateral joint space and the therapist performs a slight flexion in the knee.

KNEE JOINT – SHIFTS

Patient position: He (she) is lying on his back. The treated lower limb is supported under a pillow or towel, and is in minimal flexion.
Position of the therapist: He (she) stands next to the couch on the side of the treated lower limb, facing the patient. With one hand, from the lateral part, he fixes the thigh between the thumb and forefinger. The other hand is placed in the same way on the proximal part of the lower leg from the medial side. The direction of the forearms is opposite to each other if possible.
Execution: The therapist makes a shift in the medial direction by pressing his hands on the lower leg. To move in the lateral direction, the hands are exchanged.
Technique: Diagnostic and therapeutic - repetitive mobilization.
Errors: Full extension or excessive flexion in the knee joint. Fixation and displacement pressure are not mutually exclusive.

KNEE JOINT – TRACTION LYING ON THE PRONE POSITION

Patient position: is lying on his stomach. The treated knee is in right angle flexion.
Position of the therapist: He (she) is standing next to the lounger. He fixes the lower end of the patient's thigh to the mat with his knee and holds the lower leg above the ankle with both hands.
Execution: The therapist performs a pull in the axis of the lower leg with both hands. During traction, it can deflect the lower leg laterally or medially, or perform internal or external rotation of the lower leg.
Technique: Therapeutic - traction.
Errors: Insufficient or painful fixation of the thigh.

KNEE JOINT – TRACTION LYING ON THE SUPINE POSITION

Patient position: He (she) is lying on his back. The treated lower limb is flexed at 90° in the hip and knee joints. He maintains the position with the help of his upper limbs, holding himself in the kneecap or with a towel.
Position of the therapist: He (she) stands behind the couch and holds the lower leg above the ankle with both hands.
Execution: The therapist performs a pull in the axis of the lower leg with both hands. During traction, it can deflect the lower leg laterally or medially, or perform internal or external rotation of the lower leg.
Technique: Therapeutic - traction.

HIP JOINT – TRACTION IN THE FEMORAL AXIS (OPTION A)

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands at the patient's feet. He grasps the treated lower extremity above the ankles so softly that it doesn't hurt and will bring her into moderate (10-15°) flexion, abduction and external rotation at the hip joint. This will achieve a neutral position in this joint.
Execution: In this position, the therapist pulls in the axis of the lower extremity into pretension and invites the patient to pull against (toward the socket). After the isometric phase, the patient relaxes and the therapist performs a pull in the axis of the lower limb.
Technique: Therapeutic - traction with postisometric relaxation. The isometric phase is supported at the end by inhalation and the relaxation phase by exhalation.
Errors: The hip joint is not in a neutral position. Premature or too intense thrust in the relaxation phase.

HIP JOINT-TRACTION IN THE FEMORAL AXIS (OPTION B)

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) stands at the patient's feet. He rests the untreated lower limb with his foot on the upper part of the thigh of his nearer lower limb. He grasps the treated lower limb above the ankles so softly that it does not hurt and brings it into a slight (10°-15°) flexion, abduction and external rotation in the hip joint. This will achieve a neutral position in this joint.
Execution: In this position, the therapist pulls in the axis of the lower extremity into pretension and invites the patient to pull against (toward the socket). After the isometric phase, the patient relaxes and the therapist performs a pull in the axis of the lower limb.
Technique: Therapeutic - traction with postisometric relaxation. The isometric phase is supported at the end by inhalation and the relaxation phase by exhalation.
Errors: The hip joint is not in a neutral position. Premature or too intense thrust in the relaxation phase.

HIP JOINT – TRACTION IN THE AXIS OF THE NECK OF THE FEMUR

Patient position: He (she) is lying on his back.
Position of the therapist: He (she) sits on a chair next to the couch on the treated side, facing the patient. He places his treated lower limb on his shoulder so that the popliteal fossa is on the shoulder and the lower leg hangs freely behind his back (position of the lower limb in the hip joint – flexion 30-40°, abduction 20-30°, external rotation 10-20°). The hands with intertwined fingers are placed in the groin of the patient on the inner to front surface of the thigh, both forearms of the therapist are in the direction of traction.
Execution: The therapist performs a gentle pull on the axis of the neck to obtain pretension. Then he asks the patient to put up a slight resistance, as if to bring the entire thigh closer to the opposite shoulder. The isometric phase is followed by a release and a pull in the direction of the axis of the neck of the femur.
Technique: Therapeutic - traction with postisometric relaxation. The isometric phase is supported at the end by inhalation and the relaxation phase by exhalation.
Errors: Isometric activity is in the direction of flexion of the hip joint, and this is mostly due to bad hand positions only on the front surface of the thigh.

FIZIOWEB

DIAGNOSIS AND THERAPY

JOINTS OF THE SPINE AND PELVIS

CERVICAL SPINE

ORIENTATION EXAMINATION OF THE C SPINE WITH PASSIVE FUNCTIONAL MOVEMENTS

At anteflexion examination the therapist fixes the chest in the sternum area with one hand. With the other hand, placed on the top of the patient's head, he guides the movement. The chin goes into the fossa jugularis.

At retroflex examination the therapist stands next to the patient. One hand fixes the CTh transition. With the other hand, placed on the patient's forehead, he slowly leads the movement into a bend.

At examination of lateroflexion the therapist stands behind the seated patient. One hand fixes the shoulder on the side of the bow. With the other hand, placed on the patient's temple, he guides the movement.

At examination of rotation the therapist stands behind the seated patient. Rotation is investigated in four positions:

1. In an upright position: The therapist fixes the shoulder from which he turns his head and watches how brings the chin far closer to the shoulder joint. In the final phase, he verifies the movement in the atlas – occiput segment (**AO**) by gentle suspension. During the examination, it is necessary to maintain an upright position of the cervical spine.

2. In the maximum forward bend: The therapist fixes both shoulders of the examinee with his forearms. She grabs his chin with one hand, her other hand rests on the headboard. Both hands will passively rotate to their side. In this position, rotational movement takes place mainly in the atlas – axis segment (**AA or C1-2**). If rotation is limited or painful, we assume dysfunction of this segment.

3. In the maximum forward swing (i.e. bending the head forward against the upright cervical spine): We are moving forward as in the previous case. We make sure to maintain a true forward swing throughout the movement. In this examination, we are focused on the segment **C2-3**.

4. In back (extension): The position of the subject is the same as in the previous case. The therapist will state C spine with both hands in an arch – when performing a passive rotation, his arms are crossed. This means that the hand that is on the head is pushing the head apart and at the same time the hand on the chin is pushing the chin apart (eg the therapist's left hand on the chin rotates the head to the right). In this position we examine the segments **C3-4** and below.

ATLANTOOCPITAL JOINT (C0-1) – ANTEFLEXION
Patient position: He (she) is lying on their back.
Position of the therapist: He stands at the patient's head.
Execution: The therapist places the patient's head on his palm and the fork formed by the thumb and forefinger of this hand is just below the skull. The back of the fixing hand must lie on the couch. The other hand is placed on the patient's forehead (fingers go over the eyes and avoid the nose) and anteflexes the head against the erect cervical spine. The movement is also helped by the lower hand – the patient's chin approaches the neck.
Technique: Diagnostic and therapeutic, PIR technique.
Activation: Eye look up, breath.
Relaxation: Look of the eyes to the chin, exhalation.
The most common mistakes: The pressure of the upper hand is directed directly to the couch, not rotationally. The therapist neglects to make the forward bend against the upright C-spine and flexes the entire cervical spine.

ATLANTOOCPITAL JOINT (C0-1) – RETROFLEX
Patient position: He (she) is lying on their back, their head is off the table.
Position of the therapist: It stands at the patient's head.
Execution: The therapist, on the rotation side, places the patient's head on his forearm and reaches under the chin with his hand. On the opposite side, he places his thumb on the upper jaw towards the ear – the edge of the hand (the index finger) is just above the cervicocranial transition on the skull. Then the therapist rotates the patient's head by 25-30°, (maximum 45°), thus "locking" the C1-2 segment. Subsequently, he bends his head against the upright cervical spine – the index finger forms the hypomochlion.
Technique: Diagnostic and therapeutic, PIR technique.
Activation: A breath.
Relaxation: Exhale.
The most common mistakes: The head is in too much rotation. The therapist neglects to make the bend against the upright C-spine and performs full cervical spine extension.

ATLANTOOCPITAL JOINT (C0-1) – LATEROFLEXION I

Patient position: He (she) is lying on their back.
Position of the therapist: It stands at the patient's head.
Execution: The therapist places his hands on the patient's temples and cheeks and rotates his head more than 25-30° (maximum 45°), thus "locking" the C1-2 segment. Then he bends his head against the erect cervical spine towards the chest – he lifts his head off the couch and the thumb forms a hypomochlion.
Technique: Diagnostic and therapeutic, PIR technique.
Activation: A breath.
Relaxation: Exhale.
The most common mistakes: The head is in too much rotation. The therapist does not ensure that the bow is performed against an upright C spine. The therapist performs the suspension with too much force.

ATLANTOOCPITAL JOINT (C0-1) – LATEROFLEXION II

Patient position: He (she) is lying on their back, their head is off the table.
Position of the therapist: It stands at the patient's head.
Execution: The therapist, on the rotation side, places the patient's head on his forearm and reaches under the chin with his hand. On the opposite side, he places his thumb on the lower jaw and his fingers on the head. He then rotates the patient's head by more than 25-30° (maximum 45°), thus "locking" the C1-2 segment. Subsequently, he bends his head against the erect cervical spine towards the chest – he lifts his head from the couch and the thumb forms a hypomochlion.
Technique: Diagnostic and therapeutic, PIR technique.
Activation: A breath.
Relaxation: Exhale.
The most common mistakes: The head is in too much rotation. The therapist does not ensure that the bow is performed against an upright C spine. The therapist performs the suspension with too much force.

C1-2 – LATEROFLEXION

Patient position: He (she) is lying on their back.
Position of the therapist: It stands at the patient's head.
Execution: The therapist places his hands on the temples and cheeks of the patient, the thumbs are placed on the lower jaw (it is better to have the hand a little lower on the planned side of the bow). The therapist then performs a head tilt against the upright cervical spine. Holds the position in pretension and detects if the bow increases during inhalation or exhalation.
Technique: Diagnostic and therapeutic, PIR technique.
Activation: If the segment relaxes into inspiration, there is no activation. If the segment is releasing into exhalation, then a deep breath is used to activate it.
Relaxation: Slow inhale while relaxing into the inhale, exhale in the opposite case.
The most common mistakes: The therapist does not ensure that the bow is performed against an upright C spine.

SEGMENTS C2-3 TO C5-6 – ROTATION

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient.
Execution: During the examination, the therapist places one hand flat with the thumb and forefinger on the C2 arch. The last joint of the thumb must reach the lateral part of the neck – the transverse process of the vertebra. Thumb pressure is gentle, not fixation. The rotation is performed with the other hand by pressing on the chin, towards the thumb of the hand on the neck. With a physiological finding after rotation of 20-30 degrees, the therapist can feel an increase in the pressure of the transverse process in the thumb. He stops the movement and moves his fingers a vertebra lower. He slowly increases the rotation and waits for the "impact" (touch) of the thumb projection and stops the movement again. If there is minimal or no rotation, this is a blockage of the relevant segment. It is examined to the C5-6 segment.

During therapy, the position of the hand is identical to the examination. Only the pressure with which the hand fixes the lower vertebra of the segment will increase.

Technique: Diagnostic and therapeutic, PIR technique.
Activation: Eye gaze to the side – against the direction of mobilization, breath. Resistance to automatic rotation of the head by the hands of the therapist.
Relaxation: Eye gaze in the direction of mobilization, exhalation.
The most common mistakes: The therapist tries to fix the vertebra and does not respect the first touch of the projection under the thumb. If the therapist continues to rotate, they can see the thumb move dorsally, which is pushed by the rotating vertebra. The therapist does not hold the C spine in an upright position. In therapy, the therapist uses greater force in both resistance and mobilization.

SEGMENTS C0-1 AND C2-3 TO C5-6 – VENTRO-DORSAL DISPLACEMENT

Patient position: He (she) is sitting on the edge of the deck chair.
Position of the therapist: He (she) stands next to the patient.
Execution: The therapist grasps the patient's head so that the elbow socket is on the forehead and the little finger is placed on the arch of the upper vertebra of the segment. With the other hand, he fixes the arch of the lower vertebra of the segment between the thumb and forefinger. The pressure of the arm and forearm on the head pushes the head and C spine up to the upper vertebra of the segment dorsally.
Technique: Diagnostic and therapeutic, repetitive mobilization technique.
The most common mistakes: The position of the examined segment should not be in lordosis, otherwise we perform extension and not displacement. It is necessary to straighten the C spine – this can be achieved, especially in the upper segments, by positioning the patient's head in a slight forward bend.
Note: Correct fixation of the C2 arch is necessary for examination of the C0-1 segment. Examination of the C1-2 segment is not possible due to the existence of the dens axis.

SEGMENTS C2-3 to C5-6 – LATEROLATERAL DISPLACEMENT

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist grasps the patient's head between the arm and forearm. The cubital fossa is approximately at the level of the ear and the little finger is attached from the lateral side on the upper vertebra of the examined segment. With the other hand, he fixes the transverse process of the lower vertebra with the radial edge of the index finger, the other fingers are placed on the neck. By applying arm and forearm pressure to the head, the therapist pushes the head and C-spine up to the upper vertebra of the segment laterally into pretension.
Technique: Diagnostic and therapeutic, repetitive mobilization technique.
The most common mistakes: The movement is done into lateroflexion, not displacement.
Note: Due to the anatomical arrangement, it is not possible to examine segments C0-1 and C1-2.

SEGMENTS C2-3 TO C5-6 – LATEROFLEXION

Patient position: He (she) is lying on their back.
Position of the therapist: It stands at the patient's head.
Execution: The therapist places his hand on the patient's cheek and temple on one side, the thumb is on the lower jaw. The hand on the bowing side is on the lateral side of the neck and the radial edge of the index finger creates a hypomochlion at the level of the lower vertebra of the examined segment. The therapist bends the head and cervical spine up to the index finger. The spine under the examined segment must be upright.
Technique: Diagnostic and therapeutic, PIR technique.
Activation: Eye look up, breath.
Relaxation: Eyes down, exhale.
The most common mistakes: The therapist does not ensure that the bow is performed against an upright C spine.
Note: If the patient reacts according to "Gaymans rules", then for even segments (C2-3, C4-5) proceed according to the previous description. For odd-numbered segments (C3-4, C5-6), the procedure is the opposite – during activation, the patient exhales slowly and the therapist performs mobilization at the end of inhalation.

MANUAL TRACTION OF CERVICAL SPINE

Manual traction of the C spine lying on the back

Patient position: He (she) is lying on their back.
Position of the therapist: Stands or sits at the patient's head.
Execution: The therapist places his hands under the patient's head. The thenary rests on the mastoid processes, the fingers are placed on top of each other and support the nape. The therapist performs a gentle pull on the axis of the spine, thereby creating pretension.
Technique: Diagnostic – traction test. Therapeutic, PIR technique.
Activation: A look at the forehead, a breath.
Relaxation: Look ahead, exhale.

Manual traction of the C spine while sitting

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist takes the patient's head in their hands. The thumb rests on the head, the thenars on the mastoid processes, the hypothenars on the lower jaw, and the fingers point cranially. The forearm rests on the patient's shoulders. The therapist presses his forearms into the shoulders, thereby obtaining pretension.
Technique: Diagnostic – traction test. Therapeutic, PIR technique.
Activation: Look to the forehead (up), breath.
Relaxation: Look at the chin (down), exhale.
The most common mistakes: Too much preload. The patient tilts his head at the same time as his eyes look to his forehead.

CTh TRANSITION – LATERAL DISPLACEMENT WITH ANTEFLEXION IN CC

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist fixes the spine of the lower vertebra of the examined segment from the side with the thumb of one hand. With the other hand, he grasps the patient's head so that the thumb is on the head, II. and III. finger on the lower jaw, IV. and V. finger below it. He anteflexes the head and then moves the C spine into extension, rotation to his side and lateroflexion to the opposite side – towards the fixing hand. With this movement, the C segments of the spine are "locked" and the technique is aimed at the CTh transition. This hand holds and directs the head with its fingers, at the same time it fixes the thenar from the side of the cervical vertebra, if possible up to the upper vertebra of the examined segment, and then springs laterally against the thumb on the spine of the lower vertebra.
Technique: Diagnostic and therapeutic – technique of repetitive mobilization and PIR.
Activation: Eye look up, breath.
Relaxation: Eyes forward, exhalation.
The most common mistakes: Insufficient targeting of the segment with proper flexion, bowing and counter-rotation or, conversely, striving for more extension and rotation in patients with limited C-spine range of motion. Inadequate maintenance of CC transition anteflexion. When exhaling in the relaxation phase, the patient looks to the chin, thereby canceling the tilt.
Comment: The lower the segment we are examining or mobilizing, the more extension/or rotation of the C spine we are locking the segments should be.

CTh TRANSITION – LATERAL DISPLACEMENT

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist fixes the spine of the lower vertebra of the examined segment from the side with the thumb of one hand. With the other hand, he grasps the patient's head so that the thumb is on the head, II. and III. finger on the lower jaw, IV. and V. finger below it. Performs movements of the C spine into extension, rotation to its side and lateroflexion to the opposite side – towards the fixing hand. With this movement, the C segments of the spine are "locked" and the technique is aimed at the CTh transition. This hand holds and directs the head with its fingers, at the same time it fixes the thenar from the side of the cervical vertebra, if possible up to the upper vertebra of the examined segment, and then springs laterally against the thumb on the spine of the lower vertebra.
Technique: Diagnostic and therapeutic, technique of repetitive mobilization and PIR.
Activation: Eye look up, breath.
Relaxation: Eyes forward, exhalation
The most common mistakes: Insufficient targeting of the segment with proper flexion, bowing and counter-rotation or, conversely, striving for more extension and rotation in patients with limited C-spine range of motion. When exhaling in the relaxation phase, the patient looks to the chin, thereby canceling the tilt.
Comment: The lower the segment we are examining or mobilizing, the more extension/or rotation of the C spine we are locking the segments should be.

CTh TRANSITION – LATERAL SHIFT SIDE LYING

Patient position: He (she) is lying on their side, facing closer to the edge of the couch.
Position of the therapist: He (she) stands in front of the patient.
Execution: The therapist places the patient's head on his forearm so that he fixes the back arch of the upper vertebra of the examined segment with the ulnar edge of the hand. Using the forearm on which the head rests, C brings the spine into slight tilt (into the segment), bowing (upwards) and rotation (facing the couch). This movement locks the cervical spine above the examined segment. The therapist then performs a lateral shift of the head and cervical spine against the thumb of the other hand, which fixes the spine of the lower vertebra of the examined segment laterally – from above.
Technique: Diagnostic and therapeutic, technique of repetitive mobilization and PIR.
Activation: Eye look up, breath.
Relaxation: Eyes forward, exhalation.
The most common mistakes: There is more than one segment between the thenar of one hand and the thumb of the other hand. Insufficient targeting of the segment with proper flexion, bowing and counter-rotation or, conversely, striving for more extension and rotation in patients with limited C-spine range of motion. When exhaling in the relaxation phase, the patient looks to the chin, thereby canceling the tilt.

CTh TRANSITION – TRACTION I

Patient position: sits as close to the back edge of the lounger as possible. The fingers of the hands are intertwined and placed behind the back of the head.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist intertwines his upper limbs with the patient's elbow pits and places them on the CTh transition area. The patient relaxes his upper limbs so that the elbows point forward and the head is relaxed into a slight forward bend. The therapist performs a gentle pull along the axis of the spine.
Technique: Therapeutic, PIR technique. Thrust traction technique.
Activation: Eye look up, breath.
Relaxation: Look of the eyes to the chin, exhalation.
The most common mistakes: The therapist uses his chest to push the patient into extension in the thoracic spine. Spreads the patient's elbows apart. The movement is not smooth, in the axis of the spine. The therapist does not respect relaxation during exhalation.

CTh TRANSITION – TRACTION II

Patient position: It sits as close to the back edge of the lounger as possible. The fingers of the hands are intertwined and placed behind the back of the head.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist intertwines his upper limbs with the elbow pits of the patient and between II. and III. grips the patient's wrist with a finger to adjust and fix the patient's head and cervical spine in a neutral position. The patient relaxes his upper limbs so that the elbows point forward and the head is relaxed into a slight forward bend. The therapist performs a gentle pull along the axis of the spine.
Technique: Therapeutic, PIR technique. Thrust traction technique.
Activation: Eye look up, breath.
Relaxation: Look of the eyes to the chin, exhalation.
The most common mistakes: The therapist uses his chest to push the patient into extension in the thoracic spine. The movement is not smooth, in the axis of the spine. The therapist does not respect relaxation during exhalation.

THORACIC SPINE AND RIBS

THORACIC SPINE – EXTENSION

Examination

Patient position: He (she) sits astride the edge of the lounger. The hands are clasped behind the back, the elbows point forward.
Position of the therapist: He (she) stands by the side of the patient.
Execution: The therapist guides the thoracic spine into extension with one hand, behind the patient's elbows. With the index finger of the other hand, palpate the mutual approach of the spines, in case of blockage, resistance. Palpation of the blockage can also be performed with a fork formed between II. and III. with a finger, which we apply to the transverse projections of the lower vertebra of the examined segment. The lower segments the therapist examines, the higher the elbows and the greater the tilt in the thoracic spine.

Therapy

Patient position: He (she) is lying on their side. The hands are clasped behind the back, the elbows point forward.
Position of the therapist: He (she) stands in front of the patient.
Execution: The therapist supports the shoulder of the lower upper extremity of the patient with his palm, supports his arm with his forearm, and rests his arm on the patient's elbows from below. With the index finger of the other hand, the therapist fixes the spine of the lower vertebra of the mobilized segment. Then the therapist performs a tilt into the segment and thereby obtains pretension.
Technique: PIR
Activation: Elbow pressure on the therapist's arm, breath on the place of fixation.
Relaxation: Release of pressure, maximum exhalation.
The most common mistakes: The tilt is located in a segment other than the investigated/mobilized segment.
Note: The patient's position during the examination and therapy can also be the usual sitting on the edge of the couch.

THORACIC SPINE – FLEXION

Examination

Patient position: He (she) sits astride the edge of the lounger. Hands are clasped behind the back, elbows touching.
Position of the therapist: He (she) stands next to the patient.
Execution: With one hand, behind the patient's elbows, the therapist guides the thoracic spine into flexion so that the examined segment is at the top of the kyphosis. The other hand fixes the trunk under the examined segment with the base of the palm and palpates the removal of the spines with a finger, in case of blockage of tension or resistance.

Therapy

Patient position: Same as examination.
Position of the therapist: Same as examination.
Execution: With one hand, behind the patient's elbows, the therapist guides the thoracic spine into flexion so that the examined segment is at the top of the kyphosis. The other hand fixes the trunk under the mobilized segment with the base of the palm and fixes the spine of the lower vertebra of the mobilized segment with the finger.
Technique: PIR
Activation: Eyes up, pressure of elbows on therapist's arm, breath**.**
Relaxation: Look of the eyes to the chin, releasing the pressure, exhaling.
The most common mistakes: The therapist performs too much forward flexion at once and does not target the flexion to the examined/mobilized segment.
Note: The patient's position during the examination and therapy can also be the usual sitting on the edge of the couch.

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THORACIC SPINE – ROTATION

Examination – indicative

Patient position: He (she) sits astride the edge of the lounger. The upper limbs are crossed at the shoulders.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist places his hands on the patient's shoulders and turns the trunk to one side and the other. It compares the range of motion and assesses the fluidity of the scoliosis created. In this way, he will roughly find out in which section and in which direction the rotation is limited.

Examination – segmental – intended primarily for the ThL transition area

Patient position: He (she) sits astride the edge of the lounger. The hands are clasped behind the back.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist slips one hand through the patient's armpit and grasps the patient's far shoulder from above. II. and III. the finger of the other hand is placed on the adjacent examined vertebral spines and the patient is allowed a slight kyphosis. The patient is then slowly turned. With the other hand, during the examination, he follows the movement of the fingers on the vertebral spines. Under normal circumstances, the spine of the upper vertebra of the examined segment moves a little earlier than the lower one. Gradually, with increasing rotation, the therapist moves the fingers on the vertebral spines caudally. Simultaneous movement of the vertebral spines means blockage.

Therapy

Patient position: He (she) sits astride the edge of the lounger. The hands are clasped behind the back. **Position of the therapist:** He (she) stands behind the patient.
Execution: The therapist slips one hand through the patient's armpit and grasps the patient's far shoulder from above. With this upper limb and its trunk, it creates a support for the patient, who is thus in a mild kyphosis. With the finger of the other hand, the therapist fixes the spine of the lower vertebra of the mobilized segment from the side (contralateral to the rotation) to prevent its movement. It then rotates with the patient in the direction of limited rotation.
Technique: PIR
Activation: Looking against the direction of rotation, pressing the shoulders into the therapist's hand, inhaling.
Relaxation: Looking in the direction of rotation, releasing pressure, exhaling.
The most common mistakes: Failure to keep the trunk in the axis of rotation.

THORACIC SPINE – MANUAL TRACTION I

Patient position: It sits as close to the back edge of the lounger as possible.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist runs both hands through the patient's armpits. She rests her right hand on his face. With his left hand, he grasps the wrist of the patient's right hand and holds it lightly against his chest. He leans the patient against himself and pulls on the axis of the spine, thereby creating pretension.
Technique: Therapeutic – PIR. Thrust traction technique.
Activation: Eye look up, breath.
Relaxation: Look of the eyes to the chin, exhalation.
The most common mistakes: The therapist uses his chest to push the patient into extension in the thoracic spine. The movement is not smooth, in the axis of the spine. The therapist does not respect relaxation during exhalation.

THORACIC SPINE – MANUAL TRACTION II

Patient position: It sits as close to the back edge of the lounger as possible. He puts his hands over his eyes.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist embraces the patient and grasps him just above the elbow joints. He leans the patient against himself and pulls on the axis of the spine, thereby creating pretension.
Technique: Therapeutic – PIR. Thrust traction technique.
Activation: Eye look up, breath.
Relaxation: Look of the eyes to the chin, exhalation.
The most common mistakes: The therapist uses his chest to push the patient into extension in the thoracic spine. The movement is not smooth, in the axis of the spine. The therapist does not respect relaxation during exhalation.

THORACIC SPINE – MANUAL TRACTION III

Patient position: It sits as close to the back edge of the lounger as possible.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist passes both hands through the patient's armpits and grasps the patient's contralateral upper extremity by the wrist – gently pulling the patient's hands apart. He then leans the patient against himself and pulls on the axis of the spine, thereby creating pretension.
Technique: Therapeutic – PIR. Thrust traction technique.
Activation: Eye look up, breath.
Relaxation: Look of the eyes to the chin, exhalation.
The most common mistakes: The therapist uses his chest to push the patient into extension in the thoracic spine. The movement is not smooth, in the axis of the spine. The therapist does not respect relaxation during exhalation.

THE FIRST RIB

Examination and mobilization by suspension

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient, his back resting on his chest.
Execution: The therapist places the lateral edge of the index finger from above on the first rib – perpendicular to its course. It springs over the upper part of the trapezius muscle in the direction of the patient's opposite buttock.
Technique: Diagnostic and therapeutic – repetitive mobiliation.
The most common mistakes: Pressure on the rib is applied too close to the neck.
Note: If we move the contact of the edge of the index finger more dorsally, we can examine the second rib in a similar way.

Examination with an oblique forward bend

Patient position: He (she) is sitting.
Position of the therapist: He (she) stands behind the patient, his back resting on his chest.
Execution: The therapist places his ipsilateral hand with the radial edge on the neck above the collarbone, parallel to it. The edge of the index finger lies in the direction of the course of the first rib and serves as a hypomochlion when examining movement. With the other hand, the therapist rotates the patient's head facing away from the examined rib – about 45°. He then tilts his head and neck into an oblique forward bend over the hypomochlion described above. On the movement limitation side, the ribs feel more resistance and the range of oblique forward bending is smaller.
Technique: Diagnostic.
The most common mistakes: The hand that creates the hypomochlion is attached incorrectly. The correct position of the head is not observed during the oblique forward bend examination.
Note: To make the examination more precise, the radial edge of the index finger can be stretched against the first rib after creating pretension.

Mobilization using scaly muscles

Patient position: He (she) is sitting.
The position of the therapist: He (she) stands behind the patient, his back resting on his chest.
Execution: The therapist fixes the shoulder on the untreated side with one hand. The second, mobilizing hand rests from the side on the head just above the ear of the treated party, the forearm is directed laterally. The therapist then tells the patient to keep their head upright against his pressure. It then alternates with relaxation, with a frequency of one to two per second.
Technique: Therapeutic – alternating isometric contraction and relaxation.
The most common mistakes: The therapist does not fix the patient's arm tightly enough. The patient does not hold the head firmly in an upright position. The forearm does not point laterally, and thus the traction of the scalene muscles is not properly used.

RIBS – STERNOCOSTAL JOINT

Patient position: He (she) is lying on their back.
Position of the therapist: It stands at the patient's head.

Examination

Execution: The therapist places his thumbs on the ribs and observes the movement of the ribs during deep breathing. If the thumb on one side does not move caudally during exhalation, we assume that the relevant rib is blocked during exhalation – exhalation block. However, if the thumb on one side does not move sufficiently cranially during inhalation, we assume that the relevant rib is blocked during inhalation – inspiratory block.

Therapy

Execution: The therapist encourages the patient to breathe deeply. During exhalation blockage, thumb pressure on the rib helps movement in a caudal direction. During inspiratory block, during exhalation, we again press the rib caudally, but at the start of inhalation, we prevent the movement of the rib cranially with the pressure of the thumb until the end of the inhalation, and then suddenly release the pressure on the rib.

RIBS – TRANSVERSOCOSTAL JOINTS -

Examination

Patient position: He (she) is sitting on the edge of the deck chair. The upper limb on the examined side is braced and bent at the elbow.
Position of the therapist: He (she) stands next to the patient on the non-examined side.
Execution: The therapist places the tummies II. to IV. finger on the angulus costae of the examined rib. The elbow of the braced upper limb leads the other hand along with the trunk backwards, and the fingers of the palpating hand form the hypomochlion. Under physiological conditions, the rib moves slightly ventrally, and resists when blocked. We feel this resistance well through the shoulder blade.

Therapy

Patient position: Lie on the untreated side. The upper upper limb is braced and bent at the elbow, the forearm is directed towards the couch.
Position of the therapist: He (she) stands in front of the patient.
Execution: The therapist places the hand that is closer to the patient's head from the front on the patient's elbow. Tummy II. to IV. the finger of the other hand is placed lengthwise on the angulus costae of the treated rib. Over the already formed hypomochlion, he pushes the patient's elbow backwards into pretension.
Technique: PIR
Activation: Elbow pressure forward, inhale.
Relaxation: Release pressure, exhale.
The most common mistakes: The upper limb on the examined side is not sufficiently braced. The therapist palpates the rib in the wrong place, usually too medial to the transverse processes – avoiding the scapula.

RIBS – TRANSVERSOCOSTAL JOINT USING THE SCAPULA

Patient position: He (she) is lying on their stomach. The head is turned towards the treated side.
Position of the therapist: He (she) stands on the treated side facing the patient's head.
Execution: The therapist abducts the patient's ipsilateral arm to 90°. She rests her forearm on his arm and grabs his shoulder with her hand. The other hand places the palm firmly on the shoulder blade. The therapist performs a circular movement that starts from his trunk and legs. As the scapula approaches the costovertebral junction, the therapist increases pressure on its medial edge.
Technique: Therapeutic.
The most common mistakes: The therapist's hands circle against each other. Movement is also performed in the glenohumeral joint. The movement does not come from the trunk and legs of the therapist.

LUMBAR SPINE AND PELVIS

LUMBAR SPINE – SPRING EXAMINATION

Patient position: He (she) is lying on their stomach**.**
Position of the therapist: He (she) stands next to the couch, facing the examinee's head.
Execution: The therapist places the index and middle fingers of the hand that is closer to the table on the transverse projections of the examined vertebra. He places the medial edge of the other hand over the tips of these fingers. Both arms, if possible extended at the elbows, push into pretension and then briefly relax – the pressure comes from the whole body. The position of the upper limbs and thus the directed pressure should always be perpendicular to the axis of the examined segment – the curvature of the spine must be respected. With springing, we start with pressure on the upper edge of the sacrum, and then proceed to L5 and further cranially.
Technique: Diagnostic.
The most common mistakes: The therapist stretches with a hand that ensures contact. The therapist releases the preload before springing.
Comment: The examination is primarily performed as a test for disk failure. It is positive, when pain is repeatedly induced when flexing. This technique is not used to assess joint play, but to induce pain, so the springing must be fast and more intense. The investigation is rather indicative and does not guarantee the exact location. The examination can be performed in the entire lumbar and thoracic spine, but it is most often used to assess disc disorders in segments L3-4, L4-5 and L5-S1.

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LUMBAR SPINE – MANUAL TRACTION

Traction I

Patient position: He (she) is lying on their stomach.
Position of the therapist: It stands at the patient's head.
Execution: The therapist places his hands on the patient's buttocks so that the roots of the palms rest on the ridges of the pelvic bones, the fingers point caudally. Cranial hand pressure, together with the patient's breath, tilts the pelvis into retroversion. During exhalation, the pelvis moves into anteversion, which the therapist prevents by pressure in the cranial direction. Traction occurs both during inhalation, due to the flattening of the lumbar lordosis, and especially during exhalation, due to the return of the spine to lordosis and the opposite effect of hand pressure on the pelvis.
Technique: Therapeutic.
The most common mistakes: The therapist does not respect exhalation-inhalation synkinesis.

Traction II

Patient position: He (she) is lying on their stomach.
Position of the therapist: He (she) stands at the patient's feet.
Execution: The therapist grasps the patient's lower limbs above the ankles and by tilting his own body backwards, while the upper limbs are extended, pulls on the axis of the spine – this creates pretension. The rhythmic rocking of the knees then creates intermittent traction of the L spine.
Technique: Therapeutic.
The most common mistakes: The therapist lifts the patient's lower limbs too high, causing a tilt in the lumbar spine. The bias does not come from the lower limbs and the therapist's backward tilt, but only from the upper limbs. The therapist does not target the preload exactly to the lumbar region – he does not choose such an amplitude of movements that targets the traction to the treated segments. The direction of traction is not cranio-caudal.

Traction III

Patient position: He (she) is lying on their back (on a very low couch). The lower limbs are in 90° flexion in the hip and knee joints.
Position of the therapist: He (she) faces the longer side of the lounger. The lower limb, which is farther from the patient's head, is placed on the couch so that the thigh is in a horizontal position.
Execution: The therapist places the patient's lower limbs with the knee sockets on his thigh. She grabs his lower legs and pushes them toward the mat so that he lifts his pelvis up – creating a bias. If the pretension is not sufficient, the therapist will further move the thigh away from the patient's pelvis. By pressing on the lower leg and releasing it, it performs intermittent traction. An additional technique is the latero-lateral movement of the patient's pelvis, which the therapist performs by moving the body ventrodorsally.
Technique: Therapeutic.
The most common mistakes: The therapist's thigh is not horizontal, and this causes rotation of the patient's pelvis. The patient is not relaxed and therefore there is no preload when lifting the pelvis.

LUMBAR SPINE – EXTENSION (SEGMENTS L2-3 TO L5-S1)

Patient position: It lies on its side in a neutral position. The lower limbs are bent at the hip and knee joints to about 80°.
Position of the therapist: He (she) stands in front of the patient.
Execution: The therapist rests his thigh on the patient's knees and the fingers of both hands fix the spine of the upper vertebra of the segment. By pressing on the patient's knees in the axis of the femur, the therapist performs extension in the segments of the L spine, or L5-S1.
Technique: Diagnostic and therapeutic – PIR.
Activation: Knee pressure on the therapist's thigh, inhale.
Relaxation: Release pressure, exhale.
The most common mistakes: Pretensioning and springing is primarily done by pressure of the upper limbs – correctly, the upper limbs only fix the upper vertebra of the respective segment. When applying pressure to the patient's lower limbs, there is a lack of sufficient fixation on the spine.
Note: The position of the lower limbs must respect the neutral position of the spine, the given angle is only indicative.

LUMBAR SPINE – FLEXION (SEGMENTS L2-3 TO L5-S1)

Patient position: He (she) is lying on their side at the edge of the lounger. The lower limbs are flexed at the hip and knee joints.
Position of the therapist: He (she) stands in front of the patient.
Execution: With the forearm, which is closer to the patient's head, the therapist fixes the chest area, and with the belly of the finger (II or III) of this hand, he palpates the interspinal space of the examined segment – he (she) perceives movement between the spines. Next, the therapist, with their hip or thigh, pushes the patient's lower legs towards his abdomen to further increase the kyphosis in the lumbar region. He (she) places their other hand and forearm on the sacrum – the fingers go all the way to the spine of the caudal vertebra. This upper extremity aids further kyphotization until pretension and springing are achieved.
Technique: Diagnostic and therapeutic – PIR.
Activation: Buttock pressure against the therapist's hand and inhale.
Relaxation: Release pressure and exhale.
The most common mistakes: During therapy in the isometric phase, anteflexion occurs in the mobilized segment – instead of the required extension.
Note: During mobilization, the hand that is between the spines increases the pressure on the spine of the cranial vertebra of the treated segment and thus helps fixation.

LUMBAR SPINE – ROTARY MOBILIZATION IN FLEXION (SEGMENTS L2-3 TO L5-S1)

Patient position: He (she) is lying on their side. The lower leg is in slight semiflexion, the upper leg hangs forward over the edge of the table. The pelvis is tilted slightly ventrally. The upper upper extremity is placed with the hand on the abdomen at the navel point.
Position of the therapist: He (she) stands sideways in front of the patient.
Execution: In case of insufficient kyphotization of the lumbar spine, the therapist pulls on the lower upper limb of the patient. After setting the correct initial position, the therapist steps over the patient's upper lower limb and with their thigh, which is closer to the patient's legs, can change the amount of flexion of the patient's drooping lower limb. With the upper limb, which is closer to the patient's head, the therapist fixes the position of the trunk. The forearm is tucked under the upper limb of the patient at the level of the elbow, resting on the chest and back. The hand with the thumb, pulling from above, fixes the spine of the cranial vertebra. With the other hand, the therapist reaches across the pelvis and hip to the spine of the lower vertebra. Pretension is created by pulling this upper limb in the direction of the forearm and slight pressure of the thigh increasing the flexion of the patient's upper lower limb.
Technique: Therapeutic – PIR. Thrust technique.
Activation: Buttock pressure against the therapist's forearm, event. abduction of the lower limb. A breath.
Relaxation: Exhale.
The most common mistakes: Mistakes are various and very common, resulting from poor positioning of both the patient and the therapist.

LUMBAR SPINE – ROTARY MOBILIZATION IN NEUTRAL POSITION (SEGMENTS-L2-3 TO L5-S1)

Therapy I

Patient position: It lies on its side in a neutral position. The lower leg is slightly bent at the hip and knee joints. The upper lower limb is bent more and the instep rests on the lower lower limb below the knee.
Position of the therapist: He (she) stands sideways in front of the patient.
Execution: The therapist rests his elbow on the patient's shoulder from the front, fixes the spine of the upper vertebra of the mobilized segment laterally (from above) with the thumb of the same hand. He rests his thigh on the patient's knee, also from above. The therapist rests the forearm of the other hand on the patient's pelvis, and the fingers of the same hand fix the spine up to the spine of the lower vertebra. Using the forearms, which rest on the patient's shoulder, rotates the trunk apart. The therapist then asks the patient to rotate the head and trunk in the direction of the desired rotation. The opposite upper limb and thigh fix the pelvis and spine against this rotation. Until taking up the slack.
Technique: Therapeutic – PIR.
Activation: View – turning the head against the direction of rotation, breath.
Relaxation: View – turning the head in the direction of rotation, exhalation.
The most common mistakes: The spine is not in a neutral position. Preloading is done unsparingly and causes pain.

Therapy II

Patient position: The same as in the previous case.
Position of the therapist: He (she) stands sideways in front of the patient.
Execution: The therapist rests his thigh on the patient's knee from above (laterally) and with both hands fixes the spine of the lower vertebra of the blocked segment – from below. The patient rotates the head and trunk away from the therapist into pretension. Active movement into rotation alternates with release into pretension.
Technique: Therapeutic – repeatedly into rotation.
The most common mistakes: The spine is not in a neutral position.

SI JOINT – EXAMINATION

Springing of the SI joint while lying on the back

Patient position: He (she) is lying on their back.
Position of the therapist: It stands on the side of the non-examined SI joint.
Execution: The therapist grasps the lower limb on the examined side by the knee, flexes the knee joint and flexes the hip joint up to 90°. By adducting the thigh, it tilts the pelvis to its side. The thumb of the other hand presses into the index finger, thereby strengthening the thenar, and places the palm on the sacrum. Then the therapist turns the patient back so that the arm is placed on the couch. With the hand on the knee, he adducts the hip without rotating the pelvis and springs to the knee in the longitudinal axis of the thigh. The other hand on the sacrum palpates the movement between the pelvis and the sacrum.
Technique: Diagnostic.
The most common mistakes: The pelvis is rotated. The hand contact is in the wrong place – it goes all the way to the back upper spin of the pelvis.

The upper part of the SI joint in the prone position

Patient position: He (she) is lying on their stomach.
Position of the therapist: He (she) stands next to the table on the non-examination side, at the patient's pelvis.
Execution: The therapist grasps the pelvis by the anterior spina with one hand. The other hand is placed on the sacrum with the tip of the finger touching the posterior superior spina. He then lifts the pelvis from the pad to the bias.
Technique: Diagnostic.
The most common mistakes: Using too much force.

The lower part of the SI joint in the prone position

Patient position: He (she) is lying on their stomach.
Position of the therapist: He (she) stands next to the table, at the patient's pelvis.
Execution: The therapist places the thumb on the mid-lower part of the sacrum – at the highest point, slightly lateral to the midline on the examined side. Lightly pushes ventrally into preload.
Technique: Diagnostic.
The most common mistakes: Using too much force. Placing the thumb in the area of the upper part of the sacrum, or vice versa near the coccyx.

SI JOINT – WHITS CROSSED HANDS

Patient position: He (she) is lying on their stomach.
Position of the therapist: It stands next to the table at the patient's pelvis, on the opposite side of the SI joint being examined.
Execution: The therapist places crossed hands on the patient's SI joint under examination with one hand resting on the lower end of the sacrum, fingers pointing caudally, and the other hand resting on the posterior superior spine, fingers pointing latero-cranially. The forearms point in the direction of the intended movement. The therapist simultaneously pushes into pretension with both hands.
Technique: Diagnostic and therapeutic – repetitive, preload is released during mobilization.
The most common mistakes: The hand that is placed on the sacrum does not lie on its lower end. The pressure of the hands is not directed away from each other, but ventrally. The pressure of both hands of the therapist is not equally intense.

SI JOINT – SIDE LYING THERAPY

Therapy I -

Patient position: He (she) is lying on their side. The lower limb is bent at both the hip and knee joints, and her knee is resting on the table.
Position of the therapist: He (she) stands behind the patient.
Execution: The therapist places one hand on the iliac blade – the fingers point ventro-craniomedially. Fingers or the thumb of the other hand palpates the movement in the SI joint – between the sacrum and the posterior superior spina. The therapist creates spring pressure with his hand on the hip bone in the ventro-cranio-medial direction.
Technique: Diagnostic and therapeutic – repetitive.
The most common mistakes: The knee of the upper leg does not lie on the table. The pressure on the hip bone is not directed in the right direction.

Therapy II

Patient position: He (she) is lying on their side. The lower limb is bent at both the hip and knee joints, and her knee is resting on the table. If there is limited movement in the hip joint of the upper lower limb, both lower limbs may be bent.
Position of the therapist: He (she) stands or sits behind the patient on the couch, facing his head.
Execution: The therapist has one hand placed palm down on the front upper spine. The index finger of the other hand, supported by the thumb, rests on the upper end of the sacrum just below the posterior superior spina. The hand on the sacrum fixes, the hand on the anterior spine moves the pelvis dorsally – not directly, but in an imaginary circle.
Technique: Diagnostic and therapeutic – repetitive.
The most common mistakes: Improper positioning of the therapist. Hand contact on the upper end of the sacrum is painful.

FRA

AUTOMOBILIZATION OF JOINTS

SPINE AND PELVIS

CERVICAL SPINE

CERVICOCRANIAL TRANSITION

Position: Sitting upright – it is possible to support the back on a chair. The patient places the fingers of one hand on the chin.
Movement: The patient presses the chin to the neck, thereby equalizing the extension position of the CC transition and the flexion CTh transition
Execution: Repeated movements to the extreme position alternate with relaxation. Repeat according to reaction 8-10 times.
Errors: Insufficiently straightened seat.

C1-2 – LATEROFLEXION

Position: Sitting upright – it is possible to support the back on a chair. The hand on the treated side is placed on the neck from the side, the edge of the little finger just below the lower jaw, the forearm is directed perpendicular to the axis of the cervical spine if possible.
Movement: With the other hand, the patient places the palm on the temple and ear and bends the head against the fixation.
Execution: The patient in the pretension deepens the breathing and observes whether the range increases during inhalation or exhalation. If during inhalation – the mobilization phase is during prolonged deep inhalation. If during exhalation, the patient in pretension takes a deep breath and the range increases during exhalation. Repeat 3-5 times.
Errors: The seat is not straight enough. The patient bends the entire cervical spine.

CERVICAL SPINE – EXTENSION

Position: Sitting upright – it is possible to support the back on a chair.
Movement: Full extension of the C spine, then head rotation with a gradual increase in range of motion.
Execution: Repeated movements to extreme position. One cycle lasts about 10 seconds. Repeat 3-5 times.
Errors: Insufficiently straightened seat.

CERVICAL SPINE – LATEROFLEXION

Position: Sitting upright – it is possible to support the back on a chair. The hand on the treated side is placed on the neck from the side, with the pinky edge on III. to IV. vertebrae. If possible, the forearm is directed perpendicular to the axis of the cervical spine. Fixation IV. or V. vertebra, the patient performs with the opposite hand using II. and III. finger.
Movement: With the other hand, the patient places the palm on the temple and ear, tilts the head against fixation – for the caudal segments, using the ipsilateral upper limb, which pulls the head into the tilt.
Execution: PIR – in pretension, the patient takes a deep breath and increases the range during exhalation. Repeat 3-4 times.
Errors: The seat is not straight enough. The patient bends the entire cervical spine.

CERVICAL SPINE – TRACTION

Position: Sitting upright – it is possible to support the back on a chair. The patient grabs his head in the area of the temples and ears with both hands.
Movement: By pressing the hands upwards, he performs traction on the C spine.
Execution: PIR - performs isometry by looking up, in the relaxation phase, lowers or closes the eyes. Relaxation is on exhalation. Repeat 3-4 times.
Errors: Insufficiently straightened seat. Too big a pull.

CTh TRANSITION

Position: Sitting upright – it is possible to support the back on a chair. The patient places the fingers of one hand on the chin and aligns the C spine – just like in the CC transition.
Movement: Extension of the C spine to the extent that allows the chin to be kept close to the neck. In this extension, the patient rotates the head alternately to both sides.
Execution: Repeated movements gradually to the extreme position. Extension is done during exhalation. One cycle about 5 times on both sides. Repeat 3-5 times.
Errors: Insufficiently straightened seat. Failure to maintain CC transition anteflexion (chin at neck).

THORACIC SPINE AND RIBS

THE FIRST AND THE SECOND RIB

Position: Sitting upright – it is possible to support the back on a chair. The hand on the treated side is placed with the palm on the temple and ear, the forearm is as perpendicular as possible to the axis C of the spine.
Movement: Lateroflexion of the cervical spine against resistance – simultaneous pressure of the head and hand against each other.
Execution: Repeated pressure and release approximately 1 - 2x per second. Repeat 20-30 times.
Errors: Insufficiently straightened seat. Repetition rate too fast.

THORACC SPINE – SEATED EXTENSION

Position: Sit on the front edge of the chair, facing the wall. Knees and feet are about hip-width apart or slightly more, touching the wall. The head, which is supported by the hands, also leans against the wall. The trunk is as straight as possible.
Movement: Extension (straightening) of the thoracic spine.

Execution: Mobilization is performed during a deep exhalation to the maximum. A deep breath takes place during relaxation. It is repeated in the rhythm of slow, deep breathing - 5-10 times.
Errors: Extension takes place mainly in the thoracolumbar junction.

THORACC SPINE – SEATED ROTATION

Position: Sit upright, knees and feet at least hip-width apart. The upper limbs are in abduction around 90 degrees, elbow joints in semiflexion.
Movement: Trunk rotation.
Execution: Repetitive mobilization. Repeated 5-7 times from preload, 2-3 times on each side.
Errors: Too much intensity of mobilization.

THORACIC SPINE – KNEE FLEXION

Position: Sit on your heels.
Movement: Lean forward. The head is resting on the ground or a mat. Inspiratory chest movement.
Execution: Mobilization using a deep breath, which increases the kyphosis especially of the thoracic spine. Repetition in a slow rhythm of breathing - 10-15 times.
Comment: Instruction of a patient with knee joint disorder/pain.

THORACIC SPINE – FLEXION x EXTENSION

Position: Kneeling support. The upper limbs are supported by the forearm and hand. The head is in extension of the trunk, the elbows are below the shoulders, the knees are at the width of the pelvis or a little more.
Movement: Alternating movements of the trunk into flexion and extension.
Execution: Repeated movements to extreme positions in the rhythm of slow breathing – flexion during inhalation, extension during exhalation. Repeat 8-10 times.

THORACC SPINE – ROTATION

Position: Kneeling support. The upper limbs are supported by the forearm and hand. The head is in extension of the trunk, the elbows are below the shoulders, the knees are at the width of the pelvis or a little more.
Movement: Rotation of the trunk and head behind the locked upper limb.
Execution: Slow movement to extreme position. The direction of rotation alternates regularly. Rotation is done naturally during inhalation. Repeat 8-10 times.

THORACIC SPINE – LATEROFLEX

Position: Kneeling support. The upper limbs are supported by the forearm and hand. The head is in extension of the trunk, the elbows are below the shoulders, the knees are at the width of the pelvis or a little more.
Movement: Lateroflexion of the trunk and head.
Execution: Slow movement to the extreme position during exhalation, return to the basic position with inhalation. The direction of the bow alternates regularly. Repeat 8-10 times.

THORACC SPINE – LYING EXTENSION

Position: Lying on the back, the lower limbs are in semiflexion. Support in the area of limited mobility of the Th spine – with a soft cylinder with a diameter of around 20 cm, hands behind the back.
Movement: Trunk extension – placing the head and upper torso on the mat.
Execution: Repeated movement to the extreme position – must be the corresponding diameter of the cylinder). Extension is done during exhalation. Repeat 8-10 times.

THORACOLUMBAR JUNCTION – FLEXION x EXTENSION

Position: Kneeling support. The upper limbs are supported by the palms, which are slightly in front of the shoulders. The elbows are under the shoulders and slightly bent, the head is in extension of the trunk, the knees are at the width of the pelvis or a little more.
Movement: Alternating movements of the trunk into flexion and extension.
Execution: Repeated movements to extreme positions in the rhythm of slow breathing – flexion during inhalation, extension during exhalation. Repeat 8-10 times.

THORACOLUMBAR TRANSITION – ROTATION

Position: Kneeling support. The upper limbs are supported by the palms, which are slightly in front of the shoulders. The elbows are under the shoulders and slightly bent, the head is in extension of the trunk, the knees are at the width of the pelvis or a little more.
Movement: Torso and head rotation.
Execution: Slow movement to extreme position. The rotation is performed naturally during inhalation, the direction of rotation alternates regularly. Repeat 8-10 times.

THORACOLUMBAR TRANSITION – LATEROFLEXION

Position: Kneeling support. The upper limbs are supported by the palms, which are slightly in front of the shoulders. The elbows are under the shoulders and slightly bent, the head is in extension of the trunk, the knees are at the width of the pelvis or a little more.
Movement: Lateroflexion of the trunk and head.
Execution: Slow movement to the extreme position during exhalation, return to the basic position with inhalation. The direction of rotation alternates regularly. Repeat 8-10 times.

THORACOLUMBAR TRANSITION – ISOMETRY OF THE PSOAT

Position: Lie on your side, head supported by a pillow. Upper lower limb – flexion in the hip joint 90 degrees. Rotation of the trunk and head to the opposite side. The hand of the lower upper limb rests with the palm above the knee.
Movement: Thigh pressure against palm into flexion – isometric contraction.
Execution: Repeated pressure and release approximately 1 - 2x per second. It is repeated 15-20 times on each side.

LUMBAR SPINE AND PELVIS

LUMBAR SPINE – EXTENSION LYING ON THE BELLY

Position: Support lies.
Movement: Passive trunk extension.
Execution: Repeated movements to maximum (painless) extension, short endurance at the end of the movement and targeted relaxation with exhalation. Repeat 8-10 times.

LUMBAR SPINE – FLEXION LYING ON THE BACK

Position: Lie on your back, head supported by a pillow. The lower limbs are kept in flexion by the upper limbs.
Movement: Maximum flexion of the lower limbs, which in the extreme position flexes the lumbar spine.
Execution: Repeated movements with tightening to the extreme position. Mobilization by PIR technique. The relaxation phase is performed with exhalation. Isometrics – pressure of the lower limbs into extension. Repeat 8-10 times.

LUMBAR SPINE – LYING ROTATION

Position: Lie on your side, head supported by a pillow. The upper lower limb in semiflexion, supported by the instep in the popliteal fossa of the lower lower limb.
Movement: Backward rotation of the head and trunk.
Execution: Repeated active repetitive mobilization starting from the extreme position – pretension. Repeat 8-10 times, repeat the entire cycle 2-3 times.

LUMBAR SPINE – STANDING EXTENSION

Position: Stand cross-legged.
Movement: Trunk extension, fixation according to mobilization targeting.
For upper part – position of the hands under the ribs, the little fingers are closer to the head and the thumbs from the side on the ribs.
For middle part – thumbs are as close as possible and point towards each other, fingers point towards the stomach.
For lumbosacral transition – hands on the buttocks, fingers pointing to the ground. Execution: Repetitive mobilization. Repeat 8-10 times.
Errors: The extension does not end at the point of fixation. Flexion of the knees when bending over.

LUMBAR SPINE – SITTING FLEX

Position: Sit upright on the front edge of the chair. Knees and feet are hip-width apart.
Movement: Gradual flexion of the entire spine.
Execution: Repeated active movements into flexion, at the end of the movement emphasized by grasping the hands above the ankles and passive tightening to the maximum. Mobilization during exhalation. Repeat 8-10 times.

LUMBAR SPINE – FLEXION x EXTENSION

Position: Kneeling support. The upper limbs are slightly in front of the shoulders and supported by the palms, at a height of 20-30 cm above the ground. Elbows are under the shoulders and slightly bent, head in extension of the trunk, knees at the width of the pelvis or slightly more.
Movement: Alternating movements of the trunk into flexion and extension.
Execution: Repeated movements to extreme positions in the rhythm of slow breathing – flexion during inhalation, extension during exhalation. Repeat 8-10 times.
Note: ATTENTION *IN THE VIDEO THERE IS NO SUPPORT FOR THE UPPER LIMBS! OTHERWISE THE EXECUTION IS THE SAME!*

LUMBAR SPINE – ROTATION

Position: Kneeling support. The upper limbs are slightly in front of the shoulders and supported by the palms, at a height of 20-30 cm above the ground. Elbows are under the shoulders and slightly bent, head in extension of the trunk, knees at the width of the pelvis or slightly more.
Movement: Torso and head rotation.
Execution: Slow movement to extreme position. The rotation is performed naturally during inhalation, the direction of rotation alternates regularly. Repeat 8-10 times.

LUMBAR SPINE – LATEROFLEX

Position: Kneeling support. The upper limbs are slightly in front of the shoulders and supported by the palms, at a height of 20-30 cm above the ground. Elbows are under the shoulders and slightly bent, head in extension of the trunk, knees at the width of the pelvis or slightly more.
Movement: Lateroflexion of the trunk and head.
Execution: Slow movement to the extreme position during exhalation, return to the basic position with inhalation. The direction of movement alternates regularly. Repeat 8-10 times.

SACROILIAKAL JOINT – LYING ON THEIR SIDE

Position: Lie on the untreated side, head supported by a pillow. The lower limb is bent at the hip and knee joints to about 90 degrees.
Movement: Antero-ventro-cranial pull for the front spina of the pelvis.
Execution: Repetitive mobilization. Repeat 10-15 times.

SACROILIAKAL JOINT – LIES ON THE STOMACH

Position: Lie on your stomach, head turned to the treated side. Abduction of arms to 90 degrees.
Movement: Abduction of the lower limb on the treated side to the maximum – the possibility of increasing the movement using the pull of the upper limb.
Execution: Repeated movements to the maximum during exhalation. Repeated 8-10 times.