FIZIOWEB

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) is 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.