



**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 of 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 an 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 inspiration acts in the opposite way from expiration. Inspiration usually has a facilitating effect, while expiration 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 expiration 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.