Investigation of hypermobility

Hypermobility

By the term hypermobility we mean an increased range of joint mobility above the normal physiological norm, both in the sense of joint play and in passive and active movement.

Causes

We differentiate hypermobility according to the causes into:

- compensatory;
- in neurological disease;
- constitutional;
- local pathological (post-traumatic);

Instability may result from hypermobility of the segment. The clinical manifestation of instability is often pain.

Compensatory Hypermobility

This is local pathological hypermobility, which is the result of compensatory mechanisms when the range of motion in another segment or joint is limited. Therapy for this type of hypermobility is focused on hypomobile segments. After movement is restored in the hypomobile segment, the function of the hypermobile segment will spontaneously adjust.

Hypermobility in neurological disease

This type of hypermobility (or rather increased passivity) belongs to the clinical picture of some neurological diseases, e.g. cerebellar involvement, peripheral paresis. This type of hypermobility also includes hypotonia within the ADHD syndrome (attention deficit hyperactivity disorders), hypermobility in dyskinetic and cerebellar forms of DMO or in Down syndrome and oligophrenia.

Constitutional hypermobility

It is characterized by an increase in joint range beyond the normal norm, generalized in all joints. The etiology is unclear, but mesenchymal insufficiency, manifested clinically by high laxity of ligaments and intramuscular supporting stroma, is assumed. Hormonal changes participate in changes in the quality of mesenchymal tissue. Constitutional hypermobility is more common in women and affects up to 40% of the female population. According to V. Janda, this type of hypermobility is more pronounced in young girls, with increasing age it gradually decreases (around 40 years of age). Hypermobility also belongs to the image of a central coordination disorder (minot coordination dysfunction) and is accompanied by so-called minimal cerebellar symptomatology, stereognosis disorder, etc.

Local pathological (post-traumatic) hypermobility

Rather, the term instability is used for this type of hypermobility. It arises after a trauma in which the static stabilizers (joint capsule and ligaments) of the given movement segment are damaged. **Medical rehabilitation strategy** The goal of rehabilitation therapy is to stabilize an unstable segment using muscle function. During exercises aimed at activating and strengthening the muscles in their stabilizing function, we facilitate both the muscles that are directly related to the unstable movement segment and the muscles that ensure the punctum fixum of the unstable segment. When engaging muscles in their stabilizing function, we must respect their muscle chains in their postural function. For stabilization training, we use general principles such as approximation to the joint, rhythmic stabilization, stabilization reversal, reflex action on the movement segment in centered positions, exercises in closed kinetic chains and sensorimotor training. When exercising against resistance, we most often use elastic materials. [1]

Assessment of hypermobility and muscle stiffness according to M. Tichý

"Assessment of hypermobility of muscle stiffness is a very important part of the examination. The main reason is that we treat hypermobile and stiff people differently than others in strengthening, exercising and healing.”[2] Greater range of motion in the joints and lower muscle tension in the muscles in extreme positions causes reflexes that can cause blockages. "**Resting tension** in muscles is determined by the brain. Mental state can affect him to some extent. In a stressed person, it will definitely be higher than in a calm person."[2] According to M. Tichy, hypermobile people are calm, they make people laugh, and they are generally not distracted by anything. "On the contrary, people with stiff muscles, i.e. with higher resting tension, are usually more withdrawn, more nervous and it is difficult to establish contact with them." lead to a false positive result. M. Tichý claims that general hypermobility is an innate condition of the musculoskeletal system. However, he adds that hypermobility can also

be obtained, for example by targeted stretching of the muscles during sports, where one wants to achieve the greatest possible flexibility. "Acquired hypermobility can, however, only concern a part of the musculoskeletal system."[2]

Examination of hypermobility according to Janda:[3]

Head rotation test

With hypermobility, rotation is often possible up to over 90°, and passively the range can be significantly increased...

Scarf Test

The examinee, sitting or standing, wraps his arm around the neck. Normally the fingers reach almost to the spines of the cervical vertebrae. With hypermobility, the range of neck coverage increases...

Examination of folded arms

The examinee tries to touch the fingers of both hands while sitting or standing. Normally, the individual is able to touch with just the tips of the fingers without being forced to lordotize the thoracic and lumbar spine...

Examination of established arms

The examinee, sitting or lying down, folds his arms by crossing the back of his head. Normally, you can easily reach the acromion of the scapula of the other side with the tips of your fingers. With hypermobility, the palm can cover part or even the entire scapula...

Extended elbow test

The examinee stands or better sits on a chair. During flexion in the shoulder joints and maximal flexion in the elbow joints, he presses the forearms together over the entire surface and then tries to stretch the elbows, without, of course, moving the forearms apart. With a normal range of motion, it is possible to extend the elbow joints up to a 110° angle between the forearm and humerus. With hypermobility, this angle increases...

Examination of clasped hands

The examinee presses the palms together and performs wrist extension by raising the elbows without pulling the palms apart. Normally, an angle of almost 90° can be achieved between the wrist and the forearm. If the measured angle is less than 90°, it is a sign of hypermobility...

Clinched Fingers Test

The examinee presses the outstretched fingers firmly together and holds the wrist exactly in extension of the axis of the forearm. He then hyperextends the fingers by moving the hands in a distal direction. At the same time, the wrist must remain exactly in the extension of the forearm throughout the movement. During a normal range of motion, the palms make an angle of 80° between themselves. With hypermobility, this angle increases, and when the long flexors of the fingers are shortened, it decreases...

Bending test

The examinee leans forward while standing without bending the knees... With a normal range of motion, the examinee is able to touch the floor only with the tips of the fingers...

Bow test

The examinee stands in a joint position. Then he makes a bow and slides the upper limb along the lateral surface of the thigh. He must not compensate by elevating the shoulder or moving the pelvis more laterally. Normally, the perpendicular from the axilla should pass through the intergluteal groove. With hypermobility, the bowing increases, therefore the perpendicular from the axilla reaches the contralateral side...

Sit on heels test

The examinee sits on his knees on his heels. Normally, the buttocks should reach somewhat below the imaginary line between the heels. With hypermobility, the examinee can reach the mat with the buttocks, on the other hand, when the quadriceps muscle is shortened in particular, the buttocks remain above the imaginary line...

Links

References

1. KOLÁŘ, P. *Rehabilitace v klinické praxi.* 1. edition. Galen, 2010. 713 pp. ISBN 978-80-7262-657-1.

2. TICHÝ, Miroslav. *Funkční diagnostika pohybového aparátu.* 1. edition. Triton, 2000. 94 pp. ISBN 80-7254-022-x.
3. JANDA, Vladimír. *Funkční svalový test.* 1. edition. Grada, 1996. ISBN 80-7169-208-5.