

Verticalization

The word verticalization is explained in the dictionary of foreign words as slow bringing to a vertical position. As part of physiotherapy, verticalization is mainly applied to patients who have been immobilized in bed for a long time.

Indication

Always follow the doctor's instructions. Generally speaking, the indication of slow verticalization under the supervision and instruction of a physiotherapist is necessary for all patients who have been bedridden for a long time, for patients who need to relearn or relearn the stereotype of verticalization, or as therapy to stimulate proprioception .

Early verticalization is necessary to prevent pneumonia , pressure ulcers , contractures, and from the point of view of therapy, it is beneficial for stimulating proprioception and the vestibular apparatus. Namely, it is used, for example, in patients after comatose states, patients after surgery under general or even partial anesthesia, in patients after CMP (central cerebral infarction), patients after head trauma.

Contraindication

The biggest contraindication to verticalization is vertigo and the risk of the patient falling, various post-operative and post-invasive conditions requiring bed rest. Other contraindications may be an uncooperative patient. In patients after spinal injuries, it is not recommended to sit upright until the time determined by the attending physician. Patients with paresis of the lower limbs can be verticalized using a folding table or a verticalization stand.

During verticalization, we must respect the patient's capabilities, as each patient tolerates verticalization differently, after varying lengths of immobilization on the bed. Verticalization to a higher position may cause the patient to increase intracranial pressure or have consequences on the cardiopulmonary system. Before and after verticalization, we can check the pulse rate or blood pressure.

If the patient does not tolerate verticalization well, we can choose a slower pace of verticalization.

Method of verticalization

Verticalization must be done slowly and under the close supervision of a physiotherapist or nurse. The patient must have trust in the therapist and must cooperate. It is necessary to inform the patient that verticalization must be done slowly at first and only under supervision, and if the patient manages verticalization repeatedly without difficulty, he can start verticalization himself. Patient awareness and slow verticalization prevent the risk of falling.

Depending on the patient's condition, the patient can perform verticalization on his own, but always with the assurance and supervision of a physiotherapist, or with the help of a physiotherapist with verticalization maneuvers, or completely passively in verticalization aids (see above).

During verticalization, if the first signs of difficulties appear, the patient either waits in the set position until the difficulties improve, or we bring him back to the horizontal position. In some cases, patients are given a DKK (lower extremity) bandage or compression stockings are used to prevent thromboembolism before verticalization .

Verticalization procedure

First, it starts **by sitting on the bed with the DKK extended** . Depending on the patient's condition, we can do so passively by raising the bed under the back, supporting the back with a pillow or positioning aids. In this way, the patient can sit up by himself gradually by leaning on his elbows or to higher positions by pulling himself up by the crossbar. In these positions, we let the patient "get used to" verticalization, and if he manages this session without difficulty, we can continue verticalization.

Another position is **to sit with your legs down over the edge of the bed**. We introduce the patient to this position with a sitting maneuver and educate him to use this maneuver independently when sitting down. The patient first turns over on his side on the bed with his ankles bent, his lower arm is attached to his body and tries to lean on his elbow, his upper limb is in front of his body and he leans on the bed with his palm. To sit down, the DKK must first be lowered from the bed and then raised using supported upper limbs. If the patient manages this maneuver, he can do everything at the same time after turning onto his side. Again, the patient needs to stay in this position for a while before continuing to verticalization to a standing position. For better stability, it is necessary to support the flats of the patient's feet with a firm pad if they cannot reach the ground. Furthermore, the patient can hold on to the edge of the bed with his hands or lean on his upper limbs that are braced and stretched. When sitting, we pay attention to the correct posture.

The next step is **verticalization to standing** . If there are no contraindications (e.g. recent fractures in the spine), the patient can rise from the previous position. It is necessary to have a non-slip mat under the flats or wear sturdy non-slip shoes. The patient stands up on the upper limbs and moves to a standing position. Depending on the condition of the patient, leaning on the upper limbs can be on the edge of the bed, using a handrail, using crutches or using a walker, which the therapist must hold. Once again, the patient has to remain standing for a while and we monitor whether any difficulties appear. We pay attention to the correct posture.

During verticalization, it is necessary to constantly secure the patient against falling. If the patient cannot fully step on one DK while standing, the physiotherapist secures the patient on the affected side. In patients with a balance disorder, e.g. after CMP, the therapist reassures the patient on the healthy side.

Links

- Verticalizing table (https://indico.eu/eshop/files/products/golem_v.jpg)
- Verticalizing stand (<http://www.ortho-did.cz/images/parapod01.gif>)
- Slowly verticalizing the patient into a low sitting position (https://www.eamos.cz/amos/kos/img_upload/kos_392/poh3.jpg)
- Demonstration of landing maneuver (video) (<https://www.youtube.com/watch?v=UDJ8BkRO6iM>)

References

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- HALADOVÁ, Eva, et al. *Therapeutic physical education: exercises*. 3rd edition. Brno: National Center for Nursing and Non-Medical Health Sciences, 2010. ISBN 978-80-7013-460-3 .

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