3 Functional Training of Rotation About the Long Axis of the Body and the Long Axes of the Thighs

Functional training of rotation about the long axis of the body and the long axes of the thighs gives practice in activating and mobilizing these components of movement as part of economical movement behaviour.

Note
Because in typical human upright posture the long axis of the body and the long axes of the thighs are vertical, rotation about them is essential for economical locomotion and for skilful use of the hands. Because the long axis of the body is the rotation axis of the inherently mobile spinal column, the motion segments which constitute the rotation level must be capable of dynamic stabilization in their neutral position, otherwise rotation cannot take place in the best way. Since the long axis of the body is only a virtual axis (rather than an actual one), dynamic stabilization of the rotation levels is particularly important, because rotational movements are the only movements to take place in the spinal column during which the virtual long axis of the body is not lost.
When there is rotation in the hip joints about the frontosagittal functional long axis of the thighs, either both pointers or only the distal pointer or only the proximal pointer may rotate. Since rotation of the proximal pointer, the line connecting the right and left iliac spines, is extremely important for economical stressing of the hip joints during walking and standing, pelvic rotation in the hip joint will be discussed in detail.

Position in Space of the Long Axis of the Body and the Long Axes of the Thighs During Functional Rotation Training

When the long axis of the body and the long axes of the thighs are vertical, rotation about them is lift-free. The rotation levels in the spinal column are the atlanto-occipital and atlanto-axial joints, the cervical spine and, normally, the lower thoracic spine. To be capable of rotation, these must be dynamically stabilized. Dynamic stabilization in the area of the spinal column is primarily the function of the autochthonous vertebral muscles. They have the coordination to be able to meet the continually changing demands of posture. Consequently, lift-free rotation in the spinal column is inseparable from maintaining the virtual long axis of the body.
That we nevertheless perform the exercise Turn Again, Whittington with the long axis of the body horizontal, so that the economical forward movement resulting from rotation has to take place through the body’s turning on the base support, is for the following reasons: first, we are training the rotation under conditions of lifting stress (against gravity), which constantly changes as the body turns on the floor; second, we can keep the speed of movement low and thus bring the different phases of the movement better under control, despite the increased stress. We are thus training both skill and strength.

3.1 Turn Again, Whittington (Figs. 30, 31)

Turn Again, Whittington is suitable as rotation training for patients with normal spinal columns and hip joints or variants of the norm. Incipient and moderate restrictions in movement in these areas are pathological deviations that can be improved by this exercise. “Turn Again, Whittington” is an invented name, an anglicization of the German “Who Turns, Gains”, and refers to the legendary medieval Lord Mayor of London, Richard Whittington, who as a poor young apprentice was on the point of leaving the capital in discouragement when he heard the bells of London calling him back, and “turned again” to find fame and fortune.

Goal of the Exercise

The goal is for the patient to learn to coordinate the rotational movements and/or the muscular activities of rotation in the hip joints with those of the spinal column as in walking. We aim to reach this goal by training the muscles of rotation in the hip and vertebral joints for strength and skill. The patient is to learn to roll his body across a base support under steady control, without any involuntary acceleration or slowing down.

Functional Analysis in Therapist Language

Conception of the Exercise (Fig. 30)

To strengthen the rotational muscles of the vertebral and hip joints by imposing positive lifting stress, and to train their equilibrium reactions by placing the patient in a position of precarious balance, we choose a starting position in supine. To ensure that the rotational demands made on the spinal column as the body turns are the best possible, the spinal column must be in the neutral position.