

Supplement

The mental training component was implemented after Eberspächer's [49] model of the development of a motion concept in five steps. The following section describes the details of the treatment as exemplified by the first basic movement. In this movement the patient is sitting on his bed with a 45 degree inclined backrest, and the legs are stretched. The starting point for this movement is a description of the target movement by the instructor (step 1): *"First we are practicing with the non-operated leg. Please pull up your toes and build tension in your leg. Flex the knee as much as possible, feel the tension in your hollow of the knee and then slowly stretch your leg again. Please mind that your heel does not leave the mattress."* The patient performs this movement several times and leaves his eyes open at first. The patient is requested to pay attention to the feeling in his knee, buttocks and heels, and to internalize the kinesthetic sensations when moving the non-operated leg. Finally, he is able to summarize the movement sequence in his own words (step 2). The next step is about initializing the motion sequence through a repeated monologue of the sequence (step 3). Finally, patient and therapist define together the nodal points of the motion (step 4).

In the first basic movement, these build up tension by moving up the toes, and by bending and stretching of the knee joint. In the last step, those central parts are marked symbolically by short formulas (step 5; e.g. "tens" for moving up the toes, "bend" for bending of the knee joint, and "push" for stretching). The patient speaks these short formulas while performing the three sequences with closed eyes. Afterwards, the motion is performed five times with the unaffected leg with a mirror between the legs. The patient receives the instruction to only watch the mirror image. Finally, the patient performs the motion mentally with the operated knee. He gets the following instructions: *"Please close your eyes. Speak your individual motion instruction while performing the task. Try to adopt an inner perspective. Think about the following questions: Did you see yourself from the outside or did you feel the movement of your body? Did you have a clear and vivid imagination? Please consider that, when imagining the motion, the feeling of the end state – the pressure and tension – is important and not the imagination of the leg bending and stretching."* The mirror technique was only used in intervention sessions to facilitate formation of the concrete motion imagination. The autonomous training was carried out by performing the target motion motoric-contralaterally.