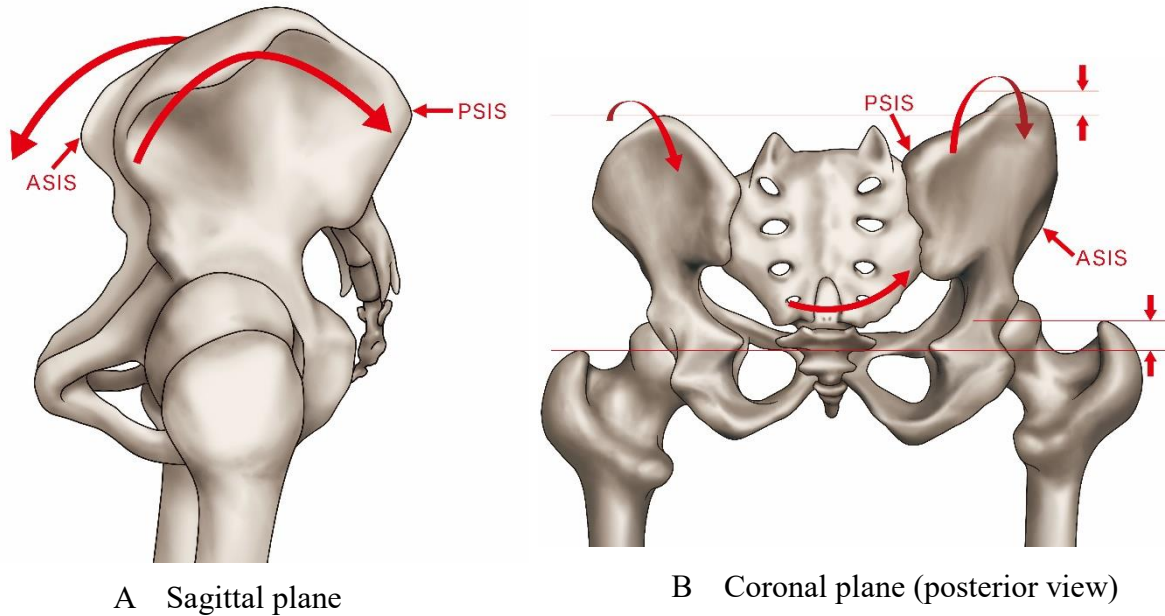


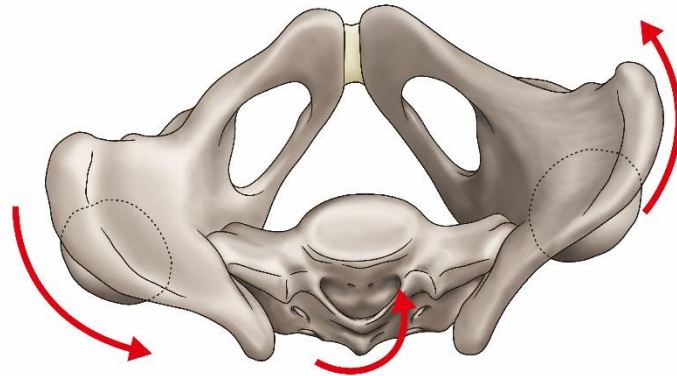
Supplementary Information



A Sagittal plane

B Coronal plane (posterior view)

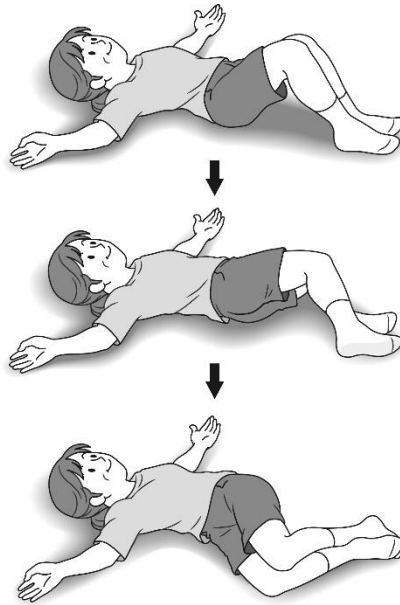
ASIS: Anterior superior iliac spine, PSIS: Posterior superior iliac spine



C Horizontal plane

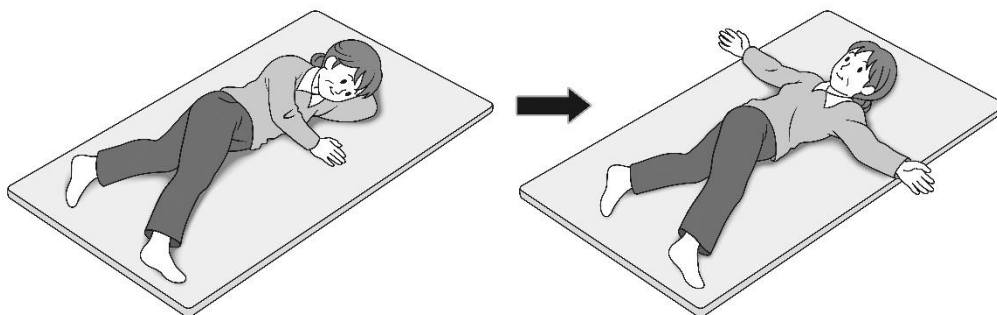
Anterior pelvic tilt and elevation of the greater trochanter in
OA of the right hip

- A: Sagittal plane (right anterior pelvic tilt, left posterior pelvic tilt)
- B: Coronal plane (posterior view) (right PSIS: superior displacement, elevation of the greater trochanter of the right femur; left PSIS: inferior displacement)
- C: Horizontal plane (anterior shift of the right iliac crest; posterior shift of the left iliac crest)



1-①: Exercise for the lower back

The patient spreads both arms and flexes both knees in a supine position. A: The patient flexes both knees 90° . The patient swings both knees to one side (so that her knees touch the ground; if her knees do not touch the ground, she brings her knees as close to the ground as possible) and then the other, keeping her back firmly in place. The patient maintains this position for 3 seconds on each side. If she has difficulty swinging her knees from side to side, she can slide the top knee slightly forward of the lower knee and then swing her knees. The patient performs 1 set of the exercise by swinging both knees from side to side 30 times. The patient performs 1 set of the exercise after waking and before walking. B: The patient flexes both knees as much as possible, i.e. more than 90° . The patient then performs the exercise in the same manner as in A.



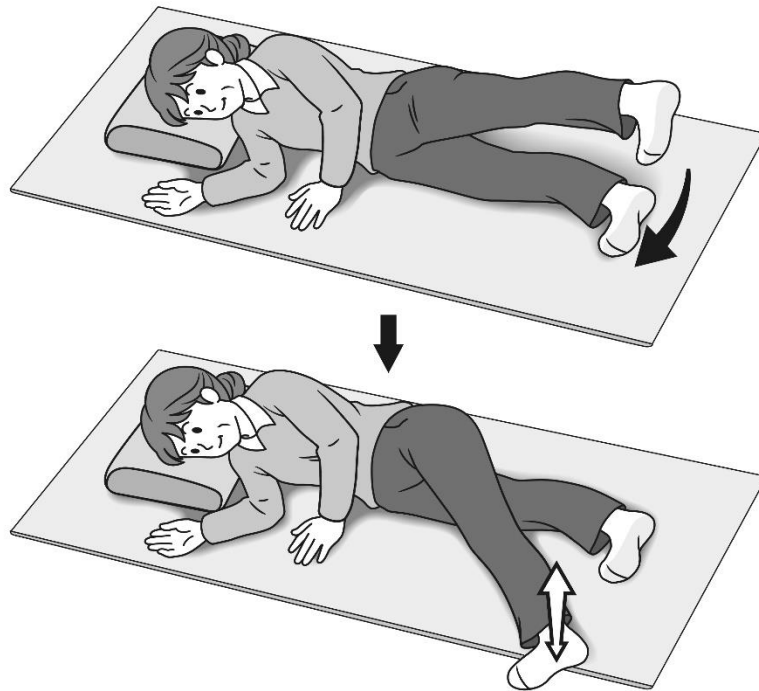
1-②: Correction of apparent differences in leg lengths

This exercise corrects apparent differences in leg lengths. The patient assumes a lateral position with the hip that has a higher greater trochanter on top. If the patient has no lower back pain, she moves her top leg forward 30° and rests her foot on the floor. If the patient has lower back pain, she moves her top leg forward 30-45° and rests her foot on the floor. After moving her top leg forward, the patient then moves her top shoulder backwards (so that it touches the ground) without lifting her leg up, and she maintains this position for 180 seconds. She performs this exercise one time after waking and before walking.



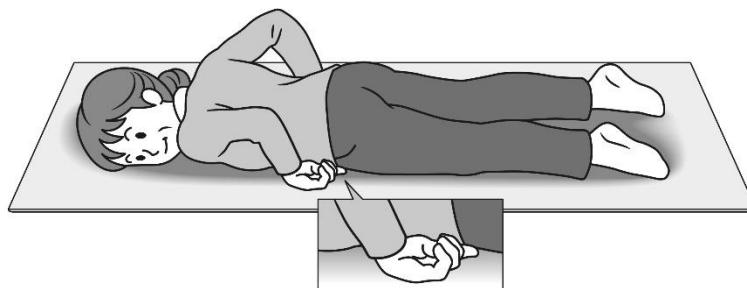
1-③ A : Adjustment of the greater trochanter, Self-evaluation

Locate the tip of the greater trochanter with the tip of the middle finger of both hands and compare the position of the greater trochanter on both sides of the body. The side with the greater trochanter located more to the rear is the side with a higher greater trochanter and is thus the affected side.



1-③ B: Adjustment of the greater trochanter

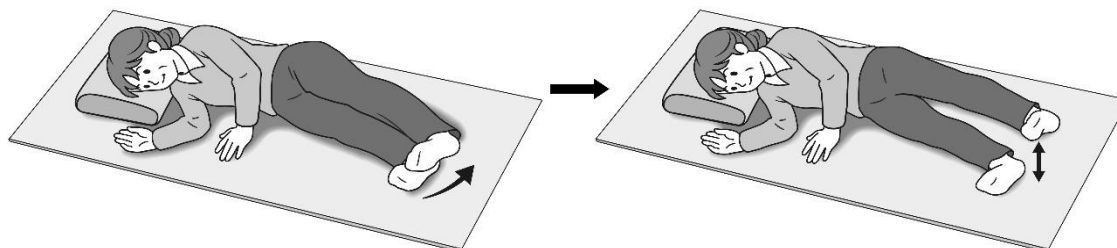
The patient assumes a lateral position with the hip that has a higher greater trochanter on top and the patient extends both legs. She moves the upper leg forward of the lower leg forward and then rhythmically taps her foot on the floor by moving it up and down about 10 cm. The patient performs 1 set of this exercise 50 times. The patient performs 1 set of this exercise after waking and before walking.



1-④ A : Adjustment of the ASIS, Self-evaluation

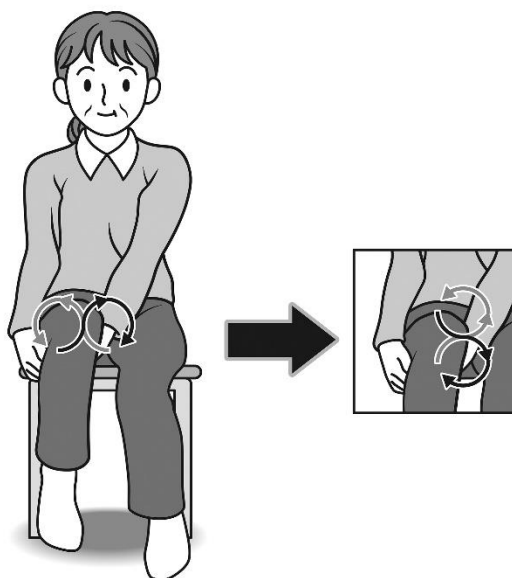
While in a prone position, the patient measures the distance between the floor and both ASIS with the middle finger of both hands. The side with a shorter distance between the

floor and the ASIS is the affected side.



1-④ B:Adjustment of the ASIS

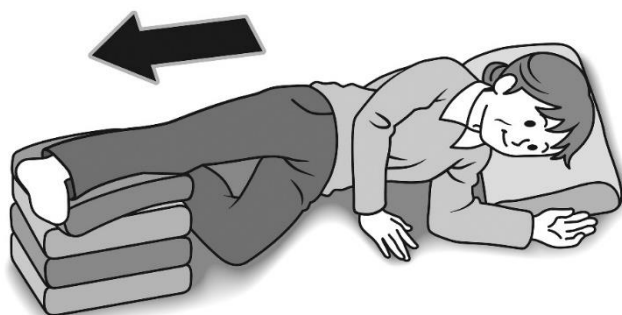
The patient assumes a lateral position with the leg that has a shorter distance between the ASIS and the floor on top. The patient moves the upper leg backward so that the big toe touches the heel of the lower leg. She then rhythmically taps her foot on the floor by moving it up and down about 10 cm. The patient performs 1 set of this exercise 50 times. The patient performs 1 set of this exercise after waking and before walking.



2: Back-and-forth figure 8 exercise

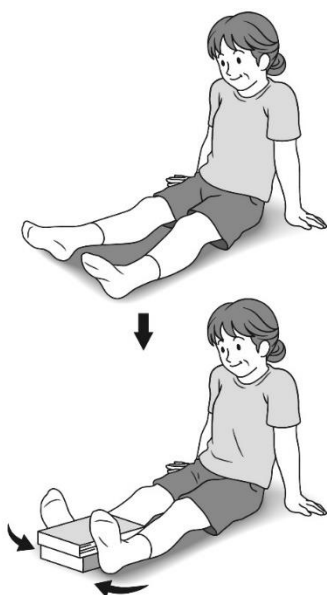
The patient sits in a chair. She places both hands on the rear of the thigh on the affected side (the side with poor hip abduction). She supports her thigh with both hands and moves her thigh in 4 directions (to one side, to the other side, up, and down) inwards and outwards to form a figure 8 pattern. The thigh is put through each loop of the figure 8 (one loop inwards, 1 loop outwards) 15 times in each direction in 1 set. The

figure 8 should be as small as possible. The patient performs this exercise on both hips in 3 sets a day.



3: CKC exercise involving the hip abductors of the tensor fasciae latae

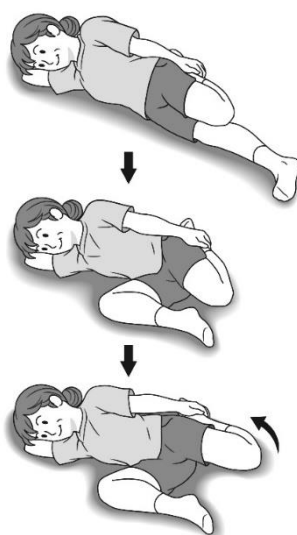
The patient assumes a lateral position with the leg on her affected side on top. She raises the foot of her top leg to the height of her hip. She then moves the foot forward 5–10° and rests it on a pillow. She points her toes to upwards and holds that position for 15 seconds. This exercise is performed 20 times a day for both feet. When she sticks her heel out, lower back pain can sometimes occur or lower back pain that she had before the PSTR exercise can worsen. If the affected hip makes a cracking sound, this sound can be eliminated by straightening the leg and not moving the foot forward.



4: Correction of bowed legs

The patient sits on the floor and raises her upper body. She extends both legs and spread them the width of her torso. She places a few books between the medial malleolus of both ankles and then pushes on the books with both legs using 70% power. She performs 1 set

of the exercise by pushing on the books 4 times for 10 seconds each. The patient performs 4 sets of this exercise per day.



5: Stretching of the quadratus femoris

The patient assumes a lateral position with the leg on her affected side on top. She faces to the right. She holds the ankle of the upper leg with her hand. When she cannot hold the ankle, she loops a towel around the ankle and holds the ends of the towel with her hand. She flexes the knee of the lower leg, moving it forward as much as she can (as long as there is no pain). She moves the ankle of the upper leg backward with her hand and maintains this position for 10 seconds each time. She does not raise the knee of the upper leg during this exercise. The patient then faces to the left and stretches the other leg. The patient performs 1 set of this exercise by stretching each leg 10 times. The patient performs 1 set of this exercise per day.