PILATES FOR ANKLE SPRAINS AND REHABILITATION

Seza Bali

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Cengiz Han Üçgün Pilates Studio, Istanbul
In this research paper I am focusing the rehabilitation and strengthening of an injured ankle. Ankle sprains and injuries are very common; we may trip while walking, running or playing sports. For the majority of sprains, the R.I.C.E method (rest, ice, compression, elevation) works to release the immediate discomfort and pain. However we must pay close attention to severe ankle injuries in order to prevent any chronic pain from occurring. Strengthening the muscles around the ankle and carefully increasing mobility of an injured ankle will help quicken the healing time.
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Anatomical study of the ankle-foot joint

The ankle joint is a uniaxial, hinge joint. It is located between the talus, the medial malleolus of the tibia, and the lateral malleolus of the tibia.

The main bones of the leg/foot area are:

- the tibia, which runs medially from the knee down to the ankle
- the fibula, which runs laterally from the knee down to the ankle
- the talus, which sits under the tibia and the fibula
- the calcaneus, which is the heel bone

The main muscles of the foot are:

- the anterior tibial, which enables the foot to move upward;
- the posterior tibial, which supports the arch;
- the peroneal tibial, which controls movement on the outside of the ankle;
- the extensors, which help the ankle raise the toes to initiate the act of stepping forward;
- the flexors, which help stabilize the toes against the ground.

The tendons in the body connect muscles to the bones and joints. Ligaments hold the tendons in place and are stabilizers for the joints. They prevent excessive inversions and eversions but are commonly torn in ankle sprains.
Case study:

31 year-old female, active in sports. She experienced a severe ankle injury in 2005 resulting in torn ligaments on the lateral left ankle. Immediately after the injury she went to physical therapy for 6 months, during which her mobility improved from inability to put any weight on her foot to walking with crutches, and eventually without any support.

8 years after the injury the client still suffers from instability, medial and lateral ankle pain. Due to the torn ligaments being on the lateral side of the ankle, the foot compensated by overusing the medial muscles for stability, there is also damage in the cartilage. The client did not have surgery and has been told by multiple physicians that she needs to learn how to manage the ankle; doing deep tissue massage with anti-inflammatory gels, foam rolling both the sides of the ankle, strengthening exercises with therabands and wearing arch supportive shoes. The client also notes that even though she cannot do long distance running, cycling has helped her ankle get stronger.

With a private class, we are able to focus on exercises that will enable more mobility around the ankle joints and prevent further degeneration from happening. In general calf stretches, strengthening the calves, quadriceps and hamstrings result in a stronger leg. We want strong leg muscles to help support the foot and ankle.
Program:

Roll down – paying close attention to the arches of the feet, they should not collapse into the floor

**Warm up (Intermediate)**

Pelvic curl, Roll Up, Double Leg Stretch, Single Leg Stretch, Criss Cross

**Additional foot warm up**

Rolling a tennis ball under the foot to release tension, theraband stretches with eversions and inversions, calf stretch leaning into a wall

**Foot Work**

- Parallel Heels, Parallel Toes, V Position Toes, Open V Heels, Open V Toes – jump board
- Calf Raises, Prances – foot bar

We are doing most of the foot work on the Reformer, using a jump board as an assist. Having the feet firmly planted on the jump board reinforces the need to have equal amount of pressure and emphasis on both sides of the ankle.

**Abdominal Work**

- Short Box Series on Reformer (Intermediate): Round Back, Flat Back, Twist

Having the feet on under the foot strap is a good challenge for the ankle to work and stay still.
Hip Work

- Cadillac strap work (Fundamental): Frog, Circles Down and Up, Walking, Bicycles

During hip work with straps, we want to avoid holding plantar flex position too much as this puts pressure on the lower part of the soleus.

Spinal Articulation

- Bottom Lift with Extension on Reformer

Theis spinal articulation exercise puts emphasis on the placement of the feet. Trying to keep the heels still adds another challenge to the ankle.

- Monkey Original on Cadillac

During the inhale we dorsi flex and plantar flex the foot. This adds a nice stretch to the achilles tendon during the plantar flex, and the soleus during the dorsi flex.

Stretches

- Hamstring Stretch Series on Reformer: Standing Lunge

We focus on opening up the legs and stretching the hamstrings for stronger legs overall.

Full Body Integration

- Stomach Massage Round Back, Stomach Massage Flat Back, Stomach Massage Reaching

Similar to Monkey Original on Cadillac, the dorsi flex and plantar flex during the strengthening of the legs add a nice stretch to the achilles tendon and the soleus.

Arm Work

- Arms Sitting Series on Reformer (Intermediate): Chest Expansion, Biceps, Rhomboids, Hug A Tree, Circles Up, Circles Down, Salutes
Between the previous dorsi/plantar flexions and the leg work coming up, we want to have the client in supine position and let the feet and legs relax here.

**Leg Work**

- Step Down Series on Wunda Chair: Backward Step Down
- Lunge Series on Wunda Chair: Forward Lunge

Both exercises focus on single leg balance and coordination, adding a great challenge to hold the standing ankle on the chair stable.

**Lateral Flexion/Rotation**

- Side Over on Box on Reformer

Having the foot laterally under the foot strap is an ankle strengthening detail of this exercise.

**Back Extension**

- Swan on Floor on Wunda Chair
- Cat Stretch on Mat

We finish the session with low-demanding back extension classes, and finish in rest position.
By following a program that puts enough emphasis on strengthening the ankle even during exercises where the primary muscles is not the in the ankle-foot complex, we create a strong leg and strong feet. The program uses several pieces of equipment and the client feels challenged by the variety of the exercises. She notes that she is more aware of the placement of her feet during her sessions. She has been feeling more stable on her ankle and remarks less pain and stiffness all around.
Bibliography


Isacowitz, Rael; Clippinger, Karen, Pilates Anatomy, p. 33-36