Athletic Medicine and Performance Sideline Help Coaches Clinic

"Ankle Injuries and Returning to Activity Post Injury"

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I am employed by Ortho Montana and through a partnership with Athletic Medicine and Performance (AMP), I provide athletic training services to Billings Senior High School and the surrounding communities.



### Anatomy -> Bones

There are three bones that make up the ankle joint:

- Tibia Shinbone
- Talus Bone that sits between the heel bone and the tibia and fibula
- Fibula Lower leg bone



# Anatomy -> Ligaments

All 3 bones are held together by ligaments.

The three ligaments frequently involved in ankle sprains include the following:

- Anterior talofibular ligament
- Posterior talofibular ligament
- Calcaneofibular ligament



# Anatomy -> Muscles

There are 29 muscles associated with the human foot.

Ten of these muscles originate outside of the foot itself but cross the ankle joint to act on the ankle joint and help position the foot.

The other 19 muscles are referred to as intrinsic muscles of the foot and act only within the foot.





The rate of ankle injury was **3.85 per 1000 participations**, with almost half (45.9%) missing one week or more of competition and the most common mechanism being landing (45%).

The most commonly sprained or strained joint is the ankle. Approximately 1 million ankle injuries occur each year, and 85 percent of them are sprains.

Sports injuries including ankle sprains have increased with a total of 25,000 sprains a day.

Seven in 1,000 Americans will have an ankle sprain.

Ankle sprains are 40 percent of all ankle injuries and 45 percent of basketball players have ankle sprains with soccer and football players not far behind in the statistics.



# Common Injuries

The most common ankle injuries are sprains and **fractures**, which involve ligaments and bones in the ankle. But you can also tear or strain a tendon.

A <u>fracture</u> describes a break in one or more of the bones.

A <u>sprain</u> is the term that describes damage to ligaments when they are stretched beyond their normal range of motion.

A <u>strain</u> refers to damage to muscles and tendons as a result of being pulled or stretched too far.





# Treatment during the first 24 – 48 hours post injury





#### Rehabilitation/Reconditioning Exercises - after the 1st 24 - 48 hours

- Flexibility
- Strength
- Proprioception/balance
- Functional activity





/ ˌfleksəˈbilədē/

#### noun

The quality of bending easily without breaking.





#### **Stretching**

Hold each stretch for 45 seconds Stretch with a straight leg for the gastrocnemius (calf muscle) Stretch with a flexed knee (achilles/soleus muscle) Repeat 3 times









Foam Rolling - foam rolling is a type of self-massage that allows you to alleviate tightness or trigger points





#### Strength



noun

the capacity of an object or substance to withstand great force or pressure.





#### Eversion



With tubing anchored around the uninvolved foot, slowly turn the involved foot outward.

### Inversion



Cross legs with involved ankle underneath. With tubing anchored around the involved foot, slowly turn the involved foot inward.

# Dorsiflexion



With tubing anchored under the uninvolved foot, pull the involved foot towards the face. Return slowly to starting position

### Plantarflexion



With tubing around the involved foot, press foot down. Return slowly to the starting position.

# Strength

Monster walks Place band around lower ankles or around the thighs

Move lateral Move forward Move backward Move at an angle

Slow controlled movements.





## Balance training





noun

an even distribution of weight

enabling someone or something to

remain upright and steady.

### Balance





Balance progression from a hard surface to a more and more unstable surface.

Goal: Challenge the muscle, ligaments and sensory components of the ankle.







# Balance training





Make it fun! Incorporate a ball or a competitive aspect. Try having them close their eyes.

#### Functional activity aka Pre Practice Conditioning

A task or act that allows one to meet the demands of the environment and daily life.







#### Video:

https://www.youtube.com/watch?v=UxDb m7\_CWec

#### JUMP ROPE

Working out your ankles in different angles mimics the same type of angles your ankles encounter during a basketball game. Grab a jump rope and start skipping.





#### Full Squat

A full squat helps improve ankle strength, mobility and gives you power for jumping, passing, and hitting.

Lunges

Lunges work on stabilizing your ankle muscles as your weight shifts when you sprint down the field or change direction on defense.





# References

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