



PART



Lower Extremity

Lower Leg

Objectives

- ▶ Recognize basic anatomy of the lower leg
- ▶ Define basic medical terms related to the lower leg
- ▶ Recognize common mechanisms of injury of the lower leg
- ▶ Effectively tape and wrap common injuries of the lower leg

Lower Leg Anatomy

Musculature

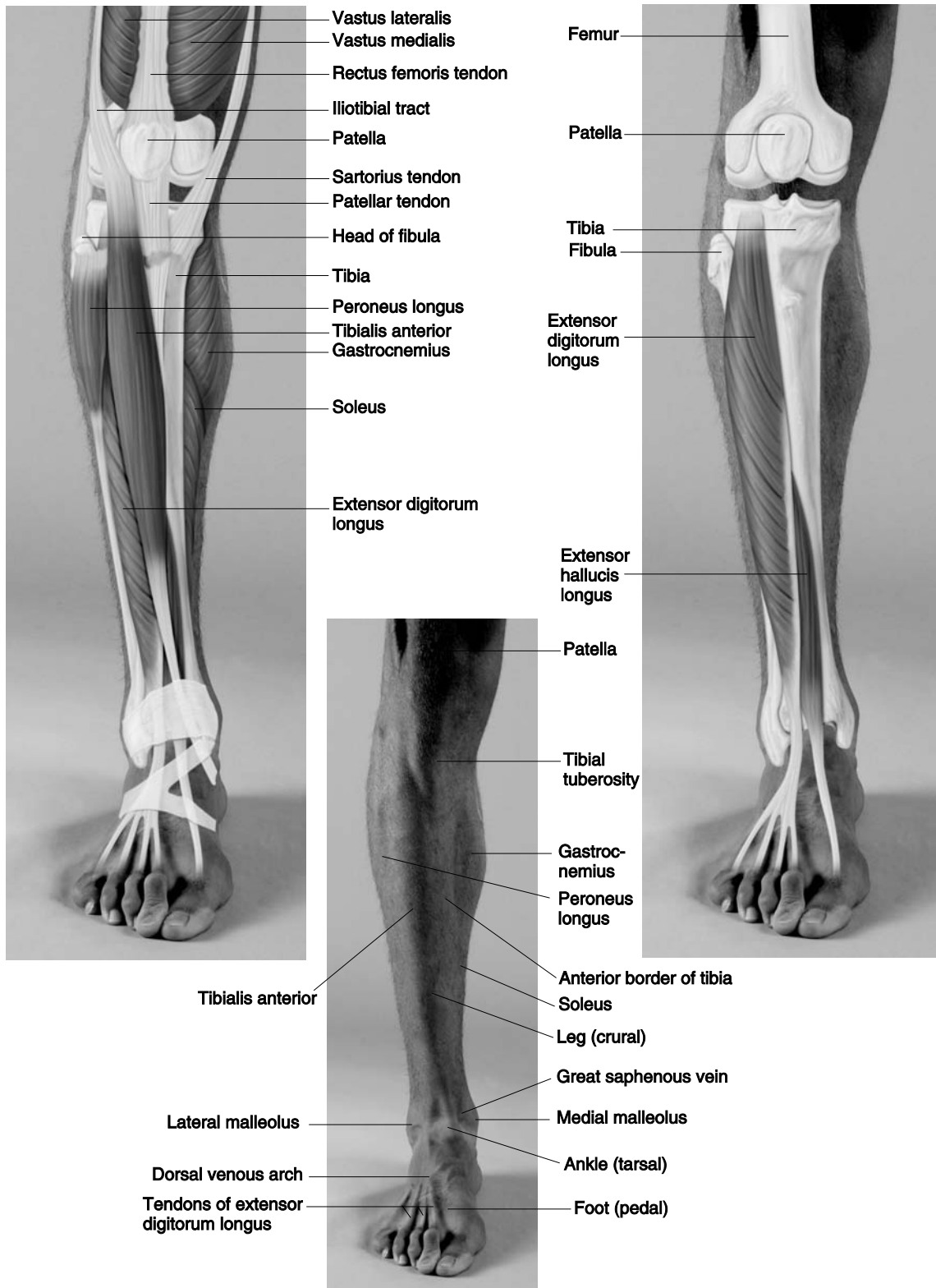


Figure 4-1 Lower limb surface landmarks (anterior view). Location of superficial muscles in leg, location of deep muscles in leg, and surface landmarks. (From Premkumar K. *The massage connection anatomy and physiology*. Baltimore: Lippincott Williams & Wilkins; 2004.)

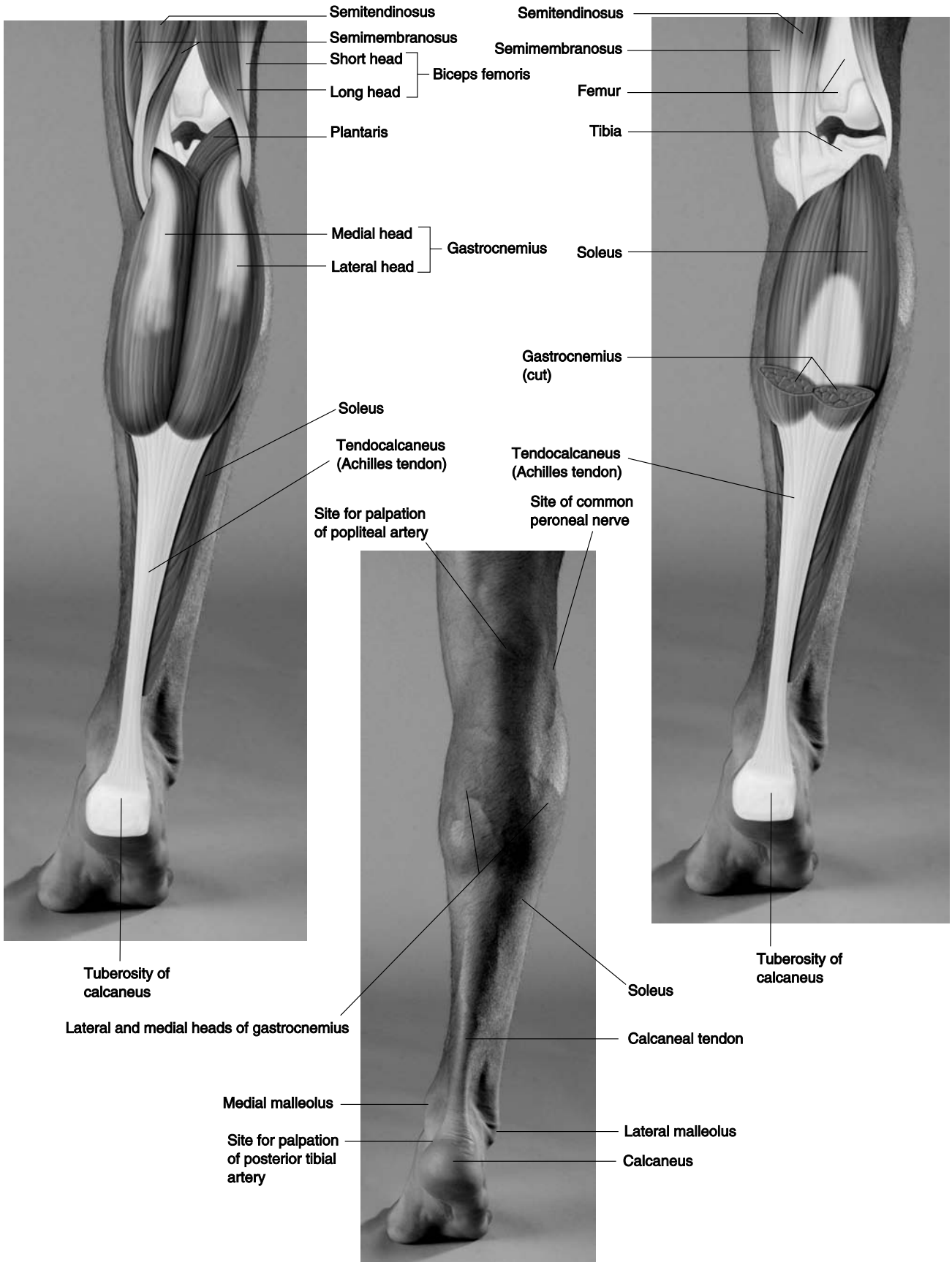


Figure 4-2 Lower limb surface landmarks (posterior view). Location of superficial muscles of leg, location of soleus, and surface landmarks. (From Premkumar K. *The massage connection anatomy and physiology*. Baltimore: Lippincott Williams & Wilkins; 2004.)

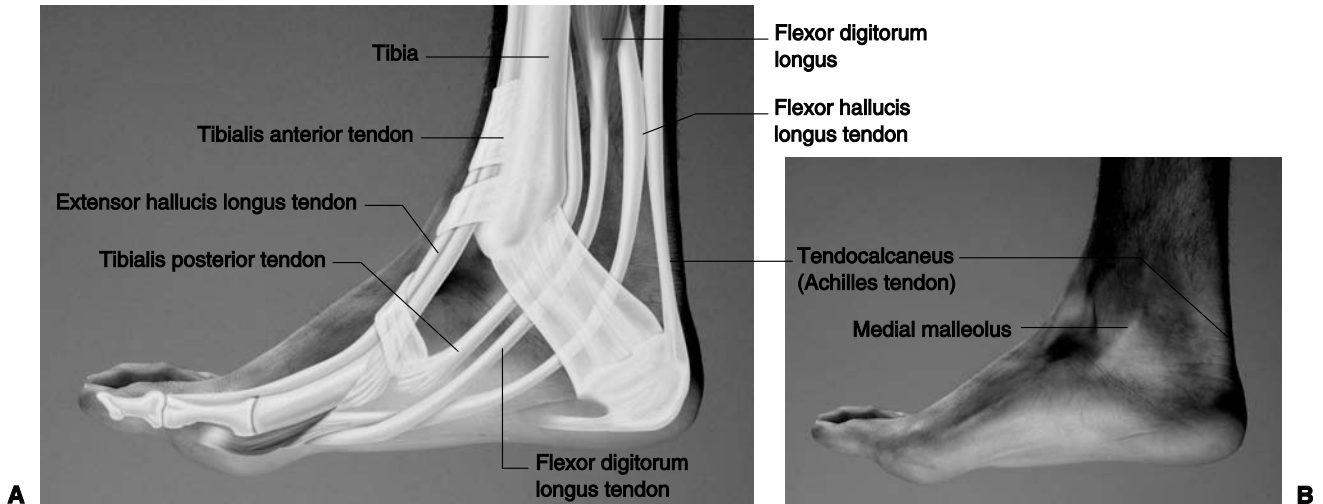


Figure 4-3 Tendons and vessels on the dorsum of foot. **A.** Location of tendons on the dorsum of foot; **B.** Surface landmarks. (From Premkumar K. *The massage connection anatomy and physiology*. Baltimore: Lippincott Williams & Wilkins; 2004.)

Ankle Ligaments

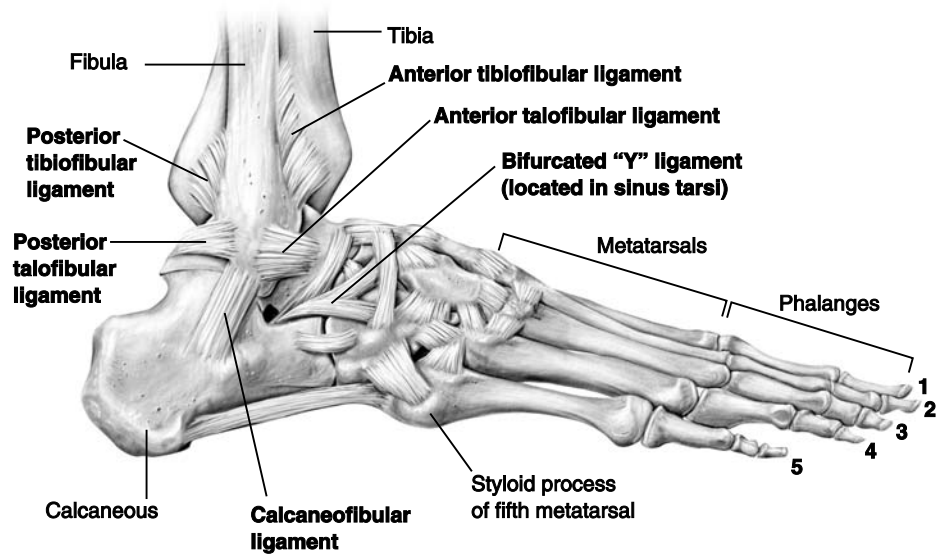


Figure 4-4 Ligaments of the ankle (talocrural) joint (lateral view). (Asset provided by Anatomical Chart Co.)

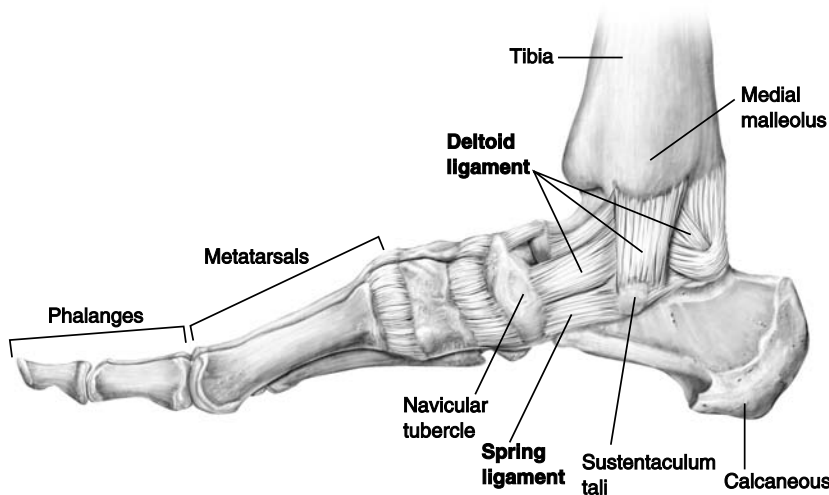


Figure 4-5 Ligaments of the ankle (talocrural) joint (medial view). (Asset provided by Anatomical Chart Co.)



Ankle sprain

This procedure is used for inversion ankle sprains, eversion ankle sprains, high-ankle sprains, and general ankle pain

Injury Description

With **inversion** (sole of foot facing inward) sprains, the **lateral** (away from middle of body) ankle ligaments/tendons are affected. **Eversion** (sole of foot facing outward) sprains affect the exact opposite, the **medial** (toward the midline of the body) ligaments/tendons. Inversion sprains happen about 80% of the time compared to eversion sprains. This is mainly because of the bony anatomy of the ankle.

Goal of Procedure

To provide extra support for the ligaments and/or tendons of the injured side of the foot/ankle by limiting motion.

Supplies Needed

- Tape adherent
- Heel and lace pads
- Pre-wrap
- 1 1/2" or 2" non-elastic tape (either size can be used but 1 1/2" is generally easier for beginners)

Patient Positioning

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's lower leg should be exposed from the base of the calf to the foot with the foot/ankle in the neutral position (see Fig. 4-6).



Figure 4-6

(continued)

Ankle sprain**(continued)****Step-by-Step**

1. Apply tape adherent to the skin where the tape will be applied. Also place lubricated heel and lace pads on the back of the heel and top of the foot at the bends for blister prevention. If using prewrap, apply now (see Fig. 4-7). Remember, taping to the skin will provide maximum support.

**Figure 4-7**

2. Using the 1½" nonelastic tape, apply (2–3) anchor strips around the base of the calf, slightly overlapping each one toward the foot. Apply another anchor strip around the midfoot making sure it is not too tight (see Fig. 4-8).

**Figure 4-8**

3. Starting on the medial side of the anchor strips at the base of the calf, apply the tape down toward the heel, continuing underneath the heel and coming back up the lower leg on the lateral side and ending on the anchor strips on the lateral side of the base of the calf. Apply (2) more of these strips, slightly overlapping each one. These strips are called "**stirrups**," because of the shape or design they make (see Fig 4-9).

**Figure 4-9***(continued)*

Ankle sprain**(continued)**

4. Starting at the last anchor strip applied on the calf, apply more strips, overlapping and working toward the ankle. Once at the lower ankle/foot, these strips will turn into horseshoe-shaped strips, meaning the two ends will not meet or touch each other at the front like the circular strips do as described earlier (see Fig. 4-10).

**Figure 4-10**

5. Starting on the inside of the ankle (just like a stirrup strip) apply the tape downward and underneath the foot but instead of coming up on the opposite side like a stirrup, angle the tape toward the top of the foot and on to the original starting position of the strip. Cross over the original strip and around the back of the calf and meet again at the original starting strip. This taping support strip is called a “**figure 8,**” for the shape that it makes/resembles (see Fig. 4-11).

**Figure 4-11**

6. Starting on the anterior (toward the front) inside of the shin above the ankle, angle the tape behind the heel, continuing directly underneath the foot and back over to the top of the ankle and repeating the same procedure going in the opposite direction. Repeat these strips (1) more time. These strips are referred to as “**heel locks,**” as they literally “lock” the heel in place (see Fig. 4-12).

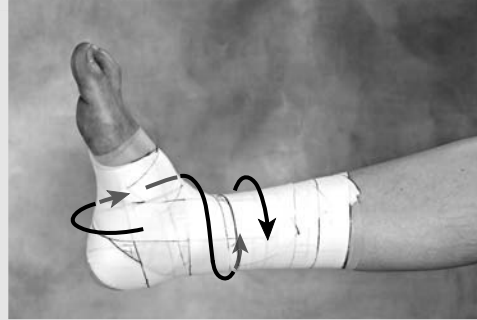
**Figure 4-12**

7. If using any extra support strips for added protection for recent or not fully healed ankle sprains, do so here right after the heel lock strips.
8. Make sure there are no holes (openings in the tape) anywhere from anchor to anchor with the exception of the heel being uncovered. If there are holes, fill in as needed with tape.
9. Starting at the very first anchor strip at the base of the calf reapply “**closure**” strips overlapping all the way down to the ankle. Reapply another strip of tape over the midfoot anchor (see Fig. 4-13).

**Figure 4-13***(continued)*

Ankle sprain**(continued)**

10. Starting on the inside of the ankle again, apply another “**figure 8**” strip as described in Step no. 5 (see Fig. 4-14).
11. Smooth tape down and conform to the body.
12. Have the athlete stand and put weight on the tape and walk around a couple of times to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.

**Figure 4-14****TIPS, HINTS, AND TRICKS**

When taping an eversion ankle sprain, simply reverse the sides where the inversion support strips start. With inversion sprains as described earlier, all supporting strips start on the inside first. With eversion, all supporting strips start on the outside.

**COMMON MISTAKES**

1. Pulling tape too tightly around the midfoot will cause restriction resulting in pain
2. Taping with the athlete's foot relaxed (not in neutral position) which will result in the tape being too tight
3. Applying the strips in the wrong direction (inversion/eversion) which will affect the effectiveness of the taping procedure

**Special ankle support strips****These strips are used for acute and chronic ankle sprains****Injury Description**

With **inversion** (sole of foot facing inward) sprains, the **lateral** (away from middle of body) ankle ligaments/tendons are affected. **Eversion** (sole of foot facing outward) sprains affect the exact opposite, the **medial** (toward the midline of the body) ligaments/tendons. Inversion sprains happen about 80% of the time compared to eversion sprains. This is mainly because of the bony anatomy of the ankle.

Goal of Procedure

To provide additional support to injured ankle ligaments/tendons using heavier tape.

Supplies Needed

- 2" or 3" heavy-duty elastic tape
- Tape scissors or tape cutters

Patient Positioning

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's lower leg should be exposed from the base of the calf to the foot with the foot/ankle in the neutral position. This is the same position for taping the ankle.

(continued)

Special ankle support strips

(continued)

Step-by-Step

These strips are to be applied just after the heel locks are applied in an ankle sprain taping procedure. Usually, only one special ankle support strip is applied according to the athlete's or the tapper's preference. Applying two or more of these strips to a regular ankle tape job would result in too much tape to cut off.



Double Heel Lock (Helmer and Helberg) Strip

1. Using 2" or 3" adhesive, heavy-duty elastic tape, start on the medial lower leg just like a stirrup strip and continue underneath the foot and come over the top of the ankle and continue into a heel lock (see Fig. 4-15).



Figure 4-15

2. On the second and final heel lock, instead of spiraling around the lower leg, come up just like a stirrup on the lateral leg (see Fig. 4-16). It is basically just combining stirrups with heel locks.



Figure 4-16



Double Figure Eight (Sunderland) Strip

1. Using 2" or 3" adhesive, heavy-duty elastic tape, start on medial lower leg just like a stirrup strip and continue underneath the foot and come over the top of the ankle and continue into a figure 8 strip (see Fig. 4-17).



Figure 4-17

(continued)

Special ankle support strips

(continued)

2. Instead of stopping on the same side like a figure 8 does, continue on to another figure 8 and end up in a stirrup on the lateral leg (see Fig. 4-18). It is basically just combining stirrups and figure 8s.



Spartan Strip

1. Cut off about a 2-ft length of 2" or 3" adhesive, heavy-duty elastic tape and at each end cut a snip in the middle. Grab each end of strip and apply to the plantar (sole of foot) surface of the foot. This strip starts out just like one big stirrup (see Fig. 4-19).
2. Take one end and stretch it upward on the outside of the lower leg and tear the tape end down the middle using the snip created earlier. Tear all the way until the tear reaches the **malleolus** (big ankle bone sticking out on that side). Take each end around the ankle/lower leg. Repeat the same procedure on the opposite side (see Fig. 4-20).



Figure 4-18

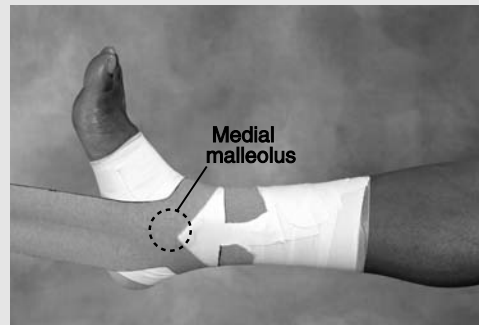


Figure 4-19



Figure 4-20



TIPS, HINTS, AND TRICKS

When taping an eversion ankle sprain, simply reverse the sides where the inversion support strips start. With inversion sprains as described earlier, all supporting strips start on the inside first. With eversion, all supporting strips start on the outside.



COMMON MISTAKES

1. Pulling tape too tightly around the midfoot will cause restriction resulting in pain
2. Taping with the athlete's foot relaxed (not in neutral position) which will result in the tape being too tight
3. Applying the strips in the wrong direction (inversion/eversion) which will affect the effectiveness of taping procedure



Achilles' tendonitis/strain

Used for Achilles' tendonitis and Achilles' strain

Injury Description

The Achilles' tendon which attaches the calf muscles to the **calcaneus** (heel bone) is commonly injured. It can be strained by stepping in a hole or developing tendonitis, which is an inflammation of the tendon usually caused by overuse.

Goal of Procedure

To support the Achilles' tendon whether it be tendonitis or a strain. In essence, the taper is creating a "secondary" tendon to help take pressure off the real Achilles' tendon. This is one of the main purposes for taping.

Supplies Needed

- Tape adherent
- Heel and lace pads
- Prewrap
- 2" or 3" light-duty elastic tape (adhesive)
- 2" or 3" heavy-duty elastic tape
- 1 1/2" nonelastic tape
- Tape scissors or tape cutters

Patient Positioning

Athlete should be sitting with the lower legs extending off the edge of the table exposing the leg from the base of the calf to the foot (see Fig. 4-21). The foot/ankle should be relaxed when applying the Achilles' strips. When taping the ankle at the end of the Achilles' procedure, the foot/ankle should be in the neutral position (foot at 0 degrees). Because of the tension of the Achilles' tape, the taper will have to use his/her chest to keep foot in neutral position to apply ankle taping.



Figure 4-21

Step-by-Step

1. Apply tape adherent to the skin where the tape will be applied. Also place lubricated heel and lace pads on the back of the heel and top of the foot at the bends for blister prevention. If using prewrap, apply now (see Fig. 4-22). Remember, taping to the skin will provide maximum support.



Figure 4-22

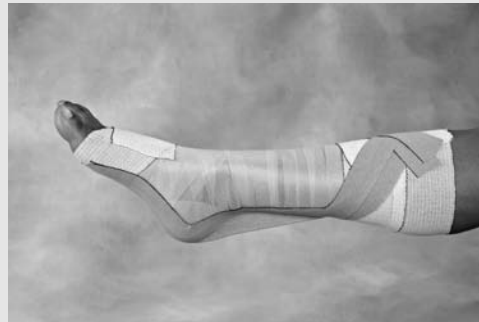
(continued)

Achilles' tendonitis/strain**(continued)**

- Place a strip of 2" or 3" light-duty adhesive elastic tape around the calf starting just above the belly of the gastrocnemius calf muscle. It should be about 6" below the knee cap. Apply one more strip slightly overlapping toward the foot. These are the top anchor strips. Using the 2" or 3" adhesive elastic tape, apply one strip to the ball of the foot, encircling the base of the toes. When applying the anchor strips above, make sure the foot/ankle is in neutral position (see Fig. 4-23).

**Figure 4-23**

- Have athlete relax the foot/ankle. Using the 2" or 3" heavy-duty elastic tape, apply a strip starting from the anchor strip on the bottom of the foot at the base of the toes and pulling it toward the anchor strips around the calf muscles. Snip the calf end with scissors and tear the strip down the middle until at the base of the calf. Wrap the two ends toward the front of the lower leg. Make sure not to pull all of the stretch out of the tape when applying these strips. Apply two more identical strips slightly overlapping the first strip. Pinch these three strips together around the Achilles' tendon area at the back of the foot. Be careful not to pinch the athlete's skin (see Fig. 4-24).
- Reposition athlete into the sitting up position with legs extended off edge of table and place the foot/ankle into the neutral position or as close to it as possible. Reapply the anchor strips as in Step no. 2.
- Keeping the foot/ankle in the neutral position, apply an inversion ankle tape job over the Achilles' taping procedure to prevent ankle sprains (see Fig. 4-25).
- Smooth tape down and conform it to the body.
- Have the athlete stand and put weight on the tape and walk around to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.

**Figure 4-24****Figure 4-25****TIPS, HINTS, AND TRICKS**

This taping procedure should be combined as described earlier with the inversion ankle taping procedure because taping the Achilles' tendon pulls the ankle into inversion and plantar flexion (pointing toes toward ground), thus increasing the chances of the athlete spraining his/her ankle.

**COMMON MISTAKES**

- Pulling the tape too tightly
- Not starting the anchor strips properly — either too low on the base of the calf or too high upon the midfoot
- Taping with the athlete's foot in the improper position which will result in the tape being too tight or decreasing its effectiveness



Shin splints

Used for shin splints

Injury Description

Shin splints are an overuse/fatigue condition of the lower leg muscles and/or arches of the foot. People who **over-pronate** (have flat feet) are more likely to have shin splints. Increases in training without time for the body to adapt to those increases will lead to shin splints. Any change in routine can cause them as well, such as new shoes, change in running surface, increase in distance, time or duration, etc.

Goal of Procedure

To support the muscles of the **posteriomedial** (back, and inside) portion of the lower leg; namely, the posterior tibialis muscle, which is the most commonly affected muscle in shin splints.

Supplies Needed

- Tape adherent
- Prewrap
- 2" or 3" light-duty elastic tape (either size/adhesive quality may be used here)
- 1 1/2" nonelastic tape

Patient Positioning

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's lower leg should be exposed from the base of the calf to the foot with the foot/ankle in the neutral position (see Fig. 4-26).



Figure 4-26

Step-by-Step

1. Apply tape adherent to the skin where the tape will be applied. If using prewrap, apply now (see Fig. 4-27). Remember, taping to the skin will provide maximum support.



Figure 4-27

(continued)

Shin splints**(continued)**

- Starting right above the bend of the ankle apply the first adhesive or nonadhesive elastic tape strip on the front of the shin, continuing behind the leg in a circular pattern and ending up on the outside of the shin. Tear tape. Continue up to the base of the calf with additional overlapping strips. Remember the angles of the shin discussed previously in Chapter 2 when applying the tape strips (see Fig. 4-28).

**Figure 4-28**

- Repeat Step no. 2 using the nonelastic tape this time. Once finished, there should be two layers of tape (see Fig. 4-29).
- Smooth tape down and conform to the body.
- Have the athlete stand and put weight on the tape and walk around to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.

**Figure 4-29****TIPS, HINTS, AND TRICKS**

Because shin splints are sometimes related to weaknesses of the arches of the foot, not just muscle strain/fatigue, the athlete's arches should be taped and the antipronation tape strips should be used as well to achieve maximum results. The athletes who seem to never get rid of shin splint pain are often over-pronators. These athletes usually will require permanent orthotics (custom-made supports) prescribed by their doctor.

**COMMON MISTAKES**

- Pulling tape too tightly
- Taping with the athlete's foot relaxed (not in neutral position) which will result in the tape being too tight
- Applying the strips in the wrong direction which will affect the effectiveness of taping procedure

**Antipronation strips****Used for shin splints, arch pain****Injury Description**

Shin splints are an overuse/fatigue condition of the lower leg muscles and/or arches of the foot. People who **over-pronate** (have flat feet) are more likely to have shin splints. Increases in training without time for the body to adapt to those increases will lead to shin splints. Any change in routine can cause them as well, such as new shoes, change in running surface, increase in distance, time or duration, etc.

(continued)

**Antipronation
strips****(continued)****Goal of Procedure**

To support muscles such as the posterior tibialis as well as the medial arch in general. The athlete usually has some degree of **pes planus** (flat feet) but not always. The goal is to keep the foot from over-pronating or rolling inward, thereby putting a lot of stress on the medial arch and musculature.

Supplies Needed

- Tape adherent
- Prewrap
- 1 1/2" nonelastic tape

Patient Positioning

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's lower leg should be exposed from the base of the calf to the foot with the foot/ankle in the neutral position (see Fig. 4-30). Once in neutral position, place the ankle into slight inversion (sole of foot facing inward).

**Figure 4-30****Step-by-Step**

1. Apply tape adherent to the skin where the tape will be applied. If using prewrap, apply now. Remember, taping to the skin will provide maximum support (see Fig. 4-31).

**Figure 4-31***(continued)*

**Antipronation
strips****(continued)**

2. Start the first strip of 1 1/2" nonelastic tape at the top of the foot and at the bend of the ankle and continue to the outside of the foot, underneath and back over the starting point making sure to go over the navicular tubercle which can be felt as a hard, prominent lump on the inside of the foot. Continue on around the shin once and end the strip on the lateral side of the shin. Apply two more of these strips to complete the procedure (see Fig. 4-32).
3. Smooth tape down and conform to the body.
4. Have the athlete stand and put weight on the tape and walk around to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.

**Figure 4-32****TIPS, HINTS, AND TRICKS**

This taping procedure is usually combined with shin splint and/or arch taping to provide additional support and pain relief. This strip could also be called a “figure 6,” as it forms the shape of a numeral six but it is not a true “figure 6” strip.

**COMMON MISTAKES**

1. Pulling tape too tightly
2. Taping with the athlete's foot relaxed or not properly positioned which will result in the tape being too tight
3. Applying the strips in the wrong direction which will affect the effectiveness of the taping procedure

**Arch strain/sprain
or plantar fasciitis****Used for fallen arches, shin splints, arch sprain, arch strain,
plantar fasciitis****Injury Description**

There are four distinct arches of the foot. The arches are formed by the bony structures and are supported by bands of tissue that help take stress off certain areas of the bones. The main arch is the medial longitudinal arch. There are also lower leg muscles that help support the arch such as the posterior tibialis. In some cases, the arch itself is sprained and in others, the lower leg muscle tendons are strained. In either case, arch pain results. Pain can also be caused by the **plantar fascia** (band of tissue stretching from ball of foot to the heel). It supports the arch and can sometimes get irritated and become tight and inflamed, thereby causing pain.

Goal of Procedure

To support the muscles/tendons and arches of the foot. This may be used for an arch strain or sprain.

Supplies Needed

- Tape adherent
- Prewrap
- 2" or 3" light-duty elastic tape (adhesive works best but either can be used)
- 1 1/2" nonelastic tape
- 1" nonelastic tape

(continued)

**Arch strain/sprain
or plantar fasciitis****(continued)****Patient Positioning**

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's foot and ankle should be exposed. The foot/ankle should be kept in the neutral position (see Fig. 4-33).

**Figure 4-33****Step-by-Step**

1. Apply tape adherent to the skin where the tape will be applied. If using prewrap, apply now (see Fig. 4-34). Remember, taping to the skin will provide maximum support.

**Figure 4-34**

2. Apply the first of two anchor strips by using the 2" or 3" elastic tape to apply a strip around the ball of the foot. Next, apply the second anchor strip from the base of the big toe around the back of the heel to the base of the little toe using the 1 1/2" nonelastic tape (see Fig. 4-35).

**Figure 4-35***(continued)*

**Arch strain/sprain
or plantar fasciitis**
(continued)

- 3.** Apply two “X” strips using the 1” nonelastic tape. Start the “X” strips on the bottom of the foot at the base of the fourth/fifth toes. Continue the tape strips to the inside back of the heel, around the heel and ending at the base of the big toe on the bottom of the foot. This creates an “X” pattern on the bottom of the foot. Slightly overlap the second strip (see Fig. 4-36).


Figure 4-36

- 4.** Apply two “tear-drop” strips using the 1” nonelastic tape. Start the “tear-drop” strips at the base of the big toe on the side of the foot continuing around the back of the heel, under the arch and ending at the starting point. This creates a “tear-drop” pattern on the bottom of the foot. Slightly overlap the second strip (see Fig. 4-37).


Figure 4-37

- 5.** Starting on the outside of the heel, use the 1 1/2” nonelastic tape and pull the tape to the inside of the foot crossing the bottom of the foot. Continue overlapping the same strip until the foot is covered up to the ball of the foot. Make sure tape is pulled from outside of foot to the inside of the foot (see Fig. 4-38).


Figure 4-38
(continued)

**Arch strain/sprain
or plantar fasciitis****(continued)**

6. Apply a closure strip of 1 1/2" nonelastic tape over the second anchor strip (from the base of the big toe around the back of the heel to the base of the little toe). Using the 2" or 3" elastic tape, apply a second closure strip over the first anchor strip around the ball of the foot (see Fig. 4-39).
7. Smooth tape down and conform to the body.
8. Have the athlete stand and put weight on the tape and walk around to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.

**Figure 4-39****TIPS, HINTS, AND TRICKS**

Athletes may have flat, regular, or high arches. Flat arches tend to cause generalized foot pain and shin splints. High arches tend to cause plantar fasciitis, higher incidence of ankle sprains, and hammer toes. Some athlete's feet over-pronate (flat feet) and some over-supinate (high arches). Over-pronators tend to wear the inside sole of the shoes more and over-supinators the outside soles. Those athletes may need permanent orthotics (custom-made supports) prescribed by a doctor.

**COMMON MISTAKES**

1. Pulling tape too tightly around the ball of the foot will cause restriction resulting in pain
2. Taping with the athlete's foot relaxed (not in neutral position) which will result in the tape being too tight
3. Applying the strips in the wrong direction which will affect the effectiveness of the taping procedure

**Turf toe****Used for big toe sprain (turf toe)****Injury Description**

Another description for turf toe is great toe sprain. This is a hyperextension to the great or big toe. Usually the great toe is bent in an awkward direction damaging the ligaments on the sides of the toe. These are called "**collateral** (side) ligaments."

Goal of Procedure

To support the ligaments of the big toe joint and to limit motion.

Supplies Needed

- Tape adherent
- 2" light-duty, elastic tape or prewrap (may use any of the previously mentioned)
- 1" nonelastic tape

(continued)

Turf toe**(continued)****Patient Positioning**

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's foot and ankle should be exposed. The foot/ankle should be kept in the neutral position (see Fig. 4-40).

**Figure 4-40****Step-by-Step**

1. Apply tape adherent to the skin where the tape will be applied. If using prewrap apply now (see Fig. 4-41). Remember, taping to the skin with the adhesive tape will provide maximum support.

**Figure 4-41**

2. Start by applying (2) anchor strips. The first anchor strip is applied around the midfoot area using the 2" adhesive tape or nonadhesive tape. The second anchor strip is applied around the end of the big toe covering up the nail using the 1" nonelastic tape (see Fig. 4-42).

**Figure 4-42***(continued)*

Turf toe**(continued)**

3. The next strips are called “banana” strips. These strips are applied starting on the top of the foot extending from the toe anchor strip to the midfoot anchor strip. Keep applying these 1” nonelastic tape strips overlapping each one until the toe is covered from top around to the bottom (see Fig. 4-43).



Figure 4-43

4. Take the 1” nonelastic tape and tear off a strip about a foot in length. Hold the tape at each end and slide it in between the big toe and second toe with the adhesive side toward the big toe. Once the tape strip is at the base of the big toe and the big toe is in the middle, criss-cross the tape ends forming an “X” pattern on the inside of the big toe joint. Apply two more of these strips overlapping each one (see Fig. 4-44).



Figure 4-44

- 5.** Reapply the anchor strips as in Step no. 2 around the end of the big toe and the midfoot to finish the procedure (see Fig. 4-45).
- 6.** Smooth tape down and conform to the body.
- 7.** Have the athlete stand and put weight on the tape and walk around to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.



Figure 4-45

**TIPS, HINTS, AND TRICKS**

Athletes with turf toe will benefit from this taping procedure but will also be helped by a semirigid orthotic placed in the bottom of the shoe adding additional support.

**COMMON MISTAKES**

1. Pulling tape too tightly especially around the mid-foot area
2. Taping with the athlete's foot relaxed (not in neutral position) which will result in the tape job being too tight



Heel bruise

Used for heel “stone” bruise, plantar fasciitis

Injury Description

The **calcaneus** (heel bone) has a fat pad on the bottom or **plantar** (sole of foot) surface. Stepping on a rock can cause a bruise to the heel resulting in severe pain.

Goal of Procedure

To provide more cushion and pain relief by “squeezing” the fat pad on the bottom of the heel together creating more padding.

Supplies Needed

- Tape adherent
- 1 1/2" nonelastic tape

Patient Positioning

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's foot and ankle should be exposed. The foot/ankle should be kept in the neutral position (see Fig. 4-46).



Figure 4-46

Step-by-Step

1. Apply tape adherent to the skin where the tape will be applied (see Fig. 4-47). Prewrap should not be used for this procedure as it will drastically reduce the effectiveness. Remember, taping to the skin will provide maximum support. Starting underneath the lateral malleolus, apply a strip of 1 1/2" tape, continuing around the posterior heel and ending underneath the medial malleolus.



Figure 4-47

(continued)

Heel bruise**(continued)**

- Using the same tape, apply a strip starting on the lateral heel continuing underneath the bottom of the foot and ending on the previous tape strip, on the inside of the foot/heel. Make sure to put good tension on the tape when pulling this strip toward the inside of the foot (see Fig. 4-48).

**Figure 4-48**

- Next, repeat the same strip in Step no. 2 only overlapping the strip toward the bottom of the foot. Then, repeat the same strip in Step no. 3 overlapping it toward the toes/front of the foot. Once the whole heel is covered with this “basket weaving” method the tape job is finished (see Fig. 4-49).
- Smooth tape down and conform to the body.
- Have the athlete stand and put weight on the tape and walk around to see if the tape is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be retaped.

**Figure 4-49****TIPS, HINTS, AND TRICKS**

The effectiveness of this procedure is often overlooked because of its simplicity. It may look simple but it is very effective. It works especially well with plantar fasciitis. Athletes will feel a noticeable difference with this taping procedure. Also, when using this procedure for plantar fasciitis, applying an arch strain/sprain tape job over the heel bruise taping procedure can bring added relief.

**COMMON MISTAKES**

- Pulling the tape too tightly
- Not pulling the tape tight enough
- Not applying over the entire heel



Ankle sprain wrap

Used for ankle sprains, foot sprains

Injury Description

With **inversion** (sole of foot facing inward) sprains, the **lateral** (toward the outside of the body) ankle ligaments/tendons are affected. **Eversion** (sole of foot facing outward) sprains affect the exact opposite, the **medial** (toward the middle of the body) ligaments/tendons.

Goal of Procedure

To provide compression and support to the postinjured foot/ankle joint to limit pain and swelling. This is not meant to be worn for competition.

Supplies Needed

- 3" or 4" elastic wrap
- Low-density padding cut into horseshoe shape (can use without pad but would not be as effective)

Patient Positioning

Athlete should be sitting down with the lower legs extending over the end of the table. The athlete's lower leg should be exposed from the base of the calf to the foot with the foot/ankle in the neutral position (see Fig. 4-50).



Figure 4-50

Step-by-Step

1. Apply the wrap starting at the base of the toes on the top of the foot. Continue around foot and once at the starting place, dog-ear the top edge of the starting end and overlap it on the next revolution. It is important to note that the wrap should be applied with more tension at the base of the toes and as the wrap continues up toward the calf, less tension should be applied. This application of tension will allow swelling to not accumulate as much in the foot/ankle and help "push" it toward the heart/lower leg (see Fig. 4-51).



Figure 4-51

(continued)

Ankle sprain wrap**(continued)**

- Continue encircling the foot and as the bend of the foot/ankle is reached on the top of the foot, place the low-density pad horseshoe on the same side of the pain and swelling. If there is pain and/or swelling on both sides, put a pad on each side (see Fig. 4-52). As the wrap continues over the top of the foot toward the heel, take the wrap behind the heel, then come directly underneath the foot and over the top of the foot continuing this pattern on the other side once more. These are called “heel locks,” just like the ones covered in the ankle taping procedure.

**Figure 4-52**

- Continue the wrap over the top of the ankle and directly over the heel coming back to the top of the foot/ankle (see Fig. 4-53).

**Figure 4-53**

- Continue the wrap underneath the foot coming up on the other side on the top of the foot and continue the wrap behind the lower calf, overlapping up toward the calf until the end of the wrap is reached (see Fig. 4-54).

**Figure 4-54**

- Use either the metal clips/clasps or tape to secure the wrap. Try to end the wrap toward the front of the shin if possible.
- Have the athlete stand and put weight on the wrap and walk around to see if the wrap is too tight or not tight enough. If it is too tight or too loose, the athlete will need to be rewrapped.

**Figure 4-55***(continued)*

Ankle sprain wrap**(continued)****TIPS, HINTS, AND TRICKS**

Only apply about half to three-quarters tension when applying elastic wraps. Too little or too much tension will not achieve desirable results.

**COMMON MISTAKES**

1. Pulling the wrap too tightly, thereby cutting off circulation
2. Applying tension in the wrong direction – more at the top than the bottom
3. Using high-density foam instead of low-density foam, which will cause more pain