Trauma - Foot and Ankle

Adult After-Hours Version

- DEFINITION -

* Injuries to a bone, muscle, joint or ligament of the ankle and foot
* Associated skin and soft tissue injuries are also included

- INITIAL ASSESSMENT QUESTIONS -

1. MECHANISM: "How did the injury happen?" (e.g., twisting injury, direct blow)
2. ONSET: "When did the injury happen?" (Minutes or hours ago)
3. LOCATION: "Where is the injury located?"
4. APPEARANCE of INJURY: "What does the injury look like?"
5. WEIGHT-BEARING: "Can you put weight on that foot?" "Can you walk (four steps or more)?"
6. SIZE: For cuts, bruises, or swelling, ask: "How large is it?" (e.g., inches or centimeters; entire joint)
7. PAIN: "Is there pain?" If so, ask: "How bad is the pain?" (e.g., Scale 1-10; or mild, moderate, severe)
8. TETANUS: For any breaks in the skin, ask: "When was the last tetanus booster?"
9. OTHER SYMPTOMS: "Do you have any other symptoms?"
10. PREGNANCY: "Is there any chance you are pregnant?" "When was your last menstrual period?"

- BACKGROUND INFORMATION -

TYPES OF FOOT AND ANKLE INJURIES
* Achilles tendon rupture: There is pain in the Achilles tendon (area above heel and behind ankle). There is weakness or inability to extend the foot (e.g., can't stand on tiptoes).
* Contusion: A direct blow or crushing injury results in bruising of the skin, muscle and underlying bone.
* Cuts, abrasions
* Dislocations (bone out of joint)
* Fractures (broken bones)
* Sprains: Stretches and tears of ligaments
* Strains: Stretches and tears of muscles (e.g., pulled muscle)

WHAT TO SUTURE: Any cut that is split open or gaping probably needs sutures. Cuts longer than 1/2 inch (1 cm) usually need sutures. Any open wound that may need sutures should be evaluated by a physician regardless of the time that has passed since the initial injury.

TETANUS BOOSTER:
* CLEAN CUTS AND SCRAPES: Every 10 Years: Patients with clean MINOR wounds AND who have previously had 3 or more tetanus shots (full series), need a booster every 10 years. Examples of minor wounds include a superficial abrasion or a small cut from a clean knife blade. Obtain booster within 72 hours.
* DIRTY WOUNDS: Every 5 Years: Patients with dirty wounds need a booster every 5 years. Examples of dirty wounds include those contaminated with soil, feces, saliva and more serious wounds from deep punctures, crushing, and burns. Obtain booster within 72 hours.

FIRST AID

FIRST AID ADVICE FOR BLEEDING: Apply direct pressure to the entire wound with a clean cloth.

FIRST AID ADVICE FOR PENETRATING OBJECT: If penetrating object still in place, don't remove it.

FIRST AID ADVICE FOR SHOCK: Lie down with feet elevated.

FIRST AID ADVICE FOR A SPRAIN OR TWISTING INJURY OF ANKLE OR FOOT:
* Apply a cold pack or an ice bag (wrapped in a moist towel) to the area for 20 minutes.
* Wrap area with an elastic bandage.

FIRST AID ADVICE FOR SUSPECTED FRACTURE OR DISLOCATION OF ANKLE OR FOOT:
* Do not remove the shoe.
* Immobilize the ankle and foot by wrapping them with a soft splint (e.g., a pillow, a rolled-up blanket, a towel).
* Use tape to keep this splint in place.

TRANSPORT OF AN AMPUTATED BODY PART:
* Briefly rinse amputated part with water (to remove any dirt).
* Place amputated part in plastic bag (to protect and keep clean).
* Place plastic bag containing part in a container of ice (to keep cool and preserve tissue).

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SEARCH WORDS

ACHILLES TENDON
ANKLE
ANKLE INJURY
BONE
BONE TRAUMA
BONES
BROKEN BONE
BROKEN BONES
CROOKED BONES
CUT
DISLOCATION
DISLOCATIONS
FOOT
FOOT INJURY
FRACTURE
FRACTURES
INJURIES
INJURY
JOINT TRAUMA
LACERATION
LIGAMENT TRAUMA
LIGAMENTS
LIMPING

OTTAWA
SPRAINS
STRAINED MUSCLES
STRAINS
TRAUMA

- TRIAGE -

Call EMS 911 Now

Serious injury with multiple fractures

CA: 40, 1

[1] Major bleeding (e.g., actively dripping or spurting) AND [2] can't be stopped

FIRST AID: Apply direct pressure to the entire wound with a clean cloth.
CA: 40, 13, 1

Amputation

FIRST AID: Apply direct pressure to the entire wound with a clean cloth.
CA: 40, 13, 20, 1

Looks like a dislocated joint (very crooked or deformed)

Reason: If dislocated, adult will be unable to walk at all. Possible vascular compromise. Needs reduction.
CA: 40, 16, 1

Sounds like a life-threatening emergency to the triager

CA: 40, 1

See More Appropriate Guideline

Wound looks infected

Go to Guideline: Wound Infection (Adult)

Caused by an animal bite

Go to Guideline: Animal Bite (Adult)

Caused by a human bite

Go to Guideline: Human Bite (Adult)

Puncture wound of foot

Go to Guideline: Puncture Wound (Adult)

Toe injury is main concern

Go to Guideline: Trauma - Toe (Adult)

Go to ED Now

Bullet, stabbed by knife or other serious penetrating wound

FIRST AID: If penetrating object still in place, don't remove it (Reason: removal could increase bleeding).
CA: 41, 14, 17, 15, 1

Skin is split open or gaping (or length > 1/2 inch or 12 mm)

R/O: need for sutures
CA: 41, 160, 109, 118, 1

[1] Bleeding AND [2] won't stop after 10 minutes of direct pressure (using correct technique)

R/O: need for sutures
CA: 41, 160, 116, 1

[1] Dirt in the wound AND [2] not removed with 15 minutes of scrubbing

Reason: needs irrigation and/or additional wound care
CA: 41, 160, 118, 1

Can't stand (bear weight) or walk

R/O: fracture
CA: 41, 17, 1

[1] Numbness (new loss of sensation) of toe(s) AND [2] present now

CA: 41, 17, 1

Sounds like a serious injury to the triager

R/O: fracture, dislocation
CA: 41, 17, 10, 15, 1

See Physician within 4 Hours (or PCP triage)

[1] SEVERE pain AND [2] not improved 2 hours after pain medicine/ice packs

R/O: fracture
CA: 43, 10, 11, 74, 73, 89, 1

Suspicious history for the injury

R/O: domestic or elder abuse
CA: 43, 89, 1

See Physician within 24 Hours

[1] Limp when walking AND [2] due to a twisted ankle or foot

R/O: sprain, minor fracture
CA: 44, 8, 74, 73, 12, 1

[1] Limp when walking AND [2] due to a direct blow or crushing injury

R/O: contusion, minor fracture
CA: 44, 7, 74, 73, 12, 1

Large swelling or bruise (> 2 inches or 5 cm)

R/O: minor fracture, muscle hematoma
CA: 44, 2, 74, 73, 12, 1

Diabetes (EXCEPTION: small cut or scrape)

Reason: diabetic neuropathy reduces pain of fracture
CA: 44, 11, 74, 73, 12, 1

High-risk adult (e.g., age > 60, osteoporosis, chronic steroid use)

Reason: greater risk of fracture
CA: 44, 10, 11, 89, 1

See PCP When Office is Open (within 3 days)

[1] Last tetanus shot > 5 years ago AND [2] DIRTY cut or scrape

CA: 45, 108, 105, 74, 73, 9, 1

[1] After 3 days AND [2] pain not improved

R/O: sprain, fracture
CA: 45, 74, 73, 120, 12, 1

[1] After 2 weeks AND [2] still painful or swollen

CA: 45, 74, 73, 120, 12, 1

[1] Diabetic (diabetes mellitus) AND [2] minor cut or scrape

Reason: increased risk of infection or ulcer
CA: 45, 105, 18, 19, 74, 73, 21, 1

Home Care

[1] Minor injury or pain from twisting or over-stretching AND [2] walks normally (all triage questions negative)

Reason: probably a minor sprain
CA: 48, 6, 8, 74, 73, 4, 5, 1

Minor injury or pain from direct blow or crushing injury (all triage questions negative)

Reason: probably a minor contusion (bruise)
CA: 48, 3, 7, 120, 74, 73, 4, 5, 1

Minor cut or scrape is also present

Reason: probably a minor scratch or abrasion
CA: 48, 104, 105, 74, 73, 106, 107, 1

- CARE ADVICE (CA) -

1. CARE ADVICE given per Trauma - Foot and Ankle (Adult) guideline.

2. LOCAL COLD: For bruises or swelling, apply a cold pack or an ice bag (wrapped in a moist towel) to the area for 20 minutes per hour. Repeat for 4 consecutive hours. (Reason: reduce the bleeding and pain)

3. REASSURANCE: It sounds like a bruised muscle or bone. We can treat that at home.

4. EXPECTED COURSE: Pain and swelling usually peak on day 2 or 3. Swelling is usually gone by 7 days. Pain may take 2 weeks to completely resolve.

5. CALL BACK IF
   - Severe pain persists > 2 hours after pain medicine and ice
   - Swelling or bruise becomes > 2 inches (5 cm).
   - Pain not improved after 3 days
   - Pain or swelling lasts > 2 weeks
   - You become worse.

6. REASSURANCE: It sounds like the muscles or ligaments were slightly stretched (sprained).

7. TREATMENT of MILD CONTUSIONS (e.g., direct blow to ankle or foot)
   FIRST AID: immediate compression and ice to reduce bleeding, swelling, and pain.
   R.I.C.E. (rest, ice, compression, and elevation) for the first 24 to 48 hours:
   - Continue to apply crushed ICE in a plastic bag for 10-20 minutes every hour for the first 4 hours. Then apply ice for 10-20 minutes 4 times a day for the first two days.
   - Apply COMPRESSION with a snug, elastic bandage for 48 hours. Numbness, tingling, or increased pain means the bandage is too tight.
   - Keep injured ankle or foot ELEVATED and at rest for 24 hours.
   - After 24 hours of REST, allow any activity that doesn't cause pain.

8. TREATMENT of MILD SPRAINS (e.g., mild sprained ankle)
   FIRST AID: immediate compression and ice to reduce bleeding, swelling, and pain.
   R.I.C.E. (rest, ice, compression, and elevation) for the first 24 to 48 hours:
   - Continue to apply crushed ICE in a plastic bag for 10-20 minutes every hour for the first 4 hours. Then apply ice for 10-20 minutes 4 times a day for the first two days.
   - Apply COMPRESSION with a snug, elastic bandage for 48 hours. Numbness, tingling, or increased pain means the bandage is too tight.
   - Keep injured ankle or foot ELEVATED and at rest for 24 hours.
   - After 24 hours of REST, allow any activity that doesn't cause pain.

9. CALL BACK IF:
   - Dirt in wound persists after scrubbing
   - You become worse.

10. NO STANDING: Try not to put any weight on the injured leg.

11. LOCAL COLD: Apply cold pack or an ice bag (wrapped in a moist towel) for 20 minutes out of every hour until seen.

12. CALL BACK IF:
    - Pain becomes severe
    - You become worse.

13. FIRST AID: apply direct pressure to the entire wound with a clean cloth.

14. FIRST AID: If penetrating object still in place, don't remove it. (Reason: removal could increase bleeding)

15. NPO: Do not allow any eating, drinking or oral medicines. (Reason: condition may need surgery and general anesthesia)

16. FIRST AID ADVICE FOR SUSPECTED FRACTURE OR DISLOCATION OF ANKLE OR FOOT:
    - Do not remove the shoe.
    - Immobilize the ankle and foot by wrapping them with a soft splint (e.g., a pillow or a rolled-up blanket).
    - Use tape to keep this splint in place.

17. DRIVING:
    - Another adult should drive.
    - If there are any problems with automobile transport (e.g., unable to get to the car, severe pain), instruct the caller to call EMS-911.

18. DIABETES:
    - Some patients with diabetes have "neuropathy" (nerve damage of sensory nerves) which can often reduce your ability to sense pain in your feet.
    - Wounds in patients with diabetes heal slower. Diabetics are prone to developing infected foot ulcers at sites of minor injury. Be vigilant for signs of infection: redness, pus, fever, or a non-healing wound.

19. DIABETES FOOT CARE:
    - Keep your feet clean.
    - Wash your feet daily. Dry your feet thoroughly, especially between the toes.
    - Wear clean socks that do not have any tears or bumps. Change them twice daily.
    - Wear comfortable shoes that fit well.
    - You should examine your feet, toes, and toenails daily for wounds, blisters, and infection.
    - You should not go barefoot.

20. TRANSPORT of AMPUTATED PART:
    - Briefly rinse amputated part with water (to remove any dirt)
    - Place amputated part in plastic bag (to protect and keep clean)
    - Place plastic bag containing part in a container of ice (to keep cool and preserve tissue).

21. CALL BACK IF:
    - Dirt in the wound persists after cleaning
    - Unusual or unpleasant foot odor
    - Looks infected (pus, redness)
    - Doesn’t heal within 10 days
    - You become worse.

40. CALL EMS 911 NOW: Immediate medical attention is needed. You need to hang up and call 911 (or an ambulance). (Triager Discretion: I'll call you back in a few minutes to be sure you were able to reach them.)

41. GO TO ED NOW: You need to be seen in the Emergency Department. Go to the ER at _____ Hospital. Leave now. Drive carefully.

42. GO TO ED NOW (or PCP triage):
- IF NO PCP TRIAGE: You need to be seen. Go to the ER/UCC at _____ Hospital within the next hour. Leave as soon as you can.
- IF PCP TRIAGE REQUIRED: You may need to be seen. Your doctor will want to talk with you to decide what's best. I'll page him now. If you haven't heard from the on-call doctor within 30 minutes, go directly to the ER/UCC at _____ Hospital.

43. SEE PHYSICIAN WITHIN 4 HOURS (or PCP triage):
- IF NO PCP TRIAGE: You need to be seen. Go to _____ (ED/UCC or office if it will be open) within the next 3 or 4 hours. Go sooner if you become worse.
- IF PCP TRIAGE REQUIRED: You may need to be seen. Your doctor will want to talk with you to decide what's best. I'll page the doctor now. If you haven't heard from the on-call doctor within 30 minutes, call again. (Note: If PCP can't be reached, send to ED/UCC or office.)

44. SEE PHYSICIAN WITHIN 24 HOURS:
- IF OFFICE WILL BE OPEN: You need to be examined within the next 24 hours. Call your doctor when the office opens, and make an appointment.
- IF OFFICE WILL BE CLOSED AND NO PCP TRIAGE: You need to be examined within the next 24 hours. Go to _____ at your convenience.
- IF OFFICE WILL BE CLOSED AND PCP TRIAGE REQUIRED: You may need to be seen within the next 24 hours. Your doctor will want to talk with you to decide what's best. I'll page the doctor now. (EXCEPTION: from 10 pm to 7 am. Since this isn't serious, we'll hold the page until morning.)

45. SEE PCP WITHIN 3 DAYS: You need to be examined within 2 or 3 days. Call your doctor during regular office hours and make an appointment. (Note: if office will be open tomorrow, tell caller to call then, not in 3 days).

46. SEE PCP WITHIN 2 WEEKS: You need an evaluation for this ongoing problem within the next 2 weeks. Call your doctor during regular office hours and make an appointment.

47. INFORMATION OR ADVICE ONLY CALL.

48. HOME CARE: You should be able to treat this at home.

49. CALL PCP NOW: You need to discuss this with your doctor. I'll page him now. If you haven't heard from the on-call doctor within 30 minutes, call again.

50. CALL PCP WITHIN 24 HOURS: You need to discuss this with your doctor within the next 24 hours.
- IF OFFICE WILL BE OPEN: Call the office when it opens tomorrow morning.
- IF OFFICE WILL BE CLOSED: I'll page him now. (EXCEPTION: from 9 pm to 9 am. Since this isn't urgent, we'll hold the page until morning.)

51. CALL PCP WHEN OFFICE IS OPEN: You need to discuss this with your doctor within the next few days. Call him/her during regular office hours.

52. GO TO L&D NOW: You need to be seen. Go to the Labor and Delivery Unit or the Emergency Room at _____ Hospital. Leave now. Drive carefully.

73. CAUTION - NSAIDs (e.g., ibuprofen, naproxen):
- Do not take nonsteroidal anti-inflammatory drugs (NSAIDs) if you have stomach problems, kidney disease, or other contraindications to using this type of medication.
- Do not take NSAID medications for > 7 days without consulting your PCP.
- Do not take NSAID medications if you are pregnant.
- GASTROINTESTINAL RISK: There is an increased risk of stomach ulcers, GI bleeding, perforation.
- CARDIOVASCULAR RISK: There may be an increased risk of heart attack and stroke.

74. PAIN MEDICINES:
- ACETAMINOPHEN DOSING (e.g., Tylenol): 650 mg by mouth every 4 hours or 1000 mg by mouth every 6 hours. Maximum dose per day = 4000 mg.
- IBUPROFEN DOSING (e.g., Motrin, Advil): 400 mg by mouth every 6 hours or 600 mg by mouth every 8 hours.
- NAPROXEN DOSING (e.g., Aleve): 250-500 mg by mouth every 12 hours. Use the lowest dose that is effective.
- AGE > 65 YEARS: Acetaminophen is generally considered safer than ibuprofen or naproxen. Acetaminophen dosing interval should be increased to every 8 hours because of reduced liver metabolism. Maximum dose per day = 3000 mg.
- Read the package instructions.

89. CALL BACK IF:
- You become worse.

104 REASSURANCE: It sounds like a small cut or scrape that we can treat at home.

105 CUT or SCRAPE:
- Wash the wound with soap and water for 5 minutes.
- For any dirt, scrub gently with a wash cloth.
- For any bleeding, apply direct pressure with a sterile gauze or clean cloth for 10 minutes.
- Apply an antibiotic ointment (OTC) three times a day for 3-4 days
- For large scrapes or cuts, cover with a Band-Aid or dressing. Change daily or if gets wet.

106 TETANUS for CLEAN CUTS and SCRAPES: If last tetanus shot was given > 10 years ago, then you need a booster. Call PCP during regular office hours and try to obtain your tetanus booster within 3 days.

107 CALL BACK IF:
- Dirt in the wound persists after scrubbing
- Looks infected (pus, redness)
- Doesn't heal within 10 days
- You become worse.

108 TETANUS: You need a tetanus booster shot in the next 72 hours.

109 CLEANSING LACERATIONS:
- Wash the wound briefly with soap and water before being seen.
- For any dirt, scrub gently with a washcloth.
- For any bleeding, apply direct pressure with a sterile gauze or clean cloth for 10 minutes.
- Caution: never soak a wound that might need sutures, because it may become more swollen and difficult to close.

116 BLEEDING: Continue direct pressure with a sterile gauze or clean cloth until seen.

118 DRESSING: Cover with a sterile gauze or clean cloth until seen.

120 LOCAL HEAT:
- Beginning 48 hours after an injury, apply a warm washcloth or heating pad for 10 minutes three times a day.
- This will help increase circulation and improve healing.

160 ALTERNATE DISPOSITION - URGENT CARE CENTER: An Urgent Care Center can usually manage this problem, IF one is available in the caller's area.

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