



# DANCE: Styles, Shoes, & Common Foot & Ankle Injuries

CARLEY RISSMAN, SPT

UNIVERSITY OF WASHINGTON

# Styles of Dance & Dance Shoes

HOW YOU DANCE & WHAT  
YOU WEAR MATTERS!

# Dance Style - Ballet

- ▶ Style is very codified with a long history. Individual dance steps, positions of body parts, movements, and divisions of class activities have names in French.
- ▶ Some variation within the overall ballet framework according to the teaching method
  - ▶ Cecchitti, Balanchine, Vaganova, Royal Academy of Dance, etc



# Ballet Shoes

## Pointe Shoes

- ▶ Use in more advanced ballet technique
- ▶ Movement is generally through ankle plantarflexion and forefoot dorsiflexion (demi-pointe) to complete plantarflexion (pointe)
- ▶ Shoes are fabric and the shank and box can be comprised of materials such as fabric, glue, plastic, and carbon fiber



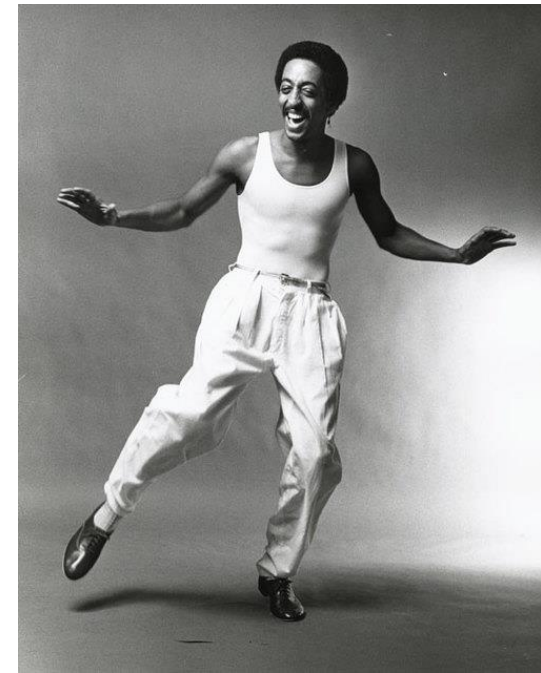
## Ballet Slippers

- ▶ Used universally for ballet technique, can be beginner through advanced
- ▶ Movement is generally through ankle plantarflexion and forefoot dorsiflexion
- ▶ Shoes can be made of leather, canvas, or synthetic materials and the sole can be full or split



# Dance Style - Tap

- ▶ Roots of tap include Irish dance, clogging, and African dance styles.
- ▶ Rhythm tap focuses on the sound of the tapping and is considered part of the jazz music tradition. Broadway tap is part of the musical theater tradition. Soft-shoe is tap dancing movements without taps, sometimes with sand placed on the floor to enhance the sound.



# Tap Shoes

## Oxford Shoes

- ▶ Used universally for tap technique, can be beginner through advanced
- ▶ Shoes can be made of leather or synthetic materials, the sole can be full or split, and they may have a single tie or have a lace up front
- ▶ If a double tap is applied, can be used for



## Character Shoes

- ▶ Used for advanced tap technique for women
- ▶ Shoes can be made of leather, canvas, or synthetic materials
- ▶ If a double tap is applied, can be used for clogging. If taps removed, can be used in other dance styles



# Dance Style - Jazz

- ▶ Origins of jazz are in African dance styles and became popular in jazz music scenes such as New Orleans and was a free-form type of social dancing.
- ▶ Modern jazz dance became more codified by specific choreographers such as Bob Fosse utilizing trained dancers and became popular in musical theater.



# Jazz Shoes

## Jazz Booties

- ▶ Used universally for jazz technique, can be beginner through advanced
- ▶ Shoes can be made of leather or synthetic materials and the sole is usually split



## Other Jazz Shoes

- ▶ Character shoes
- ▶ Dance sneakers

## Jazz Shoes

- ▶ Used universally for jazz technique, can be beginner through advanced
- ▶ Shoes can be made of leather or synthetic materials and the sole is usually full





# Dance Style – Modern & Contemporary

- ▶ Modern dance began as a more free form of dance that got away from the pointe shoes, corseted costumes, and strict dance vocabulary of ballet. Some styles (such as Graham technique) do have more codified technique. Style is dependent upon instructor/choreographer.
- ▶ Lyrical (a blend of modern and jazz dance) is a popular style of dance in studios that celebrates that feeling of the music to which one is dancing.



# Modern & Contemporary Shoes

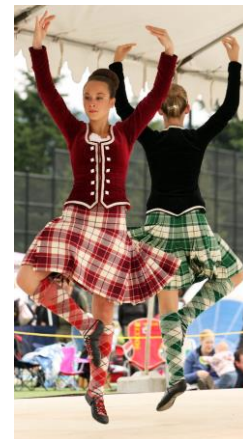
## Barefoot, Socks, “Barely There” Shoes

- ▶ Many dancers choose or required to wear socks, go barefoot, or wear minimal foot protection.
- ▶ Footwear decisions for these dance styles depend on both the aesthetics of the dancer, the instructor or choreographer, the condition of the dancer's feet, as well as the flooring of the dance space.
- ▶ Lyrical dance may utilize ballet slippers or jazz style shoes – the style may be dictated by the instructor or studio.



# Dance Style – Irish & Scottish Dance

- ▶ Both Irish and Scottish dance include forms of social partner dance which are known as country dances or sets. These are group dances that are performed by men and women. They are related to other country dances such as square, contra, and English country dance.
- ▶ Irish dance also includes step dancing, as popularized in Riverdance. Step includes dancing in soft and hard shoes. Hard shoe dance styles include hornpipe, treble jig, treble reel, and traditional sets. Soft shoe dance styles include reel, slip jig, light jig, and single jig. It is often competitively performed.
- ▶ Scottish dance also includes Highland dance which comprises a number of styles performed solo by men and women. It is often competitively performed at Highland games.



# Irish & Scottish Dance Shoes

## Ghillies

- ▶ Soft-soled leather shoes which lace up the front. Soles are glued on, not sewn on like ballet slippers and may be full or split.
- ▶ Worn by men and women in Scottish Highland dance, men in Scottish country dance, and women in Irish dancing requiring soft shoes.



## Jig Shoes

- ▶ Similar to tap shoes, leather shoes with solid construction – the soles may be full or split. Heels and tips are generally constructed of fiberglass, with the change in material of the tips beginning at the metatarsal heads.
- ▶ Worn by men and women in Irish step dancing requiring hard shoes



# Dance Style – Partner & Social Dance

- ▶ Ballroom dance: social partner dancing with dances such as swing, tango, foxtrot, waltz, etc
- ▶ Blues dance: social partner dancing related to jazz and swing
- ▶ Square dance: social dancing performed in groups with a caller directing the dance
- ▶ With all forms, warm-ups are not universally integrated into activity. Dancers may enter and exit as they choose, so staying consistently warm during class may also present an issue. The space may not be dedicated to dancing, so may be outfitted with improper flooring.



# Partner & Social Dance Shoes

## Dance Boots

- ▶ Square dancers may wear western-style boots specifically made for dancing



## Ballroom Shoes

- ▶ Cuban heels, character shoes, and standard ballroom heels are common for women
- ▶ Oxford dance shoes are common for men



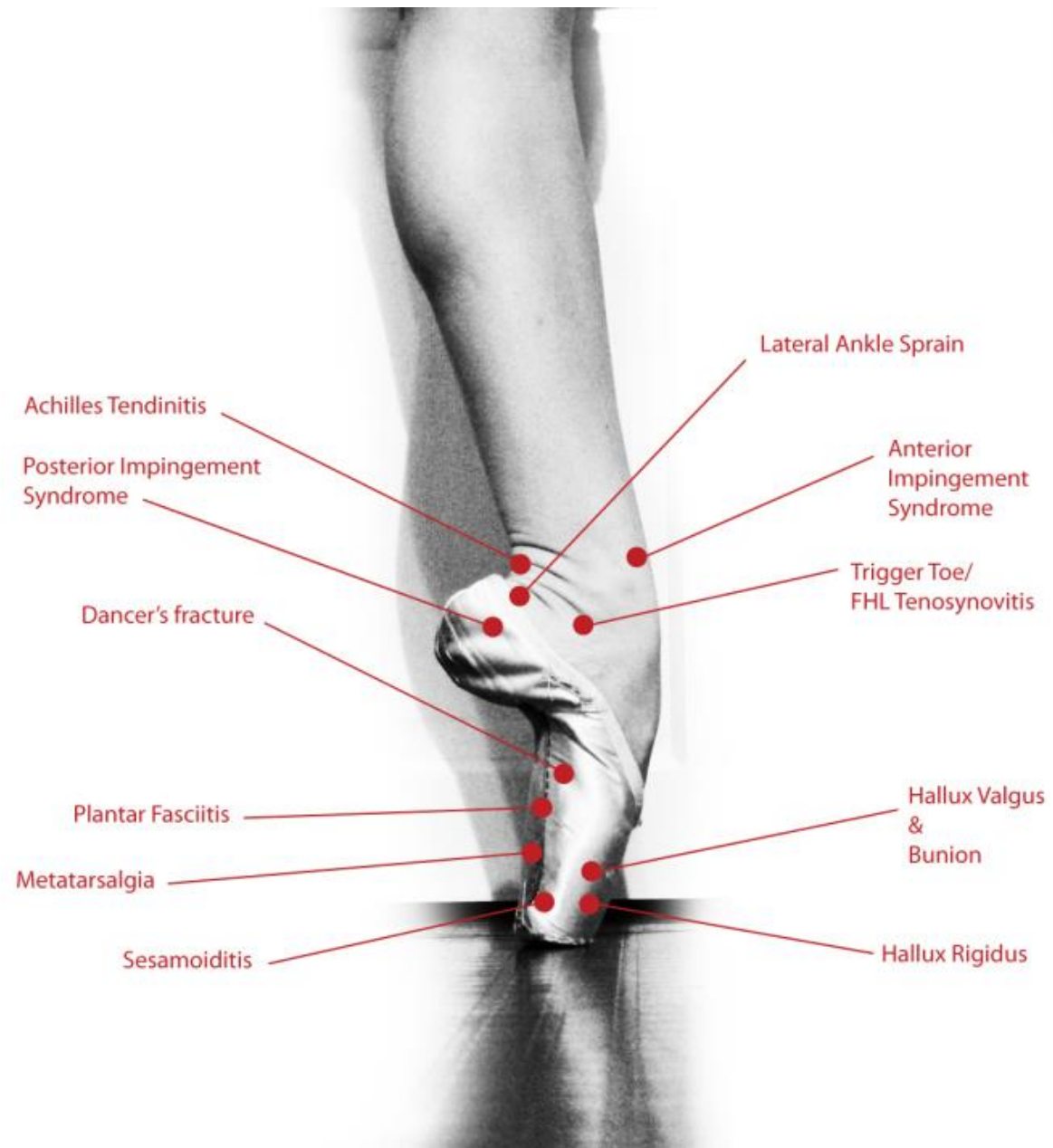
## Street Shoes

- ▶ Many dancers choose to wear their own street shoes – from sneakers to heels to cowboy boots
- ▶ Shoes which are not purpose-made for dance may not stretch in the same manner, provide proper support, or will have steep angles from footbed to heel, making them difficult to wear for extended dancing.



Always ask your dancer patient to describe how much they dance, in what styles, the type of floor they dance on, and the shoes they dance in – have them demonstrate any offending motion in their footwear!

# Foot & Ankle Injuries





# How common are these injuries in dance?

In a 3-year data analysis of a summer dance intensive program, participants were found to present with multiple injuries (not single discrete injuries).

The 4 most common body regions for reported injury were ankle, pelvis/hip, knee, and lumbar spine.



# Integumentary Complications

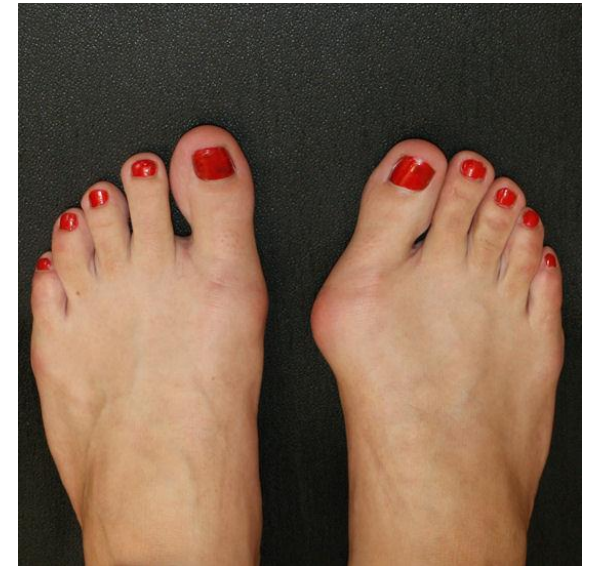
With any of the following conditions or injuries, a dancer may present with issues of integrity with the integument, adding further complication to their treatment and your safety. But, they can also provide clues as to the placement of pressure across the foot.

Open wounds are very common, across the spectrum of dance styles and experience level!



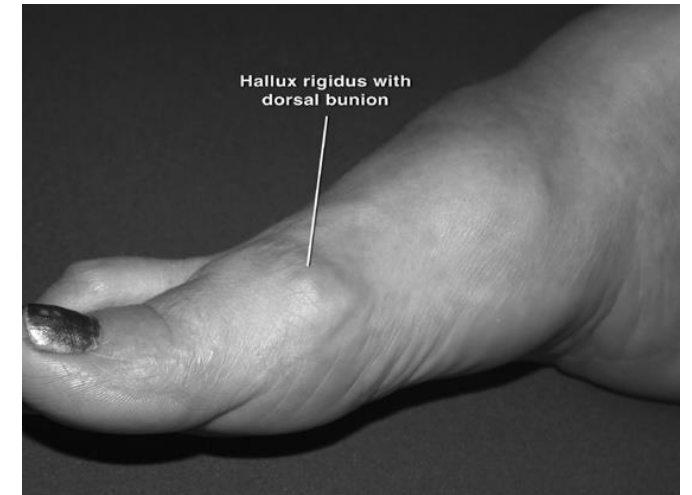
# Hallux Valgus

- ▶ A deformity in which the 1<sup>st</sup> metatarsal migrates medially, while the 1<sup>st</sup> digit migrates laterally
- ▶ Contributing factors include tight footwear as well as genetics
- ▶ Patients present with pain, swelling and stiffness, and it can co-occur with a bone spur on the medial aspect of the 1<sup>st</sup> MTP joint
- ▶ Treatment:
  - ▶ Surgical intervention can be used for severe cases, but overcorrection in the process can inadvertently result in a hallux varus deformity
  - ▶ Non-surgical treatment can include footwear changes, taping or splinting to place the toe in better alignment, and orthotics or positioning devices like toe spacers utilized in footwear



# Hallux Rigidus

- ▶ The most common arthritic condition of the foot, occurring on the 1<sup>st</sup> digit
- ▶ Patients present with pain that is most commonly felt during resisted extension, swelling and stiffness, and it can co-occur with a bone spur on the dorsal aspect of the 1<sup>st</sup> MTP joint
- ▶ Limits in range of motion during dancing can cause deviations in the alignment of the foot that can result in increased chronic stress and strain, or can contribute to events such as ankle sprains
- ▶ Treatment:
  - ▶ Surgical interventions include a cheilectomy to shave the bone spur in minor cases, or arthrodesis (fusion of the joint) or interpositional arthroplasty (replacement of damaged bone with soft tissue) in more severe cases
  - ▶ Non-surgical treatment can include heat or cold modalities, footwear modification, and steroid injections



# Turf Toe

- ▶ A hyperextension injury of the 1<sup>st</sup> MTP joint, occurring when the forefoot is planted but the dancer's body continues moving forward
- ▶ Immediate swelling and pain on injury, followed by impairment in range of motion
- ▶ May co-occur with a sesamoid injury
- ▶ Treatment:
  - ▶ Immobilization via casting, splinting, or taping
  - ▶ Gentle range of motion exercises, manual therapy for swelling reduction and pain management, and strengthening after the acute stage of healing
  - ▶ Steroid injections into the joint can reduce pain and inflammation



# Sesamoid Injuries

- ▶ Sesamoiditis:
  - ▶ An overuse injury in which chronic inflammation of the sesamoid bones and the tendons surrounding them result in dull pain felt in the 1<sup>st</sup> MTP joint. Pain may not be constant – it is usually associated with specific shoes or movements of the foot.
- ▶ Fracture:
  - ▶ May be acute fracture due to impact, or chronic fracture due to repeated stress
- ▶ Treatment:
  - ▶ Immobilization via casting, splinting, or taping
  - ▶ Padding of the area under the sesamoid bones may alleviate pain by providing a cushion immediately after injury
    - ▶ Orthotic devices may be used for longer term changes in pressure during mobility
  - ▶ Gentle range of motion exercises, manual therapy for swelling reduction and pain management, and strengthening after the acute stage of healing
  - ▶ Steroid injections into the joint can reduce pain and inflammation



# Sand Toe

- ▶ Similar to turf toe, this is an injury to the 1<sup>st</sup> MTP joint. It is, however, a hyperflexion injury that can occur in an improper landing from a jump (landing on flexed toe) or in rolling over the foot during choreography
- ▶ Immediate swelling and pain on injury, followed by impairment in range of motion
- ▶ Treatment:
  - ▶ Immobilization via casting, splinting, or taping
  - ▶ Gentle range of motion exercises, manual therapy for swelling reduction and pain management, and strengthening after the acute stage of healing
  - ▶ Steroid injections into the joint can reduce pain and inflammation



# Morton's Neuroma

- ▶ A benign neuroma of a branch of the medial or lateral plantar nerve, most commonly occurring in the space between the 3<sup>rd</sup> and 4<sup>th</sup> metatarsals
- ▶ Contributing causes include excess pronation in movement, pressure from a tight footbed, increased ground forces from thin-soled shoes or movement performed barefoot, and foot positioning in prolonged toe extension
- ▶ Patients may present with pain, numbness, or tingling/burning in the ball of the foot or may feel as if they are standing on a pebble
- ▶ Treatment:
  - ▶ Surgical options include neural decompression by releasing the intermetatarsal ligament, or by removal of the neuroma
  - ▶ Non-surgically, a soft orthosis or metatarsal pad, footwear changes to reduce heel height and widen the toe box, or steroid injection may provide relief





# Dancer's Fracture

- ▶ Avulsion fracture of the 5<sup>th</sup> metatarsal, creating localized pain, swelling, bruising, and difficulty walking
- ▶ Occurs acutely with an ankle sprain, which differentiates this type of injury from a Jones Fracture (which also occurs in the 5<sup>th</sup> metatarsal, but which is further along the bone and is due to repetitive stress)
- ▶ Treatment:
  - ▶ Immobilization in a walking boot with limited weight bearing
  - ▶ Gentle range of motion exercises, manual therapy for swelling reduction and pain management, and strengthening after the acute stage of healing (particularly following 6 weeks of bone healing)



# Plantar Fasciitis

- ▶ Inflammation of the plantar fascia (plantar aponeurosis), which causes tightness across the plantar aspect of the foot and pain, most commonly at the heel
- ▶ Caused by overuse and common among dancers due to repetitive running, jumping, and other impact activities during class and rehearsal
- ▶ Treatment:
  - ▶ Non-surgical treatments include steroid injections, night splints, manual therapy, stretching techniques, orthotics, and medial arch exercises
  - ▶ Surgical treatments include gastrocnemius recession and release of the aponeurosis itself – but surgery should be a last resort for this condition, as it can reduce function



# Ankle Impingement Syndrome

- ▶ Ankle Impingement is a chronic pain issue experienced during range of motion, which may present with limitations in range as well as abnormal bone growth and soft tissue abnormalities
  - ▶ Anterior impingement - known as “athlete’s ankle”, pain is experienced when ankle is dorsiflexed
  - ▶ Posterior impingement - pain is felt when the ankle is plantarflexed
- ▶ Treatment:
  - ▶ Non-surgical treatment includes rest and avoidance of symptomatic activities, ice, alteration of the performance of painful activities and appropriate therapeutic exercise, and steroid injections
  - ▶ Surgical treatments include arthroscopic techniques to aid in removal of abnormal bone growth and damaged soft tissue, and though the return to prior activities following surgery is high, it should be considered a last resort due to the long recovery time frame



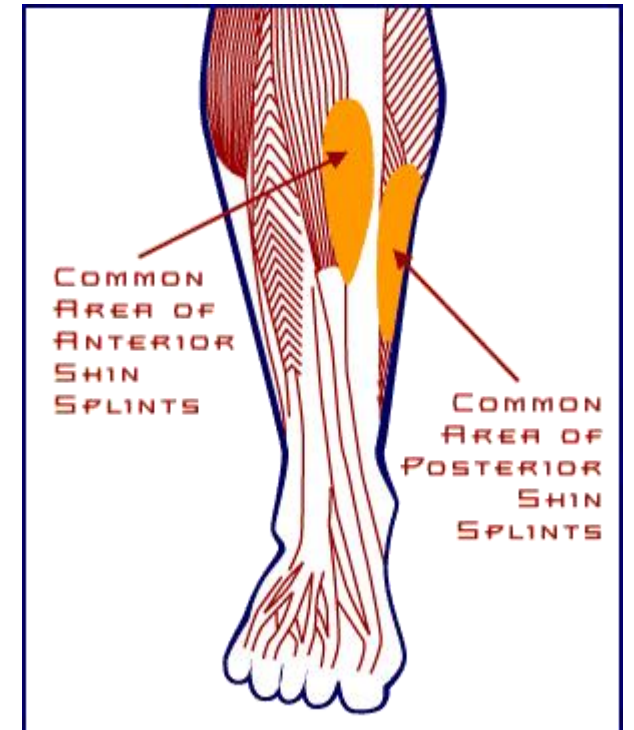
# Trigger Toe

- ▶ Trigger Toe, or Flexor Hallucis Longus Tenosynovitis, is an overuse injury that results in inflammation of the tendon sheath
- ▶ Patients present with pain at the postero-medial ankle and may exhibit limited range of motion which resembles hallux rigidus
- ▶ Treatment:
  - ▶ Non-surgical treatment includes stretching of the FHL and immobilization – at first only at night, but can progress to full-time if symptoms do not resolve
  - ▶ Surgical treatments can include release of the retinaculum, debridement of the tendon, and removal of the tendon sheath depending on the extent of injury



# Medial Tibial Stress Syndrome

- ▶ The most common cause of pain over the front of the lower leg (generalized as shin splints) – it is an overuse injury which is one of the most common causes of exertional leg pain found in athletes
- ▶ The most recent evidence found that this condition involves a spectrum of stress injuries to the tibia and surrounding soft tissue including tendinopathy, inflammation of the periosteum, periosteal remodeling, stress reaction of the tibia, and can involve dysfunction of the tibialis posterior, tibialis anterior, and soleus muscles
- ▶ These injuries are caused by alterations in tibial loading as repeated loading causes abnormal strain and bending of the tibia
- ▶ Treatment:
  - ▶ Rest is critical for recovery, activity modification is also necessary – modifications in class such as performing jumping while laying on the floor during ballet class should be explored, footwear modification can help redistribute loading but may not be possible for dancers, and eccentric contraction of the muscles involved can help prevent recurrence





Questions?