Peroneal Tendon Complex: Injury and Rehabilitation

Here are the latest diagnostic and treatment protocols.

BY STEPHEN M. PRIBUT, DPM

Goals and Objectives

After completing this CME, the reader will

1) Be able to describe the biomechanical and anatomical correlates to injury of the peroneal tendon complex.

2) Understand the close relationship of ankle injury to peroneal tendon complex injury.

3) Be able to use a phased approach to rehabilitation.

4) Be able to understand and prescribe an optimal orthotic for treatment of peroneal tendon complex injury.

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*Following this article, an answer sheet and full set of instructions are provided (pg. 152).—**Editor***

While ankle sprains are the most common musculoskeletal athletic injury,[1] the peroneal tendon complex (PTC) is often injured concurrently. Injury to the PTC has become widely recognized as an acute injury and a significant source of lingering pain and disability. These injuries are frequently correlated with inversion ankle sprains and chronic ankle instability (CAI).

Anatomy

The peroneal tendon complex (PTC) includes the peroneus longus and brevis tendons, the os peroneum, and their restraining components (Figure 1). We will discuss the anatomy, clinical significance and conservative treatment of injury to the PTC.

Figure 1: Know your anatomy. Tablet-based apps help demonstrate the anatomy to your patients. *(Image courtesy 3d4Medical Ltd. "Essential Anatomy 5")*

Peroneal Muscles and Tendons

The peroneus longus and brevis muscles are located within the lateral compartment of the leg. The vascular supply is primarily from the posterior peroneal artery. Innervation of the peroneals is from the superficial peroneal nerve. The well-positioned constraints that serve to maintain

Continued on page 146

Rehabilitation (from page 145)

proper anatomical position of the PTC include the superior peroneal retinaculum, the retromalleolar groove, the shared tendon sheath, the individual tendon sheaths, the peroneal tubercle, the inferior peroneal retinaculum, and the peroneal groove below the cuboid (Table 1).

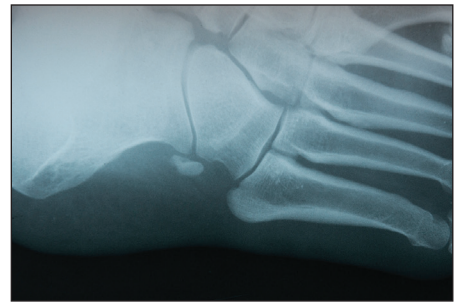

Figure 2: Normal os peroneum.

Figure 3: Bipartite os peroneum.

Peroneus Longus

The origin of the peroneus longus muscle is from the head and upper two-thirds of the lateral surface of the fibular body and from the intermuscular septa adjacent to the muscles of the anterior and posterior leg. The musculotendinous junction occurs proximal to the lateral malleolus. The peroneus longus along with the peroneus brevis enters the fibular fibro-osseous tunnel behind the fibular malleolus and shares a common synovial sheath. The peroneus longus tendon changes direction three times in the foot: at the lateral malleolus, the peroneal tubercle, and at the cuboid notch. A hypertrophied tubercle may be a cause of injury of the PLT.[2]

An ossified os peroneum is found in approximately 20% of individuals at the cuboid notch (Figure 2).[3] The tendon runs below the cuboid and crosses obliquely to insert into the base of the first and second metatarsal and the lateral facet of the medial cuneiform bone.

Peroneus Brevis

The peroneus brevis muscle originates at the distal two thirds of the lateral aspect of the body of the fibular and the adjacent intermuscular septa. It passes behind the fibula where it lies adjacent to the fibula and deep to the peroneus longus while passing through the fibro-osseous tunnel. The insertion is at the tuberosity of the base of the fifth metatarsal bone. An os vesalianum is found near the insertion in less than 1% of people.[4]

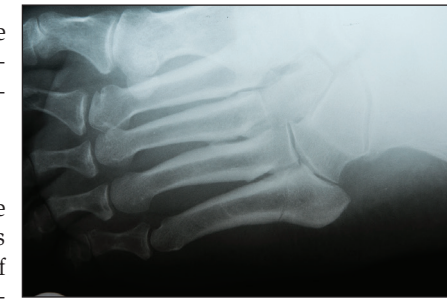

Figure 4: Hairline Jones fracture. Tender to touch and visible on x-ray.

An ossified os peroneum is visible in 20% of patients.

Variants

The peroneus tertius muscle is found in approximately 90% of people and begins at the distal third of the anterior fibula. The muscle is usually confluent with the extensor digitorum muscle and ends before the inferior extensor retinaculum. The peroneus quartus is an anomalous muscle found in 6.6% to 22% of individuals. It begins at the peroneus brevis and inserts into the peroneal tubercle after travelling through the shared peroneal tendon sheath.[5]

Biomechanics and Injury

Peroneal tendon injures are a direct result of their anatomy and biomechanics.[5] The peroneal muscles are multi-joint muscles. Early in stance, the PTC is subject to passive stretch as the gastroc-soleus acts proximally as a tibial decelerator. Late in stance phase, the PTC acts as a weak plantar flexor at the ankle joint.

At the subtalar joint (STJ), the peroneals act as pronators and are antagonists to the tibialis

Continued on page 147

TABLE 1:
Abbreviations

CAI chronic ankle instability
OP os peroneum
PBM peroneus brevis muscle
PLM peroneus longus muscle
PBT peroneus brevis tendon
PLT peroneus longus tendon
PTC peroneal tendon complex
POPS painful os peroneum syndrome
STJ subtalar joint

TABLE 2:
PTC Injury Predisposing Factors

Cavovarus foot
Hallux rigidus
Decreased supination resistance
Previous Inversion ankle sprain
Chronic ankle instability
Ankle equinus
Hypertrophy of the peroneal tubercle

Rehabilitation *(from page 146)*

anterior and tibialis posterior muscles. Additionally, the peroneus longus muscle (PLM) plantarflexes the first ray and is a pronator at the midtarsal joint. The peroneals are most active in mid- and terminal stance, functioning to stabilize the foot.[6,7] Recent studies have demonstrated weakness of functional evertor strength in CAI.[8]

The PTC is subject to strain forces when the foot is inverted or supinated about the STJ. A sudden inversion force or chronic overuse may injure the PTC or the lateral ankle. The most frequent injuries to the PTC are traumatic tendinopathy, a tear, or a subluxation of the peroneal tendons.[9] Tendon subluxation is believed to occur with the foot in a dorsiflexed position and the peroneal tendons contracting strongly.[10]

Risk factors associated with peroneal tendon injuries may be seen in Table 2.[11,12] Multi-directional sports, such as soccer, tennis, and basketball, are associated with these injuries. While peroneus brevis injuries are frequently suspected at the level of the lateral malleolus, injury to the distal peroneus longus is often undetected. Additional associated injuries include injury to the cuboid, the os peroneum, or fifth metatarsal.[3,13] Differential diagnoses are listed in Table 3.

Peroneal tendon complex injury is considered a risk factor and contributor to CAI.[14,9] A recent study showed that a brief bout of pain posterior to the lateral malleolus preceding an inversion ankle injury was associated with MRI evidence of peroneal tendinosis in 95% of cases.[13] Up to 75% of those suffering inversion ankle injuries may have a recurrence of injury or are subject to ongoing symptoms related to chronic ankle instability (CAI).[15,16] Examination at the time of surgery for recalcitrant CAI often demonstrates injury. A retrospective review of 136 patients who underwent a Broström-Gould ankle reconstruction found that 53.3% required operative intervention for peroneal tendon pathology.[14]

Examination of sixty-four consecutive acute ankle inversion injuries by MRI revealed that 30% of the subjects suffered an associated tendon injury.[17] These injuries, when unrecognized, may contribute to ongoing symptoms. Estimates range from 30% to 70% that inversion ankle injuries may recur or have lasting symptoms. These ongoing symptoms diminish sensorimotor functioning and lead to decreased physical activity and concomitantly a diminished quality of life.[18] It has been reported that 32% of ankle inversion injuries are still symptomatic seven years after the injury.[19]

The Ottawa protocol refers to when to obtain an x-ray for a suspected fracture.

TABLE 3:

Differential Diagnosis of Lateral Rearfoot Pain

Bone Injuries:
Hypertrophy of peroneal tubercle
Growth plate injury Salter Harris I fibula
Growth plate injury 5th metatarsal base
Stress fracture cuboid or fifth metatarsal base
Iselin's disease (traction apophysitis of fifth metatarsal base)
Os trigonum injury
Prominent Steida's process (posterior lateral process of talus)
Painful os peroneum syndrome (POPS)
Symptomatic os vesalianum
Fracture of the anterior process of the calcaneus
Fracture lateral process of the talus
Fracture of cuboid bone

Osteochondral Injuries:
Osteochondral injury of anterolateral talus

Ligamentous Injuries:
Bifurcate, talo-calcaneal ligaments
Chopart's joint sprain (calcaneocuboid joint ligament)
Lateral ankle sprain or instability

Tendon Injuries:
Peroneus brevis tendinopathy
Peroneus longus tendinopathy
Peroneal tendinitis / tenosynovitis
Peroneal retinaculum injury
Peroneal tendinosis
Peroneal subluxation
Peroneal tenosynovitis
Peroneal subluxation
Stenosing tenosynovitis of the peroneal tendons
Peroneal tendon tear
Symptomatic peroneus quartus
Avulsion of peroneus brevis from 5th metatarsal

Painful Os Peroneum Syndrome (POPS)

The os peroneum (OP) is a sesamoid bone found within the peroneus longus tendon (PLT) of most people. It is usually located just proximal to the cuboid tunnel. The OP is frequently fibrocartilaginous, often bipartite, and is only visible on x-ray 6-20% of the time (Figure 3).

The OP is subject to both fracture and contusion. Bone callus formation during healing can lead to tendinopathy of the peroneus longus tendon and it may also play a role in tears of the tendon. When the OP is injured, the MRI may show fluid around the PLT and bone marrow edema of the cuboid.[20]

Physical Examination

A history and physical examination will reveal the cause of many injuries. While the inversion move-

Continued on page 148

Rehabilitation (from page 147)

ment which causes the injury occurs rapidly, the full effects may not be obvious for several hours. The lag between injury and effect will lead many patients to forget the inversion event. The history may reveal previous ankle sprain, fracture, or other lateral foot injury. Peroneal subluxation may be associated with a sensation of painful clicking.

A methodical physical examination follows the principles of look, touch, and move. Examine for swelling, color, general alignment, structure, and symmetry. Thoroughly palpate the lateral foot and ankle and explore the peroneal tendons through their entire course. Peroneus brevis tears often occur behind the fibula, while peroneus longus injury may occur at the cuboid groove or more distally. Note the strength of the peroneal tendons and pain during resisted ankle eversion. Also note pain in response to dorsiflexion of the first ray or an inability to resist the dorsiflexion.[5] Be sure to check the ankle for ligamentous disruption.

Peroneal subluxation may be tested by flexing the knee and asking the patient to actively dorsiflex the ankle with resisted eversion. The test is positive if the peroneal tendons are seen to sublux- ate anterior to the fibular malleolus. Intra-sheath subluxation is suspected if their position translates relative to each other.[5] The peroneal compression test suggests peroneus brevis tendinopathy. To perform this test, evert and dorsiflex the foot while compressing the fibular groove.[20]

Figure 5: Fragmented os peroneum. Healing bone callus visible.

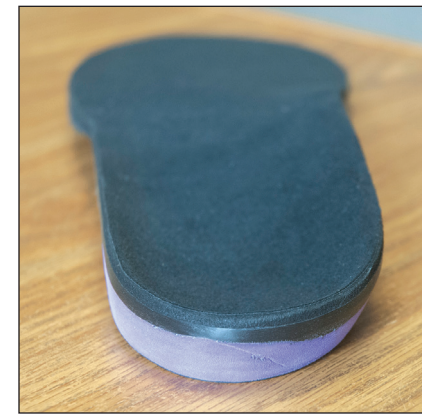

Figure 6: Orthotic with heel post, with no lateral bevel.

TABLE 4:
Ottawa Ankle Rules for Acute Injury

X-ray only if ankle pain and one of the following:

- Bone tenderness at the base of the fifth metatarsal
- Inability to bear weight immediately after the injury and for four steps in the emergency department
- Bone tenderness at the tip or posterior edge of either malleolus

Diagnostic Imaging

The Ottawa protocol outlined in Table 4 should only be used for acute ankle injuries and not for late injury evaluation. On x-ray, carefully evaluate all the lateral bony structures. Figure 4 shows a hairline Jones fracture that went undetected the previous night at an urgent care center. A visible fleck of bone at the fibula indicates possible subluxation of the peroneal tendons from the fibular groove. A Harris view assists in assessing the peroneal tubercle and the retromalleolar groove.[21,22] Be on guard for a fracture of the os peroneum or distraction of multipartite fragments (Figure 5). Fractures of the os peroneum may best be assessed using a CT scan which better reveals the border of the ossicle.

Ultrasound can be useful to detect peritendinous fluid, or partial or

Continued on page 149

The most frequently recommended rehabilitative exercise is to improve balance.

TABLE 5:
Conditions Associated with Cavus Functioning Feet

Ankle instability
Subtalar instability
Peroneus brevis or longus tendon split
Recurrent dislocation of the peroneal tendons
Enlarged peroneal tubercle
Painful os peroneum syndrome
Jones fracture of the 5th metatarsal
Avulsion fracture of the 5th metatarsal
Stress fracture of the 4th or 5th metatarsal
Cuboid stress fracture
Sesamoidopathy
Medial compartment knee arthritis

Rehabilitation (from page 148)

complete rupture, but it requires an experienced examiner.

Magnetic resonance imaging (MRI) shows the anatomy in best detail. Fluid surrounding the tendons are best seen on T2-weighted or short tau inversion recovery (STIR) images. These images are useful to assess subtle injury to the cuboid and base of the fifth metatarsal. The MRI finds more pathology than is clinically relevant in some cases while it may miss other pathology.[23] MRI has a positive predictive value of less than 50%.[24,25]

One of the key features in orthotic design for peroneal injuries is no lateral bevel.

Outline of Treatment

High-level evidence-based medicine is the goal we seek to attain. However, there are times when the evidence is weak, contrary, wrong, or lacking. There is only scant material written on rehabilitation for PTC injury. Researching the rehabilitation of ankle injuries is a reasonable place to begin crafting a program for the PTC.[26] Most recent overviews have come to realize the flaw of not using adequate protection during the earliest stage of therapy.[16,27]

The most consistently recommended therapy for rehabilitation of an acute ankle sprain, CAI, and for prevention to reduce the risk of future re-injury is balance training.[27-30]

Proposed Functional Rehabilitation of PTC Injury

Phase I: Protection, Rest, Ice, Compression, and Elevation

Initial therapy requires protection of the injured area. A removable pneumatic cast boot serves as both protection and compression and may be removed for exercise and evaluation.[21] An ankle brace alone is not effective since the stabilization achieved is inadequate. The tendons must be protected from forces that place them under stretch, including dorsiflexion moments applied to the foot. It is helpful to protect the mid-foot, mid-tarsal joint, and first ray from forces which translate into strain forces on the peroneal tendons. The removable cast boot is used for one to four weeks depending upon the severity of the injury.

Ice may be applied for 20 minutes on/40 minutes off for three to six times per day for the first 48 hours. Ibuprofen or another NSAID may be helpful.

Phase II: Motion

Do not rush the patient into vigorous muscle and strength exercises. This has been part of chronically failing regimens previously used for the ankle. Gentle range of motion exercises may be performed.

TABLE 6:

Orthotic Corrections for Excessive Supination

(Based on Richard Blake's Orthotic Design for Excessive Supination)

No lateral bevel—avoid medial grind
Forefoot valgus or lateral wedge post
Rounding of the lateral border of the cast for better grip on the foot
Deep heel Cup—up to 25 mm
Lateral Kirby skive—2 to 4 mm
Extended lateral heel cup or "lateral flange"
Lateral arch fill to add more surface contact area
Alter width narrow: limits antipronatory forces
Alter width wider: increases stability and proprioceptive feedback

Phase III: Neuromotor

Proprioception, balance, and muscle strength are keys to successful recovery. The most efficacious tool to accomplish these goals is the 20" wobble board. This appears to reach optimal angular relationships at maximum excursion to train the neuro-facilitative responses needed in gait.

Other proprioception and balance exercises may also be used. The most popular are Romberg one-leg balance exercises and the simplified STAR excursion exercises.[31,32]

Muscular strength exercises may be augmented using exercise band therapy. Recent evidence has shown that more proximal muscle training may also assist in recovery.

Limitation of dorsiflexion and equinus may be addressed by posterior muscle group stretching and active exercises such as the heel roll-up. Toe crunches strengthening the intrinsic muscles are also helpful to stabilize the mid-tarsal joint and decrease PTC forces needed for stabilization.

Phase IV: Return to Activity

The balance and proprioceptive exercises from Phase III should all be continued for at least three months. Specific training for a return to activity may begin.

Preparation for return to full activity includes beginning with walking, progressing to running, cutting, and sideways movements needed for sport. It generally requires four to six weeks to return to most sports but occasionally twelve weeks may be needed.

Orthotics

Evidence has pointed to orthotics as being helpful in treating CAI. Orthotics are also helpful in treating PTC injuries. Orthotic modifications to reduce the strain on the peroneal tendons and lateral foot structures are import-

Continued on page 150

Rehabilitation (from page 149)

ant components of treatment. Research also indicates that orthotics produce proprioceptive and balance improvements.[33]

Feet that suffer these injuries often have a lateral shift of the STJ location, which increases the supinatory moment of ground reaction forces. Injuries associated with this foot type are seen in Table 5. The orthotic modifications I use are designed to alter these moments and allow the peroneals to function optimally. These modifications include a 0/0 rearfoot post with "no lateral bevel" (Figure 6). This makes the orthotic less prone to cause excessive supination. You may use a low level of cast inversion and medial skive depending upon the foot type. In addition, you may use about 3 degrees of lateral forefoot valgus wedging to the sulcus, especially for patients who do not contact with the rear foot. Additional modifications seen in Table 6 are based on Richard Blake's suggestions for excessive supination.[34]

The most common musculoskeletal athletic injury is an inversion ankle injury.

Imaging to examine soft tissue anatomy is best seen on MRI.

Summary

We have briefly reviewed the anatomy, injuries, and rehabilitation for injuries to the PTC (Table 7). There is much to research and write about this topic. Don't stop learning. Your patients benefit from your knowledge. **PM**

TABLE 7:

Therapeutic Treatment Peroneal Tendon Injuries

Acute Care:
PRICE: Protection, Rest, Ice, Compression, Elevation
Pneumatic walking boot
NSAIDs

Intermediate:
ROM exercises
Wean from cast boot

Long Term:
Proprioception exercises
Wobble board Training
STAR with imbalance platform

Custom Orthotic:
No rearfoot post bevel
Full length
Minimal cast correction
Possible FF valgus posting
Additional corrections as needed

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Continued on page 151

Rehabilitation *(from page 150)*

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CME EXAMINATION

SEE ANSWER SHEET ON PAGE 153.

1) An ossified os peroneum is visible in what percentage of patients?

- **A) 3%**
- **B) 20%**
- **C) 50%**
- **D) 95%**

2) The Ottawa protocol refers to when to:

- **A) perform ultrasound for suspected tendon tear**
- **B) obtain X-ray for suspected fracture**
- **C) perform MRI for suspected injury**
- **D) perform Doppler exam for suspected deep vein thrombosis**

3) The most frequently recommended rehabilitative exercise is:

- **A) plyometric**
- **B) isokinetic**
- **C) isometric**
- **D) balance exercises**

4) A Harris view is helpful to assess:

- **A) An enlarged peroneal tubercle**
- **B) Hallux rigidus**
- **C) Pes planus**
- **D) Fifth metatarsal avulsion fracture**

Continued on page 152

5) The peroneal muscles are found in which leg compartment?
- A) Medial
- B) Anterior
- C) Posterior
- D) Lateral

6) The os peroneum is what kind of bone?
- A) Long bone
- B) Sesamoid bone
- C) Fractured
- D) Indestructible

7) One of the key features in orthotic design for peroneal injuries is:
- A) Highly inverted design
- B) Forefoot varus posting
- C) No lateral bevel
- D) Grind post into shell

8) Imaging to examine soft tissue anatomy is best seen on:
- A) MRI
- B) Ultrasound
- C) Tenography
- D) Digital examination

9) The os peroneum is most often seen:
- A) At the base of the first metatarsal
- B) At the cuboid notch
- C) Adjacent to the 5th metatarsal base
- D) Below the tarsal navicular

10) The most common musculoskeletal athletic injury is:
- A) Inversion ankle injury
- B) Stress fracture
- C) Achilles tendon rupture
- D) Turf toe

SEE ANSWER SHEET ON PAGE 153.

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Each of the 10 lessons will count as 1.5 credits; thus a maximum of 15 CME credits may be earned during any 12-month period. You may select any 10 in a 24-month period.

The* Podiatry Management Magazine *CME program is approved by the Council on Podiatric Education in all states where credits in instructional media are accepted. This article is approved for 1.5 Continuing Education Contact Hours (or 0.15 CEU's) for each examination successfully completed.

Home Study CME credits now accepted in Pennsylvania

Enrollment/Testing Information and Answer Sheet

Continuing Medical Education

Note: If you are mailing your answer sheet, you must complete all info. on the front and back of this page and mail with your credit card information to: **Program Management Services, 1650 Sycamore Ave., Ste. 22, Bohemia, NY 11716.**

TESTING, GRADING AND PAYMENT INSTRUCTIONS

(1) Each participant achieving a passing grade of 70% or higher on any examination will receive an official computer form stating the number of CE credits earned. This form should be safeguarded and may be used as documentation of credits earned.

(2) Participants receiving a failing grade on any exam will be notified and permitted to take one re-examination at no extra cost.

(3) All answers should be recorded on the answer form below. For each question, decide which choice is the best answer, and circle the letter representing your choice.

(4) Complete all other information on the front and back of this page.

(5) Choose one out of the 3 options for testgrading: mail-in, fax, or phone. To select the type of service that best suits your needs, please read the following section, "Test Grading Options".

TEST GRADING OPTIONS

Mail-In Grading

To receive your CME certificate, complete all information and mail with your credit card information to: **Program Management Services, 1650 Sycamore Ave., Ste. 22, Bohemia, NY 11716. PLEASE DO NOT SEND WITH SIGNATURE REQUIRED, AS THESE WILL NOT BE ACCEPTED.**

There is **no charge** for the mail-in service if you have already enrolled in the annual exam CME program, and we receive this exam during your current enrollment period. If you are not enrolled, please send $26.00 per exam, or $210 to cover all 10 exams (thus saving $50 over the cost of 10 individual exam fees).

Facsimile Grading

To receive your CME certificate, complete all information and fax 24 hours a day to 631-532-1964. Your CME certificate will be dated and mailed within 48 hours. This service is available for $2.50 per exam if you are currently enrolled in the annual 10-exam CME program (and this exam falls within your enrollment period), and can be charged to your Visa, MasterCard, or American Express.

If you are *not* enrolled in the annual 10-exam CME program, the fee is $26 per exam.

Phone-In Grading

You may also complete your exam by using the toll-free service. Call 1-800-232-4422 from 10 a.m. to 5 p.m. EST, Monday through Friday. Your CME certificate will be dated the same day you call and mailed within 48 hours. There is a $2.50 charge for this service if you are currently enrolled in the annual 10-exam CME program (and this exam falls within your enrollment period), and this fee can be charged to your Visa, Mastercard, American Express, or Discover. If you are not currently enrolled, the fee is $26 per exam. When you call, please have ready:

1. Program number (Month and Year)
2. The answers to the test
3. Credit card information

In the event you require additional CME information, please contact PMS, Inc., at **1-631-563-1604**.

ENROLLMENT FORM & ANSWER SHEET

Please print clearly...Certificate will be issued from information below.

Name _____ Email Address _____
Please Print: FIRST MI LAST

Address _____

City _____ State _____ Zip _____

Charge to: _____Visa _____ MasterCard _____ American Express

Card # _____ Exp. Date _____ Zip for credit card _____

Note: Credit card is the only method of payment. Checks are no longer accepted.

Signature _____ Email Address _____ Daytime Phone _____

State License(s) _____ Is this a new address? Yes _____ No _____

Check one:

_____ I am currently enrolled. (If faxing or phoning in your answer form please note that $2.50 will be charged to your credit card.)

_____ I am not enrolled. Enclosed is my credit card information. Please charge my credit card $26.00 for each exam submitted. (plus $2.50 for each exam if submitting by fax or phone).

_____ I am not enrolled and I wish to enroll for 10 courses at $210.00 (thus saving me $50 over the cost of 10 individual exam fees). I understand there will be an additional fee of $2.50 for any exam I wish to submit via fax or phone.

Over, please

ENROLLMENT FORM & ANSWER SHEET *(continued)*

EXAM #7/17
The Biomechanics of Running Shoes (Kirby)

Circle:

1.	A	B	C	D	6.	A	B	C	D
2.	A	B	C	D	7.	A	B	C	D
3.	A	B	C	D	8.	A	B	C	D
4.	A	B	C	D	9.	A	B	C	D
5.	A	B	C	D	10.	A	B	C	D

Medical Education Lesson Evaluation

Strongly agree [5]	Agree [4]	Neutral [3]	Disagree [2]	Strongly disagree [1]

1) This CME lesson was helpful to my practice ____

2) The educational objectives were accomplished ____

3) I will apply the knowledge I learned from this lesson ____

4) I will makes changes in my practice behavior based on this lesson ____

5) This lesson presented quality information with adequate current references ____

6) What overall grade would you assign this lesson?

A B C D

How long did it take you to complete this lesson?

_____hour _____minutes

What topics would you like to see in future CME lessons ? Please list :

_____

_____

_____

_____

_____

_____

_____

EXAM #8/17
Peroneal Tendon Complex: Injury and Rehabilitation (Pribut)

Circle:

1.	A	B	C	D	6.	A	B	C	D
2.	A	B	C	D	7.	A	B	C	D
3.	A	B	C	D	8.	A	B	C	D
4.	A	B	C	D	9.	A	B	C	D
5.	A	B	C	D	10.	A	B	C	D

Medical Education Lesson Evaluation

Strongly agree [5]	Agree [4]	Neutral [3]	Disagree [2]	Strongly disagree [1]

1) This CME lesson was helpful to my practice ____

2) The educational objectives were accomplished ____

3) I will apply the knowledge I learned from this lesson ____

4) I will makes changes in my practice behavior based on this lesson ____

5) This lesson presented quality information with adequate current references ____

6) What overall grade would you assign this lesson?

A B C D

How long did it take you to complete this lesson?

_____hour _____minutes

What topics would you like to see in future CME lessons ? Please list :

_____

_____

_____

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