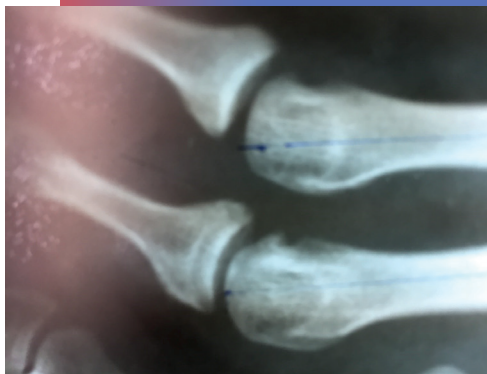


Treatment of Metatarsal Fractures in the Competitive Athlete: Part 1



Here's a review of both conservative and surgical approaches.

BY JOHN E. MCNERNEY,
DPM

Goals and Objectives

To outline and delineate the conservative and surgical management of metatarsalgia of the lesser metatarsals and base of the 5th fractures in the competitive athlete.

To identify the common surgical procedures that can be used to treat recalcitrant foot problems in competitive athletes.

To compare and contrast the diagnosis and treatment of the three common types of 5th metatarsal base fractures: stress fracture, avulsion fracture, and Jones fracture in the athletic population.

To recognize clinical signs and symptoms of lesser metatarsalgia.

To understand the treatments of lesser metatarsalgia including surgical correction in athletes.

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

Introduction

For the purposes of this article, a competitive athlete will be defined by the Bethesda E3 2019 Press Conference definition as "one who participates in an organized team or

individual sport that requires regular competition against others as a central component, (and) places a high premium on excellence and achievement...".¹ "Weekend Warrior" athletes seen in most podi-

atric offices may not specifically fit this definition, but are included since the pathology and symptomatology are often the same. This is not to exclude other procedures or treatments, but from a perspective

of what was successful in having treated athletes ranging from grammar school to the professional ranks for over 40-plus years. Suffice it to say that, in most cases, surgical options should be the last and not the first treatment suggested.

while severe subluxation or dislocation may have minor symptoms.⁴ While early clinical signs may be minimal or absent, they can become progressively worse as the deformity progresses. It is important to note that the 2nd MPJ

Mulder's squeeze test will aggravate a neuroma, but not an MPJ problem.

Dr. Allan M. Levy, a noted sports medicine physician often emphasized, "Surgery represents the failure of all other options."²

Lesser Metatarsal Subluxation/Pre-dislocation/Dislocation Syndrome and Hammertoe

One of the most common and painful forefoot deformities is subluxation or pre-dislocation of the metatarsal phalangeal joints (MPJs) (Figure 1).³ There are many reasons and theories proposed for these deformities, but most often, we can find a history of trauma, abnormal biomechanics, or systemic disorders.³ Pain associated with a deviated toe or MPJ subluxation may not reflect the severity of the disorder. Often a mild pre-dislocation may have significant symptoms

is the most common lesser metatarsal affected and that we need to differentiate the cause of 2nd MPJ pain from other causes.

Stress fractures of the 2nd metatarsal, MPJ arthritis, neuritis (neuroma) and soft tissue inflammation (bursitis, capsulitis or synovitis) are among the conditions that must be ruled differentiated. Of particular concern is the common misdiagnosis of meta-

temperature change, and pain are often absent or minimal. As the deformity progresses, these signs often become manifest.

Deviation of the toes is one of the most salient of the clinical signs



Figure 1: 2nd MPJ subluxation with mild hammertoe 2nd, 4th toe clinodactyly (rotation) and 5th toe adduction. Note: a separation of the 2nd toe from the other lesser toes ("V" sign) and the buckling at the MPJ and PIPJ. It is postulated that an attenuated, weak, or ruptured MPJ capsule, contracture of the medial soft tissues, or a tear in the plantar plate leads to loss of MPJ stability and causes an imbalance in the flexor-extensor mechanism. This loss of stability leads to MPJ subluxation or dislocation with hammering, buckling, or rotation of the lesser toes depending on the biomechanics and deforming force.

A common finding seen in lesser metatarsalgia (especially the 2nd metatarsal) is the "V" sign.



Figure 2: Subluxation/Deviation of the 2nd and 3rd metatarsal phalangeal joints. Note the lateral deviation of the 2nd and 3rd proximal phalanges to a line bisecting the long axis of the metatarsals. In normal alignment, we should see this line bisect the proximal phalanx as well. Subluxation like this is most commonly caused by a weakened medial capsule, flexor/extensor imbalance, or a tear in the plantar plate.

tarsal bursitis with Morton's neuroma.³ A proper and detailed history and physical and understanding the pathomechanics involved can avoid this common mistake. In examination, we need to isolate the affected metatarsal joint by pressing a thumb plantarly into the joint. Subluxed MPJs will generally be very tender at the joint, while Morton's neuroma will not. Conversely, Mulder's squeeze test will aggravate a neuroma, but not an MPJ problem. There are often few clinical signs in the early stages of lesser metatarsalgia and pain may be the only complaint. The cardinal signs of redness, swelling,

(Figure 2). Often, we see a "V" sign where the 2nd toe deviates medially and the 3rd toe drifts laterally; this can be seen both clinically and on radiographs (Figures 1 & 2).³ It is often suggested that rupture or attenuation of the lateral capsule, contracture of the medial soft tissue structures, or tear in the plantar plate can lead to the drift of the middle toes.⁵ Deviation of the 2nd MPJ is often seen in conjunction with hallux valgus where the hallux drifts laterally and displaces the 2nd toe. The 2nd toe must either move medially over the hallux, laterally impinging on the third toe, or dorsally in hammertoe configuration (Figure 3).

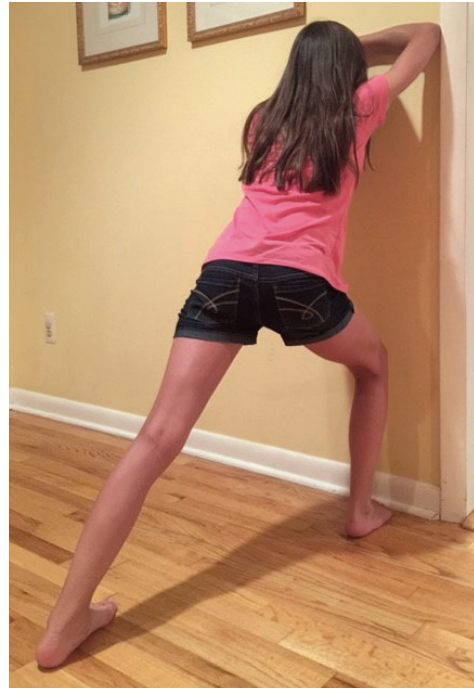
Combinations of movement are not unusual and how the toe reacts is dictated by the altered bio-

mechanical loads.^{3,5} Lesser metatarsalgia is often referred to as a “plantarflexed” metatarsal, but x-rays of the forefoot seldom reveal plantar malposition of any metatarsal. Metatarsal protrusion or poor metatarsal parabolas are also cited as common causes and surgical restoration of the parabola is suggested by some authors. Procedures to lift or dorsiflex a symptomatic metatarsal or those aimed at restoring the metatarsal parabola are variably successful at best. The best approach to metatarsalgia is to exhaust all conservative measures before considering any surgical procedure.

Shoes, Orthotics, Pads, and Injections

Shoes must fit properly and be selected based on foot type and the demands of sport. Proper length (a thumb nail’s distance from the end of the longest toe to the end of the shoe), width (the bunion joint should be at the widest part of the shoe), proper cushioning in the forefoot and midsole, easy flexion in the forefoot, and maintaining support in the arch are all essential. If there is an equinus involved (commonly seen in elderly women or running athletes), aggressive calf stretching or heel lifts may help reduce forefoot load (Figure 4). Off-loading the affected metatarsal joint is often successful.³ This can be done via proper shoe selection, padding, or strapping of the fore-

Figure 4: Static stretching is a simple modality that can help to relieve metatarsalgia. It is postulated that a more flexible gastroc-soleus muscle will allow the heel to remain on the support surface for a longer period of time. Along with the temporal change, a more flexible calf will not fix the metatarsals to the ground as aggressively. The combina-



tion of decreased forefoot load due to delayed heel lift and reduced plantar-flexory force reduces the load on the forefoot. Proper stretch needs to be done in the AM, PM, and before and after any increase of sport activity. Current science says that a protocol of 10 repetitions repeated 10 times, held for 10 seconds with the knee extended and the heel on the ground initially, followed by the same protocol with the knee bent with the heel down, is adequate. Both legs need to be stretched.

Alternately, some feel that 3 repetitions held for a 30-second count is a more proper protocol. The more important point is that any static stretch can help to reduce forefoot load. Above... note a static stretch with the knee extended and the heel pressed to the ground. This is followed by bending the knee from the same position. This protocol held for 10 seconds would constitute a single repetition. As stated, ten repetitions on each leg are required to complete the protocol.

Successful surgery for lesser metatarsalgia includes soft tissue release, distal metaphyseal osteotomy, partial metatarsal head resection.

foot, flexibility exercises, and arch supports or orthotics.

Over-the-counter (OTC) arch supports or custom fit orthotics are

often required for sustained relief of forefoot pain. Padding and strapping can help both diagnostically and in the early stages of treatment. A properly placed metatarsal pad (met pad) can relieve nerve pain in the early stages of Morton’s neuroma. The mechanism of action is poorly understood, but might be due to spreading or the splaying effect of the pad on the metatarsals, allowing for more space between the metatarsals and less nerve compression.³

A “U” pad properly placed under a painful metatarsal can off-load pressure and reduce pain. This type of pad works best when a single joint is involved, but may help even when two or three metatarsals are involved. Multiple joint metatarsalgias may also respond to metatarsal pads. When padding

Figure 3: A lateral x-ray of a subluxed 2nd MPJ with hammering at the PIPJ. Note the dorsal alignment of the proximal phalanx relative to the MPJ. This alignment places a plantarflexory force on the MPJ and holds the joint firmly against the ground. When this happens at the push-off phase of gait, the inability of the metatarsal to rise or unweight itself can cause the ground reactive force on the MPJ to rise to 1-5 times body-weight depending on the activity and surface the foot is on. It is important to note that one of the functions of the lesser toes is to grip the ground and allow the lesser metatarsal to move upward at push off. Lesser metatarsalgia in athletes is a common time loss injury. Conservative treatment can be orthotics, NSAIDs, cortisone injection, physical therapy, or other modalities. When this fails, surgical re-alignment may be needed.



directly on the foot is helpful, placing the same type of pad in an arch support or custom orthotic can help as a delivery system for long-term care (Figure 5). The use of oral non-steroidal

Surgical Treatment

Recalcitrant pain in the forefoot may require surgery. Surgery for metatarsalgia has been variably successful, at best, where transfer lesions



Figure 6: A radiograph of a 31 y/o male amateur soccer player. The patient had pain under the 2nd and 3rd metatarsals for 6-7 months. Shoe modification, off-loading via padding, cortisone injection into the 2nd and 3rd MPJs, and subsequent cast FODs were relatively successful and the patient did not want surgical correction. Note the subluxed 2nd, 3rd, and 4th MPJs with hammering of the 2nd and 3rd toes at the PIPJs. The pain was plantar under the 2nd and 3rd metatarsals primarily. The associated hammering caused swelling and discomfort over the PIPJs ("knuckle" joints), especially in soccer shoes.

Proximal base of the 5th metatarsal fractures are commonly called Jones fractures.

anti-inflammatories (NSAIDs) such as diclofenac sodium XR 100mg. daily, or naproxen sodium 220mg. twice daily are sometimes helpful in reducing the pain and swelling in long standing metatarsalgia.

In acute cases, a cortisone injection into the affected joint can reduce symptoms rapidly and dramatically. When indicated, Depo-Medrol® 40 mg. or Kenalog® 40mg. 1/2-1 cc. injected into the affected joint following anesthesia provided by Xylocaine® 2% plain 3cc. as a block can provide temporary relief.³

or pain in adjacent metatarsals, return of the deformity, and need for further surgery are not uncommon findings.³ Before surgery, commonly outline the possible types of surgery that might be required for resolution of the

Stress fractures of the 5th metatarsal base present with pain dorsolaterally over the foot during activity and subside with rest.



Figure 5: Off-loading of a selected metatarsal(s) via padding and strapping using 1/8" to 1/4" felt padding with an appropriately shaped cut-out or metatarsal pad surrounding or lifting the affected metatarsal is often helpful in control of metatarsalgia by decreasing vertical load. When pads are used, STJ neutral position cast foot orthotic devices (FODs) as an accommodative or functional support is usually successful. Above are two such FODs. Top—a cork and leather accommodative orthotic; note the cut-out (deepened dell) under the 1st MPJ to off-load this area. Bottom—a functional FOD with angulated posting at the rear and forefoot meant to reestablish normal biomechanics and decrease abnormal loading. Both devices were cast off-weight-bearing with the subtalar joint in hanging neutral position.

problem and request consent for both soft tissue and osseous corrections from the patient. With full consent in hand, it allows a stepwise surgical procedure stopping anywhere along the line where the deformities are addressed and more proper alignment and load achieved. Skin incisions are placed so that they are as minimal as possible, but in places that can be extended if the procedure requires more exposure.

Typically, soft tissue release of the extensor tendon, a dorsal, medial and lateral capsulotomy, and plantar plate release (using a McGlamry® elevator) are performed initially (Figure 6). If the deformity was not reduced adequately when the metatarsal was loaded, osseous correction followed. Most

often, a distal metaphyseal osteotomy (DMO) of the Weil or biased "V" type osteotomy was performed. The biased "V" osteotomy is inherently more stable, and fixation was not always necessary. Weil-type osteotomies generally require fixation. The difficulty with fixating a DMO is not only a problem of what to use (K-wire, screw or loop wiring), but also the technical aspect in achieving the fixation.

Trying to access the optimal position of the osteotomized metatarsal to achieve off-loading is guesswork because it is difficult to access and sometimes wrong. Using the offset or biased "V", dorsal excursion is achieved by controlled walking on the osteotomized metatarsal (it should then rise up to the level of the metatarsal on either side). Medial and lateral alignment could be adjusted by taking more bone on one side of the "V" cut than the other. This is easily done by inserting the oscillating blade more often on one side of the cut than the

other. Using Orthosorb pins is more a concession to the medico-legal climate than poor results. It could be buried in bone and does not require removal.

In more long-standing MPJ subluxation/dislocation or when the

post-op care is essential to ensure a good result. Correction on the surgical table could easily be lost with improper or imprudent post-op care. Proper bandaging post-op and during follow-up, Reece® shoes with limited weight-bearing, and x-ray

first described by Sir Robert Jones (1902) as a fracture at the metaphyseal/diaphyseal junction (Figure 7).⁷ Torg and associates (1984) tried to debunk the misconception that these fractures were hard to heal in an article that analyzed healing potential based on a classification system.¹⁴ Despite a detailed analytic system that disputed many of the fallacies pertaining to base of 5th fractures, the negative image has continued to this day.

Commonly referred to as Jones fractures, base of 5th metatarsal fractures may take many forms: stress fractures, avulsion fractures, and the true Jones fracture at the metaphyseal/diaphyseal junction.⁷⁻¹⁵ 5th metatarsal base stress fractures are sometimes difficult to diagnose because pain is generally mild, variable, may not affect activities of daily living (ADLs) and are symptomatic only when significant stress is applied to the foot.^{8,13}

Often, athletes can play with or

68% of all metatarsal fractures are 5th metatarsal fractures.

metatarsal head is damaged or arthritic (Freiberg's infraction, osteo- or rheumatoid arthritis), more aggressive surgery might be needed. In these instances, a partial or total metatarsal head resection might be needed. You can opt for a partial metatarsal resection and plantar condylectomy, when feasible, since the met parabola could be maintained in some cases while still allowing relocation of the MPJ.

Total met head resection, when needed, generally destroys the parabola and often leads to the need for more extensive surgery. Any bone surgery should be preceded by full soft tissue release (Figure 3).

Semi-flexible or rigid hammer digits are often seen in conjunction with MPJ mal-alignment. When soft tissue correction fails to reduce the contracture at the proximal interphalangeal joint (PIPJ), an excisional arthroplasty is often successful.⁶

A dorsal linear or semi-elliptical incision over the PIPJ is deepened to bone; the head of the proximal phalanx can be delivered and excised at the head and neck interface.^{3,6} Proximal or distal interphalangeal arthroplasty of the affected toe(s) is generally successful for correction of hammertoe, mallet toe, angulated or rotated (clinodactylic) toes.

You generally don't fixate lesser toe surgery unless other biomechanical conditions are present (examples include severe cavus, adducted, intoed or out-toed feet, etc.). Post-operative complaints are few, but fat or "sausage toes", floating toes, or residually deviated toes are sometimes seen, but seldom require additional surgery.^{3,6} Proper

and observation for six to eight weeks are generally all that were needed.

Proximal 5th Metatarsal Base Fracture

68% of all metatarsal fractures are 5th metatarsal fractures.¹³ Proximal 5th metatarsal fractures are often grouped together without classification and have a long-standing reputation for being difficult to heal, especially in athletes. They were

Most authorities agree that the vast majority of 5th metatarsal base stress fractures can be managed conservatively.



Figure 7: A pre-operative radiograph of an 18 y/o male runner with pain in the 4th PIPJ, clinodactyly, and mild metatarsalgia of the 3rd and 4th MPJ's. A bursa was noted over the toe at the 4th PIPJ. Conservative measures using silicone shields around the toe, wider shoes and a crest pad under the 3rd and 4th toes were unsuccessful and the pain persisted. A final attempt at symptom reduction was an injection of cortisone; .25cc Depomedrol®, .25 cc Celestone®, and Xylocaine 2cc® into the bursa. This provided mild relief, but symptoms returned within a month. The patient asked for surgical intervention.

through a proximal 5th stress fracture, but when ignored, the pain intensifies and may lead to frank fracture or more serious symptoms. The symptoms may not be foot-related in all cases because the athlete will alter his/her gait to avoid pain; this can cause abnormal load up of the kinetic chain.³ The hallmarks of 5th metatarsal stress fractures are pain during activity that usually subsides with rest, intensified pain with increased activity (pain may be great enough to preclude activity), and pain that is localized to the lateral side of the foot generally over the base of the 5th metatarsal that is sometimes point tender.^{8,13,15}

Treatment of 5th Metatarsal Base Stress Fractures

Most authorities agree that the vast majority of 5th metatarsal base stress fractures can be managed conservatively. This is especially true when the symptoms are mild and when treatment is early

about 6-8 weeks to feel comfortable and confident to return to the sport.¹⁶

Avulsion Fracture of 5th Metatarsal Base

Avulsion fractures of the 5th metatarsal base are sometimes re-

athlete is questioned further, a history of injury is sometimes uncovered months or years in the past. The athlete does not connect the dots. It is speculative, but based on the occult nature of stress fractures in this area, perhaps a weakened bone might stress fail and lead to a non-traumatic avulsion fracture. Regardless of the mechanism of injury, the size of the avulsed piece of bone, the amount of displacement, the ability to weight-bear, and if the fracture can be closed reduced all help to determine the need for surgery.^{9,15,18} **PM**

Diagnosis of an avulsion fracture generally requires diagnostic x-rays (AP, MO, LAT) along with a history and physical.

aggressive.⁸ Depending on the severity of symptoms, treatment may be as simple as rest and limited weight-bearing. Diagnostic radiographs are suggested but not mandatory. Having had bad experiences, for any suspected 5th metatarsal fracture, order anterior/posterior (AP), medial oblique (MO), and lateral (LAT) radiographs of the affected foot, and sometimes a medial oblique of the non-affected foot. As with all types of stress fractures, negative radiographic findings do not completely rule out the possibility of a stress fracture, and a contralateral view can sometimes help to confirm or dispute the diagnosis. It is not uncommon to see a previously occult stress fracture on repeat x-rays four to eight weeks later.³

When symptoms do not respond to rest or decreased activity, or when symptoms are getting worse, more aggressive treatment may be required. RICE is commonly suggested initially.¹⁶ Unless there is significant edema do not use compression since it may make the discomfort worse. Recalcitrant pain usually requires limited weight-bearing or immobilization. Use Reece[®] shoes and assisted crutch walking as an aggressive treatment in the early phase of treatment for mild to moderate pain. If the pain is more acute or lingering, a cast boot or short-leg walking cast may be required.¹⁶ As with other types of stress fractures, return to sport may take from 4-12 weeks, but commonly it takes

ferred to as pseudo Jones fractures and are the most common 5th metatarsal fracture.¹⁵ Often seen in athletes, especially in dancers and tennis players after an inversion/plantarflexion sprain of the ankle, most avulsion fractures can be treated conservatively.¹⁷ It is commonly thought that the attachment of the lateral slip of the plantar fascia and/or the peroneus brevis pulls a small fragment of bone from the styloid process of the 5th metatarsal following forcible inversion sprain.

Regardless of the mechanism of injury, the size of the avulsed piece of bone, the amount of displacement, the ability to weight-bear, and if the fracture can be closed reduced all help to determine the need for surgery.^{9,15,18}

Diagnosis of an avulsion fracture generally requires diagnostic x-rays (AP, MO, LAT) along with a history and physical. Physical findings of point tender pain over the base of the 5th, pain with resisted inversion/eversion of the foot and ankle, dorsolateral edema, redness, warmth, and difficulty weight-bearing are all clinical signs of fracture.^{13,15}

Most athletes can relate a history of acute or chronic ankle sprain, direct or indirect trauma (e.g., stepping in a hole), but occasionally no apparent cause is found. When the

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CME EXAMINATION

1) Lesser metatarsalgia is commonly a result of all of the factors below *except*:

- A) Tight shoes and socks
- B) Abnormal biomechanics
- C) Systemic disorders
- D) Trauma

2) The differential diagnosis of lesser metatarsalgia is *NOT* usually associated with

- A) Arthritis
- B) Bursitis
- C) Fungal infections
- D) Neuritis

3) When Mulder's squeeze test causes pain radiating to the toes (especially the 3rd and 4th toes), the most likely diagnosis to consider is:

- A) Subluxation of the metatarsal phalangeal joints
- B) Stress fracture of a lesser metatarsal
- C) A dorsiflexed metatarsal
- D) Neuritis or neuroma

4) A common finding seen in lesser metatarsalgia (especially the 2nd metatarsal) is:

- A) Rubor
- B) Calor
- C) Itching
- D) The "V" sign

5) Successful surgery for lesser metatarsalgia includes all of the procedures below *except*:

- A) Soft tissue release
- B) Distal metaphyseal osteotomy
- C) A Kidner procedure
- D) Partial metatarsal head resection

6) Which of the following statements is true?

- A) Proximal base of the 5th metatarsal fractures are commonly called Jones fractures.
- B) Proximal base of the 5th metatarsal fractures are very hard to heal.
- C) There are at least three types of proximal base of the 5th metatarsal fractures.
- D) Proximal base of the 5th metatarsal fractures almost always preclude sport activity.

7) Stress fractures of the 5th metatarsal base

- A) Present with pain dorsolaterally over the foot during activity and subside with rest.
- B) Require aggressive treatment and often surgery.
- C) Usually heal in a week or two without treatment.
- D) Are positive with early radiography and show this fracture well.

Continued on next page

8) Diagnosis of an avulsion fracture generally requires _____ along with a history and physical.

- A) Palpation
- B) Diagnostic x-rays (AP, MO, LAT)
- C) Ultrasound
- D) Manipulation

9) All of the following are true about 5th metatarsal base stress fractures except:

- A) Most authorities agree that the vast majority of 5th metatarsal base stress fractures can be managed conservatively.
- B) Depending on the severity of symptoms, treatment may be as simple as rest and limited weight-bearing.
- C) Diagnostic radiographs are suggested but not mandatory.
- D) Surgical intervention is generally advised.

10) _____ of all metatarsal fractures are 5th metatarsal fractures.

- A) 10%
- B) 40%
- C) 68%
- D) 90%

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(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, 12 Bayberry Street, Hopewell Junction, NY 12533.**

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 \$35.00 per exam, or \$299 to cover all 10 exams (thus saving \$51 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 1631-532-1964. Your test will be dated upon receipt and a PDF of your certificate of completion will be sent to the Email address on file with us. Please allow 5 business days for the return of your certificate. This service is available for \$2.95 per exam if you are currently enrolled in the 10-exam CME program, and can be charged to your Visa, MasterCard, or American Express.

If you are *not* enrolled in the 10-exam CME program, the fee is \$35 per exam.

Phone-In Grading

You may also complete your exam by using the toll-free service. Call 516-521-4474 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 \$2.95 charge for this service if you are currently enrolled in the 10-exam CME program, and this fee can be charged to your Visa, Mastercard, American Express, or Discover. If you are not currently enrolled, the fee is \$35 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 **516-521-4474**.

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 \$2.95 will be charged to your credit card.)

I am not enrolled. Enclosed is my credit card information. Please charge my credit card \$35.00 for each exam submitted. (plus \$2.95 for each exam if submitting by fax or phone).

I am not enrolled and I wish to enroll for 10 courses at \$299.00 (thus saving me \$51 over the cost of 10 individual exam fees). I understand there will be an additional fee of \$2.95 for any exam I wish to submit via fax or phone.

Over, please



EXAM #7/24
Treatment of Metatarsal Fractures
in the Competitive Athlete: Part 1
(McNerney)

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]
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- 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
- 7) This activity was balanced and free of commercial bias.
Yes ____ No ____
- 8) What overall grade would you assign to the overall management of this activity?
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 :
