

# NEW JERSEY PHYSICIAN

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## Podiatry Foot & Ankle Institute

*Specializing Exclusively in the Comprehensive Medical and Surgical Treatment of Foot and Ankle Disorders*

# Podiatry Foot & Ankle Institute

Specializing in the treatment of all foot and ankle conditions, including complex reconstructive surgery, diabetic foot care, and sports injuries.

By Iris Goldberg

In today's current healthcare arena, where many physicians and surgeons choose to hone their skills in order to provide care within a narrowed, sub-specialized area of medicine, patients benefit from the significant expertise which results. Podiatrists have always been uniquely trained to deliver specialized treatment for a wide range of conditions affecting the foot and ankle. There is a misconception by some, however, regarding the extent of the podiatrist's domain when serious foot or ankle disorders require expert attention.

Edward Harris, DPM, FACFAS, FACFAO and Antonella Cella, DPM, MS, FACFAS of Podiatry Foot & Ankle Institute in Hackensack, maintain an all-inclusive podiatric practice, offering state-of-the-art care for the entire gamut of foot and ankle problems that range in complexity from the latest laser removal of toe nail fungus to intricate reconstructive surgical procedures. With more than 20 years of combined experience, Drs. Harris and Cella perform an extensive list of foot and ankle procedures that include but are not limited to:

- Comprehensive diabetic foot care
- Treatment for common conditions such as bunions, hammertoes, bone spurs, heel pain, nail infections, warts and callus/corns with minor surgeries performed in office
- Specialized bunion, hammertoe and forefoot reconstruction
- Ankle arthroscopies for painful arthritic conditions and ankle instabilities
- Repair of complex fractures
- Ankle fusions/midfoot fusions
- Advanced ankle and rear foot surgery
- Tendon transfers for muscular imbalances and structural bone deviations, such as drop foot deformities
- Treatment of sports injuries for pediatric and adult patients
- Non-invasive neuromuscular stimulation for relief of pain caused by neuropathy, general leg, ankle and foot pain and diabetic ulcers
- Vascular testing
- Splints, casts, padding and orthotics

Dr. Cella discusses some of the specialized procedures offered at Podiatry Foot & Ankle Institute that some might mistakenly believe are only performed exclusively by orthopedists. "Achilles tendon repairs, Charcot reconstruction, external fixators, ankle fractures, calcaneus fractures - all the rear foot problems," she states. In fact, Dr. Cella is one of only a few hundred physicians in the country who are board-certified in rear foot/ankle and trauma surgery.

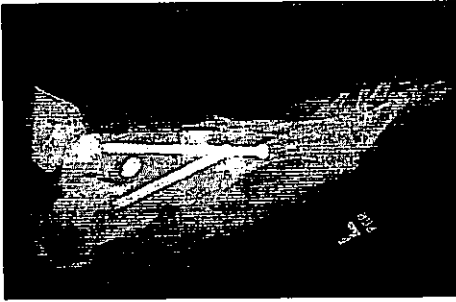
One example of a rear foot surgical procedure is **Charcot foot reconstruction**.

Charcot foot is a softening of the bones of the foot that occurs in people with severe peripheral neuropathy, predominantly those



PHOTOS BY KEVIN ALSWANG, 31 HOME STUDIOS

▲ Edward Harris, DPM (left) and Antonella Cella, DPM (right) of the Podiatry Foot & Ankle Institute



▲ Lateral radiograph of a midfoot/rearfoot reconstruction with beaming using large bore threaded screws as well as a subtalar implant for better support

with diabetes. The muscles lose the ability to support the foot, leading to a slackness of ligaments, dislocation of joints, damage to bone and cartilage and deformity.

In the past, the only option for a patient with a severe deformity in the rear foot or ankle was amputation. Now with technologically advanced implants and external fixators that are strong enough to bear the entire weight of the body, the deformed foot can be saved. "When you do a reconstruction of a Charcot foot, you pretty much have to break the foot and put it back together," explains Dr. Cella.

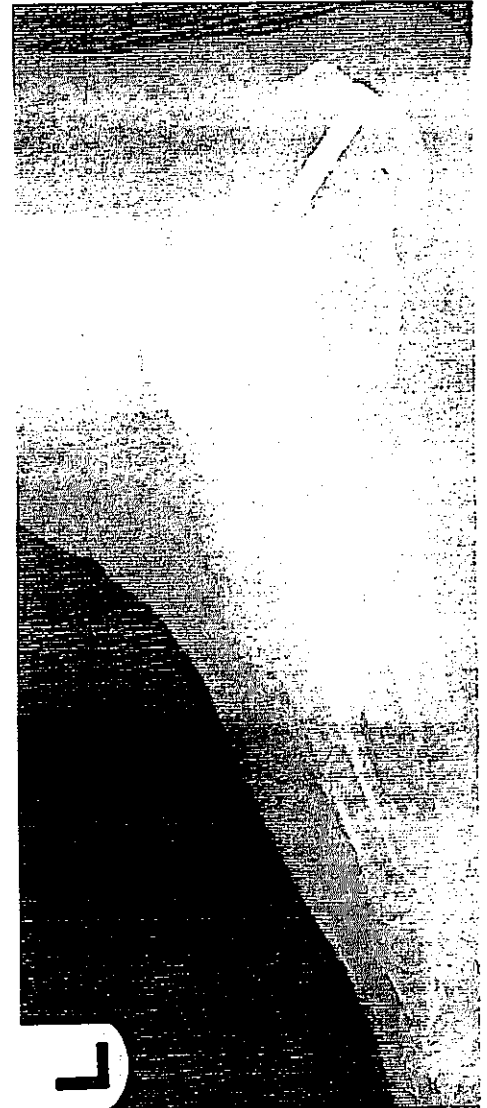
Besides reconstructive surgery, Podiatry Foot & Ankle Institute provides the diabetic patient with the entire spectrum of specialized foot care necessary for addressing the complications suffered by so many who are now afflicted as the diabetes epidemic continues to grow. "Treating the diabetic has now become a

significant healthcare concern," notes Dr. Harris.

Effective **diabetic wound care** is crucial for the prevention of amputations. Dr. Harris discusses the innovative modalities that he and Dr. Cella utilize in order to promote a more rapid healing process. "We use a variety of different products that help us close wounds," Dr. Harris shares.

There are two types of skin grafts that are used. Synthetic grafts are readily available and are a good choice for those whose morbidity prevents them from donating their own skin. For patients without contraindications, it is a relatively simple procedure to remove some skin from the leg and graft it to the wound. The grafts that are the patient's own are less likely to be rejected. Either way, grafting allows a wound that would otherwise remain open for a dangerously long period of time to close before irreversible damage could occur.

To maximize the success of a grafting procedure, the physicians at Podiatry Foot & Ankle Institute use a vacuum-assisted closure (VAC) device. The device consists of a vacuum pump, a canister with a connecting tube, an open pore foam and a semi-occlusive dressing. VAC therapy accelerates healing through negative pressure wound therapy (NPWT). By delivering negative pressure at the wound site through a patented dressing, this helps draw wound edges together, remove infectious



▲ Another intricate procedure performed at Podiatry Foot & Ankle Institute is a subtalar joint fusion for the treatment of a flatfoot as shown in this radiograph. The goals of this procedure include elimination of pain, restoration of stability and realignment of the hind foot. The procedure aims to join the two bones which make up the subtalar joint. These are the calcaneus (heel bone) and the talus (one of the ankle bones).

materials and actively promote granulation at the cellular level.

Besides caring for diabetic patients, Drs. Cella and Harris treat patients for the full spectrum of foot disorders. Sometimes, just the shape of a bone can result in a debilitating condition. One example of this is a painful **Achilles tendon spur** with a **Haglund's deformity**. This occurs mostly from chronic pressure on the back of the heel from shoes. The calcaneus (heelbone) is the largest bone in the foot. However, it is shaped differently in different people.

The Achilles tendon attaches to the back of the calcaneus. Between the bone and the Achilles tendon rests a lubricated sac of tissue (bursa)



▲ Dr. Harris examines a foot wound in a patient with diabetes

that allows the tendon to slide easily against the bone during movement of the foot. The spur squeezes the soft tissues between the bone and the back of the shoe. Eventually, this irritates the soft tissue and causes inflammation. Over time, swelling and thickening of the tissues may develop which actually makes the pressure worse. A thick callus can grow and become inflamed while the individual is wearing shoes. The bursa on the back of the heel can become swollen and inflamed as well (bursitis).

When the situation interferes with the quality of life, patients who are seen at Podiatry Foot & Ankle Institute will be evaluated to determine if they could benefit from a surgical procedure to reduce the prominence on the back of the heel by removing the exostosis. Dr. Cella shares the case of a woman with Haglund's deformity that resulted in a partial tear of her Achilles tendon. She recently underwent a surgical procedure. "I detached the Achilles tendon at its insertion, cut the prominent bone, re-attached the tendon with an absorbable anchor and repaired all tears in the tendon," Dr. Cella relates.

Some patients are seen at Podiatry Foot & Ankle Institute for an **Achilles tendon rupture**. This condition typically occurs in

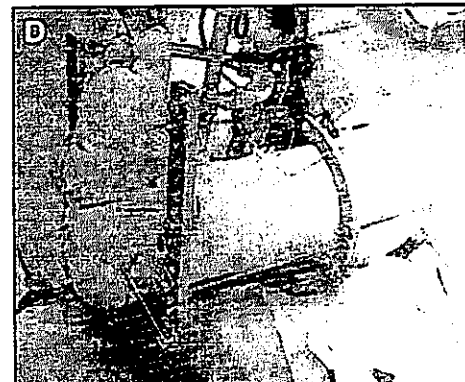
an unconditioned individual who sustains a rupture while participating in sports, or perhaps, merely from tripping. There is a vigorous contraction of the muscle and the tendon tears. The goal of treatment is to restore normal length and strength to the tendon. This is almost always accomplished by a surgical procedure to correct the tension between the muscle and tendon by accurately repairing the many tendon ends that separate as a result of the injury. Dr. Cella and Dr. Harris also perform surgeries on neglected Achilles tendon ruptures using muscle flaps and tendon grafts.

Another procedure performed at Podiatry Foot & Ankle Institute is **ankle arthrodesis (fusion)**. This surgery is performed when the ankle joint becomes worn out and painful, usually as a result of degenerative arthritis. Many people develop arthritis in the ankle years after suffering a fracture.

The ankle joint consists of three bones: the lower end of the tibia (shinbone), the fibula (small bone of the lower leg), and the talus (bone that fits into the socket formed by the tibia and fibula). The talus sits on the top of the calcaneus (heelbone).

Inside the joint, the bones are covered with

articular cartilage, which is the material that allows the bones to move smoothly against one another within the joint. An ankle fusion actually removes the cartilage surfaces of the ankle joint and allows the tibia to grow together or fuse with the talus, thereby eliminating the pain.



▲ O.R. picture after application of an external fixator for an ankle fusion

In order to perform the fusion, an incision is made in the skin to expose the joint. Then the surgeon uses a surgical saw to remove the articular cartilage surfaces of the ankle joint. Once the articular cartilage is removed on both sides of the joint, the body will start to heal or



▲ Intraoperative picture of an Achilles tendon rupture using a gastrocnemius fascial flap

fuse the two surfaces together, just as it does after a fracture.

It is crucial for the angles of the cut surfaces to remain correct while the bones fuse. To hold the bones in place, Drs. Cella and Harris use large metal screws and metal plates. In some cases an **external fixator** is also used to hold the bones together while they heal. This apparatus has metal pins that are inserted through the skin and into the bone. The metal pins are connected to metal rods and bolts outside the skin that hold the bones in position while the ankle fuses. The external fixator is removed after the bones have healed, usually within 12 to 15 weeks.

At Podiatry Foot & Ankle Institute, external fixators are used in the management of foot and ankle pathology in conjunction with a variety of procedures. Some examples of these are Charcot reconstruction, ankle fractures, flatfoot reconstruction, as well as ankle fusions.

While external fixation does not replace internal fixation, it does offer a number of specific advantages. Unlike internal fixation, which becomes a fixed, static construct once applied, external fixators can be adjusted in order to improve skeletal alignment or apply compressive or distractive forces across joint fusions. In addition, frames can be adjusted to correct severe deformities such as clubfoot, which would otherwise not be acutely correctable. Also, since external fixation constructs are designed to be extremely rigid and stable, it is possible for patients to have partial to full weight-bearing while the device is in place.

Although some fractures of the ankle or foot may be repaired with casting, others will

require a surgical procedure. **Calcaneal (heel) fractures** that require surgery can be serious and may lead to complications causing longstanding problems of the foot and ankle. While explaining this procedure, Dr. Cella reiterates the importance of choosing a surgeon who has been extensively trained in rear foot/ankle and trauma surgery.



▲ Lateral and oblique radiographs of a calcaneal fracture after open reduction with internal fixation

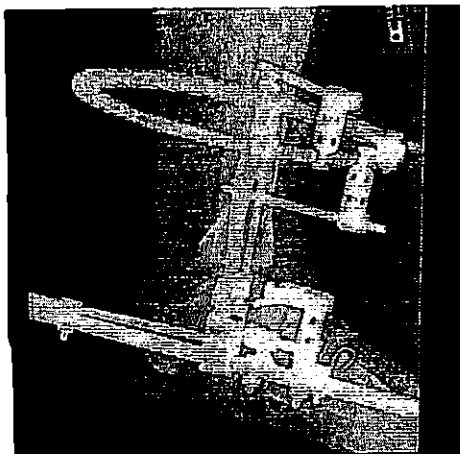
Surgical treatment of calcaneus fractures usually involves making an incision over the outside of the foot and applying internal fixation consisting of a metal plate and screws into the broken heel bone. Dr. Cella explains that the goal of the surgery is to restore the normal alignment of the bone and return the cartilage surface as close to normal as possible. Post-operative patients must be monitored carefully. It is critical to control swelling and patients will be required to keep weight off of the foot for up to three months.

Surgery to repair an **ankle fracture** is

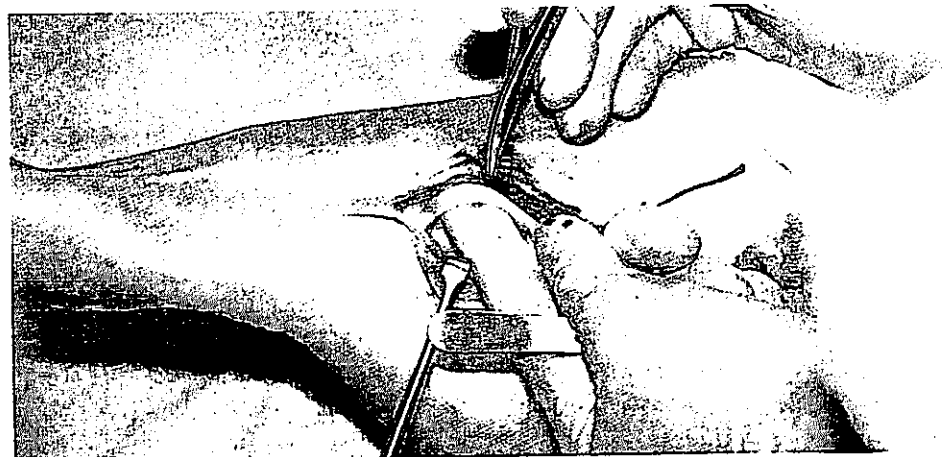
performed at Podiatry Foot & Ankle Institute for those patients who have suffered a displaced ankle joint, involving either the bone on the inside of the ankle (medial malleolus), the bone on the outside of the ankle (lateral malleolus, which is also known as the fibula), or both.

An incision is made on the outside and inside of the fibula and tibia. The soft tissue is dissected down to the fracture site. The fracture, itself, is cleaned and the bones are put back together in the exact way they were prior to the fracture. Once positioned, there are a variety of ways to stabilize the bones. The most common method is putting a screw across the fracture site for compression. This is followed by a metal plate with a series of screws to hold the fibula in its position.

**Lateral ankle ligament tear** is another ankle injury commonly seen at Podiatry Foot & Ankle Institute. The ankle and foot are held together by ligaments and tendons. The ligaments on both sides of the ankle are tightly attached to the bones. On the outside (lateral) aspect of the ankle are 3 major ligaments that help to restrict the motion of the ankle joint. When there is an injury to the ligaments they can be stretched out or torn, leading to sprain of the ligaments which weakens them. In some cases, when the rotational forces are strong enough, the ankle can fracture as well. There can also be damage to the cartilage of the ankle joint leading to a defect of the cartilage (osteochondral defect). If left untreated, lateral ankle ligament tears can lead to **lateral ankle instability**, which causes chronic pain, loss of function and usually requires surgical correction.



▲ A/P radiograph of an open reduction external fixation of an ankle fracture



▲ Complete inspection of tendon trauma is essential for a successful repair by removal and then reapproximation of a damaged tendon

In some cases, the stretched out ligaments can be tightened through arthroscopy. Small incisions at the front of the ankle allow for the introduction of a camera and with instrumentation, the ligaments are tightened. In most cases, however, the ankle joint will need to be opened over the area of the ligaments in order to visualize them. The ligaments can then be repaired by placing them back onto the bone in their anatomic position. Dr. Cella explains that in some cases, she will use absorbable bridge anchors to anchor the ligaments into the bone. This repair will tighten and strengthen the ligaments again. When the ligaments are too weakened to repair, cadaver tendon or a split tendon from the patient is used to create new ankle ligaments. This tendon is then routed through the bones of the ankle to reinforce it.

One of the innovative treatments offered by Dr. Harris and Dr. Cella is a much improved

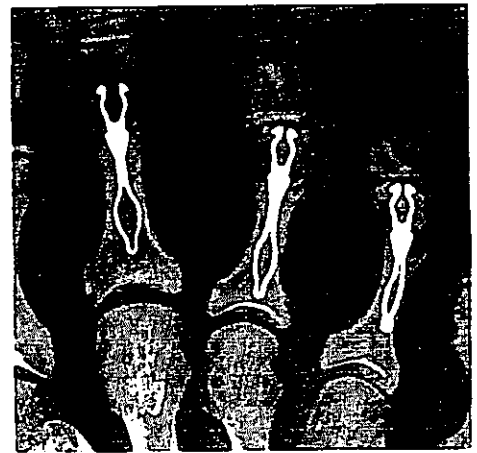
surgical correction for disorders of the toes, specifically **hammertoes**, **claw toes** and **mallet toes**, which result in deformity and significant pain. Many patients are seen at Podiatry Foot & Ankle Institute for treatment of these debilitating conditions. When toes are bent for long periods of time, their muscles shorten, leading to eventual deformity. Other causes include muscle nerve or joint damage resulting from osteoarthritis, rheumatoid arthritis, stroke and diabetes.

Surgery to straighten the toe and allow for natural flexibility may involve cutting or re-aligning tendons, re-balancing muscle and/or removing small portions of bone. Until recently, when bone was removed to correct and repair the rigid, bent toes associated with these disorders, a "k-wire" was then inserted to stabilize the toe for as long as six weeks. The wire protruded out from the opening in the toe. This process was often painful, uncomfortable and prone to infection.

The surgeons at Podiatry Foot & Ankle Institute now utilize the **Smart Toe®** Memory Implant, an innovative device that permits arthrodesis or fusion of the toe joint to be accomplished completely internally without the need for an external wire. Its "memory" capability helps compress the joint into its proper shape. Also, the one-piece design doesn't interfere with nearby healthy joints and the Smart Toe® implant resists rotation problems common to traditional hammertoe, mallet toe and claw toe corrective surgeries. The risk of "pin tract" infection at the sight of the open wound that is common with "k-wire" stabilization is eliminated with the Smart Toe® procedure. "The process is now much easier and provides an optimum result that is long-lasting," Dr. Harris emphasizes.



▲ Dr. Cella utilizes a curvilinear lateral incision for the repair of the lateral collateral ligaments with the use of a bioanchor modified Brostrum screw/thread bridge anchored into the fibula



▲ Radiograph shows the Smart Toe™ implant that is totally internal and eliminates the complications associated with the traditional "k-wire" procedure.

Maintaining foot health is crucial for the quality of our lives. When illness or injury occurs, the impact can be devastating. At Podiatry Foot & Ankle Institute Dr. Harris and Dr. Cella have been specifically trained and are expertly qualified to care for and treat any disorder associated with the foot and ankle. For patients and referring physicians alike, it is imperative to know where to turn when disease or trauma to the foot or ankle interferes with normal its function. Those who choose Podiatry Foot & Ankle Institute can be assured of receiving the highest level of care and treatment that is available today.

*Podiatry Foot & Ankle Institute is located at Hackensack University Medical Plaza, 20 Prospect Avenue, Suite 803, Hackensack NJ 07601. To schedule an appointment with Dr. Harris or Dr. Cella, or for further information, please call 201-488-FOOT (3668)*