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Fit Feet: Thoughts on Orthotics, Shoes and Beyond

**CUSTOM ORTHOTICS**

**HOST:** Dr. George Metzl

**GUEST:** Dr. John Kennedy

**Dr. Metzl**

You are listening to ReachMD XM 157, the channel for medical professionals. Welcome to the Clinician's Roundtable.

I am Sports Medicine Physician at Hospital for Special Surgery in New York City. We are really pleased to be joined today by Dr. John Kennedy, who works at the Hospital for Special Surgery. John is an orthopedic surgeon and a specialist in foot and ankle problems. There was an article in the New York Times about a year ago, looking at custom orthotics and custom orthotics are in New York City many, many 100s of dollars. These are products, which are used to correct the people's foot into neutral and basically there is a whole range of products from the off-the-shelf orthotics which are like $25, maybe $30 to the custom orthotics which can range upwards of $500 and the conclusion of the New York Times was as well as several studies looking at the efficacy of custom orthotics versus over-the-counter orthotics, that the vast majority of patients did not need custom orthotics, but that certainly is not the case, that many patients, in fact, do get custom orthotics, so I wanted to start the second half by asking John about the issue around custom orthotics and what his thoughts were about that product, when are they necessary, are they over-prescribed and what is your thought on how this industry has evolved.

**Dr. KENNEDY**

It is interesting because we get <__01:12___> a lot. In my business, we do prescribe a lot of orthotics, but many of these do not necessarily need custom orthotics. There are some very good off-the-shelf orthotics that will address the minor mechanical instabilities that the patients have. For those who have larger mechanical instability or those who need accommodation for a deformity in the foot, certainly custom orthotics are good, but it really is a case per case. You cannot say or condemn one or the other. It really is case per case. I think there was a time where they might have been over prescribed, but I think it is up to the individual doctor to be honest about it and say we cannot treat with something just as effective and perhaps not as costly with an off-the-shelf orthotic.

**Dr. METZL**

John tell me this, ankle instability and orthotics. In my practice, I had a number of patients where they have had some combination of a little bit of laxity and a little bit of weakness, we get them stronger and for some reason, they seem to be much more stable if we get some arch support underneath their foot particularly if they have a cavus foot, which can say tip a little bit. What is your thought on the use of any type of arch support as a preventive measure for the person who keeps rolling their ankle, is there a role for that?

**Dr. KENNEDY**

There is a role, but it has to be combined with the other things we talked about in terms of this proprioceptive training and mechanical training. The idea of an orthotic is that it is a static stabilizer if you like. In another words it tries to restore this tripod configuration which is very stable, lets the first ray and the second ray as being the base of the tripod and the heel being the apex and if the heel is in a varus position or tilting to the inside. Of course, all the weight is transferred to the outside of the ankle joint. So if you can use a lateral heel wedge and combine that with an arch support, you certainly will give a static stabilizing effect to the foot, but once you put that foot in a position where it is unstable such as unstable ground or turf, then you need all the other dynamic stabilizers such as the peroneal tendons to be in phase and those proprioceptive fibers to be firing. So, it is one part of the jigsaw, but not the complete thing.

**Dr. METZL**

Fair enough. What about the issue of running shoes, both you and I are deluged with runners or want to be runners who are trying to coax their body towards the New York Marathon in some way or another. What about your thought on the evolution of the running shoe from the first generation Nike, which you may recall this one the kind of white with the red stripe and a flat sole like a waffle sole and nothing to where you come to today, what is your thought on the evolution of the running shoe as foot type in the way somebody runs and we are talking about overuse injuries, but still on the topic of ankle injuries in sports.

**Dr. KENNEDY**

It is true. I think the whole industry, in fact, the running shoe industry is developing the way we want to see and it is doing that because we and they have collaborated, and that is the most important thing that we collaborated with industry to show them and advise them what is needed our there to prevent these overuse injuries and we had done that with a number of the major running shoe companies. We actually have a lab as you know in the Hospital for Special Surgery, at the running lab there where we can put lot of these athletes through their paces and at the same time measure the forces through their ankle, through their knee and through their hip and then use the various different types of commercial running shoes to see how it affects them. Everybody's foot is a little bit different and just to pick something off the shelf and hope that it will work for all of us is perhaps not realistic and I think now what is happening with the industry that they are recognizing that and they are building a combination for different types of feet. So it is certainly moving in the right direction.

**Dr. METZL:**

It has been remarkable to see and as you know here in New York, a number of the different running stores now have treadmills and video analysis in the stores, so they can video your foot when you run and see how much you role and try and suggest a shoe for you. So I think it really has come a long way.

**Dr. KENNEDY**

It is a common sense approach. Make sure that the person who is advising you knows enough and make sure that it feels good. Here one of the things that many of the stores here they do. They actually get you to go outside and run up and down the street and that is really what you need to do. Does it feel good or is it over-pronating or is it over-supinating; and so you really need to rather than just take it out of the box, put it on and <___05:16__> run up and down. If they have a treadmill all the better and there should be an orthotist or there should be pedorthotist who can look and really advise you professionally rather than shoe salesman say that's the right one.

**Dr. METZL**

There was an old country music song here which was called "Mamas don't let your babies grow up to be cowboys", which was basically

discouraging parents to raising cowboys as kids and so my question to you John is “Mamas don’t let your babies grow up to be marathon runners”, what is your thought on that, healthy or not?

**Dr. KENNEDY**

It is a great thing. It is honestly the whole running industry is tremendous for people and people’s health and so forth, but there is a point of course when you can overdo like anything in life, and I think part of the thing that we see is the overuse injuries. Clever sensible training that is well modulated and it is fine. I do not think we were designed necessarily to be running marathons all the time and when you see people doing 8-9 marathons a year, they are at least athletes. So I think that you know, if you are doing that much mileage whether it is marathon or triathlon whatever it is, ultimately you are going to have injuries and the most important thing is to recognize them when they occur and to deal with them and just hope that they don’t go away because they will not and you do need professional help at that point.

**]Dr. METZL**

If you are just joining us. You are listening to Clinician’s Roundtable on ReachMD XM-157, I am your host Dr. George Metzl and our guest today is Dr. John Kennedy, orthopedic surgeon and foot and ankle specialist from Hospital for Special Surgery.

John, we talked in the first half about ankle injuries and touched on the imaging of ankle injuries, meaning how MRI has really changed the equation allowing us to look not only at the ankle itself, but look inside the bone, look for edema, look for cartilage wear patterns and something which I know you are interested in is the issue of osteochondral injuries in the ankle and in the talus predominantly. So why don’t you give us a little scenario of how a patient would come into your office with an osteochondral injury to the talus or to the ankle and how would you go about kind of helping them figure out that may be what they have and then we can talk about how we take care of those.

**Dr. KENNEDY**

Typically, an osteochondral injury can be either from a traumatic type and/or the de novo type and the de novo type of osteochondral injury may be from a bone cyst or some form of vascular malformation and that generally occurs in the bone first; and if you think of the bone being the scaffold in which the cartilage lies, ultimately with repetitive loading either from an inversion injury or from even marathon running can cause the cartilage simply to fall into that cyst. That is the de novo type of osteochondral lesion. The traumatic type is generally caused by inversion injuries or repetitive inversion injuries and in those cases, the cartilage is injured first with bone bruising and bone cavitation as a secondary result of that. So the standard now really for in terms of diagnosing that, I would say the careful clinical history and evaluation, but it really is down to modern imaging modalities such as MRI and CT where you can really get a good sense of what is going on with the cartilage and how much bone is involved. In those cases where there is a traumatic injury, just to the cartilage itself, those are amenable to arthroscopic debridement and microdrilling. When you microdrill, you do not get normal cartilage; you get fiber cartilage, but if the defect is small; in another words, if it is less than 6 mm, that fiber cartilage appears to be robust enough that it would not predispose you to further degeneration and arthritis. In the cases where it is larger than that or when there is a cavitation of the bone or there is a cyst in the bone, those are the cases that we have to consider doing osteochondral autograft transplants. Now we get those in general from the ipsilateral knee through a small incision, a small arthrotomy and we take a little chew which is like the old apple core we used to take out the core of an apple. It is the same device essentially it is about 8 mm core. We take that plug which is both bone and cartilage and we put that into the area of the defect within the talus; and those few patients do well and in this case, it is replacing cartilage with cartilage and the long-term studies of that are very encouraging; and I think that is really where we are going. We are doing a lot of work here at Hospital for Special Surgery looking at various types of cartilage replacements, looking at triggers which are genetic triggers using heat shock proteins to try and stimulate native cartilage to grow. The big problem is when we put these pastes in or these matrices into the area, they tend to work well in the lab, but when you put them actually into a real-life talus it is moving, of course they get washed away, and so the mechanical factor is something that we still have yet to work on. So, it is a very exciting area to be working in and particularly because as I said with one of the imaging modalities we are seeing that more and more and more patients do have these chondral injuries and in a recent study, it was interesting to see that about 60% of patients who have an ankle inversion injury had a chondral injury of some sorts and that is an enormous number and it is only diagnosed, except in old age when we got an x-ray, of course, we did not see this; and so when the patients had this chronic ankle pain afterwards, we just said suck

it up and off you go. Now, we are recognizing that there is something going on in there and it is relatively simple; if you catch it early, it is a relatively simple procedure to microdrill it with a very, very predictable outcome.

**Dr. METZL**

Lets say you are working in a primary care clinic, you do not have MRI right downstairs like we do at Hospital for Special Surgery, but you are out some place that is not accessible to you, how are you going to identify the person who may have a osteochondral or chondral injury versus the patient that just has rolled their ankle. How will that be different clinically.

**Dr. KENNEDY**

Well generally, it is more of a chronic type pain. The ankle instability often times is not necessarily painful. It is inconvenient and it is painful at the time that they roll it, but it isn't a constant dull ache that they have. The osteochondral injury will be that typical dull ache, generally precipitated by running or repetitive loading. That is just on the history aspect of things. Often times, of course they will have had a history of repetitive inversion injuries. On the examination, if you put the talus into full plantar flexion, you are actually bringing the most commonly injured area, which is in fact the central portion of the talar dome both centromedial and centrolateral, you bring that into an area where you can actually palpate and palpating in there, will actually elicit pain. It is an interesting exam because we do not often do it, but if we do it, just press into those lateral and medial aspects of the central dome and that will elicit pain. So that is just on the clinical exam. Now of course, if you have access to an x-ray on those cases, which have cystic changes within the bone, you will see that on x-ray and if you look for it again both in centrolateral and centromedial. Traditional view <__12:01___> anterolateral, but it is not in terms of these traumatic. Again a study we have done here had shown that the vast majority of these are central lesions and we think about the anatomy that is the closest or approximating area where the tibial plafond hits off the talus in an inversion plantar flexion injury.

**Dr. METZL**

You have talked about both the acute traumatic and the overuse osteochondral injury, which is more common?

**Dr. KENNEDY**

The traumatic, much more common. Yeah, we see that and I think we are going to be seeing that more and more with more imaging modalities we do, it will be diagnosed more readily.

**Dr. METZL**

Well terrific John, thanks so much for joining us today. You have been a terrific and very informative guest.

**Dr. KENNEDY**

Many thanks for having me.

I am Dr. Jordan Metzl, you have been listening to the Clinician's Roundtable on ReachMD XM 157, the channel for medical professionals.

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