



# Special Olympics Healthy Athletes Fit Feet Program: Melding Newly-Learned Clinical Skills with Practical Experience

Here's a unique biomechanical template for podiatric medical education and practice.

BY TIM DUTRA, DPM

There has been growing concern within the podiatric profession about the status and importance of biomechanics in our podiatric teaching and education. We need to bridge our podiatric biomechanical education with clinical training and community screening for our podiatric medical students. Biomechanics is the foundation for podiatric medicine and surgery, yet the emphasis has shifted dramatically away from biomechanics clinical training, with much more emphasis on surgical training. Biomechanics and its importance in understanding its relationship with surgical procedures is paramount for our podiatry students in their clinical training.

Understanding the static and dynamic relationship in the biomechanical examination process, as well as how that translates to gait evaluation and specific sport motion, is an ongoing learning process. Understanding the importance of biomechanics and how it influences the foot in injury prevention, treatment, and surgical procedures is extremely important for our students (and profession) in keeping our patients/athletes active and as injury-free as possible. Orthotic therapy has become pathology-specific in our approach to prescribing orthoses in combination with the athletic shoe prescription, to maximize but

not over-control mechanics.

The Special Olympics Healthy Athletes Fit Feet program provides an excellent opportunity to apply newly-learned clinical skills with practical experience on relatively healthy individuals. Students are exposed to a variety of pathologies, gait patterns,

and efficient in their exam and assessment, as the Fit Feet station is often the busiest of the Healthy Athletes screenings. Students learn to treat individuals with intellectual disabilities, developing their skill sets in clinical examinations, patient education, and referral sources in an underserved pa-

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biomechanical issues, and areas needed to educate athletes, coaches, and family members. Many of these conditions are rarely seen in a general practice. It is a great teaching opportunity for students. The program also highlights podiatry as an essential part of the sports medicine team.

Many athletes have not had a comprehensive foot and ankle exam, proper foot measurements, shoe recommendations, referrals for additional assessment and treatment for foot problems, as well as general health and fitness recommendations. Podiatry students get a hands-on experience, learning to be comprehensive

tient population. It is also a great opportunity for interdisciplinary care, exposing the volunteers, healthcare providers, athletes, families, and coaches to a variety of medical screenings, prevention, and education.

## **Special Olympics Healthy Athletes Program**

Our students at the California School of Podiatric Medicine at Samuel Merritt University can volunteer for the various Special Olympics of Northern California during the year. Most recently, we staged a Special Olympics Healthy Athletes Health Fair on

*Continued on page 88*



## Special Olympics (from page 87)

campus in March, as well as covering the 2019 Summer Games at the University of California at Davis. These events allow our students to get early clinical training and be mentored by their fellow students. Many of the interesting cases can be shared in a teaching situation provided it is okay with the athlete/coach.

The American Academy of Podiatric Sports Medicine (AAPSM) was instrumental in helping develop the Fit Feet program in 2002 to serve athletes with intellectual disabilities as part of the Special Olympics Healthy Athletes health screenings.

The Healthy Athletes screening also includes the following areas: Health Promotion (well-being), Opening Eyes (vision), Special Smiles (dentistry), Strong Minds (emotional wellness), FUNfitness, Medfest, and Healthy Hearing (audiology). The goals of the Healthy Athletes program include: increasing access to healthcare, improving healthcare, referrals, and recommendations; training healthcare professionals and students; and collecting health data to provide us with statistics on health status. Approximately 20% of athletes screened are referred for follow-up medical care. Up to 50% of Special Olympics athletes experience one or more preventable or treatable foot conditions that affect their performance in activity. Over 40% of Special Olympics athletes wear the wrong size shoes; most often their shoes are too big.

The Healthy Athletes program introduces our podiatry students to a variety of sports, which is a great experience not only to learn about different sports, but also to be introduced to a variety of athletic footwear. Podiatric sports medicine initially involved primarily treating runners, and now has expanded to treating athletes involved in all types of activities and sports. Many of the athletes have significant biomechanical issues that need to be identified and addressed with follow-up referrals to podiatrists in their local communities. Through the



Figure 1: Dr. Dutra reviewing shoe test prior to the Healthy Athletes Health Fair at the Motion Analysis Research Center (MARC), Samuel Merritt University with first and second year students from CSPM.

program we can offer opportunities for pre-custom or custom orthotics. Shoe recommendations and proper sizing of shoes is also an important part of the screening process as many of the athletes are wearing the incorrect size and/or type of athletic shoe. We introduce our students to the importance of shoe evaluation for flexibility and

joint range of motion and static vs. dynamic biomechanics at the ankle, MTP, STJ, MTJ, and knee. Is an equinus present, and if so, what type? Basically, we are looking at a qualitative exam for normal, restricted, or hypermobile joint ROM, as well as symmetry of motion. At standing, we are looking at foot type, tibial and knee position, and RCSP. The gait exam looks at angle and base of gait, if pronating or supinating excessively, early heel off,

LLD (structural or functional), as well as level of compensation. We indirectly are also evaluating balance, propulsion, heel contact, dynamic motion of the hips and knees, center of gravity, muscle imbalance, and symmetry. It is very important to stress to our students and residents that when doing a comprehensive gait exam we evaluate

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stability, as well as for matching with foot type and activity. Understanding the types of shoes for motion control, stability, and cushion, along with the coupling of orthoses control, is an important part of their learning process. The importance of athletic socks and the functions that they serve can never be emphasized enough.

### Fit Feet Screening Process

Fit Feet screening is by no means a comprehensive foot and ankle exam, but more of a basic exam of reviewing the following areas: dermatological-nail condition and appearance, skin condition—lesions, moisture, odor, maceration, cracking; bone structure/deformities of the feet—bunions, tailor bunions, hammertoes, exostoses, hallux rigidus/limitus, etc. The biomechanics portion is more in-depth, looking at

the gait cycle from the head down, looking at the head, shoulders, arm swing, hips, knees, ankles, heel contact, loading, and propulsion, as well as angle and base, extensor or flexor substitution.

Students are encouraged to watch the athlete walk for at least three to five minutes to make sure they are getting a clear picture of the gait pattern, balance, and symmetry. The pace of the Healthy Athletes Fit Feet screening allows students and residents to become more efficient and proficient with their biomechanical and gait evaluation, demonstrating the importance of dynamic and functional ROM as opposed to the static, non-weight bearing portion of the exam. Many interesting conditions and lower extremity/foot pathologies are seen, including neuromuscular diseases,

*Continued on page 90*



## Special Olympics (from page 88)

foot, ankle, and leg deformities.

The last part of the screening is the educational portion, reviewing any foot and ankle conditions or issues, and suggestions and recommendations for any follow-up referrals to podiatrists or other professionals, athletic shoe and sock recommendations, inserts or custom orthoses, stretching and/or strengthening, foot hygiene and care. The students learn how to present, discuss, and review important patient education with not only the athletes, but also the family members and coaches to help reinforce the recommendations and options covered.

Shoe recommendations are probably the most critical aspect of the education process, as there are so many brands, models, and styles of athletic shoes on the market (Figure 1). Proper fit of the shoe starts with a reference point using the Brannock device, which measures the heel to toe length, heel to ball foot, and width of the ball of the foot. We remind the athlete that shoe size can vary by brand and type of shoe, so we go over the proper fit and evaluation of the shoe. The shoe should be specific to the sport that athletes are participating in, as well as with the proper sock, any space needed for inserts/orthoses/bracing, as well as the importance of the shape and size of the toe box. We also review the use of sport sandals for use

around the pool or after activity. We also discuss stretching, strengthening, cross-training, and fitness recommendations that would be helpful.

Our podiatry students can apply their biomechanics course work and training to practical clinical situations and incorporate this experience with Fit Feet program into their skill set. This experience also prepares and advances the students in their clinical training during school, as they will have seen large numbers of athletes with diverse pathologies and conditions.

### Barriers to Proper Care

There are obstacles that may prevent people with intellectual disabilities from achieving their best health and fitness levels. These include: decreased physical activity; lack of healthy nutrition options; limited access to health education and exercise opportunities, use of medications that impact weight and appetite, limited access to regular health screenings, check-ups, and exams. Many of the health issues of people with intellectual disabilities remain hidden or misdiagnosed, and may be overlooked due to the provider attributing it to the intellectual disability.

### Conclusion: Preparing Our students

The Healthy Athletes program is an excellent opportunity to provide our podiatric students and residents the ability to develop their clinical skills in biomechanics and sports medicine; addressing bony deformities, gait abnormalities, nail and skin conditions, orthoses and bracing therapy, exercise prescription/cross training methods, patient education, communication, and teaching tools, shoe and sock recommendations, and promotion of a healthier lifestyle (wellness/fitness).

Biomechanics needs to be emphasized in our clinical training as an important foundation of our podiatric education and overall assessment of our patients/athletes. Every patient can be an athlete, and exercise is great medicine for all us. Our students learn to interact with a special population of athletes with intellectual disabilities who have a passion for sports and exercise. This includes athletes of all ages and physical levels. It is also a great opportunity to develop the concept of an interdisciplinary approach to healthcare and serve the community. Help mentor our podiatry students and participate in the Special Olympics experience; it will be one of the most worthwhile things you can do for yourself, your community, and your profession. **PM**



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