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## THE PRACTITIONER'S CORNER

### Hip Stability: How It Cured My Knee Pain

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#### Abstract

With the great physical demand placed on today's youth athletes, overuse injuries such as anterior knee pain are becoming commonplace at younger and younger ages. The main culprit in creating injury is an increase in power and speed training before athletes possess an acceptable level of strength and stability to train without compromising proper movement and technique. This poor movement pattern eventually causes a breakdown at some point in the musculoskeletal system. While pain may develop in many different joints or muscles, the true source of the pain can frequently be traced back to proximal weakness in the core and hip musculature. Research has started to expose the importance of proper movement patterns and core/hip strength in the role of injury prevention, and a paradigm shift must now occur so that coaches and trainers of young athletes recognize and emphasize the importance of creating proper movement before training power and speed. **Health & Fitness Journal of Canada 2009;2(2):5-7.**

*Keywords:* High performance sport, qualified exercise professional, physical activity, exercise rehabilitation

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#### Introduction

As a youth athlete competing at an elite level, it is all too common that one's body cannot keep up with the rigorous demands imposed by sport. Across a variety of sports and training methods, there are countless mistakes that lead to the development of chronic or acute injuries at a very young age. Playing beach volleyball for the Provincial and National teams, my weapon of choice was "jump training".

When I decided to take my training up to the next level by beginning a strenuous jump training program involving plyometrics and weight training, I made an uneducated error that far too many youth athletes are still making: putting fitness on dysfunction. Unfortunately, after six years of playing volleyball at the highest level in the province, my teammates and I had a poor understanding of the fundamental concepts behind strength training and plyometric training for performance. The movement patterns that I had developed for squatting, jumping and running were far from ideal, characterized by extreme genu-valgus collapse (knock-knees) during any movement that required maximum force or power.

After practicing four times per week and training three to four times per week, it was only a matter of time until I found myself sitting on a physiotherapy bed explaining my unrelenting knee pain.

## HIP STABILITY: HOW IT CURED MY KNEE PAIN

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I had developed bilateral patellofemoral pain syndrome (aka Runner's Knee), a common condition characterized by improper tracking between the patella and the femoral condyles and diffuse knee pain underneath the patella. Thus my long path of treatments began. As per the current state of knowledge on the injury (Bizzini et al., 2003), my four-day per week treatment consisted primarily of quadriceps strengthening and timing exercises. I also became diligent with stretching, massage, and intra-muscular stimulation. Finally, taping, bracing and medications were a last resort to manage pain during competition. Sadly, despite instances of minimal pain during treatment, everyday pain and competition pain remained persistent, and gradually increased.

After three years of physiotherapy from five different physiotherapists without any improvement in pain, surgical intervention to resurface the underside of my patella became my only option for restoration of function. Following successful surgery, pain was reduced markedly and I was able to train and compete fully again, but it wasn't long before my impaired movement mechanics started to take a toll on my newly repaired sub-patellar cartilage. My patellofemoral pain began to return, and I feared the cycle of constant physiotherapy and gradually increasing pain was to begin once again.

Seven years into my patellofemoral pain experience, I became a CSEP-Certified Personal Trainer and started to learn more about health, fitness, performance and injury. I pursued my interest in musculoskeletal injury in an attempt to comprehend the condition that had been plaguing me for so long. One year after my surgery I came into contact with a physiotherapist who had a

remarkable understanding of the human body and the kinetic chain. In her assessment of my patellofemoral pain, she observed the way that I moved and then immediately started her examination of my hip musculature. I kept insisting that my hips were fine, and telling her exactly what I could and could not do with my quads, and why that was making my knee hurt. My naiveté became evident when she explained that while traditional patellofemoral pain examination explores the movement of the kneecap on the femur to create improper tracking (Mascal et al., 2003), my movement patterns warranted an investigation of how my femur was moving beneath my patella. Minutes later I began to buy into her rationale, as she exposed a gross weakness in both my hip abductors and external rotators (collectively comprised primarily of gluteal muscles). Standing on a single leg further revealed an appalling amount of instability at my knee, which for the first time I understood as stemming from my hips. It became evident that strengthening my hip musculature was the only route to controlling the instability I was experiencing at my knee.

After months of intense focus and deliberate practice, I acquired the ability to activate my gluteals, which allowed me to start strengthening them and the movements that they control. Years of training with poor movement patterns had left me with seemingly concrete neuromuscular patterns, but with dedicated training I was able to modify my movements to allow my newfound hip stability to properly guide my squatting, jumping and running patterns. 1 year later I write this after having just completed a day of running, biking and beach volleyball. As I sit at my computer pain free without icepacks on my knees, a

feeling of elatedness surrounds me as I no longer fear the pain of exercise.

During my past five years of working with thousands of Canada's top youth athletes as a CSEP-Certified Exercise Physiologist, CSEP-Certified Personal Trainer and NSCA-Certified Strength & Conditioning Coach, the trend of poor movement patterning has become quite apparent. The majority of youth athletes are not properly instructed on how to correctly perform basic movement patterns or corrected when they exhibit poor patterns, but are simply asked to complete some sort of athletic movement with the outcome as the measure of success. While this approach may be successful to some degree, it does not foster long-term athletic development, and it effectively breeds injuries. The specific pattern of gluteal deficiency that I myself exhibited is now a commonly observed characteristic of the elite youth athlete, particularly one experiencing pain in the knees or back (Cichanowski et al., 2007; Ireland et al., 2003; Mascal et al., 2003; Powers, 2003). More emphasis needs to be placed on assessing quality of movement for our young athletes and identifying any weak links in the kinetic chain before attempting to develop strength and power.

Fortunately, as this hip instability trend continues to emerge, more research is investigating the role of poor movement patterns and weak or poorly coordinated musculature in the role of musculoskeletal injury (Cichanowski et al., 2007; Ireland et al., 2003; Mascal et al., 2003; Powers, 2003). Of particular interest is the role of hip, pelvic, or core stability as it serves as the central connection for full body movements (Cichanowski et al., 2007; Ireland et al., 2003; Mascal et al., 2003; Powers, 2003). Hopefully practitioners everywhere will

take this information into account in their practice and prevent young athletes from developing injuries from poor movement patterns and hip instability: problems which I know first hand are entirely correctable and likely preventable.

### **Qualifications**

Mischa Harris' qualifications include: BHK, MSc Candidate, CSEP-CEP, CSEP-CPT, NSCA-CSCS.

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