



PHYSIO FOCUS

PHYSIO FOCUS is a monthly publication geared towards providing practical physiotherapy and health information.

INSIDE THIS ISSUE:

Chronic Ankle Instability (CAI) and Physiotherapy.....	1
NOI Fitness Class Information.....	1
Youth- Physical Activity Towards Health (Y-PATH).....	2
NOI Feature Athlete.....	2
Health Corner.....	2
Contact Info	2

NOI Fitness Classes

May/June Class Schedule

Please sign up at front desk!

Pilates Mat Level 1

Mondays at 5:30 pm

A floor based exercise program that uses your own body or small props to build core strength and retrain proper muscle patterns while increasing your mind-body awareness.

Hatha Yoga Level 1

Tuesdays at 7:00 pm

Sequence of standing, seated and kneeling postures linked with your breath which will open the entire body and allow energy to flow more freely.

Mat Pilates Level 2

Wednesdays at 5:30 pm

We will build on the principles in Level 1; exercise at a quicker pace to create a dynamic core workout. The focus will be on exercises to increase strength and endurance.

Hatha Yoga Level 2

Wednesdays at 6:45 pm

A natural progression from Hatha Level 1; you will be guided into intermediate postures helping to increase your strength, flexibility & stamina.

“WHAT THE MIND HAS FORGOTTEN, THE BODY REMEMBERS LONG AFTER”
– LILIAS FOLAN

Chronic Ankle Instability and Physiotherapy

Individuals who have suffered from multiple ankle sprains are at risk of developing *chronic ankle instability (CAI)*¹. CAI is characterized by residual symptoms (pain, swelling, feelings of instability) being present one year after a sprain. CAI involves an interaction between both mechanical and functional insufficiencies^{1, 2}. Mechanically, there are changes to the ankle structure (joint laxity, compromised joint tracking, and degenerative changes). Functionally, there are changes to the ankle's neuromuscular system. Swelling and damage to internal structures can affect communication between the nerves and muscles; this affects the ankle's ability to respond and prepare for movement, ultimately leaving the ankle susceptible to re-injury.

Hopkins et al. 2000³ outlined how injury can begin a vicious cycle of chronicity. With injury exists associated pain, swelling, and changes in nerve communication which lead to decreased joint movement (immobilization), which leads to muscle wasting and weakness, therefore leaving the injury vulnerable to further damage. The cycle will continue if not blocked or slowed, which is where physiotherapy and active exercise in a controlled rehabilitation setting is necessary to intervene.

Evidence has demonstrated that balance and coordination training that includes functional progressions and sport-specific tasks can significantly reduce the risk of ankle sprains in those with previous history^{4, 5}.

The Niagara Orthopaedic Institute offers advanced and innovative services to address functional limitations caused by conditions such as CAI. Individualized rehabilitation programs are developed and delivered by a multidisciplinary team of health care professionals, including registered physiotherapists and kinesiologists, and certified personal trainers to assist in functional recovery, return to work and sport, and injury prevention.

1. de Vries JS, Krips R, Sierevelt IN, Blankevoort L, van Dijk CN. Interventions for treating chronic ankle instability. *Cochrane Database Syst Rev.* 2011(8).

2. Hertel J. Sensorimotor deficits with ankle sprains and chronic ankle instability. *Clin Sports Med.* 2008;27(3):353-370.

3. Hopkins JT, Ingersoll CD. Arthroscopic muscle inhibition: a limiting factor in joint rehabilitation. *J Sport Rehabil.* 2000;9:135-139.

4. McGuine TA, Keene JS. The effect of a balance training program on the risk of ankle sprains in high school athletes. *Am J Sports Med.* 2006;34(7):1103-1111.

5. McKeon PO, Hertel J. Systematic review of postural control and lateral ankle instability, part II: Is balance training clinically effective? *J Athl Train.* 2008;43(3):305-315.

NOI Feature Athlete for June: Ryan Bench I



The NOI has established a monthly program where we will recognize local athletes in our Niagara community. The criterion used, not only acknowledges superior athletic performance, but more importantly recognizes outstanding individuals who demonstrate leadership, perseverance, and positive character.

Each month we will feature one athlete who exemplifies these attributes and feature a biography of their journey on our website www.niagaraortho.ca. Follow us on Facebook and on the web to learn more about this unique program and these dynamic individuals in Niagara!



Health Corner

Exercise of the Month!



Quadriceps strengthening is a common rehabilitative exercise used for clients experiencing patellofemoral pain (PFP) and typically includes both a weight-bearing and non-weight-bearing component. Much attention has been dedicated to the type and nature of quadriceps exercises and how best to minimize the stress and loading on the patellofemoral joint (PFJ). This directly relates to the contractions of numerous agonist and antagonist muscle groups around the knee joint complex and their ability to protect the PFJ from injury.

A recent research study was conducted to compare patellofemoral joint stress among weight-bearing and non-weight-bearing exercises utilizing electromyography. A biomechanical model was employed to determine patellofemoral joint stress at 0°, 15°, 30°, 45°, 60°, 75°, and 90° of knee flexion.

To minimize PFJ stress while performing quadriceps strengthening exercises, their data suggests that the squat exercise should be performed from 0-45° of knee flexion (weight-bearing) and the knee-extension-with-variable-resistance exercise should be performed from 90° to 45° of knee flexion.

Ask your Physiotherapist, kinesiologist, or personal trainer at NOI today to review the proper technique for incorporating this dynamic exercise effectively and safely into your rehabilitation program!

7. Powers CM, Ho KY, Chen YJ, Souza RB, Farrokhi S. Patellofemoral joint stress during weight-bearing and non-weight-bearing quadriceps exercises. *Journal of Ortho & Phys Ther* 2014;44(5): 320-327.

Youth-Physical Activity Towards Health (Y-PATH)

Despite the well documented and research supported benefits of physical activity on health and well-being, a multitude of recent studies suggest that physical activity among young people is extremely low and actually shows a decline during adolescence. Belton and colleagues 2014⁶ conducted a cross-sectional study to outline where the limitations in youth physical activity are in order to target physical activity interventions.

Cross-sectional data on physical activity levels (self-report and accelerometry), psychological correlates of physical activity, anthropometric characteristics, and fundamental movement skill proficiency of 256 youth were collected.

Their results revealed significant deficiencies in physical activity levels among youth:

1. 67% percent of youth were NOT accumulating the minimum 60 minutes of physical activity recommended daily;
2. 99.5% did NOT achieve fundamental movement skill proficiency expected for their age;
3. 25% of youth were either overweight or obese;
4. Active and inactive youth reported differences in their perceived understanding of health;
5. Active youth related health to nutrition, exercise, energy and sports whereas inactive youth attributed health to a primarily nutritional concept.

The authors proposed a framework to target these deficiencies to optimize and increase youth physical activity levels. This framework, Y-PATH, is used to structure physical activity interventions and education for youth. Consultation with a registered Dietitian should also be a component of this program to assist in developing proper nutritional habits at a young age. As health care practitioners, parents, and members of society it is essential to educate our youth on the benefits of physical activity, as the lack thereof has been associated with an increased risk of cardiovascular disease, heart attack, stroke, cancer, orthopaedic injury, fibromyalgia, and mental illness.

6. Belton S, O'Brien W, Meegan S, Woods C, Issartel J. Youth- Physical Activity Towards Health: evidence and background to the development of the Y-PATH physical activity intervention for adolescents. *BMC Public Health* 2014;14:122.

