Issue 13 / February 2015

NIAGARA ORTHOPAEDIC INSTITUTE

# PHYSIO FOCUS

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

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## NOI Fitness Classes

**Winter Class Schedule**
Please sign up at front desk!

**Pilates Mat**
**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.

**Meditation for Healing**
**Mondays at 6:35 pm**
This experience is truly unique in that you will learn to use your breath and awareness to connect to the healing power that lies within you. The focus will be on unlocking this inherent healing potential inside all of us.

**Hatha Yoga**
**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.

**He who takes medicine and neglects diet wastes the skill of his doctors. ~Chinese Proverb**

## Pilates Effectiveness for Treating Spinal Pain

The Pilates method of exercise (PME) combines exercises into an approach where emphasis is placed on body position control and movement. The PME has changed from being exclusively used by dancers to become popular in injury rehabilitation and physiotherapy. Some researchers have questioned the lack of scientific evidence supporting the use of the PME for fitness and rehabilitation, however, evidence supports the effectiveness of the PME, mainly by assisting the trunk muscles reactivate and consequently increasing the support of the lower back, but also by reducing pain and disability (Posadzki et al., 2011; Wells et al., 2012).

Wells et al. (2012) reported on the traditional principles of the PME, including concentration (cognitive attention required to perform exercise); centring (tightening of the muscular centre of the body or "core", located between the pelvic floor and rib cage during exercises); control (close management of posture and movement during exercise); precision (accuracy of exercise technique); flow (smooth transition of movements within the exercise sequence); and breathing (moving air into and out of lungs in coordination with exercise).

A recent report conducted by Calvalho and colleagues (2015) supported these therapeutic benefits of PME. Their aim was "to evaluate the behaviour of the upper rectus abdominis, lower rectus abdominis and transverse abdominis/internal oblique (TrA/IO) by using surface electromyography during trunk flexion with and without the Pilates breathing technique". The muscles were evaluated while trunk flexion was performed by using the Pilates breathing technique (POW) and Step Barrel device, followed by another contraction without the technique (NORM).

**Their results indicated significant differences in the amplitude level of activation between TrA/IO-POW and TrA/IO-NORM. The activation amplitude level of TrA/IO-POW significantly increased compared with all the other muscles under the NORM condition.**

Andrade and colleagues (2015) took this method of activation further and concluded that "the therapeutic use of Pilates principles should be chosen to achieve greater IL co-contraction to stabilize the lower back. Based on the results, it can be recommended that exercises are performed on a stable surface to maximize paraspinal activation".

In conclusion, the Pilates exercise method significantly increases deep abdominal muscle and core muscle activity and is therefore a supported method of retraining spinal stabilization in individuals with low back pain. NOI is pleased to offer "rehabilitation-based" Pilates classes that are geared towards individuals of all fitness levels.

## *Coldest Night of the Year Walk*

coldest night OF THE YEAR

february 21, 2015

**NOI** is participating in the ***Coldest Night of the Year Walk****, in conjunction with ProjectShare,* on February 21st helping the homeless and hungry. If you would like to support our team by making a contribution for this wonderful cause there is a donation sheet at the front desk or donate online at **brrrrr.org** Please help us warm the hearts and hands of those in need.

Much thanks from the **NOI** Team!

### Benefits of Continuous Passive Motion (CPM)!

Continuous passive motion (CPM) is a physiotherapeutic tool that has been used to help assist in movement recovery following various knee surgeries. The protocol involves bracing the client's leg in a device that passively flexes and extends the knee, in a supported fashion, to a digitally controlled degree of movement. A common modality utilized in the early 1990's, CPM usage rates have recently been on the decline in both the hospital and outpatient clinical settings. As such, Knapik and colleagues (2013) conducted a systematic review to determine whether the basic science evidence supports the use of continuous passive motion (CPM) after articular cartilage injury in the knee.

The researchers reviewed and analyzed primary outcomes of the CPM device in rabbit animal models which included: histologic changes in articular cartilage, biomechanical changes and nutrition of intra-articular tissue, and anti-inflammatory biochemical changes. Nine studies specifically examined osteochondral defects, 6 of which used autogenous periosteal grafts. Other pathologies included were antigen-induced arthritis, septic arthritis, medial collateral ligament reconstruction, hemarthrosis, and chymopapain-induced proteoglycan destruction.

***Their results indicated that, in comparison to immobilized knees, "CPM therapy led to decreased joint stiffness and complications related to adhesions while promoting improved neochondrogenesis with formation and preservation of normal articular cartilage. CPM was also shown to create a strong anti-inflammatory environment by effectively clearing harmful, inflammatory particles from within the knee joint complex".***

Therefore, CPM therapy was found to contribute to improved knee health by preventing joint stiffness, preserving normal articular tissue with better histologic and biologic properties, and improving range of motion as compared with joint immobilization and intermittent active motion.

In clinical practice at the Niagara Orthopaedic Institute, it is important to note the CPM therapy is utilized as a complementary treatment modality in conjunction with active exercise prescription, gait retraining, manual soft tissue and joint mobilizations, and other therapeutic healing modalities.

Knapik DM, Harris JD, Pangrazzi G, Griesser MJ, Siston RA, Agarwal S, Flanigan DC. The basic science of continuous passive motion in promoting knee health: a systematic review of studies in a rabbit model. Arthroscopy. 2013 Oct; 29(10):1722-31.

# Health Corner

### Skiing/Snowboarding Tips for Injury Prevention

Get your skis shined up!!! Now that the snow is here, there are many causes for injury during the skiing/snowboarding season. The most common causes of injury being: fatigue, skiing or snowboarding above your skill level, and faulty equipment. Some common injuries are knee related such as ACL and meniscal tears, shoulder dislocations, and head injuries. There are many things that one can do to prevent injury this skiing/snowboarding season:

1. Maintain an adequate fitness level throughout the year is the first thing you can do to help prevent injuries.
2. Developing a strong core, leg and upper body muscles will help you maintain control on the slopes,
3. Maintain your equipment, check your bindings, skis, poles, boots and boards before each session to ensure that there are no major concerns with each piece,
4. Wear a helmet, this may seem like common sense however a helmet could mean the difference between a slight bump on the head vs. a concussion,
5. Warm up before each day out, this could include a gentle walk around before heading up the lift and then trying a few of the easier runs to get your legs used to the conditions of that day,
6. Ski or board within your skill level, try not to be adventurous and take on the black diamond without proper instruction,
7. Stay hydrated, most injuries happen after lunch, when fatigue starts to set in. Keeping proper hydration in combination with proper rest times will help with fatigue,
8. Ski and board following the rules of the slopes which include, always stay in control, people ahead of you have the right of way, stop in safe places for you and others on the slopes, observe warning and closed signs, yield to uphill traffic, and know how to use the lifts properly. Final tip: if you should need some strengthening come into NOI and have a session with one of our personal trainers, or if you should happen to sustain an injury book in as soon as possible with an NOI physiotherapist.

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