



PHYSIO FOCUS

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

INSIDE THIS ISSUE:

Head-Impact in Ice Hockey1
 NOI Fitness Class Information1
 Childhood Injuries 2
 Project SHARE Challenge 2
 Health Corner: Core Training 102 ..2
 Contact Info2

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.



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 Check us out on Facebook!

“Reading is to the mind what exercise is to the body”
 - Joseph Addison

Head-Impact Mechanisms in Ice Hockey

Ice hockey is a high-intensity, high-speed collision sport in which most injuries are caused by blunt trauma or direct contact with another player or object as opposed to overuse injuries.¹ High rates of injury have been reported in both men's and women's collegiate ice hockey (5.95/1000 and 5.12/1000 athlete-exposures, respectively), and the most common injury in both populations is concussion. Concussions are usually resultant of direct impact to the head but can also be caused by an impact to the body that results in an acceleration of the head. Numerous factors that are unique to ice hockey offer different head-impact mechanisms, or circumstances in which a head impact occurs (head contact with ice, boards).

Wilcox (2014) and colleagues objective was to compare per-game frequency and magnitude of head impacts in relation to various impact mechanisms in Collegiate hockey. Participants were male and female ice hockey players whom wore an accelerometer in their helmets allowing researchers to collect biomechanical measures of head impact trauma during play.¹ Contact was then categorized into 8 categories: contact with another player; the ice, boards or glass, stick, puck, or goal; indirect contact; and contact from celebrating.

Their results indicated that among men and women, “*contact with another player was the most frequent impact mechanism and contact with the ice generated the greatest magnitude of head acceleration. Men also showed higher per-game frequencies of head impacts from contact with another player than women, and these impacts were greater in peak rotational acceleration*”.

The data generated in this study can help practitioners and medical providers identify the impact mechanisms in hockey that result in frequent high magnitude head trauma to improve their understanding of concussion in hockey and implement injury-prevention strategies. NOI Physiotherapists are actively educated in the most current and evidence-based concussion assessment and treatment strategies; importance of proper management in return to play, work, and school considerations; post-concussion syndrome and implications.

¹Bethany J. Wilcox, et al. **Head-Impact mechanisms in men's and women's collegiate ice hockey.** *J Athl Train*, 2014; 49(4): 514–520.

2015 Good News Breakfast Corporate Challenge for Project SHARE!



NOI is proudly participating in the 2015 Good News Breakfast Corporate Challenge in support of Project SHARE!

'Tis the season to make a difference in your community. We challenge you, your colleagues & fellow students to help Project SHARE this holiday season by collecting food, toys and Canadian Tire money in support of their Holiday Program. All proceeds from the challenge will go to helping families in need.

Bring in food, monetary or toy items to the office at your next visit to offer some assistance to our Community this Holiday Season!

Seasonal Variation in Injuries Among Children

Musculoskeletal injuries are common in childhood as various types of injuries can cause pain and disability². Physical activity-related injuries have been established as a leading cause of paediatric injuries in western countries and they constitute a significant public health burden, with high direct and indirect costs for children, parents and society³. Injuries sustained in sports activities may cause short-term disability, absence from school, sports and physical activity, and long-term consequences such as osteoarthritis.

Jespersen and colleagues (2014) conducted a cohort study over a two and a half year period to identify if there are seasonal differences in the number and type of injuries sustained by children from six to twelve years of age. The authors believed that the type and level of physical activity in children vary over seasons and might thus influence the injury patterns. They conducted their analysis over a two year period of 1259 children where they conducted weekly surveys.

Their results indicated that lower extremity injuries were most frequent across all seasons. Also, a 46% increase in injury incidence and a 32% increase in injury prevalence was found during summer relative to winter months.

These findings can likely be attributed to greater participation in summer, spring, and fall months, different playing surfaces among seasons, type of sport variances, and overall preparedness for activity. This information is valuable for rehabilitation providers as proper prevention programs and exercise prescription can be utilized to minimize these injuries. It is also useful for parents as this can provide a foundation to assist in proper education and commencement of injury prevention care.

For more information on how to prepare your child for physical activity and to develop an in-season/pre-season injury prevention exercise program please ask one of our NOI multidisciplinary team members!

²Jespersen E¹, Holst R, Franz C, Rexen CT, Wedderkopp N. **Seasonal variation in musculoskeletal extremity injuries in school children aged 6-12 followed prospectively over 2.5 years: a cohort study.** *BMJ* 2014; Jan 8; 4(1):e004165

³Brudvik C, Hove LM. **Childhood fractures in Bergen, Norway: identifying high-risk groups and activities.** *J Pediatr Orthop* 2003; 23: 629-34.

Health Corner



Core Training 102 – Inner Core Concepts

The most common mistake made is training the outer core without first giving deserved attention to the inner core. With poor spinal stability we can safely assume that there is an altered (co)contraction pattern and that the inner core is likely to be inhibited. If this is so, the body reaches a high threshold strategy (HTS) response of the central nervous system to increase activation to the outer core and to further inhibit inner core. This eventually leads to the big muscles of outer core being overloaded 24/7 and to propensity for trigger points, muscle fatigue, and fascial restriction issue, all of which are mechanisms for developing low back pain that just doesn't seem to go away no matter how many sit-ups you do.

Traditional core training fails because it attempts to reverse-engineer how the body functions.

It's crucial to note that the inner core subsystem is under separate neurological control from the other muscles of the core. Spinal stability is enhanced only when recruitment of inner core is under autonomic reflex control. Accomplishing autonomic reflex control of the inner unit requires specific training to enhance sensory-motor control.

What this means is that only when the inner core functions optimally, performing some traditional core exercises makes sense for some people. Until then, these popular movements can develop dysfunction or make already existing dysfunction worse.

Follow our popular NOI blog at <http://www.niagaraorthoblog.com> if you want to learn more about this intriguing conversation and similar health -related topics!