



Chiropractic Care and Recreational/Sport-Related Musculoskeletal Dysfunction

Incidence and Prevalence of Recreational Injury

Surprisingly, little information is available about the incidence and prevalence of injuries related to recreational activity among the general population, particularly those activities performed at moderate intensity. However, it is known that injuries do result from activities such as walking (1.1%), gardening (3%), and weightlifting (13%).¹ For the average recreational runner, the overall yearly incidence rate for running injuries varies between 37% and 56% while approximately 50% to 75% of all running injuries are from overuse due to the constant repetition of the same movement.²

The Chiropractor's Role

Chiropractors have been educated and trained to assess the biomechanics of everyday activities, as well as common sporting movements. In the case of recreational injuries, chiropractors are trained to make a diagnosis through a careful patient history followed by a thorough physical examination. Physical examination generally includes specific postural, functional and biomechanical tests to assess the nature and extent of the injuries to the locomotor system including a thorough assessment of the involved kinematic chains. In cases of trauma, the examination may include X-rays or referral for special imaging if indicated.

Chiropractic management of sporting injuries incorporates specific advice on postural and movement biomechanics and nutrition, as well as specific therapeutic exercises and treatments. In treating sporting injuries, chiropractors may employ a range of evidence-based treatments such as:

- Spinal manipulative therapy (SMT), and spinal and peripheral joint mobilization to reduce pain, increase motion and reduce joint and soft tissue dysfunction;
- Soft tissue treatments (i.e. myofascial release, trigger point therapy, massage) for specific muscle and connective tissue injuries;
- Active rehabilitation (i.e. core stabilization, co-contraction, sensorimotor training) to improve strength, endurance, motor control and joint proprioception;
- Electrotherapy (i.e. laser, ultrasound, muscle stimulation) for inflammation, pain and tissue repair;
- Nutritional advice for athletic competition and injury rehabilitation.

Indications for Chiropractic Care

Generally, two different types of injury - acute traumatic and overuse - most often occur during recreational and sporting related activities. These types of injuries typically result from a traumatic incidence or due to constant repetitive movements.

Acute Traumatic Injuries

Reduction in the incidence and severity of impact-related injuries requires understanding of biomechanical mechanisms underlying trauma and the cascade of histological changes that subsequently take place. Chiropractors are trained in tissue and joint biomechanics and how specific injuries can affect these structures.

The most commonly injured areas of the body include the ankle and knee followed by the hand, wrist, elbow, shin and calf, head,

neck and clavicle.³ Muscle strains, contusions, and ligament sprains are the most common injuries sustained by athletes and recreational participants.

Muscle strains are usually caused by the eccentric force of the muscle attempting to decelerate the involved limb during an activity. A strength imbalance between the propulsive muscles and stabilizing muscles has been shown to be a possible mechanism for muscle strains in athletes.⁴ If this imbalance is identified early, a therapeutic intervention to strengthen the muscle group can be an effective method for preventing strains. If a muscle strain does occur, current literature suggests that a combination of NSAID use for brief periods of time⁵ followed by flexibility exercises, specific eccentric strengthening exercises and core stabilizing exercises can reduce recurrence rates.^{6,7} The stability of the lower back is an important consideration in muscle strains. Core stabilization exercises for the low back may be desirable to restore and maintain intervertebral coordination and optimal biomechanical function in the spine and related kinetic chains. Chiropractors typically use spinal manipulation and mobilization, and myofascial techniques to address these problems.

Overuse Injuries

It is estimated by Statistics Canada that one out of every ten Canadian adults experienced a repetitive strain injury (RSI) serious enough to limit their normal activities in 2000/01.

An estimated 2.3 million people aged 20 or older reported having had a RSI at some point in the 12 months prior to their participation in the Canadian Community Health Survey.⁸ Most reported repetitive strain injuries affected the upper body. About 25% occurred in the neck or shoulder, while another 23% occurred in the wrist or hand, followed by the back (19%) and then the elbow or lower arm (16%).⁸

Overuse injuries most often target the musculotendinous junction. This complex behaves in a viscoelastic manner and exhibits adaptive responses to conditions of increased loading and disuse. As a result of overloading, a so-called “tendonitis” develops. Recent histological studies have shown that what was once thought of as an inflammatory process is actually more of a degenerative process and should be rehabilitated with this in mind.^{9,10} In addition, interaction between intrinsic and extrinsic factors is common in chronic tendon disorders. Intrinsic factors such as alignment and biomechanical faults play a causative role in tendonopathies in athletes.¹¹

Chiropractic management of overuse injuries includes a postural and biomechanical assessment to identify the key areas of dysfunction in the spine and kinetic chains. This is followed by specific advice on training and sporting techniques, as well as corrective measures to normalize the patient’s biomechanics through safe and effective ergonomic measures. Nutritional advice may also be offered to enhance tissue healing and repair as well as general health and fitness.

Specific treatments may include soft tissue therapy (i.e. myofascial release, massage, trigger point therapy), joint mobilization and/or manipulation if indicated, to improve joint biomechanics, reduce pain and improve movement, specific eccentric strengthening exercises to decrease tendon thickness and normalize tendon structure in most patients,¹² and electrotherapy to help promote tissue regeneration.

Summary

Chiropractors are well positioned by virtue of their education and training to manage recreational and sporting injuries from the novice to elite athletes. Chiropractors are trained to assess and diagnose biomechanical disorders of the locomotor system, particularly related to acute trauma or overuse, through a careful history and

thorough physical examination including X-ray and special imaging when indicated. Chiropractors are also trained to refer red flag conditions (fracture, tumour, infection) to medical practitioners in a timely manner. A good understanding of joint, muscle and connective tissue biomechanics, and their neurological motor control, enables chiropractors to assess and implement effective management strategies through

evidence-based treatments. Medical doctors can be confident that the evidence-based chiropractor is competent to successfully manage a wide range of recreational and sporting injuries in society today.

This overview has been researched and written by The Canadian Memorial Chiropractic College (2005).

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