

Postural Misalignment Degenerates Skating Performance

Athletic performance requires effort and balance to enable skaters to perform at their maximum potential. Misalignment of the posture retards performance and is influenced by the physical position of the upper cervical spine (upper neck area). When the Atlas vertebra (the top bone of the neck) does not support the head squarely, a cascading breakdown of the posture develops producing unleveling of the shoulders, hips, and legs. This leads to uneven distribution of the athlete's weight requiring increased muscle effort to maintain balance and coordination. The loss of postural symmetry can have serious implications for the athlete and some investigations have already shown a relationship of posture to sports injury.

Shambaugh's team studied structural measures as predictors of injury in basketball (1). They found that leg length inequality, a key indicator of postural misalignment, was a significant factor. Their results strongly suggest that structural analysis may be used to predict injury status in basketball players. Other investigators have even published case studies revealing that weight-bearing joints can function better when the posture is aligned. For example, a case study by Brown and Vaillancourt highlighted the positive effect correction of posture had on a patient with knee pain (2). They stated that "By the end of the (6 month) study, all orthopedic tests the patient had previously tested positive to (specifically the Bounce Home test), had turned negative." Watson found that in football players knee injuries were found to be associated with lumbar lordosis and sway back (3). Watson further suggested that back injuries were associated with poor shoulder symmetry, scapulae abduction, back asymmetry (posture imbalance), kyphosis, lordosis and scoliosis.

There may also exist a neurological relationship of postural alignment to brain function, which will interest athletes who are seeking peak mental as well as physical function. Thomas and Wood reported a case where a 14-year-old girl experienced "abrupt improvement in mental and motor deficits after initiation of specific upper cervical chiropractic care" (4). Improvement in brain function was illustrated with the patient responding immediately after treatment with "eye contact, full sentences, and appropriate speech, which she initiated". This corresponded with "90% correction of the previous craniovertebral (upper cervical) misalignment".

Posture is wrongly assumed to be under conscious control of the athlete. Degeneration of the posture may be mistakenly considered the habit of a poorly trained or even lazy skater. Research is showing that posture is actually controlled subconsciously by the upper cervical spine. Glymph investigated the effect on cycling performance. His work supports the theory that there is measurable improvement in performance directly related to the proper alignment of C1 (atlas) and C2 (axis). Glymph advances the hypothesis that the more time a body has to adapt to its new alignment (through upper cervical treatment), the greater the improvement in measurable performance there should be (5). In another study Schwartzbauer et al investigated athletic performance and physiological measures in baseball players following upper cervical chiropractic care. Schwartzbauer's position was that the results showed significant improvement in fourteen weeks in muscle strength and long jump distance in the group receiving (atlas) adjustments. Wooley reported that an Olympic athlete improved dramatically with care (6). Wooley states that "Gradually Dwight began to return to his old form after being in an eight-year slump. He cleared the bar at 7'6" at the World Trials and made the World Team. Dwight stunned

the athletic world in the Olympic Trials by jumping 7'8", breaking the American record and placing first in the Olympic Trials."

Evidence of the effect atlas injury has on posture and performance is seen in the testimony of skating instructor Vanessa Hettinger who writes: "Postural Misalignment has been a pervasive issue which has affected both the players that I have worked with and myself. In my experience, hockey players tend to treat symptoms of postural misalignment rather than the actual problem. For example, at 16 years old, I was told that I would simply have to live with my lower back pain. I experienced back spasms, extreme pain, and a drastically reduced range of movement. All of these things severely affected my skating, my game performance, and of course my daily life. After years treating my symptoms, I eventually received N.U.C.C.A. (National Upper Cervical Chiropractic Association) care for treatment of the root of my pain. By aligning my atlas bone I was able to skate pain free, and have acquired the awareness to recognize postural misalignment and it's symptoms in both myself and others."

Ms. Hettinger further adds that: "Being a contact sport, concussions and whiplash are pervasive throughout the sport of hockey. Unfortunately, we rarely equate these occurrences with anything other than pain and discomfort. Often pain and decreased skating performance are the result of an improperly aligned atlas bone. We see the effects of misalignment on skaters first hand. Posture is a huge part of skating. It is important to skate with consistent application of force through the body, and maintain proper blade position and contact with the ice, both of which are adversely affected by postural misalignment. We are extremely conscious of correct blade position on the ice that must be correctly aligned to the body. With the help of specialized skate technicians, we often prescribe a 'blade alignment' to create a straight line from the player's hip, through their knee, and straight down through the blade. Skate technicians frequently find themselves adding shims and lifts to compensate for leg length differences and imbalances. Players may find that, after receiving atlas treatment, the shims and lifts are no longer required. As specialized skating instructors for hockey and ringette players, we focus on the details of correct and efficient skating such as body position, correct muscle development and firing order, and effective force distribution. Uneven force distribution is most obvious in the forward stride, whereas leg length discrepancies affect edge control and balance. Poor skating form and core weakness are clear signs of postural misalignment. Proper treatment has drastically reduced the frustration that players feel when they are unable to perform skills and exercises correctly. Our mantra of 'work less, get more,' is possible, only if the body is aligned and moves efficiently."

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Skaters who have level hips, level shoulders, level legs, and balanced weight distribution on both feet are considered posturally aligned. The misaligned atlas vertebra upsets this balance causing degradation of posture, reduction in muscle strength and reduction in peak performance. A coordinated plan of atlas treatment with skating education positively impacts the performance of the skater.

References:

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- 7) Vanessa Hettinger, Head Instructor and Director of Program Development, Quantum Speed High Performance Skating Systems, www.quantumspeed.ca

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