To Bike or Not to Bike: Common Cycling Injuries and How to Prevent Them

Biking remains a great way to enjoy the outdoors and stay in shape. The prevalence of bike riders has continued to increase over the years and saw a 'spike' during the COVID-19 pandemic as more people sought to do outdoor activities that still kept them relatively isolated. As with any physical activity, biking does come with inherent risks. The most obvious of which are traumatic injuries from falls or collisions, leading to injuries to the head, spine, thorax, and the upper and lower extremities. However, the more insidious injuries, and thus less obvious, are overuse injuries caused by poor biomechanics, which can be exacerbated by inadequate or lacking bike setup and underlying known or unknown physical limitations of the rider.

This article will explore the most common types of cycling-related injuries, both traumatic and overuse, and outline proven strategies to help prevent them.

Overuse and Traumatic Injuries

Overuse Injuries

Overuse injuries develop gradually due to repetitive strain and can be made worse by a poor bike setup, leading to improper biomechanics. Some common areas of injury are:

Cervical spine (neck): Neck pain can be caused by extended periods of forward-leaning. Having a bike seat that is too far from the handlebars can increase the amount of spinal flexion needed to reach the bars. This causes riders to have to extend the neck at greater angles to maintain visuals on the road. Holding this position for extended periods of time can lead to pain and potential nerve compression causing numbness and tingling in the upper extremities.

Lumbar spine (lower back): Low back pain may be caused by poor bike posture due to an ill-fitting bike (mainly influenced by bike height and seat position). A bike seat that is tilted downward can place the rider's pelvis into an anterior tilt, increasing lumbar lordosis/extension, causing a rise in compressive forces on the disc and/or nerves. A seat that is tilted upward can place the pelvis into a posterior tilt, increasing lumbar flexion, putting more

pressure on the passive stabilizers (ligaments and joint capsule) in the spine. Greater flexed positions and prolonged time in these postures may also inhibit the deep spinal stabilizers (the multifidi muscles), potentially increasing spinal instability and leading to an unset or worsening of back pain.

Thoracic spine (upper to mid-back): Stiffness in the thoracic spine will affect mobility in the shoulders and neck and place more stress on the lower back. Limited shoulder mobility will affect the rider's reach to the handlebars and flexion mobility in the neck.

Wrist: Bikers may develop numbness, tingling, or pain due to prolonged pressure from a hyperextended wrist or insufficient handlebar and/or hand padding.

Hips: Usually, hip pain can be influenced by seat height and its distance from the handlebars. Typical pain presentation is hip flexor tendonitis and bursitis at the lateral hip.

Knees: Patellar tendinitis and other knee pain can result from improper pedaling mechanics due to a low seat position causing compressive force transmission through the joint, or greater frequency of knee flexion and extension caused by a seat that's too high.

Ankles: Foot pain, tendinitis in the Achilles, or strained calf muscles can occur due to incorrect foot alignment on the pedal, placing the ankle into greater angles of dorsiflexion (toes pointing upwards) or plantar flexion (toes pointing downwards).

Traumatic Injuries

These injuries occur suddenly, often from crashes or falls, and can be mitigated by wearing the appropriate equipment with strategically placed padding and of course, wearing a helmet. Some traumatic injuries include:

Concussions: Traumatic brain injuries can be mitigated by proper helmet use.

Fractures: These occur mostly in the extremities, such as the arms and legs, but may also affect the spine, ribs, and pelvis.

Abrasions: These may range from minor superficial scratches to loss of skin and muscle.

Consulting Professionals for Injury Prevention

Consulting a bike fitting professional to get a proper bike fit can prevent overuse and even traumatic injuries. Ensuring, at a minimum, that the bike is the right height is the most basic starting point. An ill-fitting bike can lead to misalignment throughout the connected chain, including the foot, ankle, knee, hips, back, neck, and wrists. A professional bike fitter will ensure that your saddle or seat is appropriately aligned to prevent forward or backward tilting of your pelvis, which could have deleterious effects on the entire connected chain, potentially causing pain in all of the above-listed areas. Sufficient padding on your seat helps prevent injuries to your pelvis and pelvic floor. Insufficient padding on your handlebars or wrists can ultimately lead to nerve entrapment, causing pain, numbness, tingling, and weakness. A similar incident may occur with misaligned foot positioning on your pedals.

The Role of a Physical Therapist in Preventing Cycling Injuries

Having a great bike fit is only half the battle when it comes to preventing injuries. Most people only think to see a physical therapist when they're already in pain. However, there has been a growing wave of patients seeking therapists for maintenance or preventative care. It's wise to work with a therapist to ensure you have the necessary core, upper and lower body strength, flexibility, and endurance to handle the demands of a hobby or exercise routine like biking.

The recommendation is to address known limitations in strength and range of motion prior to getting your bike fitted. John Hughes, the owner of 90+ Cycling in Columbia, MD, recommends that these issues be addressed first to avoid the need for a refitting later. Treating them up front can prevent biomechanical limitations that may otherwise lead to pain or injury.

If you are seeking an individualized and comprehensive physical therapy approach to complement your bike fit, look no further than the therapists at The Center for Integrative Manual Therapies (CIMT) in Columbia, MD, owned by

Karen Johnson. Their commitment to their craft is reflected in the certifications they hold, backed by over 100 years of experience. They are Manual Therapists who believe that everyone has the potential for optimal function.

The cornerstone of their therapeutic approach is to ensure that:

1. All patients have improved or enhanced mechanical capabilities, i.e., their joints and surrounding soft tissue have the ability to move through their full available range of motion.

2. Patients have intact and appropriate neuromuscular connection, with the ability to activate the right muscles at the appropriate force output, for the required duration of a given task.

3. Patients can demonstrate motor control, using their newfound mechanical and neuromuscular capabilities to perform repeatable and efficient movement to complete a particular task or activity.

An Interdisciplinary Team Focused on Your Well-Being

The shared focus between John and Karen is alignment. A system that is not in alignment will have unnecessary stresses placed on inappropriate components and ultimately break. Whether it be mechanical components of the bike supporting the body, or the mechanical components of the body on the bike, alignment will ensure improved comfort and power transmission from rider to bike.

Just as patients in a hospital have medical professionals from the necessary disciplines to ensure an optimal outcome, cyclists should view a bike fitting professional and a physical therapist as their own personal interdisciplinary team focused on their well-being. This will ensure that cyclists will have a safe, efficient, and, most importantly, an enduring cycling experience.