

# Cycling Injuries

**Active Release Technique is solving eventhe toughest cases without injections, surgery or physical therapy.**

## Active Release Technique (ART)

ART is a patented, state of the art soft tissue system/movement based massage technique that treats problems with muscles, tendons, ligaments, fascia and nerves.

Even when most doctors say medications or surgery is the only answer, ART may still be able to resolve the symptoms and put you back on the courts and into your best game.



## What conditions benefit from Active Release Technique?

ART may also be used to successfully treat these other upper extremity soft-tissue injuries

- Tennis and golfers elbow
- Carpal tunnel syndrome
- Hip, knee and ankle pain
- Low back pain
- Plantar fasciitis
- Stress headaches
- Pain between shoulder blade

## Why do Injuries happen?

A single pedal cycle involves a power phase from 12 o'clock to 6 o'clock and a recovery phase from 6 o'clock to 12 o'clock. The power phase delivers most of the force that generates forward momentum. This force is produced via the leg extensor muscles: quadriceps, glut max, hamstring (working at the hip) and calves (working at the ankle). The recovery phase also contributes to overall power delivered in one cycle by the upward pull of the attached shoes via the flexor muscles: hip flexors, hamstrings (working at the knee) and the calves (working at the knee).

At 12 o'clock, the knee is flexed to 110 degrees and then extends 75 degrees through the power phase to 35 degrees flexion at the beginning of the recovery phase. During the power phase the knee naturally drifts slightly inwards. The foot pronates (rolls inwards) during the power phase, imparting an internally rotating force to the knee, increasing the stress to the inner side of the knee. The opposite happens during the recovery phase in preparation for another power push. At the bottom of the power phase the foot should be parallel to the ground. The low and mid back have to tolerate prolonged bending forwards and the upper spine prolonged extension.

When pedaling, the largest force produced acts through the knee up to 5,000 times an hour, so it is no wonder that the slightest incorrect distribution in load can result in a serious knee injury, including patellofemoral pain, chondromalacia (damage to articular cartilage under the kneecap), iliotibial band syndrome, inflammation of the kneecap, quadriceps strains, and hamstring injuries.

Neck pain usually relates to the prolonged time that cyclists spend in an extended position. Neck extension with shoulders in a depressed (downwards) position increases neural tension, which can be exacerbated if your handlebars are set too low or you fail to

keep your elbows slightly bent. Excessive or prolonged stretching of the nerves can result in pain, numbness or tingling in the nerve distribution down the neck and arms. To prevent the build-up of tension, you should learn to do regular forwards and sideways neck mobility and shoulder shrugs while on the bike, as well as sitting upright from time to time. You also need adequate mobility through your thoracic (mid) spine, first rib mobility and flexibility in all the upper back and neck muscles.

Lower back injuries are very similar in principle to neck pain in cycling, except that the aggravating position is prolonged flexion (forward bending). Muscle fatigue, chronic tension to vertebral ligaments and prolonged compression to intervertebral discs can all be responsible for ongoing backache. It is imperative that you have good flexibility through your low back, hips, gluteals and hamstrings.

Your pelvic position during riding is also significant. Sitting in a backwards tilted position increases low-back flexion. This can be corrected through a combination of bike set-up, proper cycling technique, adjustments, A.R.T., specific cycling exercises.

As with all postural problems, whether on a bike or not, core stability function is crucial. Regular abdominal and back exercises focusing on muscle endurance should be an integral part of treatment and prevention. Good hip flexibility matters greatly, to relieve pressure on the knee and lower spine. The hip during cycling always remains in a relatively flexed position, so chronic tightness through TFL/ITB, iliopsoas (hip flexors) and adductors (inner thigh) is very common. There is a high incidence of hip and groin pain, but much of this is related to the low back and pelvis.

### How does Active Release work?

When an injury occurs to a muscle, tendon or ligament, it tends to become tight and inflamed. A cycle begins to take place where friction and inflammation around the injured area increases, causing the area to swell and constricting normal blood flow. The body's natural response to this inflammation and reduced circulation is fibrosis and adhesions.

This fibrosis and adhesions glues together the muscle fibers and surrounding structures, leading to pain and improper function. The muscles become tight, leathery and bound-up with a higher probability to injure again. The pain comes and goes causing each flare-up to a little worse than the previous. Hence, the cycle continues. Physical therapy, massage and even chiropractic typically cannot fix this problem. At this point, most doctors would perform surgery, with minimal results and months of rehab.

### Patient Testimonials

I had pain in my hip and knee for the last 6 months and couldn't run more than 2 miles before having to stop due to pain. I had seen countless doctors for it to no avail and had to stop training. After being treated by Dr. Tuchscherer six times I was able to run 16 miles with out pain. Thank you so much!

*Jeff H. tri-athlete*

I would strongly recommend Dr. Tuchscherer and A.R.T. to any athlete who has been having shoulder pain and not been able to get rid of it. I was having extreme pain and discomfort in my shoulder for 6 months and had to stop training. After 8 treatments I was back to lifting and swimming as much as I wanted with no pain or discomfort

*Chris G. tri-athlete*

After initially injuring my rotator cuff playing college tennis 20 years ago, I am happy to say that Dr. Tuchscherer has been the first person out of many to finally fix my shoulder. I have been to physical therapists, massage therapists, acupuncturists and medical doctors and none of them were able to help my shoulder. After my treatments from Dr. Tuchscherer, I have been able to play tennis everyday with no more pain or discomfort. I am a true believer in A.R.T.

*Eric Rose, Tennis Director  
Gates Tennis Center*

During a session, which can last as long as an hour and as short as a few minutes, both the doctor and patient can feel the adhesion rip apart. Only six to twelve sessions are needed to fix most problems. The results can be so instantaneous that many patients can work out or train after a treatment. While some patients need further treatments, most can maintain the improvements with a proper diet, exercise and stretching program.

**OptimumHealth**  
CHIROPRACTIC

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