

Out of Kilter - Par 2

by Ian King | Fri, Oct 31, 2003

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A few weeks ago, we published an article by Ian called **Out of Kilter**. In it, Ian taught us how to correct and identify postural imbalances which will help keep us injury free in the future. In this article, the big Aussie will continue with that theme, focusing this time on treating and preventing back pain.

Oh, My Achin' Back!

In the world of weight training, there's often a difference in what you *want* to know and what you *need* to know. In the case of back pain, what you probably *want* to know is how to get rid of it. What you *need* to know is how to prevent it in the first place! In this article, I'll cover both topics. I'll start with what to do when you experience back pain.

When I refer to back pain, I distinguish between two simple types of pain: good or appropriate pain, and bad or inappropriate pain. Good pain for me is muscle soreness. Inappropriate pain involves joint pain and soft tissue/nerve irritation. This occurs when the joint gap is reduced and when the load used exceeds the ability of the musculature to fire and protect the area, leaving the load to be transferred or experienced to a greater extent in the joint. The latter condition accelerates joint damage.

So from here on in, when I say back pain, I mean *inappropriate* pain. Back pain is one of the most common ailments in society and perceived as much a part of the iron game as calluses on the hand. It doesn't need to be this way!

Types of Injury

Generally speaking, there are two types of injury: chronic and traumatic.

Chronic: Chronic injuries occur over a period of time. Because they invariably begin in a low-key way, we continue to train through them, hoping they'll go away. Sometimes they do; many times they don't. We push on until we're forced to rest or we get an injury and have to get surgery. Chronic injuries are often called "over-use" or "use" injuries.

Traumatic: Traumatic injuries occur more suddenly and are often described as impact injuries. It's believed that when a person is struck by another person or object without seeing that object or person, the body's defense mechanisms don't have time to react to protect the joints adequately. This is where ligaments get torn, e.g. ruptured ACLs (anterior cruciate

ligaments of the knee).

Now, before I expand on the relevance of the types of injury, let me share with you another set of definitions.

Types of Sports or Movements

There are four basic types of sports or movements: closed, open, cyclical, and acyclical.

Closed: Closed sports include sports or movements where the movement is known in advance and the environment is fairly predictable. Strength training exercises are a good example. You aren't reacting to a stimulus and you know the movement path in advance. Track and field sprints also fit into this category.

Open: Open sports include those where the movement isn't known in advance. You may have a number of options you can implement, but there's no guarantee that what you're going to do is the same as you've ever done before, or will do again. An example may be football, where your movements won't be known in full until you can react to the influence of the opposition. Basketball is another example.

Cyclical: Cyclical sports involve movements where you repeat the same path over and over again. Swimming and strength training exercises (closed sports) fall into this category. Cycling, as you can probably guess, is also cyclical, and can be closed or open depending on the event.

Acyclical: In acyclical sports the pattern may vary from movement to movement, such as the running action of a basketball player who may not necessarily use the same foot action in subsequent steps.

Application to Strength Training

Now, what relevance does all this have to strength training? Well, for me, strength training is a closed, cyclical sport. There's nothing unknown. It's predictable. There are variables such as room temperature and recovery status, but relatively speaking it's a predictable activity.

So, there's no rationale for traumatic injuries! In fact, there's no need for any injuries! Injuries in any sport are an error in training decisions, but in strength training they're even more an error! In a closed, cyclical sport such as strength training, if you experience an injury in a traumatic manner, it was more than likely a chronic injury and the last movement you did was the straw that broke the camel's back. What I'm saying is all strength training injuries are actually chronic type injuries, some just dressed up as traumatic!

So what about chronic injuries? Can they be eliminated? *Yes!* However, in reality they are not and never will be fully eliminated. But your mindset should be that there's no need for them, there's no excuse for them, and you can reduce the incidence and severity of them.

Estimated Rehab Period From Injury

I have a theory that the estimated rehab period is about half the life of the injury from initial onset. So if you've been letting an injury drag on, perhaps getting worse, you're prolonging the recovery period.

When working closely with an athlete, I educate him such that between his input and my observations (visually and kinesthetically) we're right on top of any niggle when it appears. In fact, we don't even want to *see* a niggle. With this approach and this degree of care, I see few injuries (including in contact sports) in athletes I work with long term.

If I take on a mature athlete, it can take up to three years to achieve this standard. I accept you may not have the same level of care or coaching; however, through education such as reading this article, you can become a better coach of yourself! Make better training decisions!

It's critical that you identify a challenge early on, say in stage one or two of my levels of dysfunction model. (See **Out of Kilter, Part I**.) Once it's reached level three and above, you've had it for some time and therefore the recovery time from identification and commencement of treatment will be longer!

Examples of Dealing with Lower Back Injuries — Level 1

At this level, you'll miss the signs unless you're really switched on to your status in various areas. Here are some cues to guide you:

Expression of power: If you feel that one side in a bilateral movement is under-performing relative to the other, there could be a problem. For example, in a squat or deadlift, you feel one side isn't firing on all cylinders. This takes experience and/or the observation of a good spotter.

Visual feedback from a spotter: This is a reinforcement of the above. If, for example, when you rise out of the squat, one side of the barbell is lower than the other, you probably have a strength imbalance. The high bar side is usually the weaker side, as it has shifted part of its load to the strong side.

Connective tissue length: If you detect changes in length, this can serve as a great warning sign. If your range is less than usual, you need to be mindful. Even more importantly, if you find a difference between sides that wasn't there before, take heed! Generally speaking, muscle function is optimal at a given length. As you go to extremes, shorter and longer, you can experience reduced power.

Neural irritation: A lot of pain around the extremities (and in the trunk) is what I call *referred pain* — pain caused by joint relationship changes more proximally. Some stretches give a better indication of nerve irritation than others.

For example, if you lie on your back, put your arms out at 90 degrees on the ground, raise one leg and lower it over to the other side to the ground, you may experience a muscular stretch accompanied by a degree of a nerve stretch. If you find the point at which the nerve feels

stretched is different right to left, I can say with confidence that the side which experiences the nerve stretch earlier in the range will be functionally impaired, i.e. have less power potential. It's important here to identify the cause and not simply treat the symptom!

Muscle tone: If you identify areas of tissue which have unusually high muscle tone, no matter how localized they appear, this can inhibit muscle function around that area. Using self-massage or massage by a masseur can help identify these potential problem areas and return the tone to the optimal level.

If you do pick up on this subconscious pain, use the steps I outline below to address the condition.

Examples of Dealing with Lower Back Injuries — Level 2

At this level you're fully aware of the pain, but may ignore or misinterpret it. Take referred pain in the gluteal area—I know the first few times I experienced this, I wrongly concluded I must have some post-training muscle soreness there. I thought, "Great, I've been lifting well!" Then, when I realized it was something else, I concluded this area of tissue must have some residual tension there and I needed to stretch it. Physical therapists with limited abilities (and this was more common years ago) may treat it by manual therapy to the glutes.

If you have pain that won't get better or go away, here's what you need to do:

1. Identify the cause.

From my perspective, the hip flexor is the single greatest cause of injuries around the lower back and distally (down the legs, in the glutes, etc). When the hip flexor shortens, it pulls the top of the pelvis forward (excessive anterior rotation). With this comes increased curvature in the lumbar (lower back) vertebrae and pinching of the nerves which feed out of the lumbar.

Muscle spasm and other similar irritations are invariably caused by this. How do you know if this is a contributor? Lengthen the hip flexors (stretching) and lower their tension (massage)—does it give some relief?

2. Treat the cause.

The key to a speedy rehab is to find the cause and fix it! Your treatment should include:

Lengthening the connective tissue. You should lengthen connective tissue through stretching and other techniques to gain the same result. The following is my number one hip flexor stretch for the average person:

Kneel on the ground just in front of and facing away from a low bench. Place a rolled up towel under the knee as a cushion. The stretch side leg has the knee bent, knee on the towel, and foot up on the bench behind you. The knee of the other leg is at a 45-degree angle with the sole of the foot planted firmly on the ground in front of you.

The first position requires you to take your bum towards the stretch side heel. If this is easy,

add the "pelvic tilt" i.e. suck the top of the pelvis in or backwards, and push the bottom end of the pelvis forward. Now take the foot of the non-stretch leg out further away from the bench and lower your pelvis down as low as it can go (your stretch side foot is still up on the bench behind.)

Lower tissue tone to optimal level. This will involve stretching, massage and other modalities including heat. I'll expand more on some simple heat techniques later in this article.

Stabilize the joint. The key stabilizers of the hip for lower back injuries are the abdominals (in particular the "lower," transverse and obliques) and gluteals. They work in conjunction to stabilize the pelvis.

Look to access an appropriately trained physical therapist (or similar), especially if you lack extensive knowledge in injury rehab and prevention strategies. Get them to outline their diagnosis and prognosis, and expect to see rapid improvement. If you don't see this, review your application and the skills and advice of the therapist.

3. Treat the symptom area secondarily.

Treat the symptom area secondarily as there will be some tension patterns set in here. This means that in the case where you have gluteal pain (muscle spasm caused by nerve irritation), after focusing primarily on the cause, recognize that the symptom site may have been left with a loop mechanism of tension. Break this cycle through lowering the tension and regaining the length in the connective tissue.

4. Avoid any activity or loading that reproduces the pain.

This is common sense, but that's not too common! The keys here go beyond the discipline. They include trouble-shooting possible contributors to the pain—your bed (too soft?), your chair (not supportive enough?), your posture (not supporting the goals?) etc. This may mean avoiding exercises, reducing range and/or load, or a combination of all the above.

5. Return the joint position to a healthy state.

Your goal should be to return the joint to a healthy state. This includes negating any negatives developed during the injured period, including joint surface damage. Supplements such as glucosamine, fish oil, and high-dose antioxidants have a major role to play here.

You also need to determine what is optimal length, tension, stability and joint position/relationship for each of your "at risk" joints so that you can achieve this step or criteria. Yes, you have some homework to do! (Or get a great consultant/coach to guide you.)

6. Progressively return to the range, exercise and/or loading you want to be exposed to in order to achieve your goals.

Now it's time to strengthen the movement again. The key word is *progressive*! After all, lack of appropriate progression in loading parameters is one of the greatest contributors to chronic injuries! Now this doesn't mean you get to go back to any exercise, full range, any loading,

all at once. There may be a progression in which these variables are reintroduced.

7. Understand that an error in decision which results in reproduction of the pain is a setback, sort of like walking two steps forward and one step back!

For me, the goal of a rehab program is primarily to avoid reproducing the pain. If I achieve this goal, I've assisted the body's natural healing processes. Don't underestimate the seriousness of this step!

Examples of Dealing with Lower Back Injuries — Level 3 and Above!

In this case, let's deal with what most describe as a "traumatic" lower back injury. You were okay one minute, in pain the next. It could've occurred tying your shoelace, in a stretch, or under the bar in a squat or deadlift. Bang! You felt something go! Pain and panic!

Here's what I suggest you do:

1. Stop the lift or whatever you're doing.
2. Lie on the ground in a comfortable position, usually on your back with knees bent, feet flat.
3. Stay there until the pain has subsided. If the pain doesn't subside, arrange for heat to be applied to your lower back as you lie there. (See below for heating options.) When you go to move, understand that the protective mechanisms of the lower back may give you the perception that you're dying!
4. When you get up, do so in the manner I outline below.
5. Make your way to a heat pad, hot water bottle or shower, and allow exposure of this heat for 20 to 40 minutes (whatever it takes to reduce the protective spasm).
6. Take a muscle relaxant (magnesium or stronger) and get comfortable.
7. Seek the services of physical therapists and medical professionals.

With the above strategy you can turn a career ending, must-have-surgery injury into a few days of inconvenience. Once you can get around okay, you're back to using the seven steps I outlined in level two.

Prevention of Lower Back Injury

Now, finally to where I want to be — focused on *prevention*, not rehabilitation! Below are my top ten keys to preventing lower back injury.

1. Maintain optimal length and tension in the hip flexors and other muscles around the hip (*stretch!*). What's optimal? You need to find out for yourself! I have my own ideas about

that, but will have to save those for another article.

2. Maintain optimal tension, stability and strength in the lower abdominals and gluteals. Again, what's optimal for *you*?

3. Balance your lower body training between hip dominant (deadlifts) and quad dominant (squats) exercises. For every quad dominant exercise, have an equal and opposite hip dominant exercise. Alternate the sequencing of them; don't always lead with quad dominant exercises.

4. Be progressive in loading. Understand also that you need phases of sub-maximal loading to teach recruitment, alternated with more loaded phases.

5. Review your posture—lying, seated, and standing! You train for an hour or so around four times per week, yet you lie for an average of eight hours, sit for some two to six hours a day, and stand for the rest. Watch your posture!

6. Review your bed and chair. You have an optimal mattress tension and an optimal back support in your chair—your challenge is to find out what those are. For me, it's a firm mattress and an upright chair. "Chair" includes both work place, meal, and even car seat. You may be unpleasantly surprised to find out how much these items can contribute to chronic back pain!

7. Get up off the floor and out of bed using a safe technique. The one I teach is: roll to your side, bring your knees up, and use your hands to assist to the seated position. Many lower back challenges commence with inappropriate "getting up" techniques, especially when the body is cold and unstable after the night's sleep.

8. Use heat daily. Every time you shower, direct the water onto your lumbar region, slowly raising the temperature to a withstandable level. Keep it there for five minutes.

Don't burn yourself, but each time bring your skin to a flushed, pink color.

There are hot/cold alternating strategies you can use as well, but I reserve them more for the acute injury stage as they're more time consuming and cumbersome. The basic hot water on the lower back region does the job if used with consistency. And, if you're really keen, lie with a hot water bottle under your back for twenty minutes each night before going to sleep. Don't burn yourself and keep your knees bent up.

9. Consider the psychosomatic possibilities. I know this is a bit "out there" but what I teach elite athletes (and any high performer who takes responsibility for the outcome in his life) is to research any connection between their emotions and their injuries. It would be futile to treat an injury physically that was being manifested through the mind. To guide you here, I suggest books by Louise Hay, Brandon Bays, and Deepak Chopra.

10. Keep doing the above nine things even after the pain goes! It's so common to see a person cease his injury prevention/management techniques as soon as he thinks all is okay, only to see himself back right where he came from. Don't drop your guard! Keep some or all of these

going *all the time!*

Conclusion

If you've read all the way to the conclusion, I know you're serious about your joint health. You're serious because you're wise and want to prevent lower back injury, or at least wise in hindsight from a prior or current injury!

Either way, I trust the information I've shared with you has been valuable. I've collected this from a journey of twenty-plus years of managing back pain personally and winning, so I speak from personal as well as professional experience. You can win the fight against back pain too. Don't assume or accept anything less!

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