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**Health Management**

*Nam et ipsa scientia potestas est.*

Knowledge is power. - Francis Bacon

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**Training While Injured or Ill**

**Interval training can cut exercise hours sharply**

**By Maria Cheng**  
**Associated Press**

...I know most of you saw the article about interval training being able to shorten effective training time because so many of you sent me copies of the article; those of you who have been with me know I've employed this training strategy for over 20 years.

So, great, you have been efficiently exercising in a very efficient and effective way; big deal, old news to you. What must be kept before the mind's eye is that no drug is as effective for lowering your risk of stroke, heart attack, diabetes, or most forms of cancer as is effective exercise well done. In or out of the legitimate medical literature: "Them's the facts!!"

The problem is this type of training can, no let me be clear, will occasionally result in injury. Of course no injury is as insulting as the stroke you had because you did not exercise in this way; still injury is not fun and must not keep you from your appointed rounds of effective exercise.

A diabetic with uncontrolled diabetes who exercises effectively has a lower risk of stroke or heart attack than a diabetic in good control who does not exercise effectively; the same with high blood pressure or bad cholesterol. OK, you are convinced. But are you convinced enough to tough it out when you pull a hamstring, wake up with back pain or just get tired of being tired from exercising?

Let's talk about it. There are some general things to keep in mind about training with illness or injury; interestingly enough the two are related in important ways. Both injury and illness, be it a cold, flu, pneumonia or atherosclerosis, involve the body's inflammatory response. Twist your ankle and inflammatory cytokines are released. Get strep throat; inflammatory cytokines are released. Said cytokines make every cell in your body leaky, less robust, more susceptible to further injury or illness. Get a cold, train too hard, get pneumonia as your reward. Tear a calf muscle keep training hard and your shoulder will get injured. As the night follows day a simple train of events that start small can lead to serious consequences: someone starts with a cold, that leads to a calf tear that triggers enough inflammation that depresses the immune system that then leads to pneumonia and seeds a prostate infection that can easily progress into low grade chronic prostate infections which

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are the seedbed of prostate cancer. Voila: a cold causes prostate cancer. Stay home, take the drugs, watch television and die like the rest of us from being a couch potato! I'll take my pizza with extra anchovies to fight off heart disease. You run the hills.

I am kidding of course: eat your anchovies as a dip for your vegetables the way Enid taught us!

So how does one train with injury or illness? The Cardinal Rule is don't stop, modify. "Work with, around, and through illness and injury" as much as possible. Your leg is in a cast only means you have three other limbs to work out with. Your cold means you have to dial it back 50% not stay home. In fact these kinds of modifications can boost your immunity, decrease your inflammatory response and hasten healing and recovery. Push it make it worse, do nothing and heal more slowly or inadequately, but cut it down and keep it up gets you better healing of that calf tear and a more certain and timely cure of that viral illness.

As you know the old distinction between aerobic and resistance is an artificial one and one that further will likely obscure your understanding of how to train effectively. But when ill or injured fall back on that old distinction and train directed more at slow to moderate pace and intensity resistance exercise and skip the rower, treadmill and cross-trainer.

Remember the sequence, from fastest to slowest, of strengthening and recovery: first muscles, heart, arteries, ligaments, tendons, bones then brain. The muscles can remodel, increase and improve in days to weeks, the arteries in weeks to months and the bones and brain in months to years.

All of these structures can remodel, all of these structures can heal, all can be largely renewed and restored. Yet all of these structures are vulnerable when you are ill or injured. Now is the time to be an astute student of your interior self. Look for feedback loops: is your resting heart rate coming back down, remember it went up when you were catching that cold, is your appetite coming back, how is the sleep, aches from old unrelated injuries are fading back into the background, remember how the old aches and pains flared up when you got a new injury that's the inflammation-signaling taking off?

A clear and deep connection to your interior self is one of the greatest assets during the time of trial; during the period of becoming ill, enduring illness, recovering, or being injured and not discouraged as your goals are bigger, more important than this period of a few days, weeks or even months. Had a stroke? Get your balance back. A tragic below the knee amputation? Get a prosthesis and learn to sprint. At the same time if you get a cold don't let it turn into prostate cancer because you weren't paying attention.

Have Fun and God Speed,

Dr. Mike

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