

Sports Injury Prevention Tips

A few evidence-based ways to reduce your risk of injury

Paul Ingraham • updated Sep 24, 2020

Sadly, medical science has yet to figure out how to clearly identify people who are at risk for sports injuries. Injuries happen, but we mostly don't know why they happen to the people they happen to. This article reviews some of the closest things we have to evidence-based injury prevention options.

Five evidence based ways to prevent injury ...

1. Train in the Goldilocks Zone: manage your training “load”

One of the few things we know for sure is that injury is linked to training “load” — how hard and quickly your tissues are challenged. So *load management* is one of the best overall strategies for preventing injuries. What “load management” mostly means is avoiding spikes and lulls in training and competition where possible ... and when they do occur, *be more cautious* for a while. Train regularly and moderately, with only moderate increases in load.

It's simple in principle, but the devil is in the details. In 2016, experts for the International Olympic Committee covered all of those details in an exhaustive scientific paper on this topic, “How much is too much?” Here are the main points they made, translated to plain English:

- There's not enough research, but there's enough to be confident that “load management” overall is definitely important.
- Both illness and injury seem to have a similar relationship to load.
- Too much *and* too little load, increase the risk of both injury and illness.
- Not everyone is vulnerable to high load, and elite athletes are the most notable exception: they are relatively immune to the risks of overload, probably because of genetic gifts. Everyone else gets weeded out!
- Big load changes — up or down too fast — are much bigger risks than absolute load. Methodically increasing load, may be protective.
- “Load” can also refer to non-sport stressors and “internal” loads. Psychology, probably does matter: anything from daily hassles to major emotional challenges, as well as stresses related to sport itself.

The tips below are diving deeper into the implications of load management.

PREVENTION BASED ON RISK FACTORS FOR DEVELOPING A SPORTS INJURY

Reference: by Drew, Cook & Finch, BJSM 2016

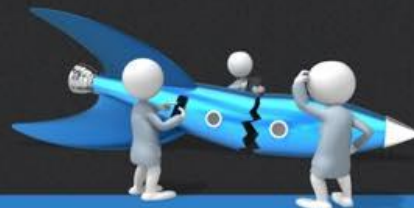
Designed by @YLMsportScience



1 Coupling small increases in training loads with a moderate chronic training load has been shown to be the safest combination

2 Minimise the week-to-week changes. Spikes in training loads precede injury and an athlete is 'at risk' for up to one month after a spike

3 A ceiling effect is observed where accumulated training across a week or month is greater than a threshold that is associated with increased injury risk for the sport



5 Careful load management needs to be taken after lighter weeks (e.g. in non-selected players) to ensure that athletes do not increase their risk of injury when returning to higher loads

4 Training at moderate workloads is protective. In football, some athletes have a relative under-loading of external loads prior to injury, as can be observed in fringe and non-selected players accumulating lower training volumes across a season



6 Avoid inconsistent 'boom-bust' workload patterns. High-intensity training is a risk factor for overuse injuries in young athletes, however, this may represent low chronic training loads coupled with bouts of high-intensity training

7 Ensure training loads are proportionate to the workload demands of the sport. Both intensive camp-based training and congested fixture have been associated with very high-injury incidence

8 Monitor the athlete throughout the latent period of injury. Reduce the week-to-week change and the magnitude of the acute-chronic workload ratio to minimise the risk in this period

A fine infographic from Yann Le Meur ([@YLMsportScience](https://twitter.com/ymlmsportscience)).

2. Warm up

The best simple way to prevent injury is to *warm up*. Prepare for any intense activity by doing a *similar activity less intensely*. In other words, start slow! To warm up your tissues, you need metabolic activity: the heat causes physical changes in connective tissues that make them more pliable. Many more complex benefits arise from the stimulus of mild physiological stress. Mobilizations are an excellent warmup method, but really it's just a matter of starting intense activities slowly.

Conversely, don't overdo it. I've seen sports teams scrimmage for an hour before game time. I think that's crazy: players go into competition not only warmed up but worn out. In competition, you can't afford to give up any resources, and you only have so much juice in a day — no matter how fit you are. Athletes get hurt far more when they are fatigued than when they're fresh.

And speaking of being tired ...

3. Get your sleep

As just mentioned, fatigue is a major risk factor for injury. Sleep deprivation is an almost universally underestimated problem. It's a major factor in chronic pain. It impairs athletic performance, getting more sleep boosts performance and injury rates and recovery are probably affected too.

People who do get enough sleep are extremely rare. Getting enough sleep is not as hard as people think, and it's a great indirect injury prevention tip, something that is definitely relevant to performance and injury risk — but has nothing to do with what you're doing before, during, or after workouts.

4. Cultivate coordination

Many traumatic injuries are probably caused by minor glitches in coordinating fast, powerful movements — an inability to sense and respond to traumatic forces at just the right time, either from lack of developed skill and/or fatigue. Creating coordination takes practice at complex and specific tasks (working within genetic advantages and disadvantages). But you can make some progress simply challenging yourself with a wide variety of activity and sensations, and coordination *can* be improved. For instance, a particularly long-term study followed a men's basketball team for six years, tracking their injury rates in

response to “classic proprioceptive [coordination] exercises” — which seemed to clearly reduce ankle sprains, and possibly more.

Balance is one of the most basic elements of coordination, and isn't much of a concern for younger athletes, but it becomes one for older adults — and even fit older people fall just as much as their less active counterparts. Fortunately, if you practice tasks that require balance, your balance will usually get better (if there's no medical issue). And better balance means fewer falls.

5. Play smart, not hard

Many injuries are caused by excessive and mis-directed effort! That might seem like a bit of a no brainer, but people need to learn this. I certainly did. It is one of the great lessons of martial arts.

I remember the day I learned this lesson in ultimate, watching an older woman play. She seemed unlikely to be competitive — she was simply too old, and a little overweight. In fact, it turned out that she was the best player on the field that day, entirely because she was clever. I particularly remember how little she ran. Although there were certainly bursts of intensity, her effort was precise and savvy, and time and again she got the better of other players with only a fraction of the sweat.

One particularly important way of playing smart is to *relax* into intense challenges ...

Chill out, man

Adaptability prevents injury, and rigidity is the opposite of adaptability. Relaxation is more psychological than golf. To purge rigidity from your system, you will have to go on a journey of self-exploration: most tension is emotional and protective. You won't be able to relax and be “comfortable in your own skin” until you know yourself better. Meanwhile, you will get more injury prevention mileage.

About Paul Ingraham



I am a science writer in Vancouver, Canada. I was a Registered Massage Therapist for a decade and the assistant editor of ScienceBasedMedicine.org for several years.