

INJURIES: Treatment and Prevention
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It goes without saying that if you sustain a serious injury or feel significant and/or unusual pain and symptoms you should seek medical advice. However, anyone who participates in rigorous physical training can expect to experience “garden variety strains and sprains”. A strain is an injury to muscle tissue; a sprain is an injury to tendons or ligaments. The treatment and prevention of injuries is similar. If you experience significant joint pain treat it according to the recommendations to follow but if it continues more than a few days you should see your doctor for further work up. So, you are mid-set in your workout and suddenly you feel a “twinge” in the muscle you are working... you stop your set, try to “stretch it out”... then go back to the exercise but... something doesn’t feel right. You can’t generate your usual power, or you can move the weight but feel pain while doing so. What do you do?

Pain in its many manifestations is the body’s way of saying STOP! Each of us knows our own body best. We know, instinctively, what is normal fatigue and tension and what is not “normal”. If it doesn’t feel “normal” to you then it is a signal that something is wrong. The “good pain” you experience during or after a really hard set is one thing, you know what that is. You also know when you have overdone it. OK! So you’ve just experienced pain! Do not continue with the pain producing movement? If it does not seem too severe you may want to try training some other muscle group... if it still hurts then call it a day. The sooner you start to treat an injury the better your chances for a quick recovery and return to training.

The acronym for acute injury treatment is **PRICE** (or RICE).

P: protect the injured area from further harm. At the very least this means that you should not work the muscle or joint involved. It could require you to get on crutches to avoid weight bearing on the extremity (E.G. ankle sprain) or use a sling (E.G. shoulder, elbow or wrist strain/sprain). Protect the area from further injury. You can’t strengthen a movement in a painful or pain producing range of motion or activity.

R: rest the injured area. Rest means “rest”... do not attempt to train the injured muscle or joint as long as it is painful.

I: “ice is nice”. Apply ice to the injury as soon as possible. Cold helps to reduce and slow inflammation. The body has a natural inflammatory response to injury. You cannot prevent it but you can control it to some degree to limit loss of function due to injury. Guidelines for cold therapy are as follows. Get cold to the area as soon as possible. If you use freezer type gel packs then be sure to put a barrier (small towel etc) between your skin and the cold pack. These can be cold enough to cause frost bite and once your skin gets cold it will decrease sensation and your ability to perceive damage. A bag of ice is less likely to cause frost bite since as it melts the layer of water next to your skin will be above freezing. The down side is that cold water may drip where you don’t want it! Another option for small areas is to use ice massage. Freeze some water filled paper cups then peel down the top to expose the ice. Massage the injured area in a circular motion

until the center of the circle goes numb. The stages you should experience are: initially cold, then you may experience pain and a burning sensation then numbness. Once the area goes numb you can stop. This is a good way to get an area cold in a hurry. Again the down side is that the melting ice drips where you may not want it. Apply ice once every hour or two. If you are using cold packs or ice bags leave them on for 15-20 minutes per hour. Ice is most effective for the first 48 – 72 hours after injury. After that the inflammatory response will take hold and ice will no longer be very effective.

C: compression is also useful in controlling swelling in the early stages. Wrapping the injured area with ace wrap should help. Do not wrap too tight. The purpose is to control swelling without cutting off circulation. If the wrap causes increase pain or if you feel numbness or coldness below the level of the wrap then it is too tight.

E: elevation will also assist in controlling swelling. You should elevate the affected area above the level of your heart if possible.

Very gentle, pain free, active (not resisted) range of motion is also desirable once you can do so without pain. This usually must wait until swelling is controlled. After the first 2-3 days you may find it helpful to use a little heat on the area (warm soak etc). Although heat tends to increase blood flow: at this stage in the healing process you may want to increase blood flow to the area in order to assist the healing process. The blood will bring healing hormones and chemicals to the area and remove the debris from the damaged tissue. Some athletes find it useful in this stage to alternate heat with cold. The rationale is that the heat helps speed healing and the cold helps to control the resultant swelling to allow early range of motion return. Try what works best for you but do not use heat for at least the first 24 hours after injury. Many athletes also combine the above protocol with over the counter anti-inflammatory medication: examples would be Advil, Motrin, Aleve (or their generic equivalents) or aspirin. You should use whatever works best for you but be sure to read the precautions and dosing information on the labels or see your doctor for advice and/or a prescription.

Once you can move the area without pain, or bear weight if it a lower extremity injury then you can begin to slowly work your way back to your sport or training routine. The time frame for this varies greatly and is dependent on many factors. In the case of a mild muscle strain you may be able to get back to your training gradually starting a few days after injury. More severe injuries could take weeks to heal and may require physical therapy. If the injury does not seem to be healing properly or if it is getting worse (severe swelling, increasing pain, sleep disturbance) you should seek the advice of a medical professional. This may be a sign that something more significant than you first thought has occurred.

Remember when you sustain a sprain or strain type injury early control of inflammation is key then early return to gentle range of motion along with sufficient rest will go a long way toward getting you back to training as soon as possible.

Injury Prevention

In this section I will address some basic guidelines about injury prevention. More specific advice about specific body parts will follow in subsequent articles.

One of the primary reasons for injury with weight training is performing movements using poor technique. It follows then that the single best safeguard against injury is performing every rep of every set with perfect technique. Seek good advice. Get someone experienced in your sport or activity to take a look at your technique and critique it. An alternative is to video yourself so that you can observe your technique for flaws. Other common causes of injuries include using too much resistance particularly with new or unfamiliar exercises. Let your body get used to a new movement for a few sessions before you pile on the weight or miles (for you runners out there). Any significant changes in your training routine should allow for a “break in” or acclimatization period. A transition phase between cycles will allow the body to acclimate to the new routine.

Another, much overlooked, cause of injury is fatigue. Fatigue can be the result of overtraining, stress, illness or lack of sleep. Warnings of being over trained include weight loss, difficulty sleeping or staying asleep, and increased resting heart rate (you should check your resting heart rate so that you have a base line). If you are stressed by work, home life or whatever, it can cause you to have difficulty concentrating leading to poor decision making and poor body awareness during your work outs. Practice techniques to clear your head for focus on the training at hand. Your problems will still be there to worry about when the workout is over so why bring them with you when you train. Commit yourself to the workout; do not let yourself be distracted. Talk to your training partners about keeping the focus on the workout. Who knows, after a satisfying and tiring workout your problems may seem more “solvable”, your worries may not seem as severe. At the very least you will have found a few minutes of relative peace in your hectic life. Worth the effort? I think so! As far as sleep is concerned: recent research shows that Americans are chronically sleep deprived and teenagers may be the most sleep deprived of all. Most of us need at least 7 hours of sleep per night and many need 8 or 9 hours. Give your body, mind and psyche a break. “Give it a rest”. Not only will you feel better but you will be able to focus more intensely and are less likely to be injured. As an added bonus you will recover more quickly and more completely so you will be ready to get another great workout next session!

Injury prevention as it relates to your training routine tends to be more of an individual thing but there are some general guidelines to keep in mind.

1. Maintain appropriate flexibility. The best guideline here is that you need to be as flexible as your sport requires. More is not necessarily better but less is definitely a recipe for injury. If you do not have sufficient flexibility to perform a movement correctly then you must work on your flexibility first before you start training the movement through its full range of motion. This means that you

- should probably include a stretching program in your routine. Active range of motion of the movements you train is best done as part of your warm-up (active stretching if you will). While passive or sustained stretching to increase range of motion is best performed after the workout or in a separate session after a general warm up. Some studies have suggested that sustained stretching before strength training can actually have a negative effect on the body's ability to generate maximum strength.
2. Incorporate a push-pull philosophy into your strength training routine. That is to say you need to work to maintain balance around your joints by working the agonist and antagonist muscles around each joint movement. Push-Pull is an easier way to think about it. For example: during your training cycle you need to equalize the amount of training you do on each "side" of a joint. For every pushing movement (bench press, overhead press, triceps exercise) you need to perform an, approximately, equal amount of pulling exercises (row, chin or pull down, bicep exercise). Large movements such as squats and dead lifts incorporate "pushing and pulling" into a single movement so can stand on their own. If you run on the roads you must change sides in equal measure so that you do not always have the same leg on the crown side of the road.
 3. Pre-habilitation exercises have a place in most training plans. If you are prone to injury in an area you must take steps to keep that area strong and flexible to help protect it from further injury. Those of you with ageing shoulders and knees know what I'm talking about. Include some weekly training sessions to address these weak points. Usually all it takes is a few short sessions per week focusing on the body parts in question. Future articles will address specific training for the back, knees and shoulders.
 4. If you use a weight belt then use it properly or don't use it at all. Weight belts worn all the time in the gym only serve to make the trainee dependent on them. If that crutch is used too much it will only serve to give you a weaker core (abs and low back). I suggest that if you use a belt you only use it for low rep maximal attempts and snug it up really tight. The belts only serve their purpose when they are cinched up tight. That way you will train to have a strong and stable core with most of your training and take advantage of the protection a belt can offer only when you may truly need it.
 5. Last but not least. If you do not feel well or the workout is not going "right" back off. Do something else. Or if you really do not feel "right" stop altogether and come back refreshed the next time. For those of us who commit so much time and effort to training it can seem sacrilegious to "bag it" but sometimes it is wiser to let it go. This is not an excuse for poor training habits or lack of discipline but rather a common sense approach to injury prevention. After all we can't be 100% all the time. Sometimes we are so much less than 100% it is better to take the day off than to persist and end up injured.

Look for future articles on stretching, pre-habilitation exercises for the shoulder, knees and back and on program design for adults, teen-agers and children

