

PVBM Healthfirst
presents
THE ART OF RECOVERY

Before we can begin to discuss recovery we must first have a basic understanding of the cycles of life, the tension/fatigue threshold, and the principles of rest and active rest. Recovery is not achieved by absolute rest but rather by a combination of rest protocols.

Cycles of Life

Everything in our lives and universe is cyclical from our 24-hour day, the phases of the moon, the seasons, and our annual calendar. Within ourselves are natural rhythms such as the 24 hour Circadian Rhythm which dictates tendencies for hours of high and low energies and biorhythms which designate recurring cycles beginning on the day you were born and continuing throughout life. Of these 24 hours we are taught that we need eight hours for rest. It is important to understand these cycles because our training and changes in our activity and schedule in our daily lives, will constantly throw us out of sync from these cycles; and this is why recovery is an essential tool in performance enhancement. To illustrate this point, let's take the example of REM (rapid eye movement) or deep sleep, which is linked to dreams and the most restful sleep. The REM sleep cycle occurs naturally at about 90-minute intervals throughout not only the night, but also the day. You may not readily notice it, but the periods that you find yourself suddenly staring blankly during the day or drifting away is in fact a phenomenon we call "day dreaming". Though the actual time spent in the REM mode is very short, your body absolutely must have it. If you interrupt this pattern with your schedule or a bad night of sleep, your body will simply put it in the "To Do" file and take it later thus compressing the time period between REM sleeps. The bottom line is that your body has predetermined work/rest cycles that it is accustomed to on the most basic levels. Our training interrupts and stresses those cycles, which in turn requires rest.

The Fatigue/Tension Threshold - The Zone of Progress

Simply stated, in training this is the point of no return where the runner goes lactic or the weightlifter moves to failure. You can train to raise your fatigue/tension threshold because it is a function of rest. Unlike taking a day off, this rest is very short and strategically placed. A common example in running is interval training and in weightlifting, through circuit training. Now let's apply a new skill to both to increase the Fatigue/Tension Threshold. A cardiologist friend of mine who works with elite triathletes found that many of his athletes had difficulty increasing their aerobic capacity and entered a cardiovascular state called "exploding", or total lack of sustained oxygen. It was explained to the athlete that going into oxygen debt in essence puts up an artificial wall called PAIN. You fail to acknowledge the impending oxygen shortage and you will receive pain. On the other hand, the athlete that maintains or slightly reduces effort at this crucial time will be rewarded with "trust" or extended time at the fatigue/tension threshold. By using this method, described simply as staying just the friendly side of being out of breath, the physician had athletes improve more in three months than in the past five years. How does this work in weight training? We all know that athletes take steroids to get bigger and stronger. Here is what really happens. The properties of steroids allow an athlete to recover more quickly which allows them to do more work, which allows them to increase strength, which allows them to become better athletes. Is there a better way both legally and ethically? Yes! Typically when lifting weights, rest between sets is three minutes or longer. The problem with this besides the time factor is high risk of injuries because of the relatively heavy weights lifted.

Notwithstanding those in the weight events, here is a way to teach the body to recover instead of rest. Have an athlete perform three to four sets of six to eight repetitions. On primary exercises such as squat/leg press, bench, or cleans, rest only 10 breaths between sets. On secondary exercises such as leg extension/curl, lat pull, etc. rest only five breaths. Does this work? In an off season program at UC Irvine, athletes who had been weight training at a plateau followed this program for six weeks. The result was an increase in the one rep max (1RM) by an average of 22%, including women. Let's evaluate why this works. With breaths as an interval, the athlete will hold breaths longer in order to prolong rest, thus force oxygenating the blood, which, in turn goes into the recovering muscles. Each succeeding set creates a higher fatigue tension/threshold that is regulated by the weight lifted. For example if we are doing a set of six to eight and we make eight, we raise the weight for the next set. If we only make six, we lower the weight, and logically if we make seven we keep the weight the same. The result is that because of the short rest, a much greater tension can be experienced with a lighter weight; the body thinks the weight is 200 lbs. when in fact it is only 60 lbs. More work in a shorter time + higher tension from lighter weights = no injuries.

The Principles of Rest and Active Rest

Though I'm hesitant to tell this to lazy people, the athlete makes 100% of progress during rest. Training actually injures muscle tissue, which responds by building back stronger. Though total rest is sometimes necessary, active rest has been proven to provide more rapid recovery. Active rest could include low intensity, rhythmical exercises such as skip drills and bar swings or other activities of a general nature. Sometimes a jog, stretch, and stride can provide a real edge for the next challenging workout. Even a light session of shooting baskets at the local basketball court may be considered to be "active rest". The legendary Oregon track coach, Bill Bowerman, once said that you have "every two day and every three day athletes", meaning that each individual will adapt to a certain training interval. Considering that a week does not have an equal number of days, and we sometimes have multiple competitions in the same week, you as the coach must be a master at juggling these schedules.

Here are a couple of helpful guidelines to use as tools

Avoid Unnecessary Repetitive Actions - Not only will this help to avoid injury; it keeps the athlete interested and motivated. A Bulgarian weightlifter discussing his unusual training methods which provided for working all body parts five days a week had this to offer, "This my friend, is my job. If I carried and installed drywall and told my boss that I could only work two or three times a week because of muscle breakdown, I would be fired. I simply find different ways to carry the drywall". His solution was to lift primary/power lifts on day one, lift secondary/support exercises on day two, and do light running and agility drills on day three. He then repeated the cycle, took Sunday off, and was ready to go again.

Quality vs. Intensity - There are days that we feel good and days that we feel bad. Sometimes the reasons are predictable and sometimes there appears to be no rhyme or reason. Therefore it is important, after viewing warm-up, to set a goal for the day of either "Quality or Intensity". When the body doesn't want to go and the mind does is perhaps the biggest cause for injury. By setting "Quality" as your goal, you can back off of the training intensity and duration by 10%, or change the activity to refresh the athlete both physically and mentally. Conversely an athlete who may be mentally sluggish but physically fresh will many times respond well to a high quality/intensity session that could deliver he/she to the next level of performance.

Neural Pathways & Drills - The cornerstone of coaching technique is the "whole, part, whole" concept of specific drills to imitate and perfect individual components of the whole. This creates the neural pathways needed to duplicate accurate and consistent performance. These are great "Quality" day

activities for a fatigued or broken down athlete as well as warm-up script. Believe it or not, overuse can work against you. Bombarding athletes with drills done to perfection three days per week for a six-week period can actually inhibit consistent performance. However, discontinuing the same drills, or totally changing the routine for a two-week period afterwards will nearly always improve return performance.

Muscles Heal Short - As discussed, training actually damages muscle tissue. Development occurs as the muscle grows back stronger in order to adapt to the increased demand. This "healing" causes the muscles to shorten at first as a protective measure. Because of this, flexibility is a key component to the recovery process as well as prevention of injury, and of course, increased performance. All other factors being equal, the most flexible athlete will always win because he/she is able to deliver the most force from the furthest distance. Conversely, overstretching can cause the opposite effect including damage to tendon connections and a non responsive muscle much like a rubber band that has been stretched to much, too often.

Mental Rest - Mental rest is given relatively little attention. However, considering the comparatively fragile emotions and anxieties of some young athletes, as well as the intense demands of sport, a variety of activities should be incorporated to keep the mind fresh.

The Truth About Vitamin Supplements - Though more studies are now in progress, double blind studies have consistently indicated that no physical or athletic benefit can be proven as a result of vitamin supplements with the exception of Creatine Monohydrate. Even so, 87 percent of athletes questioned indicated that they take a variety of supplements, "just in case". Some revelations from studies showed that though higher levels of the vitamins they were taken we measured in the blood, performance did not improve. In addition it was noted that many athletes were only consistent in taking their vitamins when they were consistently training which coincidentally showed more improvement.

Over the Counter Drugs - Taking three Motrin or Advil before and after a practice or competition is the norm for many elite athletes. At the higher levels you are walking a fence you must balance. Fall to one side and your injured and the other side you won't progress. High school athletes are, at best, forming a base and overuse of such over the counter medications should be watched carefully.

Whirlpools, massage, etc. - During my five weeks working with athletes from around the world at the training track at the 1996 Olympic Games in Atlanta, everyone wanted ice and a massage. In fact, many countries brought entire staffs for this purpose. This of course is impossible financially and logistically for high school athletes. You can however allow your athletes to cool down from the waist down in the shallow end of your swimming pool by doing light leg kicks and skip drills. When muscles are hot they are tired and inflamed; the last thing you want is more heat from a whirlpool.

New Technology - There will always be new inventions. My recent favorite is the DMS (Deep Muscle Stimulator) invented by a Corona Del Mar, California resident, Dr. Jake Pivaroff. This machine bombards the muscles in the same manner as deep tissue massage, without the painful aftermath. In fact, many of the professional boxers, golfers, tennis players, racehorses, and my pole vaulter friends use it right before, during, and after competitions. In fact you can now buy several different models via Amazon.