By Dr. Terry Favero

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Science has proven that proper recovery facilitates faster physiological adaptation and enhances performance. Ignoring recovery today leads to tomorrow’s poor practice session and, eventually, poor recovery habits that are tough to break. It also reinforces attitudes that can lead to overtraining injuries. But by taking advantage of planned recovery and making it an integral part of a comprehensive training program, you can help athletes experience the gains that elude them when they work hard, but not smart.

**STATE OF AFFAIRS**
Most high school and college athletes understand at least the basics of appropriate recovery. If they haven’t learned it from coaches, health classes, or other educational sources, they’ve at least felt the soreness after overworking their muscles, the fatigue from working out without proper fueling, or the overall misery of trying to function on too little sleep. And still, most athletes fail to follow an optimal recovery strategy.

Today’s student-athletes must balance demanding training schedules with complex personal, social, and educational demands. The pressures of daily life are rarely factored into an athlete’s total training or overall workload, but they’re a major factor in the individual’s health and well being.

What happens when an athlete has too many commitments and not enough time to meet them all? Recovery is usually among the first things to suffer. Rather than cut short a training session, they might skip a post-workout meal. Instead of missing practice to study for an exam or complete a class project, they’ll sacrifice a few hours of sleep that night. In the long run, these decisions take a serious toll, both physically and mentally, and performance begins to decline.

*Nutrition*. Half the athletes skip breakfast at least once per week, while 20 percent said they miss it several times per week. Sixty percent reported missing other meals occasionally as well. Perhaps most troubling, only 46 percent of the athletes said they regularly eat within 60 minutes after completing exercise.

*Sleep*. On average, most high school and college athletes get far less than the recommended eight hours of sleep per night. Sleep is one of the most frequently mismanaged recovery habits among athletes of all ages, and the consequences are immense.

*Regular recovery activities*. Essential recovery activities include (but are not limited to) a daily cooldown, especially following demanding workouts, active re-stretching or lengthening of the most active muscle groups, and post-workout rehydration. In addition, foam rolling and deep static stretching should occur at least twice weekly apart from normal practice times.

**SET OF SOLUTIONS**

*Teach the concept*. Recovery is a frequently misunderstood term. Many athletes think it’s about what they do immediately after a practice session. Others think recovery is a state of being, and they’ll say they feel “recovered” after a practice or game and don’t need to do anything specific. But recovery isn’t about short-term activity or physical condition–it’s a systematic and comprehensive program designed to maximize health and performance.

Athletes must learn that true recovery encompasses several different responsibilities, including hydration, nutrition, sleep, and psychological or emotional well being. To experience all the benefits of the body’s complex recovery mechanisms, an athlete must establish and follow routines that provide consistent and adequate amounts of fuel, physical rest, and mental “time off.”

*Cool them down*. The recovery process should begin as soon as the active phase of practice or a workout concludes. Structured cooldown activities address both physiological and psychological recovery. Most coaches recognize the physiological benefits, such as reducing blood lactate level, but few consider the psychological benefits, such as dampening nervous system activation. Slowly reducing the heightened state of the nervous system after athletic participation can lead to lower overall stress levels and more regular, restful sleeping patterns, particularly after evening workouts or practices.

For the cooldown, we perform a set of static stretches, but instead of transitioning from a jog to a run, we wind down from a jog to a walk. We hold the stretches for up to 20 seconds, and sometimes stretch the same body area more than once–for instance, if the day’s workout focused largely on the hamstrings, we’ll conduct two different hamstring stretches. I let the athletes select the cooldown stretches they want to perform, keying in on the body areas most in need of recovery.

*Kick-start restoration*. Two of the most important restoration steps are post-activity treatment, such as hydrotherapy and massage, and immediate rehydration. To promote physical restoration, athletes can take simple steps such as contrast showers (alternating between hot and cold water) or warm showers coupled with self-massage. Contrast showers provide neural stimulation, while a 10-minute warm shower with self-massage promotes blood flow to muscles and overall relaxation. These strategies can help an athlete leave the sports environment alert but calm, and ready to transition to the next phase of the day.

Hydration can best be addressed with sports drinks, which provide fluid along with electrolytes and carbohydrates. Water is an acceptable alternative, but is less advantageous because it can’t replace electrolytes such as sodium lost through sweat. The electrolytes in sports drinks also help to speed absorption of fluid from the gut after ingestion. A good rule of thumb on rehydration is that athletes should take in enough fluid to more than replenish what they lost from sweating. If it’s possible for athletes to weigh themselves before and after a workout, this provides an easy guide for how much fluid must be consumed.

*Refuel for recovery*. Research has shown that carbohydrate replenishment should begin within 60 minutes of the end of training in order to promote maximum muscle glycogen restoration. During this 60-minute window, muscle membranes are primed for glucose entry and rebuilding, which essentially means faster muscle recovery. Delaying the post-workout meal will mean low glycogen stores the next day, which results in decreased muscle performance and lower overall energy.

Following a heavy workout, research suggests that athletes should get between 1.0 and 1.5 grams of carbohydrate per kilogram of body weight per hour for at least two hours or until the next full meal. Some athletes don’t have a strong appetite right after workouts, so energy bars are a great way to bridge the gap until mealtime. A typical energy bar contains 40 to 50 grams of carbohydrate, and may also include protein that helps speed glycogen replacement in exhausted muscles. A 150-pound athlete is roughly 68 kilograms, so an energy bar and at least 24 ounces of a sports drink after workouts provides a great start to nutritional recovery.

*Sleep matters*. A growing body of research is revealing the importance of sleep for recovery and mental and physical performance. Adolescents and young adults are notorious for haphazard sleep schedules, and they probably don’t realize the negative toll it takes on their health and athletic performance.

The best advice for sleep is quite simple: Give yourself a bedtime and stick to it as often as possible. The body functions best when sleep habits are consistent. Once athletes establish a set routine that provides eight hours of sleep per night, they’ll find that they fall asleep faster once their head hits the pillow, and they probably won’t even need an alarm clock to get up at the same time each morning.

*Think short- and long-term*. Daily, weekly, and mid-season rejuvenation planning can make a huge difference for individual athletes and entire teams. On a daily basis, athletes need structured downtime. They should be constantly reminded that daily activities like listening to music, reading for pleasure, and taking short naps can do wonders for the nervous system, promote relaxation, and give the musculoskeletal system a break.

On a weekly basis, athletes should consider receiving a massage, performing some form of active recovery such as yoga, cycling, or swimming, and perhaps playing a sport other than their main sport to stay active but enjoy a break from structured training. When rejuvenation-centered steps like these are neglected until stress and poor habits result in declining performance, it is often too late to change course and make any material difference.

.When athletes focus on their recovery as a team, with support and guidance from coaches and athletic trainers, they can experience tangible gains in the weightroom, during practice, on the scoreboard, and in virtually every aspect of their lives. By teaching them that what they do when they’re not running drills, lifting weights, or competing in their sport is just as important as the time they spend training and developing their skills, you can change the culture of an entire program and put athletes on the road to greater success.