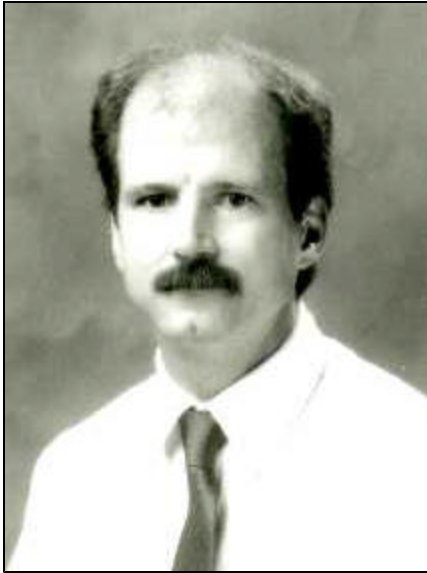


Restoration and the Transitional Period Between Cross Country and Track Season

By Jack Ransone, Ph.D.



Restoration is a very important component of any exercise training program. Hans Selye, back in the 1950's, outlined the stress-adaptation syndrome of which recovery was a key to adaptation and compensation. Further research of Matveyev (USSR) and Harre (GDR) in the 1970's applied Selye's basic research in a stable and useable training philosophy. They applied work to recovery ratios to the training of athletes and establishing training cycles where exercise and recovery were theoretically quantified.

Recovery--the time between intense bouts of exercise--is as important to the development of athletic fitness as the exercise stimulus itself. Fitness is developed during the period of adaptation after the organism is stressed. The amount of time it takes for the individual to recover from exhaustive

exercise depends on the condition of the individual, the intensity and volume of the training, environmental conditions and external stresses not necessarily related to the actual training program delay recovery. A young athletes with sufficient rest may recover the majority of their working capacity within 48 hours. However, factors such as environmental stress, age, a stressful academic or work environment serves to lengthen recovery time.

Outside influences have an affect on recovery from exercise. Negative thoughts and/or needless anxieties over upcoming competitions, the correctness of the training program, financial rewards, and the expectations of others add emotional stress to a physiologically stressful situation. The coach is instrumental in reducing anxiety by setting goals and focusing the athlete on training goals and away from extraneous unproductive thought patterns. The athlete's personal life is also a source of potential problems. Family, academic, and job-related stresses cause the release of cortisol that serve to slow recovery. Although outside stresses may never be eliminated, the athlete's ability to cope with them can be enhanced.

An unhappy family life, an impending exam, a demanding job are all stresses that lengthen recovery time, or that tax the creativity of the coach. Each athlete copes with stress in a unique way; some are calm and focused while others are highly anxious and distracted. Coping strategies and relaxation techniques are as important to proper restoration as is rest and diet.

There are numerous considerations involved in selecting the amount and type of recovery necessary for optimal development. Age of the athlete is very important. Younger athletes

have greater reserves and tend to recover from stress rapidly. Even though they have greater reserves, younger athletes have a more sensitive central nervous system and intense training can cause inhibitions to develop that reduce the capacity to exert fully. According to Tudor Bompa, the author of *Theory and Methodology of Training*, annual training volume should not increase more than 20% from one annual period to the next annual period. This includes progression from high school to collegiate athletics. In addition, care must be taken to recognize the signs of overtraining and the subsequent effects on the musculoskeletal system.

An athlete who was not fully adapted or matured, such as a freshman, is much more susceptible to the negative effects of training than the mature athlete. Care must be taken so that those athletes with the least training experience are allowed time to adapt to any new training regime. Time to adapt means time for regeneration between training sessions. Fitness, also, plays a role in the regeneration time. An athlete who has adapted to intense training over a period of time can withstand more intense training than an athlete coming off an injury, or after a voluntary layoff.

When training progresses to a very intense level, fatigue will also increase. As training volume increases, fitness remains at high levels although fatigue declines. When fatigue reaches its lowest ebb while fitness remains high, peak performances result.

Psychological fatigue is marked by task aversion and apathy. It may be due to several causes, some of them physiological. The apathy can be reduced by varying the training routine such as designing new workouts, changing training partners, or changing the training time of day. It is also a good idea to change training locations away from the track, such as running on trails or varying the mode of exercise by biking or swimming, until the desire to train returns.

Competition is a stressor that requires restoration of its own. The more important the competition, the greater the stress levels. An athlete who competes in the state or national meet is subject to stresses not related to the competition due to the event's perceived importance to the athlete, to the family and friends. Not only does the body have to recover from the considerable physiological stress, the psyche needs to recover from the tremendous emotional strain.

The health of the athlete is vital when determining how much restoration is necessary. If the athlete is sick, especially with a fever, no training should take place. Viral infections are spread to all areas of the body more rapidly during intense training. Endurance athletes must be especially careful of upper respiratory tract infections. Anemia is another affliction for which treatment must precede intense training.

A period of transition in exercise training as proposed by Matveyev is essential following a long competitive season. Time away from your teammates and the daily training routine is refreshing and should serve as restoration for the upcoming season. The level of conditioning during this transitional period will not remain the same and the athlete should

expect a decrease in fitness levels. This period of transition is essential to provide the full advantages of training program and the tapering period leading to the peak in the next competitive season. Research has shown that significant decreases in oxidative enzymes, along with decreases in performance times and V02 max occurs with only 15 days of no activity. Following 15 days of retraining, only V02 max returned to the previous levels. These findings suggest that for highly trained athletes, even short periods of detraining result in significant changes to physiological capacities and a longer period of retraining is necessary to regain their original conditioning. Some of the effects of detraining are maintained by training at frequencies considerably less than those required during the season. Strength can be maintained by one full workout every ten to fourteen days. Cardiovascular endurance is maintained by training a minimum of three times per week.

The transition period of a young athlete between cross country and track season should last approximately four weeks. The first week will involve no running with possible swimming workouts to maintain cardiovascular endurance. The second week would involve three workouts consisting of forty five minute runs for girls and one hour runs for boys. The next two weeks would include a build up in volume preparing for the upcoming season.

The transition period for a collegiate or more mature athlete should last at least three weeks. The first week involves no running with the incorporation of cross training to maintain cardiovascular endurance. The second week involves a progression of the normal training volume and the third week continues the progression to full training volume with the introduction of speedwork.

This period of transition may give the athlete an opportunity to focus on areas of weakness. Cross country runners could focus on potential weaknesses of muscle strength and flexibility. With this in mind, it is important that transitional programs are designed for the individual rather than the team.