SOME ASPECTS ABOUT RESTORATION OF WORK CAPACITY

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Restoration is an aspect often treated superficially or even overlooked in training processes, although restorative measures can be decisive in the improvement of an athlete's performance potential. In the following text, a slightly abbreviated translation from Fizicheskoi Kultury, Russia, the author outlines several recommended restoration procedures meant to endure training loads and recover faster. Re-printed with permission from Modern Athlete and Coach.

INTRODUCTION

The topic of restoration, whether it is restoration during or immediately after training, or during the intervals between training sessions, is of vital importance in today's employment of heavy training loads. Coaches simply cannot ignore the various means available for restoration.

The hygienic and medical means of restoration are well known. The hygienic means include various types of massage and self-massage, baths, auto-suggestive rest, passive rest and active rest. The medical means include an early detection of stress and overtraining, restoration carried out in special facilities, treatment of injuries and prescription of drugs.

However, it should be noted that the use of artificial means to aid recovery can weaken the body's natural power to restore itself. For this reason we should look for an environment that encourages the body to restore its own functional capacities from its own resources. This must be followed by a better use of coaching means. When coaches plan and implement an individual training plan, they should strike a balance between the athlete's training and competition influences and their functional potential.

POSITIVE CHANGES

An athlete's strength returns within a few minutes after performing an easy exercise. At the same time, an overly hard load fails to spark positive changes in the athlete's body. Instead, excessive loads overstress certain organs and systems, as well as exhaust the nervous system. In such cases restoration can drag out over several months. It is therefore necessary to provide more than optimal recovery intervals between individual training exercises and the proper amount of rest between workouts is even more important.

If a 24 hour interval is sufficient for a full recovery for an athlete who trains everyday, such workouts can be tolerated for several months. For example, a distance runner can tolerate this up to six months during the preparation period. On the other hand, track and field athletes rarely use passive rest more than one day, usually only one day a week. The primary means of recovery is to reduce the load by easing up on training for one or more days. Further, after two weeks of intensive training, an athlete can benefit from a week of reduced training for restoration and for bringing about the effect of super compensation.

A two week period of easier than normal training is effective during the competition phase, provided naturally that the athlete has before reached his/her physical and psychological maximum. The microcycles of training and competition should be structured to create the desired physical changes and at the same time allow for a high level of restoration. Different training loads should be alternated with active rest in accordance with the wave-like nature of the load as it follows an upward trend.

ACTIVE AND PASSIVE REST

Interplay between workouts is important for athletes who train more than once a day, sometimes even three times a day in a training camp. The less intense morning session should in this case pave the way for the main workout of the day, while the evening workout should help to restore the athlete's functional potential. The evening training can include exercises that are far removed from the athlete's specialty or include different types of active rest.

Referring again to track and field exponents, we can recommend the use of sporting games, target throwing and a variety of different activities. Such exercises help to divert an athlete's psycho-emotional attention from their specific activity. They also help the central nervous system to recover faster.

Athlete's can also employ such exercises during a workout. For example, an athlete can shoot baskets or practice target shooting after finishing running exercises. This type of diversion is also effective at the conclusion of a training session when a group of athletes play a short basketball or volleyball game.

Recovery can also be helped along by switching to other exercises after one or more microcycles of intense training and during the transition period at the end of a training year. Such a change is active but allows the nervous system to rest. It should be kept in mind that active rest is very important for restoration procedures because despite an increased concentration on the activity, the restorative procedures proceed faster. On the other hand, an active rest should be neither prolonged nor intense. Why? Because high energy muscular activity during the interval may reduce, rather than increase, the work capacity.

Keep in mind that exercises included in an active rest type of training session do not diminish the fatigue accumulated by the total volume of training work. Instead these exercises are meant to ease the load on the athlete's psychological and central nervous systems.

Slow running in a wooded area on the day after a competition or a hard training session is a very effective form of active rest. We recommend this activity when the first signs of overtraining appear. However, overtraining can be avoided by using one to three days of preventive rest after the end of a monthly training cycle, as well as after an athlete has finished an important competition. As an alternative, we also make use of other types of exercises appropriate for a microcycle or a training phase that are performed at a low intensity. As with active rest, these exercises are also useful after an intense competition and at the end of the season.

AVOIDING MONOTONY

A training process, both daily and weekly, that not only increases the athlete's work capacity but also accelerates recovery processes during the off hours, is important for restoration. Coaches still underestimate this potential, but activating restorative processes during specific hours will certainly become part of the training regimen in the near future.

The monotony of highly specific training places an athlete under more psychological stress, increases the likelihood of incomplete recovery, and leads sooner or later to an over-trained condition. To avoid these consequences, the means and methods of specific training should be varied to avoid monotony.

A thorough warm-up not only prepares and attunes the athlete's body for the work it is about to perform, but also activates the physiological and psychological process. An optimal warm-up guarantees better restoration between exercises. An individually tailored warm-down at the end of a training session, or after a competition, is especially useful for restoration. Gradually tapering off the training load with slow running, relaxation exercises and walking is an effective way to activate restorative processes. Coaches should not ignore this.

In prescribing training exercises coaches should place more emphasis on creating a positive emotional background. A positive emotional background not only encourages a high level of work capacity, but also promotes better restoration. Of all the ways exercises can be performed, coaches should give priority to exercises that promote restoration. In this respect the variable method is superior to the tempo or steady methods. At the same time it should be kept in mind that whichever method is used the training effect must not suffer.

Exercises suitable for relaxation and active rest should be used between intervals of sets and series and at the end of a workout. If intense exercises are

followed by considerably different exercises it might be necessary to perform some transition work to bridge the gap and to reduce the load gradually. It also is possible to use passive rest during these intervals. In this case the term “passive rest” refers to complete relaxation of lying down in a comfortable position on a couch or in the water. In this state an athlete can use auto-suggestion to promote better relaxation.

Hence, passive rest can be beneficial both during and after a workout, particularly in situations prior to an exceptionally heavy load planned in the near future. However, it is advisable to taper off the load before engaging in passive rest.

IMPROVEMENTS

An athlete’s training and restoration through active rest can be improved by using a variety of equipment and by varying the training site (using a park, a forest, grass surfaces, synthetic surfaces etc.). The varying of equipment, training sites and running surfaces allows the athlete to employ more training time. The stress on the support motor apparatus is reduced, the psychological load is reduced and better conditions are provided for the improvement of the body’s restorative potential.

Restorative processes can be further helped by varying lighting, wall coloring and flooring at the rest site and using music during workouts. In addition, the following types of restoration play a central role in improved recovery: Vibro-massage, local and general massage, the use of atmospheric pressure chambers, steam and sauna baths, ionized air, infra-red light and electro stimulation. We also recommend mechanical types of massage during breaks and recovery periods in workouts.

Keep in mind that the restorative value of a given technique fades away when it is used regularly over an extended time period. For best results restorative methods should be used in complexes or combined with hydrotherapy techniques, atmospheric pressure chambers and different types of massages. In general, it is not advisable to use the same techniques more often than twice a week. Use general means first and local means afterwards.

Local procedures are most helpful when an athlete trains two or three times a day. Physical methods that have a general effect are best suited to be employed at the end of a day’s training and sometimes also between workouts. We recommend general techniques (baths combined with hydrotherapy and massage, as well as contrast bath) be used after heavy or large volume training.

Localized massage, the use of atmospheric pressure chambers and localized heating are relatively more effective when they are used after localized loads or small volume workouts. When heavy loads are employed during the competition

period, it is effective to use complexes of different restorative techniques. On the other hand, normal hydrotherapy procedures are adequate after light or medium training sessions.

ADDITIONAL RESTORATION PROCEDURES

Physiotherapy procedures are recommended for use an hour after training. The session should be finished at least 30 minutes before the start of the next workout and the first session should not be longer than 30 minutes. After the last workout of the day, general, rather than local, physical methods are normally used. Typical examples of general methods are manual massage (both classical and segmental), underwater massage, general baths and carbonate, chloride sodium, pearl, sauna and steam baths. Some localized procedures, such as the use of atmospheric pressure and electro-stimulation can also be included.

Using more than one general method should strictly be avoided. A session of general methods can last 30 to 40 minutes but should never exceed one hour. General methods can be used two hours after training and an hour and a half after the evening meals.

The general methods should be selected and prescribed with the help of a physician. Doctors devise physiotherapeutic measures to increase work capacity and restoration during the individual phases of a training cycle. If an athlete is prone to injury, special attention should be given to the use of physical therapeutic measures during the periods of intensive training.

Restricted restorative measures are used during a microcycle that precedes winter or summer competitions. It is advisable to eliminate the use of local effects after two days of treatment for a day. Top priority should be given to massage and sauna baths can be used only once a week, but no later than five days before a competition. Physiotherapeutic procedures used during a taper-off microcycle depend on the type of fatigue an athlete is experiencing but general procedures can be employed without restriction.