

THE ROLE OF KINESIOTHERAPY IN ENHANCING SPORTS PERFORMANCE

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Abstract: In this study I tried to create a link between medical-sports-kinesiotherapy. This link should be oriented towards maintaining the body health, guidance to achieve a harmonious aspect and a nutritional balance. Kinesiotherapy tries successfully to manage and to make this connection.

Introduction: Getting great performance requires from the athlete body unusual big efforts that can lead to irreversible damage to the health, if the whole process proceeding sports training is not developed by science-checked principles, and if not used with competence by all means of support and biological recovery.

Health surveillance is an integrated system of methods and medical practices, that ensure medical data collection and integration in terms of knowledge for unsportsmanlike body, for initial selection and training of the sporty one with different training, of the internal and external factors that condition the health status for obtaining performances.

The role of the sport control:

1. Dynamic monitoring of the health status and exercise capacity (type is dynamic and done at home, in the gym);
 2. Pursuit of practical application of the medical advice to optimize health and compliance measures and support recovery efforts;
 - Support of the efforts include measures to ensure the body providing the needed resources for performing the effort and their optimization at the level requested by performance.;
 - Recovery after effort aims to accelerate the restoration of metabolic and systemic functions disturbed by effort;
 3. Monitoring the physiological principles of the athletic training;
- A) *The principle of general and special multilateralism* - The purpose of the request, engagement in exercise of all metabolic functions and systems. To avoid narrow specialization, early can be a limiting factor favorable sports capping. It can be realized a sport

reorientation in the case of the capping and of the emergence of physical or functional handicap as a result of illness;

- B) *Principle of continuity* -- the acquisition and maintenance of the achieved results. This principle must be respected not only in sports training, but also in the athletic recovery.
- C) *Principle of the effort grading* requires a gradual increase in effort from easy to difficult and from simple to complicate.

Materials and methods

In this study, we started from the following hypothesis:
If we use specific methods of kinesiology it will increase the athletic performance.

The athlete studied in this case, had done all the medical analyses before of the competitive period, we will attach a final EKGs interpreted by the specialist practitioner. What we are trying to emphasize here is the role of physical therapy in recovery after exercise, and we try to bring to normal the body functions and at the same time we try to shape our role pre and post effort.

For this reason we will structure as follows:

- Preparing the athlete before exercising;
- Its recovery immediately after leaving the field;

Preparing the athlete before exercising

- Its assessment before entering on field (a brief assessment that we try to emphasize eventual health problems);
- In the case of muscle contusion it will be done a gentle massage with AINS products, eventually with bandage and protection of the respective zone;
- According to the affected muscle zone it will be applied techniques of tapping and strapping. Tapping and strapping techniques are commonly used in trauma of the soft tissues. To prevent muscle and joint injuries, and if such a condition has occurred, we will use strapping to protect the tendons, ligaments and even the bone.
- It will provide a large reserve of liquid for the body to begin not with a lack of fluids thus preserving the excretory function;
- It will perform stretching exercises at the end of exercises package for body warming up.

Because the act of participating in sports as mentioned in this study, of all the systems of the human body, we see that although the body was prepared for the effort, it is felt most often in all respects.

1. Seeing in terms of the cardiovascular system modifications of cardiovascular system appear following the effort for all categories of the athletes and we will recommend them immediately after effort, sustained by slow jog to return to normal parameters of the heart, continued by walk, respiratory exercises, followed by stretching exercises, till the pulse and blood pressure return to normal.
2. From the point of view of the respiratory system, we will observe immediately after exercise, some changes in breathing, with respiratory failure, respiratory difficulties of compliance time. For an quick return to normal will immediately execute breathing exercises, which are realized and travel light with carrying arms up - down, with emphasis on time inhale and exhale.
3. The excretory system will suffer immediate changes as a result of effort and sweating. The first step is to use the warm fluid hydration by ingesting sufficient to saturation, then hot-cold showers, which will help and hydration of the skin and restore its water balance.
4. In terms of muscle, it will be noted as muscular fatigue effect immediately, sometimes after maximal effort or after prolonged effort. As a first step will be performed stretching exercises, focusing on muscle fiber elongation and recovery capacity to return to normal size. After having a shower it can be done a relaxing massage, sauna, jacuzzi, relaxation activities generally.

Results and Discussion

The sport is the only activity that brings people together despite age, political orientations, borders, is in every sense a phenomenon to stay healthy through sport. This is the real objective of sports recovery, which we try to apply the methods that we have available.

Over time, various scientists, coaches and athletes have found that effective training is subject to compliance with the principles and rules that were scientifically based, and their findings have led to increased performance in various sports. Understanding these principles is essential for maximizing performance in sports and rugby.

In rugby training, regardless of its nature (physical, mental, technical) the exercises that are practiced by players will be specific to the position that they have occupied the team (individual) or specific objectives (the whole team). Recovery program will be adapted depending on the workout rugby and we focus on the requirements of the

sport and athletes to increase capacity in order to achieve better sporting performance.

A recovery program that aims to correct the deficiencies and a good relationship post and pre effort must be customized. The same principles will be used in training athletes, so each player must self-evaluate, establish their own objectives at the beginning of training and pass through a phase of self-calibration in which to study the effects of different methods training, to calibrate the intensity and volume of that, to achieve the maximum of each training session and experience different durations of recovery period.

For effective training, to increase the functional ability of the athlete is required that the exercises to expose the neuromuscular and cardiovascular systems at a higher load than that with which they are already familiar. Overload during training entails and longer recovery and more intense, with increased duration of recovery programs and to bring back body properly.

All these principles are carried out according to generally valid for all sports diagrams, called by Tudor Bompa (Professor Emeritus at York University, Toronto) in 1986 by the generic name of *overcompensation cycle* which shows that while the changes in time of the physical level appear as a effect of one isolated training session. We see here the crucial role of recovery.

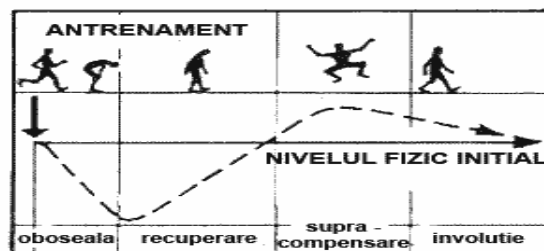


Fig 1 Overcompensation cycle

The training session begins at a specific physical level (baseline) and cause fatigue. At the end of the meeting, when it reaches the maximum fatigue corresponding to the solicitation, during this one it starts the recovery phase, called compensation phase. With the recovery methods will be most effective, even the return to the initial physical level will be faster.

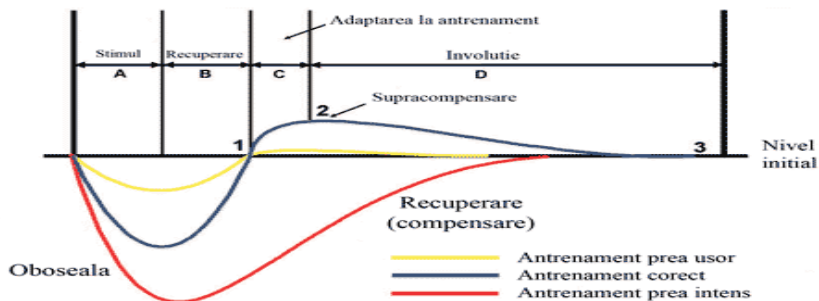


Fig 2 Adaptation to training body

The recovery continues with the phase of overcompensation, during which it produces an overflow of the initial physical level, as a result of the body adaptation to the training effort. For a single training session, this accumulation is not very big and not last very long, it gradually attenuates (involution phase) until it again reaches the physical level initially, so after some time, the effect of an isolated training session will be lost.

It should be emphasized that the conducting of this process will depend directly on the size of requests during the training.

A too easy workout will not stimulate the body to adapt to effort, so the overcompensation phase will be negligible, that the training will not produce any noticeable effect, and that's why even the recovery process will be a non sense. (Yellow line)

In the case of a too hard training session, the fatigue generated by it will persist not too long, resulting in loss of overcompensation phase, meaning the return to baseline level without the body to have the opportunity to adapt to stress. (Red line)

To achieve the optimal effect of the training session (Blue line) the intensity and the volume of it must be carefully balanced, so the level from the compensation phases to be highest. In other words it must always keep the balance between training and recovery time to optimize act and achieve performance sports.

Therefore proper planning of training should be done such that each session to intervene after adjustment of the body at the previous meeting efforts and as a consequence the session will have an originally physical level or even higher than before, and the effect will accumulate over time, causing a steady increase of functional capabilities we can say that they will reach a maximum level of training. (Figure 3).



Fig 3 Increase the performance level following training

In the case that in the next training session occurs when the body has not yet had time to recover from the previous session, the new session beginning physical level will be lower because it will be affected by fatigue.

Over time, if training will continue at too short intervals, not leaving the body time to rest and not make a proper recovery, fatigue will accumulate and will cause a decrease in exercise capacity. This effect is called over-training and can have serious consequences on performance. Also the insufficient recovery between training sessions favors lesions in muscles, tendons and joints.

In conclusion is wrong concept that *"if I increase performance training, more training will further increase my performance."* Without an adequate period of rest and recuperation, training effect will be the opposite of the expected.

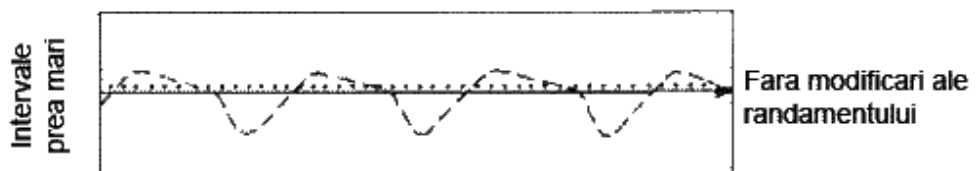


Fig 4

If the interval between the sessions is too high, the effect of the previous meeting has already passed the stage of involution and disappeared. (The diagram next to the image) The initial level of the physical sessions will always be the same because after recovery by involution, the body returns to its original shape. In this case, the accumulations on long term will be void and without an effect on performance, the training will only be a loss of time.

In the case of irregular intervals between the sessions, these can occur randomly in different phases: recovery, over-compensation by

involution or even thereafter. The cumulative effect of training will be random and usefulness is questionable.

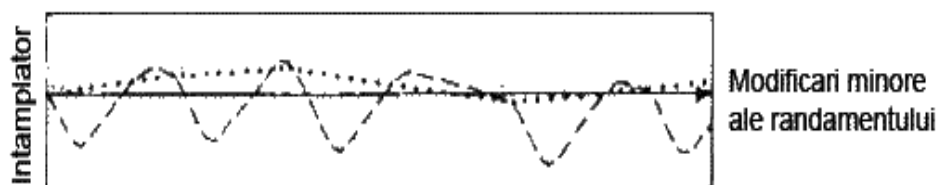


Fig 5

Athletic performance adds personal confidence, brings peace and contentment. Even though it has and beautiful aspects must not forget the sacrifices that are being made, how much work and how much perseverance an athlete needs to do and to have to see their work recognized.

Conclusions

One of the conclusions of this work is that we need a psychic balance to determine to balance us in every day and in every training session. The key to success is the correct communication however, seek to offer plausible explanations to explain what changes occur when sustained effort, to familiarize the athletes with specialized terminology, to guide them towards performing all functional and laboratory investigations. Another aspect of communication must be established between athletes and coaches where they will determine the right workout plans that give athletes an advantage, to help to increase performance without putting his body at risk.

Bibliography:

1. Dragnea A. *"Sports Training"* Edit. Didactic and Pedagogic, Bucharest 1998.
2. Dragan I. et al. *"Sports Medicine"* Publishing Sports Tourism, Bucharest, 1989.
3. Georgescu M. *"Medical Semiology"* Edit. Didactic and Pedagogic, Bucharest, 1998.
4. Gerasim I. *"Internal Medicine"* Medical Publishing House, Bucharest, 1997.
5. Sbenghe T. *"Kinesiology, the science of movement"* Medical Publishing, Bucharest, 2002.

Titlu: Rolul kinetoterapiei în creșterea performanțelor sportive.

Cuvinte cheie: kinetoterapie, sport, performanțe sportive.

Rezumat: În lucrarea de față am încercat să creăm o legătură între medicină-sport-kinetoterapie. Toată această legătură trebuie orientată în sensul păstrării sănătății corporale, îndrumarea spre obținerea unui aspect armonios și spre obținerea unui echilibru nutrițional. Kinetoterapia încearcă și reușește cu succes să realizeze această legătură.

Titre: Le role de la kinesitherapie dans l'amelioration des performances sportives.

Mots-clés: kinésithérapie, les sports, la performance sportive.

Résumé: Dans cette étude, j'ai essayé de créer un lien entre médico-sportif-kinésithérapie. Ce lien doit être orientée vers le maintien de la santé du corps, des conseils pour réaliser un aspect harmonieux et un équilibre nutritionnel. Kinésithérapie tente avec succès de gérer et de faire ce lien.