

179 - METHOD OF RECORDING AND ANALYSIS OF TRAINING LOAD IN DISCUS THROW

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INTRODUCTION

Success in competition is not a casual fact. The preparation of athletes, the evolution of their technical and physical qualities are governed by numerous factors and conditions. We can enumerate some of them: sports facilities and equipment appropriate medical monitoring and nutritional permanent, effective organization of training and others. Besides these factors, play an important role, a perfect educational direction of a planned training and, especially, an effective control of this whole process.

Obtaining the way sports is achieved with a preparation, according to its specificity, is relatively long. You can not help an athlete in search of income, if he trains consistently and, if he does not master the technique of the sport. In preparation problems arise quite complex. One of them is related to the uncertainty of efficient and targeted improvement of various aspects of this preparation. Without the support of clear ideas in the framework of the preparation prepared, considering all levels would not be possible to direct and control effectively the whole process.

They are in literature several publications that refer to the study of technique, biomechanical analysis of movements, means and methods of training and organization content in the preparation cycles (HAY & YU, 1995, BARTLETT, 1990; GREGOR, McCOY & WHITING, 1990; KNICKER, 1990). However, few refer to the training control over the structure and dynamics of the loads used and its correlation with the level of the athlete's physical condition during the various stages of the macro, when he undergoes loads of different orientations physiological effects that cause cumulative differentiated.

The control and analysis of the effects of different successive training loads, based on the indicators for the various stages of preparation, could provide important data to better understand key aspects of the structure and dynamics of these charges. According VERKHOSANSKI (1990), the relationship between the condition of the athlete and the load used in training is the focus of theory and technical training program and, in turn, the training process, which requires the attention of specialists and research continued. The comparison of the charges made in the shape acquired by the athlete's sport to consider, indirectly, the effects of practice, and the increasing improvement of the provision to meet the training. The constant measurement and analysis of workload permits its optimization and individualization for the athlete (SZMUCHROWSKI, 1997).

This way of analyzing an athlete's performance could be due to the use of Method RACTE - Registration and Analysis of Load of Sports Training, developed by the Institute of Sport in Theory at the Academy of Physical Education in Warsaw, which uses the Software Tre-Ob SOZANSKI & SLEDZIEWSKI, 1989).

The approach based on this method allows the verification and systematic and structural dynamics of the entire work, both in terms of quantity but also with regard to the quality of training, which will facilitate the understanding and development of training programs for those interested the subject at hand. The choice of this method is due to the fact that he has already been used in previous studies demonstrating the ability to analyze the structure and dynamics of the training load, and its easy application in the analysis of the preparation of professional soccer players (SZMUCHROWSKI, 1995, SZMUCHROWSKI & GRIPP, 1998) and also in control of the load of training in distance runners (VIANNA, 1998).

TECHNOLOGY RACTE - REGISTRATION AND ANALYSIS OF THE BURDEN OF SPORTS TRAINING

The proposed RACTE technology is helping to systematize and control of training load (SZMUCHROWSKI, 1995). In general, this classification is done with the record of work and, eventually, its organization through Software TreOb (Sozanski SLEDZIEWSKI, 1989), which provides a structural and dynamics of the entire training process. This method registers the training loads of different activities performed during the training sessions. The activity performed is associated with the time of its application, and this magnitude of exercise performed (done) used to analyze the structure and dynamics of the applied load in sports training.

The RACTE provides technology that most of the factors that influence the formation and performance of the athlete to be cataloged and analyzed. All exercises are recorded, based on catalogs of groups of means of specific training for each sport, according to the duration and intensity level that is commensurate with the behavior of the HR.

The theoretical underpinnings of this proposal are in differentiating two categories of effort: one related to the type of exercise used and the other with the predominant energy source used in the effort.

COMPONENTS OF THE TRAINING LOAD

The theoretical proposal of RACTE is a three-dimensional view of the components of the training load. This tripod is formed by the intensity of the applied load, the duration of application of stimulus to the body and the characteristics of the exercises used during the training. Knowledge and handling of these components by applying different methods of sports training dose allow the load in accordance with the objectives and characteristics of each athlete or team.

The intensity of an activity that can be measured by certain parameters, represents the level of demand of the load training to various body systems and in particular the mechanisms for energy production. There are several ways to evaluate and monitor their implementation, the technology RACTE uses the HR due to its easy application. The intensity of the group means of training for evidence of releases has been assessed and classified according to the type of preparation and level of intensity by monitoring heart rate (BOGUSLAWSKI 1995). They were five different levels of exercise intensity: Level 1 - activities carried out with very low intensity and small, with HR of not more than 70% of maximal heart rate after exercise. They are characterized by maintenance exercises (aerobic activity). Level 2 - Medium-intensity activities and large, with a heart rate between 70 and 85% of maximal heart rate during and directly after work, duration longer than 5 minutes. They characterized by the use of predominantly aerobic activities. Level 3 - activities recognized as having a mixed (aerobic and anaerobic), heart rate up to 90% of maximum during and immediately after exercise, duration between 20 seconds and 10 minutes. Usually it worked with short intervals of rest, for example, the extensive interval method. Level 4 - activities with a heart rate greater than 95% of maximum heart rate

during and immediately after exercise, duration between 20 and 90 seconds, cause adjustments in character anaerobic lactic. Level 5 - activities with very different heart rate between 65 and 90% of maximum heart rate, duration 30 seconds, cause adjustments character anaerobic lactic.

Each sport has its own characteristics and competitive requirements. Thus, the different forms of training and implementation of training load during practices and games can be categorized according to these characteristics that determine the type of Preparation 1 - Preparation General (G) - develop the potential of basic conditioning. Represent those activities that do not have specific characteristics of sport, but are very important and represent a support for the harmonious development of the adaptations. 2 - Preparation Directed (D) - represent those activities that cause adjustments directed to the fitness predominant mode. The media targeted represent a bridge between the general and specific ways, directly influencing the total income of the athlete. 3 - Preparing Specific (E) - are the methods that aim at improving the coordinative capabilities of the athlete's specific sport. The internal structure and external movements of the exercises is similar to the exercise of competition or any of them. Focus on the exercise of a technical-tactical.

Returning to the three-dimensional perspective of the of training load proposed by the technology RACTE, it appears that the levels of intensity (1 to 5) and exercise classes (G, D and E) can first be standardized by the catalogs, leaving the duration of load as another variable to be considered. The method takes all the activities and exercises should be registered according to the effective time of the stimulus duration (hours, minutes and / or seconds) to the organism.

TRAINING CATALOGS MEDIA GROUPS

The catalogs of groups of means of training (number of years, their methods and intensities) can be created for different sports, according to the specific objectives of each type, regardless of the level of training sport athlete (novice or professional), since are followed the basic criteria for cataloging.

First, we classify the exercises by numerical codes with their subdivisions necessary when the order of general exercises, directed and, finally, the specifics. This classification should include all exercises adopted the sport in question.

After a description of activities, one should describe the training methods used. Finally, we indicate in parentheses, the intensity of activity by numbers from 1 to 5. The universal description of the catalogs of the means of training includes both exercises known, as well as those that may arise with the development of new forms of training.

In addition, the ratings given in this catalog to describe the possible exercises that can be used in future training and guidance in planning activities, defining its general characteristics, targeted and specific.

ANALYSIS OF THE TRAINING LOAD

The application of RACTE technology analyzes the training load through three perspectives: the magnitude of the load can be expressed by the absolute value of the effective time of the activity in hours, minutes and/or seconds, the structure of the load is the relationship between the magnitudes of the loads used in training. It represents the interaction of the components of the load that can be analyzed at the level of media groups for training, field formed by the type of exercise or activity and its intensity and dynamics of the load distribution over time (dynamic) training load to analyze qualitatively the activities/resources cataloged, as well as the type of preparation or the level of intensity of exercise used in training units for training sessions (days), weeks (microcycles) months (mesocycles) or years (macrocycles). This allows you to identify the application, the relationships and distribution of the parameters that characterize the training load.

The intersection of the fields of Preparation Type (G, D, E) at the levels of intensity of effort (1 to 5), consisting of the types of activities to be worked on creating other fields that allow a variable analysis: G1, G2, G3, G4, G5, D1, D2, D3, D4, D5, E1, E2, E3, E4, E5.

G1- total duration of work load arising from work on Type of Preparation General level of intensity 1. Parameters after preparation work generally correspond to G2, G3, G4 and G5.

D1 - total length of workload arising from work in Type-Directed Preparation of the level of intensity 1. The parameters after the preparatory work aimed correspond to D2, D3, D4 and D5. E1 - total length of workload resulting from the work on Type Specific preparation in intensity level 1. Parameters after preparation work correspond to specific E2, E3, E4 and E5.

You can also determine the total length of the charges by the sum of the total length in the type of preparation and intensity levels of effort:

T1 - total length of the charges arising from work carried out at intensity level 1 ($G1 + D1 + E1$), and the subsequent parameters corresponding to T2, T3, T4 and T5.

Then:

G-total duration of the loads resulting from the work on Type of Preparation General ($G1 + G2 + G3 + G4 + G5$);

D - total length of the charges arising from work in Type-Directed Preparation, ($D1 + D2 + D3 + D4 + D5$);

E - total length of the loads resulting from the work on Type Specific preparation, ($E1 + E2 + E3 + E4 + E5$);

ST - Sum total of charges of training.

DIRECTORY OF MEDIA GROUPS FOR TRAINING IN EVIDENCE OF RELEASE

Boguslawski (1995) summarizes the possible exercises or existing launchers which were used in this study.

Example of components of the groups a means of training:

40 - Technical release with working, learning and improvement. (Name and number coding of Exercise), method of repetitions (Method used)

With 40.1-intensity small (1)

With 40.2-average intensity (3)

With 40.3-intensity large (4)

With 40.4-intensity (5)

(The numbers 40.1 to 40.4 identify subsets of groups through training no. 40.,. The numbers in parentheses (1), (2), (3), (4) and (5), identify the levels of intensity).

Registration form: (E) - 40.3 - (4) - 0:00:58

E - (Method of preparing specific)

40.3 - Number of code through training.

(4) - Level of Intensity-Anaerobic Lactic.

0:00:58 - Duration: 0 hours, 00 minutes, 58 seconds.

As can be seen above, was first described the type of preparation and exercise, immediately after the training method used, finally, it is indicated in parentheses, the level of intensity, using the numbers from 1 to 5.

Table 1 - Table of Coding for the load for the Discus Throw

| Preparation Type | Intensity Level | | | | | Σ 1...5 |
|---|---|--|--|---|--|------------|
| | 1 Maintenance HR <70% HR max. during and after exercise | 2 Aerobic HR to 85% HR max. Duration 5 to 10 min. | 3 Joint HR > 90% of HR max: Duration of 20 seconds to 10 minutes | 4 Anaerobic Lactic HR > 95% of HR Max Duration 20 to 90 seconds | 5 Anaerobic Lactic HR> 95% of HR Max Duration 20 to 90 seconds | |
| G Develop the potential of basic conditioning | G1 1 | G2 22 25.2 26.4 | G3 2.4 15.4 6.4 16.4 7.4 17.3 8.4 22.1 9.4 22.3 10.4 25.1 11.4 26.3 | G4 2.2 10.2 17.2 2.3 10.3 18.1 3.2 11.3 18.2 6.2 12.2 22.2 6.3 12.3 24.1 7.2 15.2 26.2 7.3 8.2 15.3 8.2 9.2 16.2 9.3 16.3 17.1 | G5 2.1 10.1 19 3.1 11.1 20 4 12.1 21 5 13 23.1 6.1 14 23.2 7.1 15.1 24.2 8.1 16.1 27 9.1 18.4 28.1 28.2 28.3 28.4 | ZG |
| D They cause stimulation and adaptations geared to income in the form | D1 | D2 32 | D3 30.4 34.3 31.4 35.4 33.4 36.3 | D4 30.2 33.2 35.2 30.3 33.3 35.3 31.2 34.1 36.1 31.3 34.2 36.2 | D5 29 35.1 30.1 36.4 31.1 37 33.1 | ZD |
| E Enhance the capacities of the athlete in the sport and are close to the maximum of the techniques of release | E1 39.1 40.1 41.1 | E2 38.4 | E3 38.3 40.2 | E4 38.2 40.3 41.2 | E5 38.1 41.3 39.2 42 40.4 43 | Z E |
| Σ G+D+E | T1 | T2 | T3 | T4 | T5 | ST |

Source:Tre-Ob

Table 1 shows the types of crosses Preparation (G, D, E) and the levels of intensity [1,2,3,4,5] employed in the activities. The numbers were mentioned in the appropriate fields (within cells), representing the codes of the media already cataloged for this race, according to their characteristics, providing 24 fields.

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METHOD OF RECORDING AND ANALYSIS OF TRAINING LOAD IN DISCUS THROW ABSTRACT

The control and analysis of the effects of different successive training loads, based on the indicators for the various stages of preparation, provide important data to better understand key aspects of the structure and dynamics of these charges. Thus, the comparison of the charges made in the form acquired by the sports athlete to consider, indirectly, the effects of training. The constant measurement and analysis of workload permits its optimization and individualization for the athlete. The analysis of the athlete's performance could be due to the use of Method RACTE - Registration and the Analysis of Load Training, which uses the Software Tre-Ob proposal and assist in the systematization and control of training load. This classification is done with the record of work and, eventually, its organization by means of that software that enables the evaluation of a comprehensive and integrated all the parameters of workload, showing the training records collected, raising the characteristics of loads used, classifying them as to their participation in the full period of training. The training loads are sorted and distributed in three types of preparation (General, Directed and Specific) and five levels of intensity (Maintenance, Aerobic, Mixed Anaerobic lactic and Alactic Anaerobic), with reference to the duration of the effort. A certificate of training control and used to record loads of training.

With this method identifies the duration of the activities envisaged, the intensity levels of the charges, the temporal distribution of loads and the means of training most commonly used in various stages of preparation. For this instrument, the data collected are systematic and organized, with charts and tables that let you explore the training process, enabling the evaluation of the parameters of the applied loads in the training.

KEY-WORDS: Discus Throw, load training, recording and analysis of training.

MÉTHODE D'ENREGISTREMENT ET ANALYSE DE LA CHARGE DE LA FORMATION POUR LE LANCEMENT DU DISCO

RÉSUMÉ

Le contrôle et l'analyse des effets successives des différentes charges de d'instruction, en fonction des indicateurs afférents les plusieurs étapes de préparation, fournira des données importantes pour connaître certains aspects fondamentaux de la structure et dynamique de ces charges. De ce manière la comparaison des charges réalisée avec la charge forme sportive caquis par l'athlète permet examiner, de manière indirecte, les effets des instructions. La constante mesure et l'analyse de la charge d'instructions permet sa optimisation et individualisation pour l'athlète. L'analyse de la performance de l'athlète pourrait être due à l'utilisation de la méthode RACTE – Enregistrement et analyse de la charge de la formation sportive, qui utilise le logiciel Tre-Ob, à qui proposition est auxiliaire dans la systématisation et contrôle de la charge de la formation. Cette systématisation se fait avec de enregistrement de travail accompli et plus tard son organisation à travers du logiciel dans qui facilite une évaluation de manière globale intégrer le groupe des paramètres des charges de la formation systématisant les enregistrements de la formation soulever les caractéristiques des charges usages, les classer avec rapport à sa participation dans la durée totale de la période de la formation.

Las cargas de la formación son clasificadas y son distribuidas en tres niveles de preparación (General, a Adresado e específico) y cinco niveles de intensidad (mantenimiento, aeróbico, mixto, anaeróbico láctico y anaeróbico aláctico), et il ya a como referencia los tiempos de duración de l'effort. Un dossier de contrôle de formación est utilisé pour inscripción des charges de la formación. A través de cette méthode il identifi la durée des actividades prévues, los niveles de intensidad des charges, la distribución temporal de las cargas y los medios de formación más utilizados en diversas etapas de preparación. Por este instrumento, los datos recogidos son sistematizados y organizados, con gráficos y tablas que permiten explorar el proceso de formación, lo que permite la evaluación de los parámetros de las cargas aplicadas en la formación.

MOST-CLÉS: Lancement du disque, charges de d'instruction, d'enregistrement et analyse de la charge de la formation.

FORMA DE REGISTRO Y ANÁLISIS DE CARGA DE FORMACIÓN PARA EL LANZAMIENTO DE DISCO

RESUMÉN

El control y el análisis de los efectos de diferentes cargas de entrenamiento sucesivos, en base a los indicadores de las diversas etapas de preparación, proporcionan datos importantes para comprender mejor los aspectos clave de la estructura y la dinámica de estos cargos. Así, la comparación de los cargos hechos en la forma adquirida por el atleta de deportes a que, indirectamente, los efectos de la formación. La medición y análisis permanente de los permisos de carga de trabajo y optimización de individualización para el atleta. El análisis del desempeño del atleta podría deberse a la utilización del método RACTE - Registro y análisis de la carga de entrenamiento deportivo, que utiliza el software de Tre-Ob propuesta y los ayuda en la sistematización y control de la carga de entrenamiento. Esta clasificación se realiza con el registro del trabajo y eventualmente, su organización por medio del dicho software que permite la evaluación de un amplio e integrado de los parámetros de la carga de trabajo, mostrando la formación de los registros recopilados, y el aumento de las características de cargas utilizadas, clasificándolos en cuanto a su participación en la totalidad del período de formación. Las cargas de entrenamiento se clasifican y se distribuyen en tres tipos de preparación (generales, direccionados y específicos) y cinco niveles de intensidad (Mantenimiento, Aeróbico, Mixto anaeróbico láctico y anaeróbico láctico), con referencia a la duración del esfuerzo. Un certificado de control de la formación para determinar las cargas de entrenamiento. Con este método se identifica la duración de las actividades previstas, los niveles de intensidad de las cargas, la distribución temporal de ellas y los medios de formación más utilizados en diversas etapas de preparación. Por este instrumento, los datos recogidos son sistematizados y organizados, con gráficos y tablas que permiten explorar el proceso de formación, lo que permite la evaluación de los parámetros de las cargas aplicadas en la formación.

PALABRAS-LLAVES: Lanzamiento de Disco, carga de entrenamiento, registro y análisis de carga de formación.

MÉTODO DE REGISTRO E ANÁLISE DA CARGA DE TREINAMENTO NO LANÇAMENTO DO DISCO

RESUMO

O controle e a análise dos efeitos sucessivos das diferentes cargas de treinamento, partindo dos indicadores referentes às diversas fases de preparação, fornecem dados importantes para conhecer melhor alguns aspectos fundamentais da estrutura e dinâmica dessas cargas. Desta forma, a comparação das cargas realizadas com a forma esportiva adquirida pelo atleta permite analisar, de maneira indireta, os efeitos dos treinos. A constante medição e análise das cargas de treinamento permite sua otimização e individualização para o atleta. A análise do desempenho do atleta poderia se dar pela utilização do Método RACTE - Registro e Análise da Carga de Treinamento Esportivo, que utiliza o Software Tre-Ob, cuja proposta é auxiliar na sistematização e controle da carga do treinamento. Esta sistematização é feita com o registro do trabalho realizado e, posteriormente, a sua organização através do referido Software que possibilita uma avaliação de forma global e integrada o conjunto dos parâmetros das cargas de treinamento, sistematizando os registros de treinamento coletados, levantando as características das cargas utilizadas, classificando-as quanto à sua participação na duração total do período de treinamento. As cargas de treinamento são classificadas e distribuídas em três tipos de preparação (Geral, Direcionada e Específica) e cinco níveis de intensidade (Manutenção, Aeróbico, Misto, Anaeróbico Láctico e Anaeróbico Aláctico), tendo como referência o tempo de duração do esforço. Uma ficha de controle de treinamento é utilizada para registro das cargas de treino. Através deste método identifica-se a duração das atividades previstas, os níveis de intensidade das cargas, a distribuição temporal das cargas e os meios de treinamento mais utilizados nas diversas fases de preparação. Por este instrumento, os dados coletados são sistematizados e organizados, apresentando gráficos e tabelas que permitem analisar o processo de treinamento, possibilitando avaliar os parâmetros das cargas aplicadas no treinamento.

PALAVRAS-CHAVES: Lançamento do Disco, carga de treinamento, registro e análise do treinamento.

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