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Original article

Muscle training adapted to the current game of rugby

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Abstract

Aim. The aim of this study was the moment of departure for a regional adoration of the muscle training of rugby players.

Methods. The study was conducted on a sample of 23 subjects, coaches, mostly with license obtained from university studies. The activity of the participants' subjects takes place in Constanta county. Prior to conducting and applying the questionnaire, discussions were held and were trained so that the choice of response options to show to the greatest extent and objectively the reality in which we operate. The method of study used was the questionnaire.

Results. Comes to attention an important stage in our opinion, the task of the coach who must plan, schedule and write down the results obtained by the athletes, analyze the progress then design the next stages of training correlated with the data recorded in previous workouts. We find that only 4%% recorded the athletes executions in muscle training workouts, inadmissibly low in our opinion, because of the execution mistakes were not corrected in time. We consider that biomechanical analysis is an important tool that few coaches manage to understand and use it efficiently.

Conclusions. Setting well-defined and realistic goals, depending on the starting point (the initial condition of the players/player), which can be achieved until the end of the training session, the final of the preparation week and until the final of the preparation stage, represents a goal assumed by the participants in this study. The study shows a real challenge regarding how to structure a relevant training plan and what needs to be taken into account so that the physical trainers and trainers can be as efficient as possible.

Keywords. sports performance, strategic thinking, update.

Introduction

The complexity of modern rugby requires multiple physical demands and diverse demands depending on the positions. Some stations have the condition to hold a higher aerobic capacity, this necessity being a priority, the anaerobic capacity passing on the secondary level a good example would be the players with numbers 9 and 10. There are also stations where the anaerobic capacity is very important and the aerobic capacity represents the second priority, as is the case of the players piliers, carriers of numbers 1 and 3, (Till, K., Jones, B., McGeecham, I., Sinfield, K. and Peacock, J. 2015). Over time, rugby has been and is one of the sports that have changed the most. The players became more massive, faster, stronger. The percentage of muscle mass increased and the percentage of fat decreased (Sedeaud, Adrien, et al. 2013). The complexity of the game, the intensity and the number of contact moments has increased considerably in the last decade. An academic study estimated that the measure of the average impact of a high-level rugby match today is equal to the measure of the impact of a serious car accident, with some positions bearing greater wear than others (Usman J, McIntosh AS, Frechede B.2011). The importance of muscle training is obvious when we want to grow big players, fast, strong and with proper training, which reduces their chances of getting injured. We believe that a constant adaptation of training programs is necessary in rugby, a sports discipline that is among the sports that have evolved the most and the fastest. In about 40 years, the average weight of players at the highest level increased by 20 kilograms (Brazier Jon et. 2020). Of course, the first thing we can think of is that rugby has become slower, having more massive players, but it is not so, on the contrary, the game speed has increased, the impact intensity is the same, the push force in piles the same, the number of contacts at the highest level has almost doubled (Fuller CW, Sheerin K, Targett S.(2012). In this context, in a sport so complex, with so many different stations, a realistic question that we have to ask ourselves is whether we can develop a suitable and efficient training program, so that the team will benefit? We see that there are multiple approaches and visions of this concern among coaches. For example, in the northern hemisphere (France, England, Italy, Wales, Ireland), a training system is often practiced in which a classical period

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of physical training is performed: for example, muscle training, divide into hypertrophy, maximum force, conversion to power, maintaining power. In the southern hemisphere (New Zealand, South Africa, Australia) has begun in recent years to spread more and more a hybrid type training, that is: in the precompetitive period, one element is prioritized, for example hypertrophy for a certain period, but without neglecting the other elements, the maximum force and the explosion, but only go into the background. At this point we must realize the importance that training must be adapted to the requirements of sport. Modern technology, capable of measuring blood lactate, GPS technology, capable of measuring the total distance, average speed, maximum speed, etc., traveled by each player during training or matches, technology capable of measuring the players' pulse during training and matches, all of these created the premises of developing strength and conditioning concept, meaning strength and physical training or, in short, muscle training. Since rugby in the XV has advanced from amateur sport status to professional sport status, the actual playing time in which the bubble is played has increased considerably, from 31% of total playing time in 1991 to 44% of total playing time in 2011 (Pollard, B., Turner, A.N., Eager, R., Cunningham, D (2018). Current values of anthromometric parameters show this change by comparing the weight of the titular centers in 1987 and 2019. In the first World Cup that saw New Zealand and France align their players against each other, the following players began: Warwick Taylor and Joe Stanley, Denis Charvet Patrice and Philippe Sella. The average weight of the 4 is 81.75 kg, the average weight of the 2 New Zealand centers is 81 kg, and of the 2 French 82.5 kg. At the last World Cup, in 2019, the average weight of the four finalist centers of England and South Africa is 99.5 kg (almost 20 kg difference). England's champion Eddie Jones sent out the toughest combination of centers in World Cup history, averaging 102kg, of course, with Manu Tuilagi's help, weighing 112kg, which was unsurprisingly the toughest center in a World Cup final. The South African pair of centers consisting of Damian de Allende and Lukhanyo Am weighed, on average, 97 kg.

The constant need to adapt muscle training using the conclusions and discoveries of several studies is directly correlated with sports performance. The information provided by this study is intended to serve physical trainers and trainers to help them develop relevant programs adapted to current game rugby and the requirements and needs it requires. For rugby performance, physical characteristics of players participating in different levels of competition that are considered important, such as anthropometry, speed, muscle strength, power and aerobic capacity, are essential. The maximum physical demands, high intensity efforts (for example, heart rate), are the requirements of the effective game with a high capacity of land cover in the attack phases but also those of defense or doubling in defense. The most commonly used strength tests in rugby are squat with the rear bar, for the lower train and the push with the bumper for the upper train, while the vertical jump is the standard strength test. In general, the ancestors have an absolute force greater than the players in the three-quarter line (Argus C., Gill N.D., Keogh J.W.L. 2011). . We will use the term - high intensity running, the definition of Rugby in XV namely we will call high intensity running any sequence of running at speed higher than 18 km/h (Gabbett, T., Stein, J., Kemp, J. and Lorenzen, C. (2013). The differences between the ancestors and the three quarters are, first of all, the result of the difference between the roles of the two classes of players, of which three quarters have been proven to have to sprint several times, over longer distances, while the ancestors spend more time in static effort situations, such as ordered heaps, moths, their frequent participation in spontaneous heaps. This paper recommends, based on the results, the updating of those who are involved in the training and training process. Training with juniors' weights, correct dosage of workouts and effective recovery, speed and agility, short and intense workouts, but also long and low and medium intensity workouts, must be present in the annual training programs. It is necessary to understand the fact that a training performance for our players can cope and rise again to the highest level, where our country boasted decades ago. The harsh reality of the results of Romanian rugby on the international stage in the last 20 years, more precisely, increasingly poor results on the European level, at the level of tier 2, the ceding of the territory in front of Georgia, almost non-existent victories in front of the Tier 1 nations should seriously make us think and awaken in us a deep desire for improvement, research, work and long-term plans, restructuring not for 1 year, but for 5, even 10.

Methods

This study was conducted on a sample of 23 subjects, coaches, mostly with license obtained from university studies. The activity of the participating subjects takes place in Constanta County, both at the level of junior players, but also at the senior teams. Prior to conducting and applying the questionnaire, discussions were held and they were trained so that the choice of response

options to show to the greatest extent and objectively the reality in which we operate. The method of study used was the questionnaire. His conception was attended by specialists from the field, with experience in training rugby players, but also specialists in sports training. The experiment aims to reveal the opinion and vision of the coaches, with or without notable experiences gained in various sports activities or in the preparation of rugby teams. The answers provided by the participants whose professional and personal experiences had the opportunity to statistically significantly influence the result of our research, contributed to a more objective picture of the moment. The questions were sent through an application to the target group, each participant being able to vote only once. The form in which the survey was completed was based on one of the products in the format provided by Microsoft, forms-office. In this form, the subjects received a link that they accessed, they instantly received the question and all the proposed response options. Subjects chose a single response, centralizing all responses and providing a graphic artwork by Microsoft.

Results

The questions of this questionnaire, an important part of this study presents the approach of muscle training realized by the field's specialists, as much as possible, correlated with the facilities and capabilities of the sports clubs in which the rugby teams are being prepared. So, for - Question number one - Do you prepare muscle for at least three weeks without interruption? four response variants have been configured. The answer one version - yes 6%, we find that a very small percentage of the number of coaches involved in this study achieves at least 3 weeks of muscle training in a year. Answer two - no 25%, completes the answer version number three. Next variant - answer three - yes sometimes 0% and last variant - answer four - we do, but not three weeks 69% (fig.1), confirm that there is great potential among rugby players in the area subject to this study.

Graphical representation for question number one

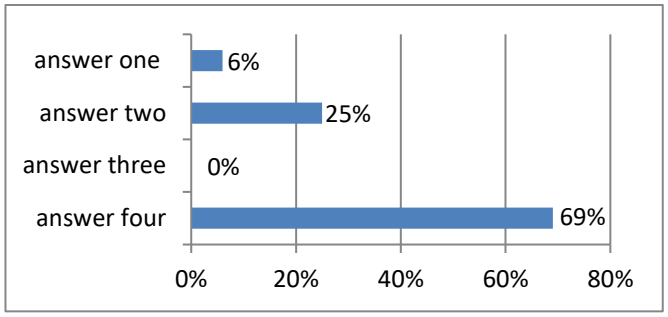

Fig.1

The second part of the study addresses those who are involved in the player's jugby training - Question number two - Do you use simple exercises (squats, pushups) or compound exercises? For the first answer - I have access to the gym during the 11% preparation period, we find that there is a difference between the first variant of the answer from the question number one where 6% do muscle training throughout the year, given that 11% have the opportunity to prepare the muscles, due to the facilities or access in the gyms for training. Answer two - I have access to the gym anytime 29%, confirm the need to equip all rugby teams with the basic equipment necessary for muscular training (Fig.2). Answer three - I do not have access to the gym during the preparatory period 19%, brings attention to a cause much discussed in the last decade. The high percentage of injuries is mainly due to a much less muscular training present in the early stages of rugby players. The last answer option - answer Four - I do muscle training only on the field 41%, it can explain the smaller results of the rugby teams, but if specialists consider that muscle training is a priority and can bring the expected results, there is an optimistic horizon.

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Graphical representation for question number two

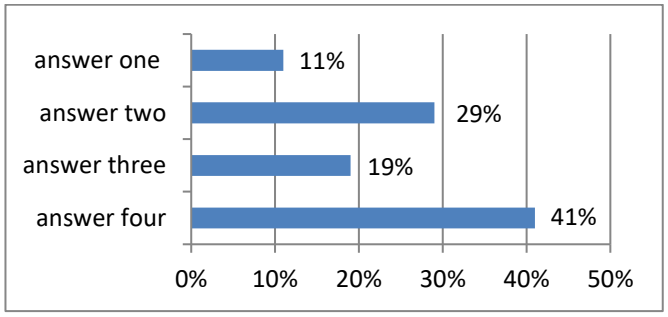

Fig.2

Question number three - When doing muscle training...(multiple answer possible), brings to attention an important stage after our appearance, the task of the coach who must plan, schedule and write down the results obtained by the athletes, analyze the progress then design the next stages of preparation correlates with the data recorded in previous workouts. We find that - answer one - record your workouts 4%, inadmissibly low percentage in our opinion, because of this the execution mistakes have not been corrected. We consider that biomechanical analysis is an important tool that few coaches manage to understand and use it efficiently. Answer two - register the values and exercises used 12%, does not encourage us to hope to increase the level of understanding the importance of muscle training in the near future. For answer three - i do not record or keep training data 22%, correlates with 69% of coaches who do not have a scientifically planned muscle training program (fig.3). Answer four - i have a training plan on compartments and custom for players 31%, shows that training facilities and facilities have a direct and beneficial influence on the involvement and, of course, on the results obtained by coaches and their teams. The last version of these questions - answer five - i work on exercises that i consider useful 31%, remains in the area represented by those trainers who have a resistance to adaptation or hardly accept the completion of known programs with new techniques of muscle training.

Graphical representation for question number three

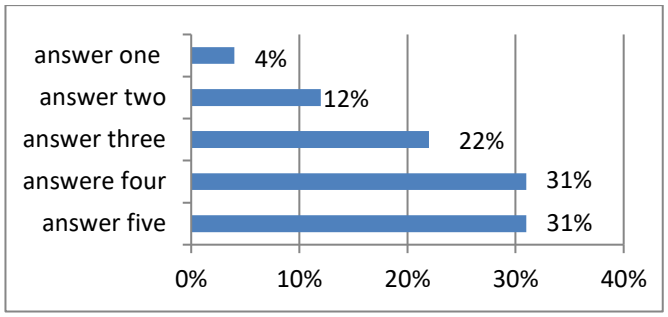

Fig.3

Question number four - Do players use a food program adapted to age, needs and peculiarities of the training program? First Variant Response - answer one - during the whole year 41%, this percentage makes us think that there are coaches who are wanting to use scientific means to get results. The other response variants are 59%. The answer that shows that there are still many teams that do not prepare in optimal conditions - answer two - never, because it is not possible 24%, indicates at least two problems, endowment or vision coach. Minority of those who consider that customized preparation on compartments is not necessary - answer three - never, because it is not necessary 6%, can be explained by misunderstand the meaning of the question. Preparation stages in the intercompetitive period - four answers -, sometimes in winter 6%, remain to represent the only muscle training period during the year.

The reduced possibilities of many systematic and compartmentalized training teams in a single period of centralized preparation, winter or summer is confirmed by - answer five - very, sometimes in summer 24% (fig.4).

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Graphical representation for question number four

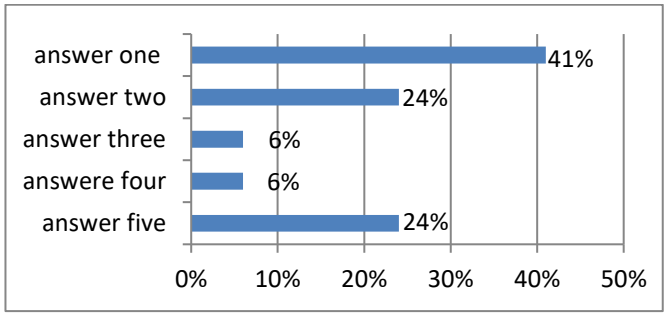

Fig.4

The last question of the present study, completes the question number four and has equal importance in our opinion with previous question. So - Question number five - Do you use nutritional supplements? Answer one - never, they're toxic 18%, brings surprisingly a large percentage of those who confuse, hopefully, nutritional supplements with harmful substances or perhaps with those contraindicated to performance sports. Varinats two and three summed up - answer two - very rare 64%, si - answer three - quite often 18%, produce a result of 82%. High injury rate, modest muscle development but perhaps most importantly, prolonged recovery time are consequences of incomplete nutrition and lack of nutrient intake brought through supplements, correlated with the mophological type with the particularities of the post in the team, the period during the year, the proposed objectives. Answer four - permanent 0%, confirms that modest financial resources and maybe a reduced involvement of the responsible can explain partial achievement (Fig. 5) of the performance objectives assigned at the beginning of a training cycle and competitional default.

Graphical representation for question number five

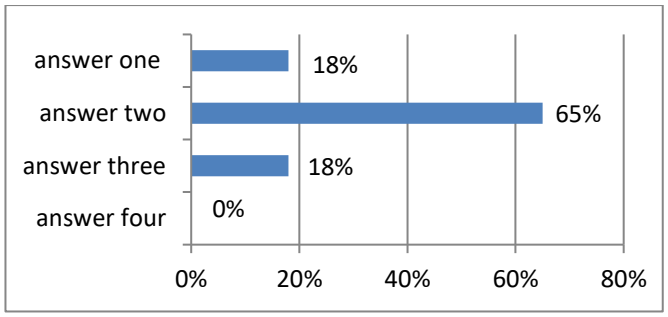

Fig.5

Conclusions

The obvious and undeniable changes in the game mechanics, imposed a strong change in the way players are ready, so that they can meet the requirements of the current game, but can do it in the most efficient manner, being trained not only for performance, but also to achieve it constantly and long term, this imposing a training mode that reduces the chances of injury. The study shows a real challenge regarding how to structure a relevant training plan and what needs to be taken into account so that the physical trainers and trainers can be as efficient as possible.

The new technical devices used in the performance sport, thus GPS monitoring used to measure the absolute and relative values of the distances traveled, with special attention on high intensity running (speed more than 18 km/h) to monitor the daily, weekly and during the pre-competitive, inter-competitive training period, become absolutely necessary starting from the junior players. Last but not least, monitoring the effort made during matches within professional teams, in order to reduce overtraining, by using digital programs correlated with regular tests. Video analysis of the movements during training, monitoring the number of contacts and their intensity during matches and training, becomes condition in technical and tactive evolution. All this must be introduced at every level, from amateur to professional, to seniors, but also juniors starting with 15 years. The study shows that workouts must be structured according to the needs of the positions, which must be introduced and improved: forwards must be trained in such a way that they are

capable and efficient to perform in a high frequency of contact and collision situations, while players in the three-quarter line must be able and efficient to perform in a high frequency of high intensity running situations over different distances. The correct interpretation of repetitive high-intensity sequences has the potential to assist in preparing rugby players for the competition. It is recommended to use an increased number of combinations of activity phases coupled with minimum numbers of recovery sequences in the development of job specific tests. Setting of well-defined and realistic goals, depending on the starting point (the initial condition of the players/player), which can be achieved until the end of the training session, the final of the preparation week and until the final of the preparation stage (for example, the accumulation of 2 kg of muscle mass until the completion of the 4 weeks of hypertrophy). Depending on these purposes, structuring a relevant and effective training program to produce the desired effect and lead to the achievement of these goals.

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