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ORIGINAL

TRAINING HABITS OF YOUNG INTERNATIONAL ELITE MOTORCYCLISTS

HÁBITOS DE ENTRENAMIENTO EN JÓVENES PILOTOS DE MOTOCICLISMO DE ÉLITE INTERNACIONAL

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ABSTRACT

Nowadays it is known that training is essential to reach high levels of sports performance. The aim of this study is to analyze the training habits of 27 young motorcyclists of international elite through a questionnaire they answered. There are a high percentage of pilots who do not perform specific and systematic physical training programs to develop strength and resistance according to the physiological demands that take place during competitions,

neither compensatory exercises nor stretching as a way to prevent injuries and to improve physical health. Generally, the results lead to sugest that such training habits are reviewed and adapted to the field of motorcycling in order to reach a better performance.

KEY WORDS: Training, Young, Motorcycling

RESUMEN

En la actualidad nadie discute que para alcanzar altas cotas de rendimiento deportivo es imprescindible el entrenamiento. El objetivo de este estudio ha sido analizar los hábitos de entrenamiento de 27 jóvenes pilotos de motociclismo de élite internacional a través de un cuestionario. Existe un elevado porcentaje de pilotos que no realizan programas específicos y sistemáticos de acondicionamiento físico, tanto en el trabajo de fuerza como de resistencia, en función de las exigencias fisiológicas que se producen durante la competición, así como ejercicios compensatorios y estiramientos, como medio de prevención de lesiones y mejora de la salud física. En general, los resultados muestran cómo dichos hábitos de entrenamiento deberían ser revisados y adaptados al contexto motociclista para poder beneficiarse en mayor medida de sus efectos.

PALABRAS CLAVE: Entrenamiento, Jóvenes, Motociclismo

INTRODUCTION

There is a large number of scientific evidences about the importance of sports training in order to obtain better sports results. To be in shape for the competition is the result of an appropriate training process previously planned and controlled with suitable training loads for the sport and the sportsman (Mujika, 2009; Issurin, 2010).

The information available related to motorcyclists speed training habits is limited even though its importance in training to optimize the sports performance in any field. Therefore, there are more and more World Cup pilots who have physical trainers within their technical team in order to help them with their training programs. However, the scarce scientific knowledge about physical training makes the trainers follow their intuition and common sense in too many occasions. Nevertheless, although there are a lot of pilots who count on the help of a trainer, not all of them follow the same training patterns, but they choose different training methods and resources. Therefore, it is essential to know their training habits in order to be able to establish new patterns to improve them if necessary, according to the current training fundaments. In addition, a training program is a progressing process which requires an organized and systematic way of working from the beginning in order to

continue improving and expanding their achievements in the future. (Vaevens et al., 2009; Henriksen et al., 2010; Armstrong & McManus, 2011).

The aim of this study is, therefore, to know the contextual training habits of the best young motorcyclists in the world in order to establish appropriate patterns for each context.

METHOD

INDIVIDUALS

A sample of 27 motorcyclists (15.3 ± 1.11 years old) was analyzed during Red Bull Moto GP Rookies Cup official training sessions, which took place the 2nd and 3rd of May 2009 in the Jerez Race Track (Spain).

In the *Red Bull Moto GP Rookies Cup* the 27 best young motorcyclists in the world compete. They are chosen after a rigorous process of screening and talent selection carried out by DORNA (organizer of the Motorcycle World Championships) and Red Bull (the sponsors), in different places of the world, amongst 1100 sportsmen from 60 different countries. The final sample comprised a total of motorcyclists from 15 different countries of the 5 continents.

MATERIAL AND METHODS

The data collection tool was a modified questionnaire used by Sánchez & Gómez (2008) to study basketball training habits.

The questionnaire was modified and adapted by qualified experts to the motorcycling level and context. The structure was respected, but some questions were removed and some others specific to the population addressed were added, having as a result a total of 18 questions.

Twenty young pilots from Andalusia were selected for the sample. Two different methods were used to ensure reliability: test-retest (reliability: repeatable or in agreement) with a Parson correlation coefficient of 0.91 (after 7 days) and a Cronbach's alpha of 0.89 as the mean value of the items

Researchers explained the questionnaire in detail to each individual, and they were also available at any time in case of doubt. The aim of the questions was to know the particular situation of the following aspects:

- Who directs their physical condition training
- What part of their training is dedicated to this field
- What means and methods they used in their training

These questions were arranged in sections depending on the variable, from general to specific, in order to make them clear and to avoid misunderstandings.

The SPSS versión 15.0 (Chicago, IL, USA) was used for the statistical analysis of date, calculating descriptive statistics.

RESULTS AND DISCUSSION

The results obtained in our research show that 88% of the pilots consider that an appropriate physical training is essential for the better performance during competition. However, the fact that only 27% of the pilots have a personal trainer who directs their training program is surprising. An appropriate contextual interpretation of the factors that affect sports performance and of how to regulate them in order to ensure a systematic progression depends directly on the trainer's ability (Bompa & Haff, 2009; Mujika, 2009; Issurin, 2010). Therefore, it is important to count on a professional with the appropriate qualification to be able to handle this process, since both the sportsman's health and sports performance depend on it, and also because that would teach the sportsmen how to train and develop their sports abilities.

Regarding the number of days established for physical training depending on the seasonal period, it is surprising that during the preparatory period pilots have 4.75 ± 1.29 sessions, while during the competition period they have 3.75 ± 1.52 sessions. As a result, we consider that the decrease of 1 session is thought in order to favor more specific work in the motorcycle, which is also influenced by the competition calendar. This decrease is therefore reasonable and it fulfills the principle of Specificity of Training. However, the importance given to physical training is obvious, so even if they do not have the chance of training in a circuit as frequently as they would like, they should do it through other non-specific means. 70% of the pilots have between 4 and 5 days of physical training per week during preparation period, which is important because, if it is appropriate, it will help the organism to adapt its needs for a better performance. On the contrary, during competition period these sessions focused on developing the physical condition are reduced. This seems reasonable if we bear in mind the competition calendar. This aspect is important since during this seasonal period specific training requires more attention in order to obtain better sports results (Verjhosansky & Siri, 2000; Bompa & Carrera, 2005; Mujika, 2009; Issurin, 2010). Despite this fact, there are still more hours for physical training among the young pilots that among the basketball players of the same age analyzed by Sánchez & Gómez (2008), who only trained 3 days a week, since they considered insufficient the time they need to recover from session to session and they believed it could provoke injury risk due to muscle fatigue.

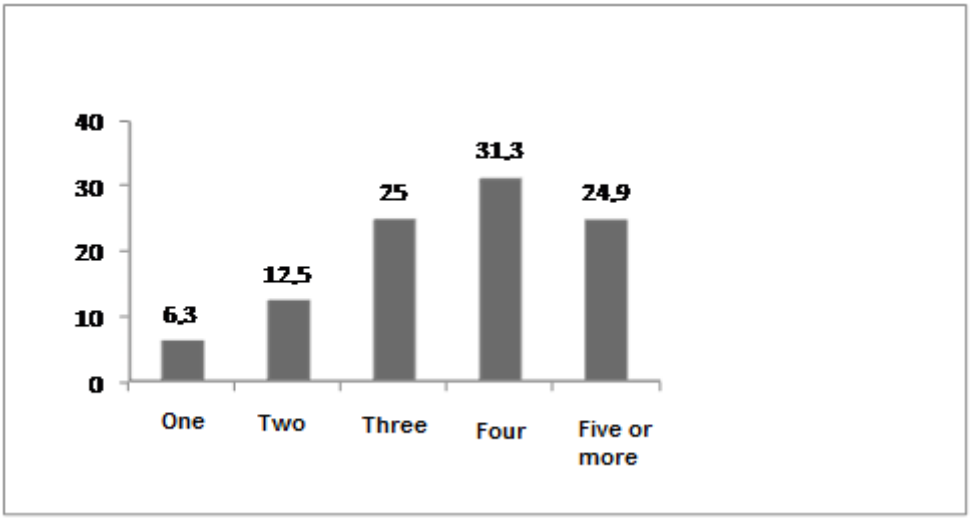

Fig. 1. Days of physical training during competition period (%).

There are 5.20 ± 2.42 sessions during the preparation period while there are 4.40 ± 2.82 during the competition period. In addition, there are 8.00 ± 2.39 hours dedicated for the physical training during the preparation period and 6.87 ± 2.82 during the competition period. As a result, we could affirm two points: 1) the number of training sessions is reduced when the competition period starts; 2) the hours dedicated to such work continue with the same dynamics and the standard deviation shows that there are pilots who train considerably more than others.

The 5.20 physical training sessions suppose 74.28% of the total work, while the 4.40 non specific sessions during the competition period suppose 44.44% of the total work. These values show that during the preparation period the non specific training load is very high probably due to the material and/or economic difficulties this sport involves. It is recommended that during the preparation period the specific work in the circuit is gradually increased, even though at these ages the material and physical determinants are decisive.

As far as the physical abilities training is concerned, the following figure shows the percentage of the sample that train the strength, resistance and range of motion abilities.

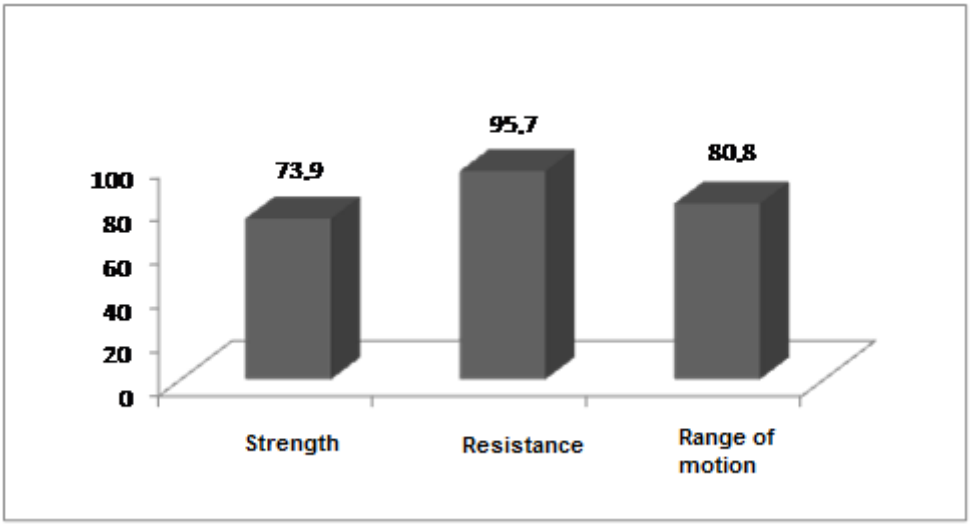

Fig. 2. Training Strenth, Resistance and Range of motion abilities by pilots (%)

74% of the sportsmen have strength training sessions, but only 65% of them have those 3-4 days a week, which would cause a better training effect. The best training frequency (number of sessions per week) depends on several factors such as volume, intensity, level of physical condition of the sportsmen, recovery and the number of muscled trained in each session. However, generally the best frequency recommended to develop strength is 3 days a week (Rhea et al., 2003). It is curious that neither Speed nor Agility, not even in non-specific exercises, is mentioned. Speed may be justified since race or other type of means may seem not useful for motorcycling; however, speed is important for exercises that improve the pilot's quick movements in different means, not only on the motorcycle.

In the following figure there are shown the most common means for strength training which pilots use to develop this ability.

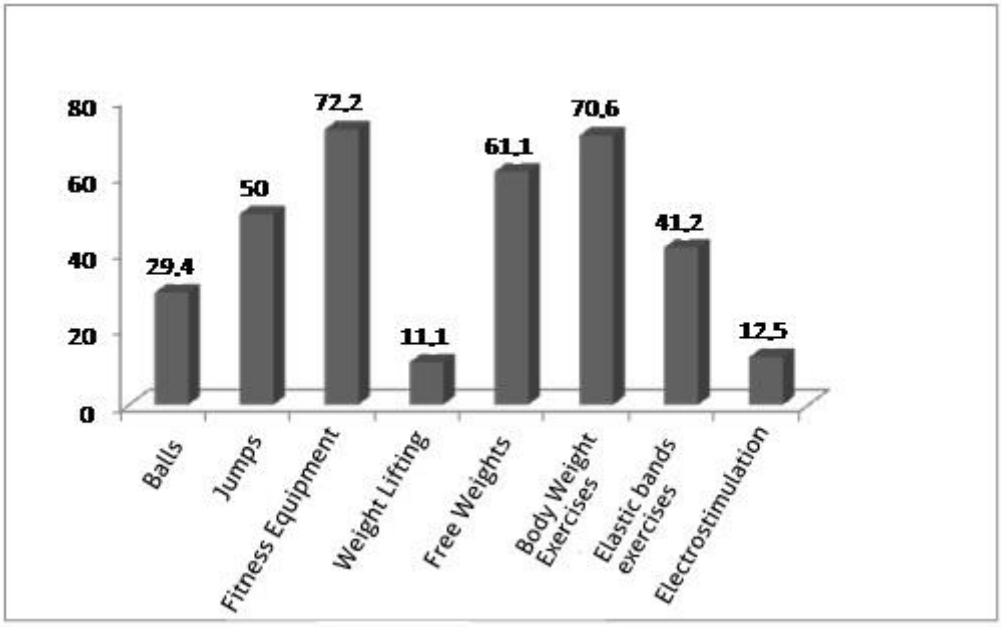

Fig. 3. Means used for strength training exercises (%).

As it is shown, body weight exercises and fitness equipment are the most used to develop strength followed by free weights. Exercises which use weight lifting are more and more recommended as healthy means to develop strength (Kraemer & Ratamess, 2004). However, apart from a few complementary or compensatory exercises (such as hamstring strengthening exercises), in order to improve their performance, sportsmen must use exercises based on free weights, favouring the use of proprioceptive and balance mechanisms. This way of training guarantees the participation of a great number of muscles and helps the coordination and kinesthetic control as well as strengthening muscles and connective tissues (González-Badillo & Ribas, 2002). We believe that free weights should be, although they imply a greater technical difficulty, the best option to train strength. However, there is a great variety of means, which is positive since it favors the principles of variety and variability during training sessions. It is surprising that none of the pilots used unstable training means, such as Bosu Balls or TRX amongst others, since they may optimize the development of strength with traditional means and they would also provide a functional improvement of the main muscles (Hibbs et al., 2008; Behm et al., 2010; Sharrok et al., 2011). Therefore, the performance on the motorcycle will depend on the pilot's physical condition, so we suggest functional training, especially the one focused on the core region, which seems essential for motorcyclists.

It is also remarkable that none of the pilots use Whole Body Vibrations Plates; only 12.5% of them use electrostimulation. Training with mechanical vibrations may have a large number of applications both in the sports field and in the prevention and rehab of injuries (Da Silva et al., 2006; Hoyo et al., 2009), the latest very common in motorcycling due to falls during training sessions and competitions. Vibration training can be used as additional or alternative training, especially for injury rehabs. Whole Body Vibration Plates can be a good

complement or alternative to other training means due to their easy use and the little time required to obtain good results (Cochrane, 2011).

Regarding resistance, 95% of the pilots say they train to develop this ability; 70% of them have 3-4 sessions per week only focused on improving their resistance. They use mainly bicycles and foot races (95% and 80% respectively). 60% of the pilots who use foot race to develop resistance perform it between 30 and 60 minutes. 61.5% of the pilots who use bicycles they last more than an hour. In this kind of work that implies a large group of muscles the method followed is the continuous one with constant or variable rhythm (Fartlek), since several times they train following their intuition and none of then recognized using intervallic methods or series.

This kind of training acquires a great importance because studies made by González & Alvero (2003) and D'Artibale et al. (2007) show how it is a sport with high heart rates and which develop intensive aerobics resistance. Therefore, these results show that motorcycling races imply a huge resistance of pilots, who should have an appropriate training to keep high speeds during the race and to decrease the tiring effects during competitions (D'Artibale et al., 2008)

Regarding the range of motion, 80% of the pilots from the sample usually work on it, but only 50% of them do it every day. It is important both to work on the range of motion and to do it with the adequate and needed stimulus, always being constant with the training (Rogríguez & Moreno, 1997; Gleim & McHugh, 1997).

Another interesting factor within pilots' preparation is specificity and transfer, essential for any sportsman's training. In fact, 70% of the pilots use field bikes as specific training for competitions in racetrack. Along this line, Rodríguez et al. (2010) consider necessary to design specific training sessions focused on resistance with field bikes as means to develop the specific body condition for motorcycle racing. In fact, we highlight that the use of motocross or endure bikes supposes an overloaded training and the technique used with them is not useful for racetrack. In addition, it is important to notice that this overload should take place after unspecific means, such as race walk or swimming, drive way to mountain bikes, and afterwards to these more specific ones, although bearing in mind that their use carries an increase of injury risk and falls during the pilots' training sessions. This kind of training based on mountain bikes or, to a larger extent, on motocross or endure bikes, suppose a breakthrough in specificity, since they use both arms and hands to drive the vehicle and with muscle vibration implied.

73% of the pilots do not have compensatory exercises within their training, which seems surprising since the backbone suffers a great joint compression and intradiscal pressure due to the positions adopted on the motorcycle. Therefore, it is necessary to include compensatory exercises in the pilots'

training in order to improve in this aspect (Sainz et al., 2006; Lopez-Miñarro et al., 2009). This kind of exercises will be aimed to obtain a better stability in dorso-lumbar muscles, as well as all stabilizing muscles of the pelvis and the spine toning, especially trunk flexors (abdominal) and extensors (lumbar paravertebral). We must not forget that these pilots are in an important age to avoid spinal structures to become functional pathologies of the backbone and to acquire a healthy spinal muscles stretching and strengthening habit, indispensable for the performance in this sport in both the short and the long term (Sánchez-Muñoz et al., 2011). Once again to work with unstable platforms and to stabilize the core region could be recommended (Sharrock et al., 2011; Cochrane, 2011).

CONCLUSSION

Training strength is important not only to improve performance but also to obtain a faster recover from injuries. Therefore, the frequency of training this ability and the means and methods used during training sessions should be improved since they are below the recommended ones.

Resistance training should be based on the physiological demands during competitions as well as on the muscle contraction and muscles involved. Therefore, field bikes or mountain bikes can be a means for specific training, useful at the same time for competitions.

Pilots should include compensatory exercises using unstable platforms and developing the core region. In addition, they should include stretching into their training habits as a way to improve performance and to prevent injuries and improve their health.

Agility is another forgotten ability which does not receive the needed attention and there should be recommended compensatory development means with a methodology adapted to this aim.

Generally, there are a great percentage of young motorcyclists who do not follow directed, specific and systematic programs for physical conditioning. Therefore, the work focused on improving sports performance should include all these aspects.

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