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ALTERNATIVAS NÃO CONVENCIONAIS PARA PERDA DE PESO PARA ATLETAS DE WRESTLING

UNCONVENTIONAL ALTERNATIVES FOR WEIGHT LOSS FOR WRESTLING ATHLETES

ALTERNATIVAS POCO CONVENCIONALES PARA LA PÉRDIDA DE PESO EN ATLETAS DE LUCHA LIBRE

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Resumo

Um assunto bastante discutido e muito comum na vida do atleta de Wrestling assim como na dos atletas de esportes de combate, na busca de um melhor rendimento nas lutas, é a perda de peso. Portanto esta revisão de literatura tem como finalidade mostrar alternativas de perda de peso com o foco para atletas de Wrestling estudantes da High School (ensino médio) e também do College (ensino universitário) americano. Além de trazer alternativas isoladas, este estudo procura mostrar a combinação de algumas destas alternativas para um melhor resultado na hora da perda de peso, como por exemplo, a combinação de treinamento de alta intensidade com desidratação e com dieta. A rápida perda de peso (PRP) geralmente tem duração de três semanas ou menos, e é baseada em uma restrição severa na ingestão de alimentos, de líquidos, exercícios extenuantes, treinamento com roupas emborrachadas, utilização de saunas, indução de vômitos e, muitas vezes, a utilização de agentes farmacológicos como laxantes, estimulantes e diuréticos. Para uma curiosidade, em um estudo com 45 lutadores de todos os esportes de combate, alguns métodos de PRP se destacaram pela frequência de uso, bem como: corridas (91,1%), saunas (55,6%), roupas emborrachadas (48,8%), ciclismo (33,3%), nado (24,4%) e diuréticos (11,1%).
Palavras Chave:
Redução de Peso; Desidratação; Wrestling; métodos não convencionais

Abstract

A widely discussed and very common subject in the life of the Wrestling athlete as well as in that of combat sports athletes, in the search for a better performance in fights, is weight loss. Therefore, this literature review aims to show weight loss alternatives with a focus on wrestling athletes who are high school students and also college students. In addition to bringing isolated alternatives, this study seeks to show the combination of some of these alternatives for a better result at the time of weight loss, such as the combination of high-intensity training with dehydration and diet. Rapid weight loss (PRP) usually lasts three weeks or less, and is based on severe restriction in food intake, fluid intake, strenuous exercise, training in rubberized clothing, use of saunas, induction of vomiting, and often the use of pharmacological agents such as laxatives, stimulants, and diuretics. To be a curiosity, in a study with 45 fighters from all combat sports, some PRP methods stood out for their frequency of use, such as: running (91.1%), saunas (55.6%), rubberized clothing (48.8%), cycling (33.3%), swimming (24.4%) and diuretics (11.1%).
Key words: Weight Reduction; Dehydration; Wrestling; Unconventional methods

Resumen

Un tema muy discutido y muy común en la vida del deportista de Lucha Libre, así como en la de los deportistas de deportes de combate, en la búsqueda de un mejor rendimiento en las peleas, es la pérdida de peso. Por lo tanto, esta revisión de la literatura tiene como objetivo mostrar alternativas de pérdida de peso con

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un enfoque en los atletas de lucha libre que son estudiantes de secundaria y también universitarios. Además de aportar alternativas aisladas, este estudio busca mostrar la combinación de algunas de estas alternativas para un mejor resultado en el momento de la pérdida de peso, como la combinación del entrenamiento de alta intensidad con la deshidratación y la dieta. La pérdida rápida de peso (PRP, por sus siglas en inglés) suele durar tres semanas o menos, y se basa en una restricción severa en la ingesta de alimentos, la ingesta de líquidos, el ejercicio extenuante, el entrenamiento con ropa de goma, el uso de saunas, la inducción de vómitos y, a menudo, el uso de agentes farmacológicos como laxantes, estimulantes y diuréticos. Como curiosidad, en un estudio con 45 luchadores de todos los deportes de combate, algunos métodos de PRP destacaron por su frecuencia de uso, tales como: correr (91,1%), saunas (55,6%), ropa de goma (48,8%), ciclismo (33,3%), natación (24,4%) y diuréticos (11,1%).
Palabras clave: Reducción de peso; Deshidratación; Lucha; Métodos no convencionales

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1. Introduction

Rapid weight reduction (weight cutting) is a very common practice among American wrestlers in high school and college. Despite being a practice highly condemned by the American College of Sports Medicine. There was an Official Position on weight reduction in fighters in 1976, when there was an expressive manifestation with the publication of numerous scientific articles on the subject. This weight reduction involves exercise, passive dehydration through exposure to heat, in addition to food and fluid restriction.

In this review, the reduction of the volume of pre-competition training, and the improvement in the ability to maintain and recover energy during high-intensity exercises, are important strategies to be inserted in training, even due to the character of each competition, as many of them are disputed in just 1 day or up to 3 days, so they demand a quick recovery by the athlete, because there are many fights in a short period of time, demanding a lot physically from the athlete.

A point to be taken into consideration in this study are the rules used in international wrestling, there is a difference of 24 hours between the moment of the athlete's weigh-in (that is, the task of being in the weight to compete in the norms prescribed by their respective weight category) to the moment of the fight (United World Wrestling, 2025).

North American wrestling, on the other hand, adopts in its collegiate and amateur competitions, for example, an interval between weigh-in and fight (of tournaments specifically) of only 2 hours, and that is why many times, the focus for many athletes is on an accelerated reduction and recovery of weight for the fight, this protocol ends up influencing the athlete's performance, and they are different in international wrestling competitions.

Wrestlers who compete periodically tend to lose 9 to 13 percent of their body weight over the entire period of competitions. Often, teenage wrestlers start abrupt weight loss with a fat percentage between 8 and 11%, already below the average of the age group which is around 15%, with most reaching between 6 and 7%. However, some reach 3% of body fat (ACSM, 1999), this process will certainly cause damage to the endocrine system, which uses cholesterol molecules to produce steroid hormones.

2. Theoretical Framework

The abrupt weight reduction in collegiate wrestlers was frightening (2kg), in several cases they even reached above 2.7kg, happening in 20% of the wrestlers. According to Tipton CM, Tcheng TK (1969) and Tipton CM, Tcheng TK, Paul WD (1970), a highly significant number of High School wrestlers reported using this procedure more than 10 times per season. In order to ensure the health of these athletes, the American College of Sports Medicine (ACSM) has adopted recommendations of a minimum percentage of 5% fat for male wrestling athletes and 12% to 14% for female wrestlers. The reported surveys date back 55 years, however currently they are still frequent and deaths have already been

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described due to such artifices. In 1997, three collegiate level wrestlers died due to abrupt weight reduction.

After these occurrences, in 1998, the National Collegiate Athletic Association (NCAA) determined a minimum body fat amount of 5% for athletes to Gender could compete. And the National Federation of State High School Association (NFHS) has recommended a minimum threshold of 7% for High School wrestlers (teenagers) and 12% body fat for female wrestlers.

In other sports, we found reports by authors who describe that there is no interference in sports results. As for example, we found in Watson *et al.* (2005) the use of diuretics induces dehydration (a body mass reduction of 2.2%) report that this protocol did not result in a significant reduction in vertical jump height of 50, 200, or in former sprint athletes (400 m) in running speed. We also saw in Hoffman *et al.* (1995) informing that dehydration in 2% of body mass did not have a significant change in squat-jump performance, in the result in the countermovement jump tests, or in anaerobic power on professional basketball players.

Bigard *et al.* (2001) reported in their study that the dehydration induced by 2.95% in the body mass using the sauna as a resource, did not result in a decrease in the maximum isometric strength of the athletes analyzed, but the fatigue time went from 25% of maximum voluntary contraction to 23% (195-150 s), representing a reduction. Considering fatigue time at 70% of the maximal voluntary contraction, it was not a significantly affected change (45 s). According to Gutierrez *et al.* (2003) rapid weight loss also through sauna dehydration of 1.8% in men and 1.4% in women did not result in significant effect on standing jump in men, but for women, house did a significant change in measurement. In addition, neither maximal strength nor handgrip strength of rowing were affected in both sexes by this level of dehydration.

These are just some of the many studies carried out with both amateur and high-performance athletes regarding dehydration as a means of reducing body mass, what the studies do not make very clear, is in relation to the interval of this process and the competition, which would enter the discussion in relation to combat sports in general, However, through these experiences, it is possible to have the notion that the dehydration process, if well controlled, can be an important alternative to obtain the desired weight and this does not harm the athlete's physical performance. What is highly condemned by the American College of Sports Medicine are the practices of these protocols in collegiate athletes.

In addition, these and other studies found no negative effect of dehydration on muscle strength or any reduction in the concentrations of hydrogen, or inorganic phosphate, components linked to muscle endurance. In summary, dehydration of magnitude 2-3% has little effect on anaerobic muscle strength and power. One study reported that 4.9% of dehydration resulted in a reduction in anaerobic power, but this may have been due to the speed of weight loss. Therefore, the level of dehydration that will result in the reduction of absolute muscle strength by force is unknown.

A mild dehydration caused by the process of abrupt weight loss can cause discomfort and fatigue, while an exaggerated abrupt reduction can generate a marked decrease in

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performance due to hypohydration, resulting in a decrease in blood volume, cardiac performance, blood pressure and finally in the reduction of thermoregulation (ARTIOLI; FRANCHINI; LANCHA JUNIOR, 2006).

Signs such as thirst and dry mouth were found after dehydration induced by intense physical training (Perrella, Noriyuki and Rossi, 2005). The weight reduction regimen followed by a 5% reduction in body weight in elite fighters results in a 54% reduction in muscle glycogen (KARILA *et al.*, 2008).

Evaluating adolescent wrestlers after an abrupt weight loss, averaging an average of 4.5 kg (7.4%), the researchers found a number of hormonal changes, as well as significant increases in growth hormone concentration (GH: 2.9 ± 0.7 vs 6.5 ± 1.4 ng/ml) and in the concentration of sex hormone biochemical globulin (SHBG: 16.1 ± 2.3 vs 27.9 ± 6.9 nmol/l). A significant decrease in the concentration of GH-binding protein (GHPB: 178 ± 19 vs 109 ± 17 pmol/l), insulin-like growth factor (IGF-1: 332 ± 30 vs 267 ± 34 ng/ml), testosterone (T: 4.9 ± 0.4 vs 3.6 ± 0.4 ng/ml) and free testosterone (free T: 22.4 ± 3.6 vs 15.7 ± 2.8 pg/ml) was found. The variables: hematocrit, luteinizing hormone, estradiol, prolactin, cortisol, insulin, triiodothyronine, and thyroxine did not show significant differences before and after PRP (ROEMMICH; SINNING, 1997).

The key to the good use of the dehydration process is the control of this alternative for abrupt weight loss, where the care of the athlete's health is a priority, even more so when it comes to adolescent athletes, and also use for the considered "small" reductions in body mass, and not very sharp "weight cuts" which can cause, In addition to possible damage to health, reaching the extreme of deaths, as we have reported, most of the time it causes involutions in the performances of this athlete.

3. More Gradual Weight Loss Effects in High-Intensity Athletes

Horswill *et al.* Sa et al. (1990) found that 4 days of weight loss (6% body weight) resulted in a significant reduction in 6 minutes of wrestling-specific sprint *performance test* when subjects were on a high- or low-carbohydrate diet. Energy consumption during the 4 days was relatively high (2485 kcal on day 1; 2485 kcal on day 2; 1956 kcal on day 3; 1343 kcal on day 4). However, there was a positive effect of a high-carbohydrate diet with those consuming 66% of their energy in the form of carbohydrates to maintain performance to a greater extent than the 42% of carbohydrate intake as their diet.

Rankin *et al.* (1996) reported that body weight reduction by 3.3% for 3 days, while using energy restriction (18 kcal/kg/day; 1260 kcal/day for the 70 kg individual), without dehydration resulted in a 7.6% reduction in the average work produced during a sprint-specific performance test similar to the one used by Horswill *et al.* (1990) in high school wrestlers. Based on these two studies, the results showed that abrupt weight reduction, even controlled gradually over a few days, impaired high-intensity exercise performance. The specific test used in these two investigations (8 and 15 s *sprints* separated by 30 seconds of active recovery) is dependent

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on a high absolute power and maintenance of a high output power for the test duration period of 6 minutes.

Importance of a High-Carbohydrate Diet for Performance During a Fight, and During Many Fights on the Same Day

Based on the studies, carbohydrate intake should be high (at least 8 - 10 g CHO/kg body weight/day) in the days before the event. This rate of carbohydrate intake is similar to that suggested for individuals involved in intense resistance training, such as runners, cyclists, and swimmers. In addition, carbohydrate intake should be high (8 to 10 g CHO/kg body weight/day) throughout the day during a tournament so that muscle glycogen stores do not get too low that day or the following days of the tournament.

4. DISCUSSION

An analysis of 16 adolescent wrestlers, before and after abrupt weight loss (reduction period between 1 and 2 weeks), revealed a reduction in body weight from 60.3 ± 3.5 to 58.0 ± 3.3 kg, in fat percentage from 9.9 ± 0.5 to 8.0 ± 0.7% and in fat mass from 6.0 ± 0.5 to 4.7 ± 0.6 kg. Peak force and peak torque at 60 and 180°/s were also evaluated on an isokinetic dynamometer for elbow and knee flexion and extension. In an analysis at the elbow joint, the peak torque at flexion at 60º/s, the peak force and the peak torque at flexion and extension at 180º/s decreased significantly after weight reduction. As for the knee joint, there was a significant reduction in both peak force and peak torque, knee flexion and extension, at 60 and 180°/s. These parameters evaluated were reestablished only after a period of 3.5 to 4 months, when the athletes decreased their levels of physical exercise and increased their daily energy intake, suggesting that the reduction in the fighters' performance due to abrupt weight loss is only reversed after a long recovery period (ROEMMICH; SINNING, 1997).

5. Methodology

The study was carried out with Olympic Wrestling athletes from the Federal University of Paraná, with an "n" of 50 male and 10 female athletes, with a mean age of ± 24.3 years and with a practice time of 4 years.

Data collection was carried out through interviews with the athletes, initially the objective of the study was explained, and the consent of the subjects was requested; The interview was conducted by the authors of the present study and consisted of 1st questions, referring to the injuries suffered during the training period, and about the duration of the treatment and how long it was necessary to return to training. Microsoft Excel was used to tabulate the collected data.

CONCLUSION AND FINAL CONSIDERATIONS

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Among the main forms of abrupt weight reduction frequently used by North American Wrestling athletes, both at school and university level, we conclude that each method has its pros and cons, but what differs from each other is the way it is conducted and which method the athlete can best adapt, For example, there are athletes who feel more "comfortable" using dehydration only, there are others who don't, and so each method follows this same reasoning, physiological evaluations should always be taken into account to determine the best method and even possibly the best combination between these methods for reducing body weight. However, we must always consider the health of athletes who, when undergoing any type of abrupt weight reduction, run serious risks, especially in adolescent athletes, whose practices are highly criticized by the American College of Sports Medicine.

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