ORIGINAL ARTICLE

Determination of Weight Loss Methods and Their Effects in Wrestlers Participating in the Senior Women's Turkish Wrestling Championship

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ABSTRACT

The aim of this study is to determine the methods and effects of weight loss in wrestlers participating in the Senior Women's Turkish championship. The sample of the study consists of 98 volunteer female wrestlers who participated in the Senior Women's Turkish Wrestling Championship held in 2019. "Athlete Weight Loss Methods and Effects Scale" was used to determine the weight loss methods preferred by women wrestlers who constitute the sample of the study and their effects. The data obtained from the scale applications were evaluated in the SPSS 25.0 package program at 95% confidence interval and 0.05 error level. In statistical analysis, the arithmetic mean of the diet sub-dimension of the scale was calculated as Mean=9.255, arithmetic mean of the fluid loss subdimension as Mean=6.581, arithmetic mean of the ergogenic help sub-dimension as Mean=4.510, arithmetic mean of physiological impact sub-dimension as Mean=11.061 and the arithmetic mean of psychological impact sub-dimension as Mean=12.724. In addition, no statistically significant difference was found between women wrestlers who competed in light, middle and heavy weights in terms of weight loss ($p>0.05$). In line with the findings of the study, it was concluded that the most preferred method of weight loss by female wrestlers before competitions was diet, and the least preferred method was ergogenic aids. It was determined that the methods women wrestlers preferred to lose weight before the competition caused psychological and physiological problems. In the study, it was determined that the weight loss rates of women wrestlers competing in light, middle and heavyweight before the competition were similar. In line with the results obtained in the study, it can be said that weight loss before the competitions should be achieved in the long term with a balanced diet under the supervision of an expert. Thus, it is predicted that it will be possible to be protected from the psychological and physiological negative effects caused by rapid weight loss before the competition.

Key Words: Wrestling, Female wrestler, Weight loss

INTRODUCTION

Combat sports are sports branches in which body weights are divided into categories in order to ensure that athletes compete under equal conditions.[1] In combat sports, some athletes tactically lose weight because they think that the athletes competing in a sub-category are less strong and durable than themselves, or because they have good competitors in their own category.[2,3]

Athletes usually try to lose weight as soon as the weighing time approaches. This situation is referred to as "acute weight loss". Acute weight loss is known to reduce performance in wrestlers, but also cause serious health problems in athletes.[4] In scientific studies, it has been revealed that acute weight loss affects performance negatively due to reasons such as decrease in muscle strength of athletes,[5] shortened performance time, decrease in plasma fluid and blood volume,[6] decrease in cardiac function in submaximal study (high pulse, low stroke volume and low heart rate),[7] decrease in oxygen consumption,[8] impairment in temperature regulation mechanisms and electrolyte imbalance, decrease in liver glycogen storage.[9,10] In addition, fast weight loss methods damage the aerobic and anaerobic performance of the athlete, accelerate the depletion of muscle glycogen stores, cause stress in the thermoregulation system, reduce the plasma volume, disrupt the fluid-electrolyte balance and increase the number of heartbeats.[11]

Wrestlers use aggressive weight loss methods such as severely restricting food and fluid intake, increasing exercise intensity, using rubber and plastic clothing, weight loss in the sauna, diet pills, diuretics or laxatives and vomiting to compete in a lighter weight.[2,3] Families, sports and health professionals are concerned about methods used to lose weight quickly, such as severe fluid loss, calorie restriction, diuretics, diet pills, diarrhea medications, nylon training clothes, vomiting, and other methods.[12] Rapid weight loss can cause negative consequences, especially in age groups such as newcomers to sports, kids, stars, young people and U-21s. It can adversely affect the athlete's development, growth, muscle and muscle structure, respiratory and circulatory system.[13] Health risks that may arise due to rapid weight loss and gain include poor nutritional status, low physical performance, growth and development disorders.[14-16] Considering that wrestlers participate in many competitions during the season and lose weight by using one or more of the weight loss methods mentioned above, the situation is quite serious.[17] Therefore, this study aimed to determine the effect of weight loss methods in wrestlers participating in the Senior Women's Championship in Turkey. In line with the results of the study, recommendations may be offered for female wrestlers to lose weight in a healthy way and maintain their overall health.

MATERIAL AND METHOD

Sample: The sample of the study consists of 98 volunteer female wrestlers who participated in the Great Women's Wrestling Championship of Turkey held in Ankara on December 17-18, 2019.

Data Collection Tools

Athlete weight Loss Methods and Effects Scale: In determining the weight loss methods preferred by the wrestlers participating in the study and their effects, "Athlete Weight Loss Methods and Effects Scale" developed by Yarar et al.,[17] was used. The scale is consisting of 19 questions, graded between 1 (never) and 5 (always). The alpha value of the scale was calculated as α=0.74. In the factor analysis conducted at the stage of scale development, it was found that the scale elements were collected under 5 factors. These factors were named "physiological effects" (10,12,13,14,11), "psychological effects" (19,17,18,15,16), "ergogenic aid" (8,9,7), Diet (2,3,1) and fluid loss (6,5,4) sub dimensions. When the alpha reliability fold numbers of the scale were examined, Physical effects α=0.80, psychological effects α=0.69, ergogenic aid α=0.86, diet α=0.81 and fluid loss α=0.56 were determined. The psychometric properties of the scale are as indicated below (Utility et al., 2016):

Physiological impact: In this sub-dimension, the degree to which the athlete experiences muscle cramps, heart palpitations, respiratory distress, and similar physiological effects while losing weight.

Psychological impact: In this sub-dimension, the athlete's state of how he/she feels psychologically relate to his desire to exercise, performance, stress, nervousness and fatigue levels while losing weight.

Ergogenic aids: In this sub-dimension, which measures weight loss methods, measures the athlete's degree of using diet pills, diuretics, etc. chemical substances while losing weight.

Diet: While the weight of the athlete is decreasing, carbohydrate consumption, fat consumption and the level of reducing food consumption in general are measured in this sub-dimension.

Fluid loss: This sub-dimension measures the degree to which athletes try to lose weight by engaging in activities such as spitting, sweating by entering the sauna, and running while wearing a raincoat.[17]

Findings:

Table 1. Descriptive statistics on methods and effects of weight loss in wrestlers

Dimensions	N	Mean	Std. Deviation	Std. Error
Physiological effect	98	11.061	0.443	4.392
Psychological impact	98	12.724	0.427	4.229
Ergogenic aid	98	4.510	0.280	2.781
Diet	98	9.255	0.314	3.117
Fluid loss	98	6.581	0.264	2.620

Table 1 shows the scores of the female wrestlers, who constitute the sample of the study, from the sub-dimensions of the Athlete Weight Loss Methods and Effects Scale. Accordingly, the arithmetic mean of the physiological effect sub-dimension was calculated as Mean=11.061, the standard deviation as Std. Deviation= 0.443, and the standard error of the arithmetic mean as Std. Error=4.392; the arithmetic mean of the psychological impact sub-dimension was calculated as Mean=12.724, the Std. Deviation=0.427, and the standard error of the arithmetic mean as Standard Error=4.229; the arithmetic mean of the ergogenic help sub-dimension was calculated as Mean=4.510, the Std. Deviation=0.280, the standard error of the arithmetic mean as Std. Error=2.781, the arithmetic mean of the diet sub-dimension as Mean=9.255, the standard deviation as Std. Deviation=0.314, the standard error of the arithmetic mean as Std. Error=3.117; and the arithmetic mean of the fluid loss sub-dimension was calculated as Mean=6.581, the standard deviation Std. Deviation=0.264, and the standard error of the arithmetic mean as Std. Error= 2.620.

Table 2. Comparison of Wrestlers in terms of Weight Loss Depending on Competing Weight

Competing weight	N	Mean	Std. Deviation	F	p
Lightweight	35	0.485	1.14	0.979	0.379
Middleweight	38	1.026	1.76		
Heavyweight	25	0.760	2.02		
Total	98	0.765	1.64		

As shown in Table 2. no statistically significant differences were found between wrestlers who compete in the light, medium and heavyweight divisions in terms of weight loss ($F=0.979$; $p>0.05$). However, when the average values are examined, it is seen that the wrestlers who lost the most weight before the competitions were the wrestlers competing in the middle weight (Mean= 1.026). Female wrestlers competing in the middle weight group are followed by the women competing in the heavy (Mean=0.760), lightweight (Mean=0.485) respectively.

DISCUSSION AND CONCLUSION

It is important that the target approaches in ensuring weight control in athletes are in such a way that they do not negatively affect performance and do not pose a risk of injury and disease. It is a possible fact that combats athletes such as wrestling, boxing, taekwondo, karate and judo have lost weight before competitions for many years they have health problems due to this weight loss and may also experience in the future.[18] It is observed that the age of participation of the athletes engaged in combat sports is 12-13 years old, Studies show that the average age at which to start losing weight is 13-15 and they lose weight 15 times a season.[19,20] For this reason, it is important to investigate the weight loss methods preferred by the athletes who are engaged in combat sports in terms of protecting them from unexpected injuries and not experiencing health problems. In the study carried out with this in mind, the method and effects of weight loss preferred by women wrestlers were investigated. In this study, it is understood that the most common method preferred by women wrestlers to lose weight before competitions is diet. Women wrestlers prefer to reduce their carbohydrate consumption, fat consumption and food consumption in general in order to lose weight before the competitions. After the diet, the most preferred method of female wrestlers is fluid loss, which includes actions such as spitting, sweating by entering the sauna and running

while wearing a raincoat. The least preferred method by women wrestlers in weight loss is ergogenic aids using chemical substances such as diet pills, diuretics etc. It is understood that the weight loss methods preferred by women wrestlers have more physiological effects such as muscle cramps, heart palpitations, and respiratory distress. Psychological effects such as a decrease in the desire to exercise, stress, nervousness and tiredness are observed in some female wrestlers who lose weight before the competition.

As in this study, the least preferred weight loss method in many studies is ergogenic aids using laxatives, diet and diuretic pills that cause severe fluid loss and rapid weight loss.[21-22] Yarar et al., [18] stated in their study on wrestlers that they generally prefer restricting their food intake, running with rain and reducing their fat consumption as a weight loss method. Alderman et al.,[19] in their study evaluating the methods of rapid weight loss in high school student wrestlers participating in the national wrestling championship, reported that the most preferred method was long-term running, going to the sauna and wearing thermal exercise clothes. In their study investigating the prevalence and effects of rapid weight loss in 56 adolescent wrestlers aged 15-17 (n=25 freestyle and n=31 Greco-Roman) attending the national wrestling championship held in Iran in 2016, Abadi et al.,[24] stated that physical activity level should be increased in order to reach ideal body weight and diet is the most preferred method for weight loss. In the same study, it was stated that the methods used for weight loss have negative effects such as dizziness, muscle cramp and irritability. Amirsasan et al.,[25] made a sample of 130 adolescent wrestlers (n=59 freestyle and 79 Greco-Roman) with a mean age of 16.49±0.9, and it was stated that rapid weight loss before competitions caused irritability and a decrease in concentration. In addition, Cesur[26] in his study in which he tried to determine the weight loss methods preferred by elite wrestlers, he stated that wrestlers fighting in the freestyle category mostly reduced food consumption and fat consumption in the diet dimension, which is one of the weight loss methods, that in terms of fluid loss, they mostly run with rain, wrestlers struggling in the Greco-Roman style category mostly reduce their fat consumption in the diet dimension, and they mostly enter the sauna in terms of fluid loss.

In studies where wrestlers of different age groups and levels formed the sample, it was stated that the physical and physiological effects of weight loss before the competition appeared as in this study. Bradley[20] stated the negative effects resulting from weight loss as dizziness, irritability, irritability, impaired concentration, muscle cramps, headache, and increased heart rate. In a similar study, Farhan et al.,[22] explained the negative effects of weight loss as dizziness, irritability, irritability, and low concentration. In their study, in which 69 volunteer elite male wrestlers participated in the Turkish championship, Alpay et al.,[25] reported that pre-competition weight loss caused negatives such as increased levels of urea nitrogen, sodium and plasma osmolarity. Işık[27] in his study which examined the effect of dehydration on acute skeletal muscle damage and inflammation levels in 72 volunteer elite male wrestlers who participated in the Turkish championship, stated that wrestlers dehydrated by restricting nutrients and liquids, wearing nylon or rubber clothes, saunas or exercising and losing weight before the competition had more skeletal muscle damage than non-dehydrated wrestlers. Işık and Doğan[29] explained that changes in body components seen in 29 female wrestlers participating in the Turkish Intercollegiate Wrestling Championship caused depression.

The weight ratio of women wrestlers participating in this study who compete in light, medium and heavy weight is similar. Wrestlers competing in all weights prefer to lose weight before the competitions. Although the wrestlers competing in the middle and heavy weight lose a little more weight than the wrestlers competing in the light weight before the competition, this does not cause a significant difference between the wrestlers competing in three different classes. When the literature is examined, the number of studies in which weight loss wrestlers are compared according to the weight they compete is quite limited. Abadi et al.,[24] divided 56 adolescent wrestlers (n=25 freestyle and n=31 Greco-Roman) into 3 groups as light (50.80±5.27 kg), medium (63.74±4.94) and heavy (88.26±10.51 kg). In the study, it was determined that the wrestlers who lost the most weight before the competition were the wrestlers competing in heavyweight. In the same study, it was stated that the wrestlers competing in the heavyweight group followed by the wrestlers competing in the middle and light weight, respectively.

In this study, it was concluded that rapid weight loss before the competition in wrestlers participating in the Senior Women's Turkish Championship causes psychological effects such as decreased desire to play sports, stress, irritability and fatigue, and causes physiological effects such as muscle cramps, heart palpitations and breathing difficulties. The most preferred method of weight loss for female wrestlers is the diet, which they do by reducing carbohydrate consumption, fat consumption and food consumption in general. Among female wrestlers, the least preferred method of weight loss is ergogenic aids, in which diet pills, diuretics, etc. chemical substances are used. Although it was observed that the weight loss rate was slightly higher in wrestlers competing in heavyweight, it was concluded that the weight they competed did not affect the weight loss rate. In order to avoid the psychological and physiological negative effects of rapid weight loss before the competition, attention should be paid to body weight in the pre-training and post-training period. Continuous weight tracking will keep the athlete away from hunger diets and stress. Weight loss should be slow; a balanced diet program should be applied. The amount of calories taken with food should be less than the amount of calories expended with exercise and daily activities. Foods to be taken after training should be of a type that does not cause weight gain. Energy expenditure should be from less to more. Weekly weight loss should be around -1% kg, not more. Fluid intake should never be stopped. Fatty foods should not be preferred for weight loss near the competition, protein intake should not be too much, and carbohydrate should be fed. The weight of the athlete will increase again due to the return of the normal diet after weighing. This, in turn, will bring the distress of repeatedly falling in weight before each organization. It is

appropriate to drop the weight by preparing and applying the diet program by spreading it over time according to the desired weight to be deducted at the beginning of the season. Appropriate weight should be notified to the athlete 8 to 10 weeks in advance and the diet should be adjusted accordingly. The athlete must have fallen to the required weight 4 weeks before the competition.

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