



## Rapid Weight Loss of Iranian Freestyle and Greco-Roman Elite Cadet Wrestlers

Ramin Amirsasan, Farhan Hamed & Adlnasab Ladan

To cite this article: Ramin Amirsasan, Farhan Hamed & Adlnasab Ladan (2014) Rapid Weight Loss of Iranian Freestyle and Greco-Roman Elite Cadet Wrestlers, International Journal of Wrestling Science, 4:2, 63-68, DOI: [10.1080/21615667.2014.955742](https://doi.org/10.1080/21615667.2014.955742)

To link to this article: <https://doi.org/10.1080/21615667.2014.955742>



Published online: 30 Sep 2014.



Submit your article to this journal [↗](#)



Article views: 12



View related articles [↗](#)



View Crossmark data [↗](#)

# RAPID WEIGHT LOSS OF IRANIAN FREESTYLE AND GRECO-ROMAN ELITE CADET WRESTLERS

Ramin Amirsasan, Farhan Hamed, Adlnasab Ladan

*University of Tabriz, Iran*

amirsasan@tabrizu.ac.ir

## ABSTRACT

The purpose of this study was to investigate and compare the prevalence and effects of rapid weight loss among elite cadet wrestlers. The wrestler study groups were comprised of 130 adolescents (71 Greco-Roman and 59 freestyle wrestlers) with a mean age of  $16.49 \pm 0.9$  and  $16.1 \pm 1.1$  years; weight  $63.1 \pm 19.6$  and  $62.56 \pm 15.24$  kg. These athletes participated in the International Children's Day tournament. Methods of rapid weight loss and weight loss effects of these wrestlers were assessed using a standard Oppliger questionnaire. Descriptive statistical methods (mean standard deviation), the Kolmogorov-Smirnov Test (to check for normal distribution of data) and T tests (to check for differences between the freestyle and Greco-Roman wrestlers) were applied and the level of significance was set as  $p < 0.05$ . The results showed that the most frequently used methods for weight loss in both groups, were increased physical activity and dieting. Dizziness, irritability and poor concentration were the most commonly reported problems in both freestyle and Greco-Roman wrestlers following rapid weight loss. The largest weight change for freestyle and Greco-Roman wrestlers in the tournament was respectively, 1.81 and 1.38 kg. No significant difference ( $P < 0.05$ ) was observed between the two groups in this age bracket.

**Key Words:** wrestling, methods of weight loss, elite cadet.

## INTRODUCTION

Rapid weight loss is a dangerous procedure that is commonly used by wrestlers. This has been problematic in wrestling and has been reported on since the early 1930's (7). Three wrestlers, who were preparing themselves for tournaments in 1997, lost their lives through their rapid weight loss in an attempt to make weight (28). Competition provides the incentive for wrestlers to lose weight in an attempt to wrestle in a lower weight class. Rapid weight loss, in individuals before puberty, if not done with health considerations, also provides a great concern. Limiting caloric intake and poor nutrition during growth can affect the growth and have dramatic effects on health (24). The best competition weight for athletes is their normal weight. Research has shown that a body fat content between 7% to 9% in men and 12% to 15% in women has the greatest effect on metabolism (6). Weight loss becomes a problem when the nutrition needs are not met or the body is not kept properly hydrated (25). Common methods of rapid weight loss for competition include dehydration. This is achieved through fluid restriction and increased sweating (2,18,23). In the body, most chemical reactions are carried out in liquid medium. All reactions in the body are noticeably affected by a lack of water. In the dehydrated state, the physiological response of the body is damaged and athletic performance is decreased (16,9,10). Studies show that short-term weight loss causes disturbances in biochemical and hormonal activity, body composition and resting metabolic rate (11,13,14,15,26,27,29).

Bradley (3) investigated the prevalence and effects of rapid weight loss among freestyle and Greco-Roman wrestlers. The maximum amount of weight loss was 7 kg. The maximum number of weight losses was seven times during the seasons. A weight fluctuation of up to  $\frac{1}{4}$  pound throughout the week was also reported for men. Methods employed for weight loss included saunas, plastic clothing, dieting, eliminating a meal, starvation and diuretics. Within this group no enemas, laxatives and vomiting were reported. Wrestlers reported experiencing dizziness, muscle cramps, headaches and fever followed by rapid weight loss.

Oppliger et al examined the methods of weight loss for 712 wrestlers from 36 high schools. With the exception of 29 heavyweight wrestlers, the methods used for weight loss included increased exercise, diet and the elimination of a meal. Starvation and not drinking liquids were risk behaviors for weight loss. Wrestlers attempted weight loss with practice in hot rooms, 9% with plastic clothing and 4.8% used the sauna (21).

Unhealthy weight loss practices cause negative impacts on the performance of young wrestlers. The methods of weight loss were not investigated comprehensively in young Iranian elite wrestlers. Since the national team's

young adults are our main assets, the present study sought to examine and compare the prevalence and effects of rapid weight loss in freestyle and Greco-Roman elite wrestlers in Iran.

## METHODS

This study was conducted as a descriptive survey. The population of the study was freestyle and Greco-Roman elite wrestlers aged 14 to 18 years across the country which competed with wrestlers from Georgia, Armenia, Turkey, Azerbaijan, Iraq, and others in an international competition on Children’s Day representing Iran. 130 adolescent elite wrestlers participated in this study. In the present study, information on rapid weight loss was obtained using the Oppliger standardized 31-item questionnaire (20). The validity of the questionnaire was confirmed by the University of Northern Michigan. The validity of the translation of the questionnaire for use in Iran was determined by a wrestling expert who is fluent in English (17).

Oppliger’s 31-item questionnaire is set in four parts. The first part consists of 7 questions which investigate the wrestlers’ personal information such as age, normal weight, competitive weight, age category, style (freestyle or Greco-Roman) and a history of participation in competitions. The second section includes 17 questions which investigate assesses the dietary history of the wrestlers and also questions such as the starting age of wrestling, weight loss and gain status in the current year, the maximum amount of weight loss, the numbers of weight fluctuations during the season and weekly weight fluctuations. The third section has 3 questions which ask about the methods and the effects of rapid weight loss. This section contains two tables, one of them lists 15 methods for weight loss which have been by wrestlers. Another table lists the side effects from the weight loss method used. The last section consists of four questions that measure their source for nutritional information and the amount of weight lost by the wrestler (8).

The necessary coordination was carried out with the wrestling federation, the fitness and nutrition director of the wrestling teams, coaches and others involved in the squad in order to distribute the questionnaires at the competition venue. Then, the questionnaire was fully explained to the wrestlers and they completed the questionnaire. Researchers used descriptive statistics (mean and SD) in the tables and graphs, then the Kolmogorov-Smirnov test was used for a natural explanation of the data. The t test (to check for differences between the freestyle and Greco-Roman wrestlers) at a significant level ( $p < 0.05$ ) was used for statistical analysis of data. Excel was used to draw the charts and the analysis was performed using SPSS version 16.

## RESULTS AND DISCUSSION

The wrestlers’ profiles are presented in Table 1.

Table 1. Wrestler profile.

	<b>Greco-Roman</b>	<b>Freestyle</b>
Age of wrestlers	16.46	16.07
Weight before competition	64.60	65.49
Onset of wrestling	11.62	11.74
Onset of weight loss	14.53	14.03
Most weight lost	3.06	3.58
Weight after competition	63.07	62.56
Fluctuation of weight in a week	1.40	1.80
Competition weight during last year	59.02	59.34

Weekly fluctuation of weight is 1.40 and 1.80 kg in the Greco-Roman and freestyle wrestlers, respectively, and no significant difference was observed between the two groups ( $p = 0.01$ ). The most commonly used methods for weight reduction by Iranian elite wrestlers, were increased physical activity, dieting, and eliminating a meal. Using purgatives showed the lowest incidence. Use of weight loss methods was not significantly different between Greco-Roman and freestyle young elite wrestlers during the competition season in Iran. The methods and the percentage of wrestlers reporting their use are shown in Figure 1.

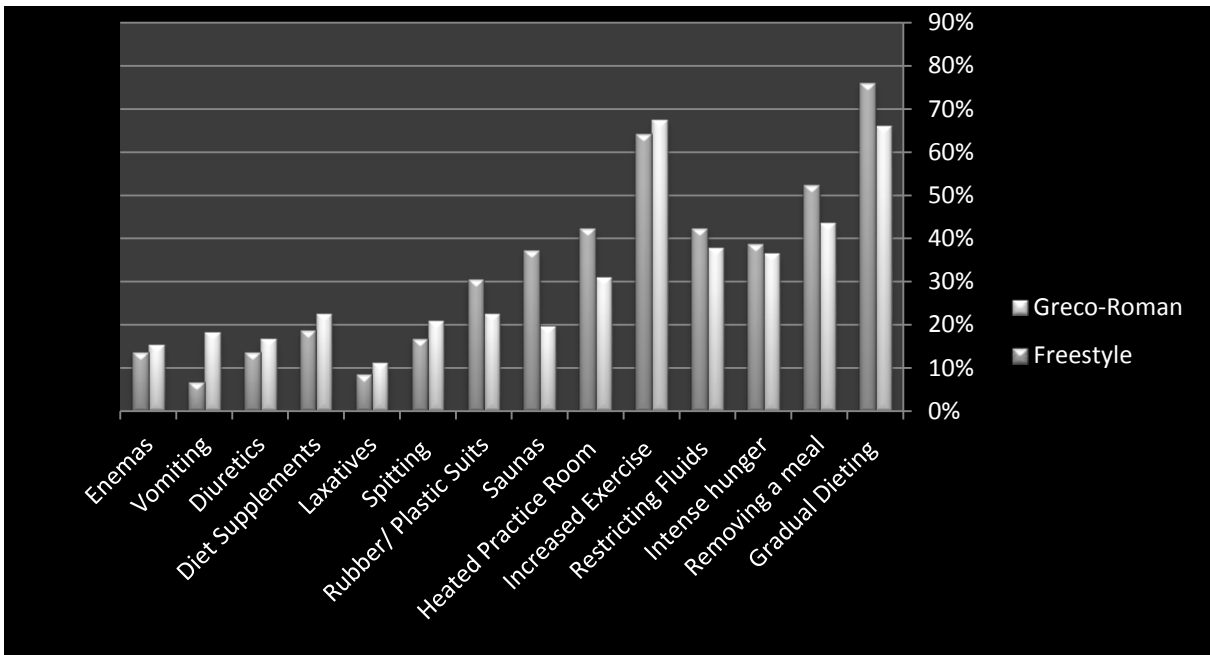


Figure 1. Methods of weight loss among wrestlers.

The most common side effects of rapid weight loss among young Iranian elite wrestlers were dizziness, irritability and poor concentration. Nosebleeds were the least common observed side effect. Side effects of weight loss in young elite freestyle and Greco-Roman wrestlers of Iran were not significantly different during the competition season and are shown in Figure 2.

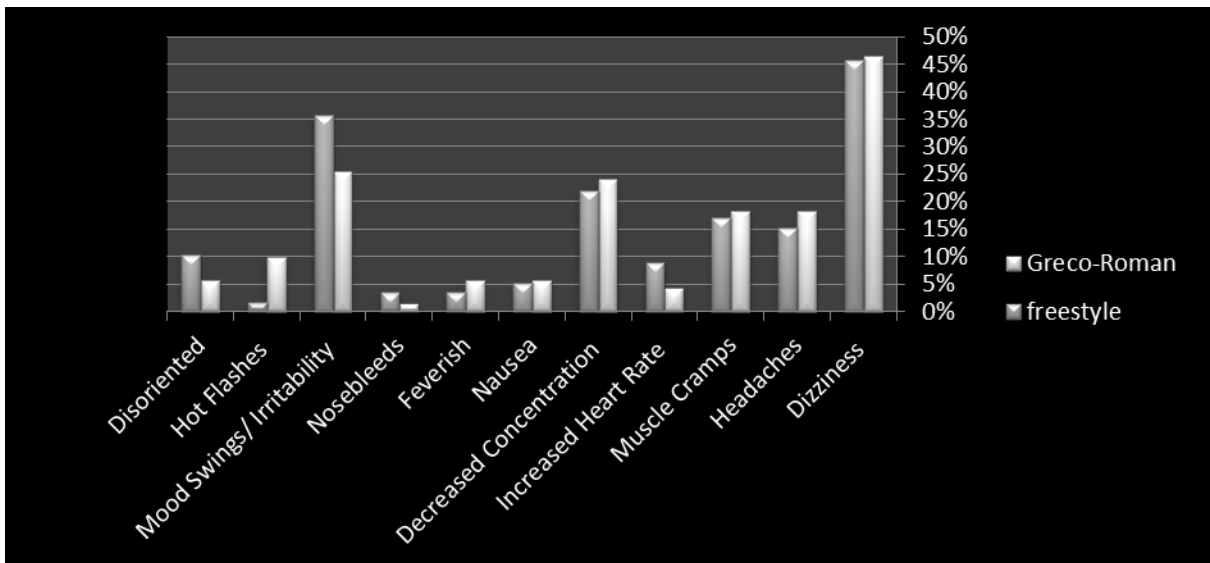


Figure 2. Negative side effects experienced as a result of weight loss.

The results showed that coaches and experienced wrestlers have had the greatest impact on the methods of rapid weight loss on the young Iranian elite wrestlers. This was followed by exercise physiologists, dietitians, medical assistants and parents. The wrestlers' age had the least impact. According to the results, the effects of weight loss did not show a significant difference between styles. The results showed that coaches were the main source of information about nutrition and weight loss (35.5%). Other sources (friends, brother, media and internet)

(7.13%); medical assistant (8.11%), doctors (3.11%) and parents (3.7%) are next in the rankings. The source of information about nutrition and weight loss did not show significant differences between freestyle and Greco-Roman wrestlers.

## DISCUSSION

The results of the present study showed that the greatest amount of weight loss among young Iranian elite wrestlers was 29.3 kg that was greater than the results of Kiningham et al (5) and lower than results reported by Oppliger et al (20), Alderman et al (1) and Bradley (3). Perhaps the difference is due to the age difference among the wrestlers. Wrestlers had a mean age of 20 years in the Oppliger study, and 20.8 years in the Bradley study. According to the research, cadets engage in more weight loss than younger athletes (1, 17). In the present study, the mean number of weight loss was 1.67 times among young Iranian elite wrestlers. This was lower than Oppliger's results (20). One reason for this difference can be the frequency of the matches. The subjects in the cited studies participated in a long and regular league, so wrestlers had to attempt to lose weight more frequently (17).

The present study found that the most common methods used for rapid weight loss among the Iranian elite wrestlers were increased physical activity, dieting, and eliminating a meal. Starvation techniques, exercise in a warm room, sauna, removing fluids, wearing plastics, the use of dietary supplements, diet pills, removal of water from the mouth, diuretics, enemas and vomiting were also used for weight loss and the use of purgatives showed the lowest prevalence. These results were consistent with those obtained by Oppliger and Bradley, but inconsistent with the results of Alderman et al (1). This difference can be attributed to the ages of the wrestlers. Alderman studied senior international wrestlers. Different activities (running, cycling, and swimming) were used for weight loss in Alderman research (17,23). In the present study, the most common methods were diet and increased exercise up to 3 to 4 times per week.

In the present study, the use of enemas was observed in 2.14% of adolescent wrestlers. This shows that the use of enemas has become more popular among the Iranian adolescent wrestler nowadays which deserves reflection.

In the present study, dizziness, irritability and lower focus were most common side effects of rapid weight loss reported by young Iranian elite wrestlers. After that headaches, muscle cramps, lack of awareness and confusion, heatstroke, increased heart rate, nausea and fever were ranked as common side effects, with nosebleeds being the least common. Wrestlers also reported suffering from, fever and increased heart rate. The most commonly used methods for weight loss were increased exercise, dieting, and eliminating a meal, which can cause the loss of glucose in the liver, muscles, blood and eventually the brain. These are reasons for the reported dizziness, loss of concentration, headaches and irritability.

Dehydration may continue over several days and since body water can be decreased through hypohydration by about 2 to 3% in one day, this process leads to progressive dehydration which causes a water loss of 5 to 8%. Dehydration of about 4 to 6% lower focus and causes headaches, insomnia and impatience. Dehydration of more than 8% can lead to heat cramps, heat exhaustion and heatstroke (1,2,29).

In the present study, team coaches were the primary source of weight loss and nutrition information. In both groups, parents have a small role in informing and influencing weight loss in wrestlers. But parents have shown a greater role in other research (20).

In summary, despite some inconsistencies, the weight loss practices of the cadet Iranian wrestlers in this study, employ weight loss methods that generally match previous research. There were only small differences in methods of weight loss used by Iranian cadet freestyle and Greco-Roman wrestlers. According to the research diet and increased exercise were the most important methods for weight loss in wrestlers. The results of this study can help trainers and nutritionists with more precise control of these procedures which can help to prevent the incidence of inappropriate methods of weight loss, especially enemas and the possible complications. Suitable training methods for weight loss and more precise advice to the coaches and wrestlers across the country should be implemented. Without this, the future of wrestling in Iran is in danger despite the progress of science related to athletic performance.

## REFERENCES

1. Alderman B. L, Landers D.M, Carlson J and Scott J.R.(2004). Factors related to rapid weight loss practice among international- style wrestlers, *Medicine & Science in Sport & Exercise*,36(2):249-252.
2. American College of Sport Medicine. *ACSM's advanced exercise physiology*, Lippincott Williams and Wilkins. (2006).
3. Bradley D. D.( 2006). Prevalence and effect of rapid weight loss among international style wrestlers Dep. *HPER, Northern Michigan University*, MI,USA 1401 Presque Isle Marquette.1-17.
4. Chen M.C, WU M.C change WH, Chan M.S, Lee W.C, Kuo C. H and Ivy J.L. (2006). Effect of rapid weight –loss caused by dehydration on whole – body glucose uptake and basal metabolic condition, *Medicine & science in sport & Exercise*: 38(5).
5. Choma C.W, Sforzo G. A and Keller B.A. (2006). Impact of rapid weight loss on cognitive function in collegiate wrestlers, *Medicine & Science in sport & Exercise*. 30(5):746-749.
6. Clark R.R and Oppliger R. A.(1998). Minimal weight standards in high school wrestling. The Wisconsin model. *Orthopedic physical Therapy Clin of North America* .7(1):23-
7. Fogelholm G.Mikael; Koskinen, Risto;Laakso, Juha;Rankinen, Tuomo; Ruokonen, Inkeri.(1993). Gradual and rapid weight loss: effect on nutrition and performance in male Athletes, *Medicine & Science in Sports & Exercise*. 25(3): 371-377.
8. Horswill C. A, Park S. H and Roemmich J. N. (1990).Changes in the protein nutritional status, s of Adolescent wrestlers, *Medicine and Science in Sports and Exercise*, (22): 559- 604
9. Judelson D. (2007). Hydration and Exercise Performance Kraft Foods Global Nutrition. *Journal of Applied Physiology*. 69(4):1442-50
10. Judelson, Daniel; Maresh, Carl; Yamamoto, Linda; Farrell, Mark; Armstrong, Lawrence; Kraemer, William; Volek, Jeff; Spiering, Barry; Casa, Douglas J; Anderson, Jeffrey; (2008). Effect of hydration state on resistance exercise-induced endocrine markers of anabolism, catabolism, and metabolism. *Journal of applied physiology*, 56, 1345-1349.
11. Karila T. A, Sarkkinen P , Marttinen M, Seppala T, Mero A and Tallroth K.(2008).Rapid weight loss decreases serum testosterone, *Int. J Sports Med*, 29(11): 872-877
12. Kiningham R. B. and Gorenflo D.W. (2001). Weight loss methods of high school wrestlers, *Medicine & Science in Sports & Exercise*, 33 (5):810-813.
13. Kukidome T, ; Shirai,K; Kubo,J; Nakashima,Y; Yanagisawa,O; Homma,T; Aizawa,K .(2008).MRI evaluation of body composition changes in wrestlers undergoing rapid weight loss. *Br .J. Sports Med* .(42):814-818.
14. Kukidome T, Aizawa K,Okada A, Tokuyama K, Kono I,(2007). Metabolic effects of rapid weight loss in elite athletes, *Japanese journal of physical fitness and sport medicine*. 56(4):429-436.
15. Lambert C, Jones B. (2010). Alternatives to rapid weight loss in US wrestling, *Int J Sports Med*; 31(8):523-8.
16. Marttinen RH, Judelson DA, Wiersma LD, Coburn JW. (2011). Effects of self-selected mass loss on performance and mood in collegiate wrestlers. *J Strength Cond Res*. 25(4):1010-5.
17. Mirzaei B, Amirsasan R, Emami M (2010) Methods of weight loss in Iranian Elite wrestlers *Journal Of Olympic*. Vol 19 (No1) serial 53:69-76
18. Moquin, A. and R.S. Mazzeo. (2000). "Effect of mild dehydration on the lactate threshold in women." *Med. Sci. Sports Exerc*. Vol. 32, No. 2, pp. 396-402.
19. Oppliger,R.A.; Landry,G.L.; Foster,S.W.; Lambrecht,A.C. (1993).Bulimic Behaviors among Interscholastic Wrestlers: A Sate wide Survey , *pediatrics*. *Clin J Sport Med* (91):826-831.
20. Oppliger R.A,Steen S.N and Scot J.R.(2003).Weight loss practice of college wrestling, *International Journal Of sport Nutrition and Exercise Metabolism* (13):29-46.
21. Oppliger R.A, Scott J.R and Steen S.N. (2006).Weight loss practice of college wrestling, *Medicine & Science in Sports & Science in sport & Exercise*, 35(5). Oppliger,R.A.; Landry,G.L.; Foster,S.W.; Lambrecht,A.C.
22. Oppliger,R.A.; Landry,G.L.; Foster,S.W.; Lambrecht,A.C. (1998). Wisconsin minimum weight program Reduces weight –cutting practice of high school wrestlers. *Clinical Journal of Sport Medicine*, (8):26-31.
23. Perriello V.A.(1994).Aiming for healthy wrestlers and other athletes Contemporary Pediatrics. *Academic Journal*, 18(9):55-74.
24. Perriello V.A, Almquist J and Conkwright D. (1995). Health and weight control management among wrestlers. *Virginia Medical Quarterly*, 122(3):179-183.
25. Perrillo V.A.(2005).Promotion of Healthy Weight –Control Practices in Young Athletes .*American Academy of pediatrics, Committee on Sports Medicine and Fitness , Pediatrics* ,116(6):1557-1564.
26. Rankin J.W. (2002).Weight loss and gain in athletes, *Curr Sport Med Rep*, (4):208-213.

27. Saima T, Oopik V, Paasuke M, Medijainen L and Ereline E .(2008).Acute Effects of self –Selected regimen of rapid body mass loss in combat sports Athletes, *Journal of Sports Science and Medicine*,(7)210-217.
28. Steen S. N; Browneel K. D. (1990).Patterns of weight loss and regain in wrestlers: has the Tradition Chang, *Medicine & Science in Sport & Exercise*. 22(6): 762-768.
29. Yanagawa Y, Morimura T, Tsunekawa K, Seki K, Ogiwara T, Kotajima N, Machida T, Matsumoto S, Adachi T, Murakami M. (2010). Oxidative stress associated with rapid weight reduction decreases circulating adiponectin concentrations. *Endocr J*; 57(4):339-45.