Forms and symptoms of rapid weight loss in BJJ practitioners with and without nutritional counselling

Formas y síntomas de pérdida rápida de peso en practicantes de BJJ con y sin asesoramiento nutricional

Authors

Clovis de Albuquerque Maurício[1], Victor Hugo Vieira Ribeiro Alves[1], Rafael Pereira Azevedo Teixeira[1], Aleksandro Ferreira Gonçalves[1], Emanuela Pierantozzi[2], Rodrigo Cunha de Mello Pedreiro[1], Bianca Miarka[1]

[1]Universidade Federal do Rio de Janeiro (Brasil)
[2]Univerista di Genova (Italia)

Corresponding author:
Clovis de A. Maurício
clovisnutesportiva@gmail.com

How to cite in APA

Mauricio, C., Hugo Vieira Ribeiro Alves, V., Pereira Azevedo Teixeira, R., Ferreira Gonçalves, A., Pierantozzi, E., Cunha de Mello Pedreiro, R., & Miarka, B. (2025). Forms and symptoms of rapid weight loss in BJJ practitioners with and without nutritional counselling. *Retos*, *66*, 530–538. https://doi.org/10.47197/retos.v66.110997

Abstract

Introduction: Brazilian Jiu Jitsu (BJJ) is a grappling-based combat sport where athletes are classified by age, rank, gender, and weight. Rapid weight loss (RWL) practices are commonly adopted by BJJ and other combat sport athletes to meet weight category requirements, often using various strategies with or without nutritional guidance.
Objective: This study aimed to evaluate the prevalence, types, and effects of RWL practices among BJJ competitors, specifically comparing methods and symptom profiles between athletes with and without nutritionist support.
Methodology: In this observational study, 234 BJJ athletes (121 with nutritionist support and 113 without) completed the Rapid Weight Loss Questionnaire (RWLQ) via Google Forms. Data were collected during national competitions held in Brazil, Ireland, and Italy across 2022 and 2023. Athletes reported on their weight loss history, frequency of RWL, specific methods used, and experienced symptoms. Statistical analyses, including Mann-Whitney U, Chi-square, and Shapiro-Wilk tests, were conducted, with significance set at $p \leq 0.05$.
Results: indicated that athletes with nutritionist support practiced RWL more frequently and achieved greater weight loss (mean 7.6 kg over 3 instances) than those without support, primarily using gradual dieting (56.2% vs. 31.9%). This group also reported higher rates of fatigue (78.5% vs. 67.3%) and headache (52.1% vs. 34.5%).
Conclusions: BJJ athletes with nutritional guidance not only engaged in more frequent and substantial RWL but also experienced increased RWL-related symptoms, suggesting a potential trade-off between supervised weight management and symptom burden.

Keywords

Body composition, dietary counseling, exercise physiology, martial arts, weight reduction programs.

Resumen

Introducción: El Brazilian Jiu Jitsu (BJJ) es un deporte de combate basado en técnicas de agarre, donde los atletas se clasifican por edad, rango, género y peso. Las prácticas de pérdida rápida de peso (RWL) son comúnmente adoptadas por atletas de BJJ y otros deportes de combate para cumplir con los requisitos de categoría de peso, utilizando diversas estrategias con o sin orientación nutricional.
Objetivo: Este estudio tuvo como objetivo evaluar la prevalencia, tipos y efectos de las prácticas de RWL entre competidores de BJJ, comparando específicamente los métodos y los perfiles de síntomas entre los atletas con y sin apoyo nutricional.
Metodología: estudio observacional, 234 atletas de BJJ (121 con apoyo de un nutricionista y 113 sin él) completaron el Cuestionario de Pérdida Rápida de Peso (RWLQ) a través de Google Forms. Los datos se recopilaron durante competiciones nacionales realizadas en Brasil, Irlanda e Italia entre 2022 y 2023. Los atletas informaron sobre su historial de pérdida de peso, frecuencia de RWL, métodos específicos utilizados y síntomas experimentados. Se realizaron análisis estadísticos, incluyendo pruebas de Mann-Whitney U, Chi-cuadrado y Shapiro-Wilk, con un nivel de significancia de $p \leq 0,05$.
Resultados: los atletas con apoyo nutricional practicaron RWL con mayor frecuencia y lograron mayores pérdidas de peso (promedio de 7,6 kg en 3 ocasiones) que aquellos sin apoyo, principalmente mediante una dieta gradual (56,2 % frente al 31,9 %). Este grupo también informó tasas más altas de fatiga (78,5 % frente al 67,3 %) y dolor de cabeza (52,1 % frente al 34,5 %).
Conclusiones: los atletas de BJJ con orientación nutricional no solo se involucraron en RWL con mayor frecuencia e intensidad, sino que también experimentaron un aumento en los síntomas relacionados, lo que sugiere un posible intercambio entre la gestión de peso supervisada y la carga de síntomas.

Palabras clave

Asesoría nutricional, artes marciales, composición corporal, fisiología del ejercicio, programas de reducción de peso.

Introduction

Brazilian Jiu Jitsu (BJJ) is a grappling-based combat sport involving techniques such as unbalancing, throws, immobilizations, joint locks, and chokes to achieve victory (IBJJF, 2021). BJJ matches alternate between high- and low-intensity movements, where high-intensity actions can decrease performance due to muscle fatigue (Andreato, Julio, Panissa, et al., 2015; Dos Santos et al., 2023). Key factors influencing success in this sport include physical conditioning, technical skill, and body mass (Andreato, Julio, Panissa, et al., 2015; Fernandes Da Costa et al., 2024; Merino-Fernández et al., 2024).

BJJ athletes are categorized by age, rank, gender, and weight (IBJJF, 2021). The level of dedication to BJJ and an athlete's rank can influence the frequency of rapid weight loss (RWL), as black belts tend to engage in RWL more often and lose more weight than athletes of other ranks (Maurício, 2023). Weight classes were established to prevent injuries linked to strength differences and to balance strength and agility across competitors (Čierna et al., 2018; Giannini Artioli et al., 2010; Reale et al., 2020). However, many athletes pursue a competitive advantage by utilizing RWL strategies, allowing those with greater reach and height, typically associated with a higher body mass, to fit into a lower weight category. Following weigh-ins, these athletes often regain the lost weight (Lise et al., 2021).

Athletes use both nutritional (Brandt et al., 2018; Do Nascimento et al., 2020; Motevalli et al., 2015; Rhyu & Cho, 2014) and physical methods (John E. Hall & Arthur C. Guyton, 2011; Rhyu & Cho, 2014; Zubac et al., 2020) to achieve RWL. Studies have shown that RWL is common in various combat sports, with athletes losing weight up to 10 days before weigh-ins (Barley et al., 2019; Giannini Artioli et al., 2010; Mauricio et al., 2022). The gradual diet is one of the most widely used RWL strategies (Kirk et al., 2020; Maurício, 2023; Ranisavljev et al., 2022), and nutritionists are the most qualified professionals to guide this process (Brito et al., 2012; Park et al., 2019; Štangar et al., 2022). However, RWL in BJJ practitioners can lead to symptoms such as dizziness, fatigue, cramps, and headaches (Maurício, 2023).

According to studies, gradual dieting is among the most common RWL methods. Nutritional guidance plays a critical role in optimizing dietary adjustments, including timing and the amount of weight to be lost, which is essential for minimizing RWL's adverse effects on performance and health (Belval et al., 2019; Brandt et al., 2018; Lakicevic et al., 2021; Park et al., 2019; Štangar et al., 2022; Zhong et al., 2024). Even a 1.5% decrease in body weight through dehydration can negatively impact anaerobic performance (William D. McArdle et al., 2016), though dehydration-based weight loss is frequent in BJJ (Brito et al., 2012; Maurício, 2023). Additionally, meal skipping, fasting, or extreme dietary restriction can deplete liver and muscle glycogen, which impairs anaerobic performance—critical for BJJ athletes (Andreato, Julio, Gonçalves Panissa, et al., 2015; Antoni et al., 2018).

With the growth of BJJ and the increasing number of competitors, RWL practices are becoming more prevalent. Given the lack of research on RWL in BJJ, this study aims to examine RWL strategies and symptoms associated with their use, comparing the outcomes of RWL with and without the supervision of a nutritionist.

Method

This cross-sectional study was conducted using a questionnaire available on the Google Forms platform, with interviews carried out during national-level competitions in Brazil, Ireland, and Italy in 2023. A single researcher conducted the interviews, utilizing the adapted Rapid Weight Loss Questionnaire (Artioli et al., 2010). Participants were informed of the study's objectives and potential risks, and all signed the Free and Informed Consent Form, in accordance with the Declaration of Helsinki. The Research Ethics Committee of UFRJ approved this research (No. 57395822.0.0000.5286).

Participants

In this study, 234 volunteers were selected, all BJJ competitors from national competitions in Italy, Ireland, and Brazil. Participants were over 18 years old, of both genders and all ranks, and were divided between Brazil and Europe. Exclusion criteria included individuals who did not complete the questionnaire or did not provide clear responses, as well as those who were not competing on the survey days. Based on a population estimate of approximately 2,500,000 (Gracie Mag, 2019), the confidence level for

sample calculation was set at 90%, with a 5% margin of error, resulting in a minimum required sample size of 174 participants.

Among the 234 participants, 148 were from Brazil (63.2%) and 86 (36.8%) from Europe. A total of 121 (51.7%) reported receiving nutritional guidance for weight loss, while 113 (48.3%) did not. The average age of participants was 31.3 years (SD = 9.1), with a mean weight of 78.2 kg (SD = 14) and average height of 1.7 m (SD = 0.1). Regarding belt ranks, 12.4% were white belts, 24% blue belts, 48% purple belts, 12% brown belts, and 30.9% black belts, as presented in Table 1.

Table 1. Percentages and frequencies of participants in relation to region, gender, age, weight, height and degree.

Participants	Nutri	Other	All
	N (%)	N (%)	N (%)
		Region	
Brazil	81 (54.7)	67 (45.3)	148 (63.2)
Europe	40 (46.5)	46 (53.5)	86 (36.8)
Total	121 (51.7)	113 (48.3)	234
		Gender	
Male	90 (74.4)	92 (81.4)	182 (77.8)
Female	31 (25.6)	21 (18.6)	52 (22.2)
		Degree*	
White	13 (10.7)	16 (14.2)	29 (12.4)
Blue	18 (14.9)	38 (33.6) *	56 (24)
Purple	28 (23.1)	20 (17.7)	48 (20.6)
Brown	20 (16.5)	8 (7.1)	28 (12)
Black	42 (34.7) *	31 (27.4)	72 (30.9)
		Competitive level	
Amateur	36 (29.8%)	42 (37.2%)	78 (33.3)
Elite	54 (44.6%)	55 (48.7%)	109 (46.6)
Professional	31 (25.6%)	16 (14.2%)	47 (20.1)
Characteristics	M(SD)	M(SD)	M(DP)
Age	31.4 (8.5)	31.1 (9.8)	31.3 (9.1)
Weight (Kg)	77.5 (13.35)	78.9 (14.76)	78.2 (14)
Height (M)	1.72 (0.1)	1.75 (0.1)	1.73 (0.08)

* = statistical significance ≥0.05

Procedure

The Rapid Weight Loss Questionnaire (RWLQ), a self-report tool tailored to assess rapid weight loss (RWL) patterns among Brazilian Jiu-Jitsu (BJJ) competitors, was utilized in this study. The RWLQ is specifically designed for the competitive BJJ environment, employing terms, expressions, and language familiar to BJJ athletes. In adherence to the authors' guidelines (Artioli et al., 2010), the RWLQ was administered with precise and accessible language. Data collection was conducted via Google Forms, targeting BJJ athletes active in competitions between 2022 and 2023. The questionnaire was available in Portuguese, English, Spanish, and Italian. Responses were collected directly on the Google Forms platform, with participants completing the questionnaire on their phones or providing responses to an interviewer who recorded the data. The study emphasized the importance of accuracy in reporting. Competitors' responses were analysed to identify variations in RWL methods and related symptoms associated with different types of RWL advice.

Measurements

Initially, demographic and baseline information, including gender, age, weight, height, total weight lost through RWL, frequency of weight loss attempts over the past two years, maximum weight loss, and different RWL methods in relation to frequency and experienced symptoms, were collected.

Data analysis

Descriptive variables, including region, sex, age, weight, and height, were reported as means (M), standard deviations (SD), and overall percentages (%). To analyse category changes, training duration, weekly training hours, participation in additional activities, and perceived RWL effects, we applied the Mann-Whitney U test and the Shapiro-Wilk test for normality assessment. The non-parametric Mann-Whitney test was used to compare RWL methods and their associated symptoms. Additionally, the chi-square test was utilized to evaluate categorical variables, and the Student's t-test was applied to assess

RWL frequency and amount in kilograms. Statistical significance was set at $p \leq 0.05$. All analyses were performed using SPSS 20.0 for Windows.

Results

In Table 2, the data show that participants lost an average of 2.1 kg (±1.85) within 10 days before the competition, with RWL occurring an average of 2.7 (±3.8) times per year. The greatest weight loss reported averaged 7.1 kg (±6.7), and the average age at RWL initiation was 20.4 years (±11.5). Additionally, 56.1% of participants reported no change in weight category over the past two years. Most participants had more than five years of practice, with 28.3% having 5 to 10 years and 34.8% more than 10 years of practice. In terms of weekly training hours, over 9 hours was the most common response (27%), followed by 4.5 to 6 hours per week (21.9%). A majority also reported engaging in additional strength-based activities, such as bodybuilding, specific fight training, or CrossFit (58.8%). Regarding self-identification, most participants considered themselves competitors (46.6%).

Table 2. Rapid weight loss, category changes, practice duration, weekly training hours, and participation in other activities.

Variables	Nutri M(DP)	Other M(DP)	All M (DP)
Rapid weight loss (KG)	2.25 (1.77)	1.96 (1.94)	2.1 (1.85)
X lose weight (2 years)	3 (3.7)	2.3 (3.7)	2.7 (3.8)
Biggest lose weight (Kg)	7.6 (4.9)	6.7 (8.3)	7.1 (6.7)
Weight Loss Start (age)	21 (10.7)	19.6 (12.2)	20.4 (11.5)
Changed category	N (%)	N (%)	N (%)
No	62 (51.2%)	70 (61.9%)	132 (56.4)
Moved down	17 (14%)	16 (14.2%)	33 (14.1)
Moved up	42 (34.7%)	27 (23.9%)	69 (29.5)
Practice time*	N (%)	N (%)	N (%)
1 year	5 (4.1%)	5 (4.4%)	10 (4.3%)
1 - 3 years	6 (5%)	12 (10.6%)	18 (7.7%)
3 - 5 years	22 (18.2%)	36 (31.9%) *	58 (24.9%)
5 - 10 years	44 (36.4%) *	22 (19.5%)	66 (28.3%)
>10 years	44 (36.4%)	38 (33.6%)	81 (34.8%)
Training hours*	N (%)	N (%)	N (%)
3 Hours	6 (5%)	18 (15.9%)	24 (10.3)
3 – 4.5 Hours	17 (14%)	32 (28.3%) *	49 (21)
4.5 – 6 hours	29 (24%) *	22 (19.5%)	51 (21.9)
6 h 9 hours	31 (25.6%)	15 (13.3%)	46 (19.7)
>9 hours	38 (31.4%)	26 (23%)	64 (27)
Another activity			
None	17 (14%)	35 (31%)	52 (22.3)
Workout and Crossfit	82 (67.8%)	56 (49.6%)	137 (58.8)
Other fights	10 (8.3%)	8 (7.1%)	18 (7.7)
Other fights and workout	8 (6.6%)	1 (0.9%)	9 (3.9)
Aerobic	2 (1.7%)	2 (1.8%)	4 (1.7)
Other activities	2 (1.7%)	11 (9.7%)	13 (5.6)

* = statistical significance ≥0.05

In Table 3, the most common methods of rapid weight loss (RWL) are shown, comparing participants who are followed by a nutritionist for weight loss with those who are not, highlighting differences in usage frequency. Among participants with nutritionist support, 56.2% reported consistently following a gradual diet, compared to only 31.9% of those without nutritional follow-up, a significant difference. For restrictive dieting, 32.2% of participants with nutritionist support reported sometimes using this method, while 39.8% of those without support reported never using it. Active dehydration also differed: 29.8% of participants with nutritionist support reported sometimes using this method, whereas 39.8% of those without support reported never using it.

Significant differences also appeared in sauna use for weight loss, with 25.6% of participants with nutritionist support sometimes using this method, compared to only 9.7% of those without support. However, most participants in both groups reported never using this method (38% with nutritionist support, 54.9% without). Thermogenic use was low in both groups, with “never” as the most common response (43.8% with nutritionist support, 57.5% without), and was significantly higher among those without support. Additionally, fasting, skipping meals, liquid restriction, and training in plastic clothing were rarely used in either group, as the majority reported “never” using these methods. Similarly, most participants reported never using hot tubs, laxatives, or diuretics for rapid weight loss.

Table 3. Methods for rapid weight loss with and without nutritionist support

	Gradual diet*	Restrictive diet	Fasting	Jump Meals	Fluid restriction	Training with plastic suits	Active dehydration*	Water loading	Sauna*	Hot bath tub	Laxatives	Diuretics	Termogenics*
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Nutri													
Always	68 (56.2) *	14 (11.6)	15 (12.4)	10 (8.3)	14 (11.6)	15 (12.4)	21 (17.4)	31 (25.6)	15 (12.4)	2 (1.7)	2 (1.7)	2 (1.7)	11 (9.1)
Sometimes	23 (19)	39 (32.2)	18 (14.9)	22 (18.2)	24 (19.8)	24 (19.8)	36 (29.8) *	22 (18.2)	31 (25.6) *	16 (13.2)	5 (4.1)	13 (10.7)	21 (17.4)
Rarely	8 (6.6)	23 (19)	31 (25.6)	23 (19)	23 (19)	29 (24)	16 (13.2)	18 (14.9)	22 (18.2)	25 (20.7)	24 (19.8)	24 (19.8)	24 (19.8)
I've Used It, I Don't Use It Anymore	4 (3.3)	16 (13.2)	9 (7.4)	11 (9.1)	15 (12.4)	13 (10.7)	14 (11.6)	12 (9.9)	7 (5.8)	8 (6.6)	13 (10.7)	18 (14.9)	12 (9.9)
Never	18 (14.9)	29 (24)	48 (39.7)	55 (45.5)	45 (37.2)	40 (33.1)	34 (28.1)	38 (31.4)	46 (38)	70 (57.9)	77 (63.6)	64 (52.9)	53 (43.8) *
Other													
Always	36 (31.9) *	15 (13.3)	11 (9.7)	12 (10.6)	16 (14.2)	17 (15)	14 (12.4)	16 (14.2)	6 (5.3)	3 (2.7)	3 (2.7)	6 (5.3)	8 (7.1)
Sometimes	40 (35.4)	27 (23.9)	24 (21.2)	21 (18.6)	21 (18.6)	16 (14.2)	27 (23.9) *	23 (20.3)	11 (9.7) *	7 (6.2)	5 (4.4)	11 (9.7)	13 (11.5)
Rarely	13 (11.5)	18 (15.9)	17 (15)	28 (24.8)	18 (15.9)	21 (18.6)	19 (16.8)	21 (18.6)	26 (23)	24 (21.2)	20 (17.7)	19 (16.8)	21 (18.6)
I've Used It, I Don't Use It Anymore	3 (2.7)	8 (7.1)	10 (8.8)	7 (6.2)	6 (5.3)	9 (8)	8 (7.1)	5 (4.4)	8 (7.1)	5 (4.4)	8 (7.1)	11 (9.7)	6 (5.3)
Never	21 (18.6)	45 (39.8)	51 (45.1)	45 (39.8)	52 (46)	50 (44.2)	45 (39.8)	48 (42.5)	62 (54.9)	74 (65.5)	77 (68.1)	66 (58.4)	65 (57.5) *

* = statistical significance ≥0.05

In Table 4, we can observe the symptoms reported by participants, comparing those who had nutritionist support with those who did not. Participants with nutritionist support reported a higher perception of fatigue during RWL than those without support (78.5% vs. 67.3%). Regarding headache, the majority of those without nutritional support reported not experiencing this symptom (47.9% vs. 65.5%). Additionally, participants with nutritionist support showed a higher perception of nausea compared to those without (28.1% vs. 16.8%). Other symptoms, such as dizziness and cramps, were also more frequently reported by those under nutritionist supervision, although these differences were not statistically significant. Meanwhile, symptoms like fainting, palpitations, chest pain, and stomach pain were generally not reported by most participants in either group.

Table 4. Symptoms Experienced During Rapid Weight Loss (RWL) With and Without Nutritionist Supervision.

	Dizziness	Fainting*	Fatigue	Cramps	Palpitations*	Chest pain*	Headache*	Stomachache*	Nausea *
					Nutri				
Yes	61 (50.4)	7 (5.8)	95 (78.5)	61 (50.4)	24 (19.8)	7 (5.8)	63 (52.1)	41 (33.9)	34 (28.1)
No	60 (49.6)	114 (94.2)	26 (21.5)	60 (49.6)	97 (80.2)	114 (94.2)	58 (47.9)	80 (66.1)	87 (71.9)
					Others				
Yes	49 (43.4)	3 (2.7)	76 (67.3)	56 (49.6)	19 (16.8)	7 (6.2)	39 (34.5)	27 (23.9)	19 (16.8)
No	64 (56.6)	110 (97.3)	37 (32.7)	57 (50.4)	94 (83.2)	106 (93.8)	74 (65.5)	86 (76.1)	94 (83.2)

* = statistical significance ≥0.05

The chi-square test results indicate significant differences in several symptoms experienced during RWL between participants with and without nutritionist supervision. For dizziness, fainting, fatigue, cramps, palpitations, chest pain, headache, stomach pain, and nausea, significant chi-square values were found ($p < .001$) in most cases, indicating notable differences in symptom perception based on nutritional supervision. Specifically, symptoms like dizziness, fainting, palpitations, chest pain, and stomach pain presented highly significant chi-square values ($p < .001$) for both groups. In contrast, the symptom of fatigue did not show a significant difference ($p = .928$ and $p = .925$ for both groups), suggesting it was equally common in participants regardless of nutritional supervision. Additionally, headache did not reach significance in the groud without nutritional supervision ($p = .649$) but was significant in the other ($p = .001$). For both tests, there were no cells with expected frequencies less than 5, ensuring robustness in these chi-square calculations.

Discussion

This study aimed to examine the presence of professional guidance, strategies employed, and symptoms associated with rapid weight loss (RWL) in Brazilian Jiu-Jitsu (BJJ) athletes. Among the 234 participants (182 men and 52 women), the majority of the sample was made up of men, and this is normal for the sport, where the majority of practitioners are men (Riquelme-Hernández et al., 2022), 121 individuals (51.7%) reported receiving nutritional guidance for RWL, while 113 (48.3%) did not, aligning with findings by (Park et al., 2019), who reported that 63.7% of BJJ athletes received professional nutrition support. This finding diverges from studies by (Brito et al., 2012), (Maurício, 2023; White & Kirk, 2021), which noted a limited influence of nutritionists on the adoption of RWL methods. Similar trends have been observed in other grappling combat sports, with a low number of athletes receiving nutritional monitoring (Brito et al., 2012; Figlioli et al., 2021; Ranisavljev et al., 2022; Štangar et al., 2022).

Participants with nutritional monitoring reported higher frequencies of RWL (3 ± 3.7 times vs. 2.3 ± 3.7 times) over two years and greater average weight loss (2.25 ± 1.7 kg vs. 1.96 ± 1.94 kg) compared to those without monitoring, consistent with findings by (Bueno et al., 2023; Maurício, 2023; White & Kirk, 2021), who also studied BJJ competitors. The lesser magnitude of RWL in BJJ, compared to other combat sports like mixed martial arts (MMA), judo, and wrestling (Figlioli et al., 2021; Ranisavljev et al., 2022), may be related to the shorter weigh-in-to-competition interval in BJJ championships (Maurício, 2023; Todorović et al., 2021; White & Kirk, 2021). The more frequent use of RWL methods among those with nutritional support may stem from an increased sense of security when overseen by a qualified professional (Brito et al., 2012; Park et al., 2019). Notably, a higher percentage of those with nutritional support identified as professional athletes (65.9%), potentially due to a stronger sense of sports identity and commitment (Barley et al., 2019).

Regarding specific RWL methods, as seen in prior studies (Maurício, 2023; Štangar et al., 2022; Zhong et al., 2024), a gradual diet was the most commonly reported approach, contrasting with studies like (Brito et al., 2012; Coswig et al., 2013), which found a higher prevalence of methods focused on increased caloric expenditure and dehydration, such as intensified training. In grappling sports like judo and wrestling, dehydration methods are more frequently used (Goés et al., 2019), likely due to longer weigh-in-to-competition intervals allowing for weight regain.

This study revealed significant differences between participants with and without nutritional monitoring in the use of a gradual diet ("always" for 56.2% vs. 31.9%), sauna and active dehydration ("sometimes" for 25.6% vs. 9.7% and 29.8% vs. 23.9%, respectively), and thermogenic use ("never" for 43.8% vs. 57.5%). According to (Brito et al., 2012; Park et al., 2019; Štangar et al., 2022), nutritionists are the most appropriate professionals to prescribe diets and manage nutrient intake throughout an athlete's competitive cycle, which may explain the greater use of gradual dieting and lower reliance on thermogenics among those with professional guidance.

While most studies on BJJ competitors examine RWL methods, magnitude, and guidance, few focus on the symptoms associated with these methods. In line with (Maurício, 2023) this study found that fatigue, cramps, dizziness, and headache were the most commonly reported symptoms. Participants with nutritional monitoring reported a significantly higher perception of fatigue (78.5% vs. 67.3%), headache (52.1% vs. 34.5%), and nausea (28.1% vs. 16.8%) than those without monitoring. This increased symptom reporting may be associated with the higher frequency and magnitude of weight loss among those with guidance (2.25 ± 1.7 kg vs. 1.96 ± 1.94 kg; 7.6 ± 4.9 kg vs. 6.7 ± 8.3 kg, respectively).

Although this study investigated the extent, methods, nutritional guidance, and symptoms associated with RWL, it did not explore the relationship between RWL and competitive success or the impact on performance, nor did it examine psychological symptoms related to RWL. Future research could address these areas. In conclusion, BJJ athletes with nutritional support tend to perform RWL more frequently and with greater weight loss, which may contribute to the higher incidence of symptoms in this group. Given the prominence of dietary strategies in RWL, we recommend professional nutritional support for BJJ athletes and competitors in other combat sports.

Conclusions

Based on the findings, it is evident that BJJ athletes with nutritional guidance engage in RWL practices more frequently and with a greater magnitude than those without such support. Nutritional supervision appears to influence the choice of safer and more controlled weight loss methods, such as gradual dieting, while reducing reliance on riskier strategies like thermogenic use. This sense of security when working with a qualified professional could explain the higher prevalence of RWL practices among athletes with nutritional support. Additionally, those under professional guidance experience a greater incidence of symptoms like fatigue, nausea, and headache, likely due to the frequency and extent of weight loss.

These insights suggest that while nutritional support fosters more structured RWL approaches, it may also contribute to an increased awareness of the physical impact of weight loss, underscoring the importance of professional monitoring. Nevertheless, the psychological effects of RWL, as well as the link between RWL practices and athletic performance, remain areas for future research. Given that dietary

interventions are central to RWL strategies, providing BJJ and other combat sport athletes with qualified nutritional support is recommended to promote both safe practices and optimized performance.

Financing

None.

References

Andreato, L. V., Julio, U. F., Gonçalves Panissa, V. L., Del Conti Esteves, J. V., Hardt, F., Franzói de Moraes, S. M., Oliveira de Souza, C., & Franchini, E. (2015). Brazilian Jiu-Jitsu Simulated Competition Part II. *Journal of Strength and Conditioning Research*, *29*(7), 2015–2025. https://doi.org/10.1519/JSC.0000000000000819

Andreato, L. V., Julio, U. F., Panissa, V. L. G., Esteves, J. V. D. C., Hardt, F., de Moraes, S. M. F., de Souza, C. O., & Franchini, E. (2015). Brazilian Jiu-Jitsu Simulated Competition Part I. *Journal of Strength and Conditioning Research*, *29*(9), 2538–2549. https://doi.org/10.1519/JSC.0000000000000918

Antoni, R., Johnston, K. L., Collins, A. L., & Robertson, M. D. (2018). Intermittent *v* . continuous energy restriction: differential effects on postprandial glucose and lipid metabolism following matched weight loss in overweight/obese participants. *British Journal of Nutrition*, *119*(5), 507–516. https://doi.org/10.1017/S0007114517003890

Artioli G. G., Scagliusi F., Kashiwagura D., Franchini E., Gualano B., & Junior A. L. (2010). Development, validity and reliability of a questionnaire designed to evaluate rapid weight loss patterns in judo players. *Scandinavian Journal of Medicine e Science in Sports*, *20*, 177–187. 10.1111/j.1600-0838.2009.00940.x

Barley, O., Chapman, D., & Abbiss, C. (2019). The Current State of Weight-Cutting in Combat Sports. *Sports (Basel)*, *7*(5), 123. https://doi.org/10.3390/sports7050123

Belval, L. N., Hosokawa, Y., Casa, D. J., Adams, W. M., Armstrong, L. E., Baker, L. B., Burke, L., Cheuvront, S., Chiampas, G., González-Alonso, J., Huggins, R. A., Kavouras, S. A., Lee, E. C., McDermott, B. P., Miller, K., Schlader, Z., Sims, S., Stearns, R. L., Troyanos, C., & Wingo, J. (2019). Practical Hydration Solutions for Sports. *Nutrients*, *11*(7), 1550. https://doi.org/10.3390/nu11071550

Brandt, R., Bevilacqua, G. G., Coimbra, D. R., Pombo, L. C., Miarka, B., & Lane, A. M. (2018). Body Weight and Mood State Modifications in Mixed Martial Arts: An Exploratory Pilot. *Journal of Strength and Conditioning Research*, *32*(9), 2548–2554. https://doi.org/10.1519/JSC.0000000000002639

Brito, C. J., Castro, F., Roas, M., Surian, I., Brito, S., Carlos, J., Marins, B., Córdova, C., & Franchini, E. (2012). Methods of Body-Mass Reduction by Combat Sport Athletes. In *International Journal of Sport Nutrition and Exercise Metabolism* (Vol. 22).

Bueno, J. C. A., Silva, R. B., Diotaiuti, P., Andreato, L. V., & Andrade, A. (2023). Effect of rapid weight loss on mood states and burnout of Brazilian jiu-jitsu athletes during a competitive process. *Frontiers in Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1114816

Čierna, D., Barrientos, M., Agrasar, C., & Arriaza, R. (2018). Epidemiology of injuries in juniors participating in top-level karate competition: a prospective cohort study. *British Journal of Sports Medicine*, *52*(11), 730–734. https://doi.org/10.1136/bjsports-2017-097756

Coswig V.S., Neves A. H. S., & Del Vecchio F. B. (2013). Respostas bioquímicas, hormonais e hematológicas a lutas de jiu-jitsu brasileiro Biochemical, hormonal and hematological responses to brazilian Jiu-jitsu matches. *Revista Brasileira Ciência e Movimento*, *21*(2), 19–30.

Do Nascimento, M. V. S., Reinaldo, J. M., Brito, C. J., & Mendes-Netto, R. S. (2020). Weight cutting is widespread among adolescent judoka regardless of experience level: The need of weight control and educational programs. *Journal of Physical Education and Sport*, *20*(1), 150–155. https://doi.org/10.7752/jpes.2020.01020

Dos Santos, M. A. F., De Albuquerque Maurício, C., Alexis Sobarzo Soto, D., Aedo-Muñoz, E., José Brito, C., Pierantozzi, E., & Miarka, B. (2023). The Dynamics of Victory: Exploring the Movement Patterns of Female Brazilian Jiu-Jitsu Athletes in Win-ning and Losing Combats through Time-Motion Analysis. *Retos*, *51*, 1687–1696. https://doi.org/10.47197/retos.v51.101063

Fernandes Da Costa, L. O., Sobarzo Soto, D. A., José Brito, C., Aedo-Muñoz, E., & Miarka, B. (2024). Dynamic strength and muscle power in elite and non-elite Brazilian jiu-jitsu (BJJ) athletes: a systemat-ic review with meta-analysis. *Retos*, *52*, 291–303. https://doi.org/10.47197/retos.v52.101845

Figlioli, F., Bianco, A., Thomas, E., Stajer, V., Korovljev, D., Trivic, T., Maksimovic, N., & Drid, P. (2021). Rapid weight loss habits before a competition in sambo athletes. *Nutrients*, *13*(4). https://doi.org/10.3390/nu13041063

Giannini Artioli, G., Gualano, B., Franchini, E., Scagliusi, F. B., Takesian, M., Fuchs, M., & Lancha, A. H. (2010). Prevalence, magnitude, and methods of rapid weight loss among judo competitors. *Medicine and Science in Sports and Exercise*, *42*(3), 436–442. https://doi.org/10.1249/MSS.0b013e3181ba8055

Goés, G. H. de, Azzi, A. da S., Saldanha, R. P., & Garlipp, D. C. (2019). Prevalência e métodos de perda de peso rápida em atletas de judô. *Revista Brasileira de Nutrição Esportiva*, *12*(76), 1005–1010.

Gracie Mag. (2019, April 15). *Quantas pessoas praticam Jiu-Jitsu e esportes de luta no Brasil? Pesquisa dá estimativa*. Https://Www.Graciemag.Com/Quantas-Pessoas-Praticam-Jiu-Jitsu-e-Esportes-de-Luta-No-Brasil-Pesquisa-Da-Estimativa/.

IBJJF. (2021). *Livro de regras: Vol. 5.2*.

John E. Hall, & Arthur C. Guyton. (2011). *Tratado de fisiologia médica* (12º).

Kirk, C., Langan-Evans, C., & Morton, J. P. (2020). Worth the Weight? Post Weigh-In Rapid Weight Gain is Not Related to Winning or Losing in Professional Mixed Martial Arts. *International Journal of Sport Nutrition and Exercise Metabolism*, *30*(5), 357–361.

Lakicevic, N., Paoli, A., Roklicer, R., Trivic, T., Korovljev, D., Ostojic, S. M., Proia, P., Bianco, A., & Drid, P. (2021). Effects of rapid weight loss on kidney function in combat sport athletes. In *Medicina (Lithuania)* (Vol. 57, Issue 6). MDPI AG. https://doi.org/10.3390/medicina57060551

Lise, R. S., Ordonhes, M. T., Capraro, A. M., & Cavichiolli, F. R. (2021). The challenge before the fight: a discussion on rapid weight loss in UFC Athletes (El desafío antes de la pelea: una discusión sobre la pérdida de peso rápida en los atletas de UFC). *Retos*, *44*, 595–604. https://doi.org/10.47197/retos.v44i0.91280

Maurício, C. D. A., Vilardo Í. D. A. F., Gonçalves A. F., Teixeira R. P. A., Pérez D. I. V., Brito C. J., Miarka, B. (2023). Predominance and effect of graduation belt on rapid weight loss in Brazilian Jiujitsu athletes. *Journal of Physical Education and Sport*, *23*(1), 98–105.

Mauricio, C. D. A., Merino, P., Merlo, R., Vargas, J. J. N., Chávez, J. A. R., Pérez, D. V., Aedo-Muñoz, E. A., Slimani, M., Brito, C. J., Bragazzi, N. L., & Miarka, B. (2022). Rapid Weight Loss of Up to Five Percent of the Body Mass in Less Than 7 Days Does Not Affect Physical Performance in Official Olympic Combat Athletes With Weight Classes: A Systematic Review With Meta-Analysis. In *Frontiers in Physiology* (Vol. 13). Frontiers Media S.A. https://doi.org/10.3389/fphys.2022.830229

Merino-Fernández, M., Lopéz Díaz-de-Durana, A., Mota Barreto, L. B., Valenzuela Pérez, D. I., & Brito, C. J. (2024). Smile stimuli induce better performance in tests performed by children and adolescents practicing jiu-jitsu. *Retos*, *59*, 1175–1181. https://doi.org/10.47197/retos.v59.105903

Motevalli, M. S., Dalbo, V. J., Attarzadeh, R. S., Rashidlamir, A., Tucker, P. S., & Scanlan, A. T. (2015). The effect of rate of weight reduction on serum myostatin and follistatin concentrations in competitive wrestlers. *International Journal of Sports Physiology and Performance*, *10*(2), 139–146. https://doi.org/10.1123/ijspp.2013-0475

Park, S., Alencar, M., Sassone, J., Madrigal, L., & Ede, A. (2019). Self-reported methods of weight cutting in professional mixed-martial artists: how much are they losing and who is advising them? *Journal of the International Society of Sports Nutrition*, *16*(1), 52. https://doi.org/10.1186/s12970-019-0320-9

Ranisavljev, M., Kuzmanovic, J., Todorovic, N., Roklicer, R., Dokmanac, M., Baic, M., Stajer, V., Ostojic, S. M., & Drid, P. (2022). Rapid Weight Loss Practices in Grapplers Competing in Combat Sports. *Frontiers in Physiology*, *13*. https://doi.org/10.3389/fphys.2022.842992

Reale, R., Burke, L. M., Cox, G. R., & Slater, G. (2020). Body composition of elite Olympic combat sport athletes. *European Journal of Sport Science*, *20*(2), 147–156. https://doi.org/10.1080/17461391.2019.1616826

Rhyu, H., & Cho, S.-Y. (2014). The effect of weight loss by ketogenic diet on the body composition, performance-related physical fitness factors and cytokines of Taekwondo athletes. *Journal of Exercise Rehabilitation*, *10*(5), 326–331. https://doi.org/10.12965/jer.140160

Riquelme-Hernández, C. R., Reyes-Barría, J. P., Herrera-Valenzuela, T., Zapata-Lamana, R., Reyes Molina, D. E., & Cigarroa, I. (2022). Profile of the Brazilian Jiu-Jitsu fighter, variables, techniques and instruments for measuring sports performance: A scoping review (Perfil del luchador de Jiu-Jitsu Brasileño, variables, técnicas e instrumentos para medir el rendimiento deportivo: Una. *Retos*, *45*, 351–363. https://doi.org/10.47197/retos.v45i0.91024

Štangar, M., Štangar, A., Shtyrba, V., Cigić, B., & Benedik, E. (2022). Rapid weight loss among elite-level judo athletes: methods and nutrition in relation to competition performance. *Journal of the International Society of Sports Nutrition*, *19*(1), 380–396. https://doi.org/10.1080/15502783.2022.2099231

Todorović, N., Ranisavljev, M., Tapavički, B., Zubnar, A., Kuzmanović, J., Štajer, V., Sekulić, D., Veršić, Š., Tabakov, S., & Drid, P. (2021). Principles of Rapid Weight Loss in Female Sambo Athletes. *International Journal of Environmental Research and Public Health*, *18*(21), 11356. https://doi.org/10.3390/ijerph182111356

White, T., & Kirk, C. (2021). Pre-competition body mass loss characteristics of Brazilian jiu-jitsu competitors in the United Kingdom. *Nutrition and Health*, *27*(4), 387–394. https://doi.org/10.1177/0260106020983800

William D. McArdle, Frank I. Katch, & Victor L. Katch. (2016). *Fisiologia do Exercício - Nutrição, Energia e Desempenho Humano* (8th ed.).

Zhong, Y., Song, Y., Artioli, G. G., Gee, T. I., French, D. N., Zheng, H., Lyu, M., & Li, Y. (2024). The Practice of Weight Loss in Combat Sports Athletes: A Systematic Review. *Nutrients*, *16*(7), 1050. https://doi.org/10.3390/nu16071050

Zubac, D., Šimunič, B., Buoite Stella, A., & Morrison, S. A. (2020). Neuromuscular performance after rapid weight loss in Olympic-style boxers. *European Journal of Sport Science*, *20*(8), 1051–1060. https://doi.org/10.1080/17461391.2019.1695954

Authors' and translators' details:

Clóvis de Albuquerque Maurício	clovisnutesportiva@gmail.com	Author
Victor Hugo Vieira Ribeiro Alves	victorvieira.labppsc@gmail.com	Author
Rafael Pereira Azevedo	texera.123@gmail.com	Author
Aleksandro Ferreira Gonçalves	aleksandrofg@gmail.com	Author
Emanuella Pierantozzi	emanuela.pierantozzi@gmail.com	Author
Rodrinho Cunha de Mello	rodrigo.pedreiro@estacio.br	Author
Bianca Miarka	miarkasport@hotmail.com	Author