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Opinion Paper

Without refeeding days, drastically reducing calories in the pre-competition phase may does not guarantee a better reduction in bodybuilder's body fat percentage

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SUMMARY

Background & Aims: The caloric restrictions are necessary during the bodybuilder athlete preparation, especially when approaching the pre-contest phase. Although the refeed strategies for bodybuilders are current recent in the scientific literature, drastically reducing calories in the pre-competition phase linearly without periodization may does not guarantee a greater reduction in body fat and still being able harm the athlete's physical on-stage readiness.

Methods: Two cross-sectional studies ($n = 42$) and three case studies ($n = 3$) recent involved bodybuilder athletes aged between 21 and 32 years old who had 14–32 weeks, time involved the preparation phase and the pre-contest phase, to prepare himself and did not contain any refeeding strategy in their dietary protocol prescribed at work. These articles followed participants diets regarding the number of calories and macronutrients, where data collected were separated by the author himself and recorded in Excel spreadsheets for be mathematically calculated and subjectively evaluated.

Results: Of the five studies that were read and organized it's noted apparently that a greater caloric deficit does not influence a greater substantial loss of fat percentage or body weight neither looks to show any numerical visual relationship with maintenance of fat-free mass.

Conclusions: Observationally, a severe caloric deficit without refeed strategies applied in pre-contest phase may not guarantee a greater the weight loss neither a greater reduction in the body fat percentage.

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Introduction

The modality in which competitors are judged by their muscular appearance, symmetry, and leanness in proportional physiques, is bodybuilding (BB) [1]. In this sport, total preparation phases usually last in average lasting 8–26 weeks previous to the competition day and, in the pre-contest phase, these bodybuilders athletes are in negative energy balance by energy restriction and also by more time dedicated to weight training and aerobic exercise to be able to acquire a adjust body mass to the respective weight class reducing as much body fat as possible and maintaining a greater portion of fat-free mass (FFM) [2].

To reach this certain level, athletes need specific reductions in caloric consumption and necessary adjustments in macronutrient offerings, especially carbohydrates, these approaches usually bring the combination of energy restriction with monotonous diet with little food variety, food groups exclusion, and drastic reductions in total calories that can jeopardize an athlete's physical appearance on stage [3].

Diets-based in refeed cycles that lead to a reduction in energy intake for most of the week include refeeding days *ad libitum* for compensate energy deficit on very restricted days, usually are apply in pre-contest phase and may be sufficient to compensate possible losses in the athlete's muscularity from severe calorie restrictions [4]. Since a moderate caloric deficit reduces about 25% of total calories ingested and a severe caloric deficit reduces approximately 30% of total calories ingested, bodybuilders that report implementation of refeed days during pre-contest period in caloric restriction subjectively perceive a "prevention of adaptive downgrades" and "greater energy" [5] and dietary restrictions that include refeed strategies may not influence in lose training performance and still to improve the athlete's physical appearance under numerically greater changes in fat percentage [6]. Therefore, it becomes necessary demonstrate severe caloric restrictions or diets without refeed strategies can be crucial in the bodybuilding athlete physique. That is, in this work, the author brings data from recent studies of diets applied to bodybuilder athletes during a preparation and makes a mathematical analysis with subjective correlation of the data with relation to changes in athletes body composition at the end of the work, especially about the reduction in the percentage of fat.

Materials and methods

Two cross-sectional studies ($n = 42$) and three case studies ($n = 3$) recent involved bodybuilder athletes aged between 21 and 32 years old who had 14–32 weeks to prepare himself and did not contain any refeeding strategy in their dietary protocol prescribed at work. These articles followed participants diets regarding the number of calories and macronutrients, where data collected were separated by the author himself and recorded in Excel spreadsheets for be mathematically calculated and subjectively evaluated as to initial and final (preparation and pre-contest phases) variation from diet, including amount of carbohydrates, proteins, and lipids, correlating them with the variation from weight, fat-free mass (FFM) and, principally, percentage of fat (BF).

Results

The five studies were read and organized in [Table 1](#) in descending order in terms of the amount of caloric restriction in the pre-contest phase. That is, was subtracted the final values (pre-contest phase) from the initial values (preparation phase) as for the diet, these studies did not report any refeed strategies, only applied deficits for improving the athlete's appearance on the stage thinking decrease weight and greater body fat loss. However, it's noted apparently that a greater caloric deficit does not influence a greater substantial loss of fat percentage or body weight neither looks to show any numerical visual relationship with maintenance of fat-free mass.

Discussion

The caloric restrictions applied to bodybuilder athletes in pre-contest phase can be the watershed of body harmonious for the competition day [1] even knowing there are negative consequences for the bodybuilder's physique when applying dietary strategies with severe calorie restrictions [3]. Therefore,

Table 1

Presentation of data variation regarding dietary prescription and body composition of bodybuilding athletes evaluated in the studies

Study Type	Time	Results	Variation (final – initial)							
			Energy	PTN	CHO	LIP	BW	BF	FFM	
[2]	Cross-sectional study with 33 male bodybuilders (age 28.1 ± 3.94).	15–21 weeks	The bodybuilders restrict energy intake during pré-contest phase, which is associated with an increase in oxidative stress markers.	–1771 kcal	–32 g	–333 g	–7%	–8 kg	–7%	+1 kg
[7]	Case study with one 25-year-old amateur natural male bodybuilder.	32 weeks	The implementation of a carb depleted carb load peaking strategy acutely increased muscle thickness and thus may be a viable pre-contest approach to maximize muscular aesthetics.	–1462 kcal	–10 g	–282 g	–38 g	–10 kg	–4%	–6 kg
[8]	Case study with one 21-year-old amateur natural male bodybuilder.	14 weeks	This intervention shows that a structured and scientifically supported nutrition strategy can be implemented to improve parameters relevant to bodybuilding competition.	–882 kcal	+85 g	–192 g	–35 g	–12 kg	–7%	–5 kg
[9]	Case study with one 26-year-old amateur natural male bodybuilder.	26 weeks	A calorically restrictive diet with 2 days of elevated carbohydrate intake per week helped the athlete to improve body composition, suggesting that this method of contest preparation appears to be effective in natural male bodybuilders.	–611 kcal	0 g	–110 g	–19 g	–20 kg	–10%	–3 kg
[10]	Cross-sectional study with 9 natural male bodybuilders (≥18 years of age).	16 weeks	Bodybuilders maintained a very high dietary protein intake and a high resistance training volume during the 16-week competition preparation what helps fat-free mass maintenance.	–214 kcal	–4 g	–10 g	–20 g	–9 kg	–3%	0 kg

Abbreviations: CHO, carbohydrate; PTN, protein; LIP, lipids; BW, Body weight; BF, body fat; FFM, fat free mass.



Pré-contest phase		Possible implications
	With drastically reducing calories ≥ 30 % caloric restriction	<ul style="list-style-type: none"> * Possible greater loss of performance * Possible greater loss of lean mass * No guarantee of further reduction in body fat percentage
	Without drastically reducing calories ≤ 25 % caloric restriction	<ul style="list-style-type: none"> * Possible performance maintenance * Possible maintenance of lean mass * Possible optimization of body fat percentage reduction

Fig. 1. Outline in summary with highlights on possible implications with or without drastically reducing calories.

emerging strategies that periodize food intake are increasingly being addressed by researchers. As athletes benefit from a body with a low-fat percentage with proportion to a high muscularity, dietary strategies that manage to achieve both outcomes can become a strong cornerstone for the dietary prescription of bodybuilder athletes [4].

This way, it's interesting for coaches and athletes to know that greater reductions will not imply lower levels of fat percentage. This opens a window for the inclusion of refeed strategies so that the athlete can refeed and maintain severe calorie restrictions even with free days during the week and still keeping their performance on training's, as has been recently proven [6].

Conclusion

Observationally, a severe caloric deficit (caloric deficit approximately 30 % of total calories ingested) without refeed strategies applied in pre-contest phase may not guarantee a greater weight loss neither a greater reduction in the body fat percentage how the Fig. 1 shows, something that, knowing the bodybuilding competition, can directly influence the athlete's physical on-stage readiness.

Statement of authorship

The author declares to be the only contributor to this work and, therefore, who did the review and preparation this paper.

Conflicts of interest

No potential conflict of interest was reported by the author.

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