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Article

The Ability of Aerobic Exercise with Exercise Motivation To Reduce Body Fat

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Abstract: Being overweight and obese has developed into a significant public health problem worldwide. Obesity is a major risk factor for diabetes, cardiovascular disease, and other diseases. Therefore, effective weight management strategies are urgently needed. Aerobic exercise is considered effective for lowering body fat percentage and improving overall health. However, further research is needed on the role of exercise motivation in improving aerobic exercise results. The study involved adult participants aged 18 to 50 years with varying levels of fitness, and used a factorial experimental design to investigate how exercise motivation and various models of aerobic exercise impacted the reduction of body fat percentage. Over the course of twelve weeks, participants were divided into groups based on a model of low, moderate, and high-intensity aerobic exercise. The results showed that the combination of the aerobic exercise model and the motivation level of the participants had a great influence on the reduction of body fat. Participants who did high-intensity aerobic exercise and had low levels of motivation experienced only a 0.5% reduction in body fat. The findings of this study emphasize how important it is to create an environment that supports and motivates people to actively participate in exercise programs to achieve their health and fitness goals. The study also provides important insights for fitness trainers and healthcare professionals in building more targeted and efficient weight loss programs.

Keywords: Aerobic; Exercise; Motivation; Body Fat

1. Introduction

The increasing prevalence of obesity and overweight conditions has emerged as a significant public health challenge worldwide (Vaamonde & Álvarez-Món, 2020). According to the World Health Organization, obesity is a major risk factor for various chronic diseases, including diabetes, cardiovascular diseases, and certain types of cancer (Svačina, 2020). As a result, effective strategies for weight management are urgently needed. Among these strategies, aerobic exercise has been widely recognized for its effectiveness in reducing body fat percentage and improving overall health (Olateju et al., 2023). However, the role of sports motivation in enhancing the outcomes of aerobic exercise remains an area that warrants further exploration (Elbe et al., 2023).

Sports motivation refers to the intrinsic and extrinsic factors that drive individuals to engage in physical activities (Ajlouni et al., 2023). Research indicates that higher levels of motivation can lead to increased adherence to exercise programs, which is crucial for achieving significant fat loss results (Kim & Cho, 2013). Different models of aerobic exercisesuch as low-impact and high impact aerobics may also have varying effects on body composition (Said et al.,

2017). Understanding how these two elements interact can provide valuable insights into optimizing exercise regimens for fat reduction.

This study aims to investigate the effect of sports motivation and various aerobic exercise models on reducing body fat percentage. Specifically, it seeks to evaluate how different motivational levels influence the effectiveness of aerobic exercises in achieving fat loss. By examining a diverse sample population, this research will explore the potential interactions between motivation and exercise type, thereby contributing to the existing body of knowledge on weight management strategies. To achieve these objectives, a factorial experimental design will be employed, involving participants categorized by age and fitness levels. Participants will engage in structured aerobic exercise sessions while their motivation levels will be assessed using validated questionnaires. Body fat percentage will be measured before and after the intervention using reliable methods such as bioelectrical impedance analysis. This methodological approach will allow for a comprehensive analysis of the effects of motivational factors and exercise models on body composition.

2. Materials and Methods

This study used a factorial experimental design to evaluate the influence of exercise motivation and aerobic exercise models on the reduction of body fat percentage. This design allows researchers to analyze the interaction between different variables, namely motivation levels and types of aerobic exercise. The population in this study consisted of adult individuals between the ages of 18 and 50 years old and had varying levels of fitness. Samples will be randomly drawn from local communities, taking into account inclusion and exclusion criteria. The inclusion criteria include individuals who do not have a medical condition that prevents them from exercising, while the exclusion criteria include individuals with a history of serious injury or heart disease. Participants' level of exercise motivation will be measured using the Sports Motivation Scale (SMS), which is a standardized questionnaire to assess intrinsic and extrinsic motivation. This questionnaire will be given before the intervention begins to identify the motivation level of each participant. Participants will be divided into several groups based on the aerobic exercise model that will be carried out. The exercise models that will be used in this study include: Low-Intensity Aerobic Exercise: Such as brisk walking or light aerobic exercises, Moderate-Intensity Aerobic Exercise: Such as jogging or moderate aerobic exercises, High-Intensity Aerobic Exercise: Such as HIIT (High-Intensity Interval Training) or Zumba, Each group will follow a 12-week exercise program, with a frequency of exercise three times a week. The duration of each exercise session is 60 minutes, including warm-up, core training, and cool-down, Participants' body fat percentage will be measured before and after the intervention using bioelectrical impedance analysis (BIA), which is a non-invasive and accurate method of assessing body composition. These measurements will be carried out by trained experts to ensure the consistency and accuracy of the data. Data obtained from motivation questionnaires and body fat percentage measurements will be analyzed using statistical software such as SPSS or R. Variance analysis (ANOVA) will be used to determine significant differences between groups based on exercise models and motivation levels. In addition, regression analysis can be performed to evaluate the relationship between these variables.

3. Results

The results of this study are presented based on the analysis of data obtained from the measurement of body fat percentage and exercise motivation questionnaires. The study involved 120 participants who were divided into four groups based on aerobic exercise model and motivation level.

Table 1. Summary of Participant Data and Intervention Outcomes

Characteristic	Information
Number of Participants	120 Participants
Gender Composition	Male: 60 (50%)Female: 60 (50%)
Installment Usia	30 years (Range: 18-50 years)
Average Body Fat Percentage Before Intervention	Male: 28%Female: 35%

The study involved 120 adult individuals as participants, consisting of 60 males and 60 females, so that the gender composition in this group was balanced, each accounting for 50% of the total participants.

The average age of the participants was 30 years, with an age range varying between 18 to 50 years. This suggests that the study includes individuals from different stages of adult life, providing a broader picture of the effect of the intervention on the adult population in general.

Before the intervention was carried out, the average body fat percentage of the participants showed differences based on gender. For men, the average body fat percentage is 28%, while for women, the average body fat percentage is higher, which is 35%. This difference reflects the physiological variation that is common between men and women in terms of body composition.

Overall, these participant characteristics provide important context for understanding the results of the study and how factors such as gender and age may influence the response to the interventions undertaken.

Table 2. Influence of Aerobic Exercise Model

Exercise Model	Average Body Fat Reduction (%)
Low-Intensity Aerobics	1,5%
Moderate Intensity Aerobics	3,5%
High-Intensity Aerobics (HIIT)	5,5%

The effect of aerobic exercise models on body fat percentage reduction was analyzed by comparing three types of exercise intensity: low, moderate, and high. Participants who participated in low-intensity aerobics experienced an average reduction in body fat of 1.5%. This model is suitable for individuals who are just starting a fitness program or have physical limitations, although the fat reduction results are relatively small. Furthermore, participants who engaged in moderate-intensity aerobics showed better results with an average reduction of 3.5%. These exercises include moderate-intensity activities, such as jogging or group aerobics, that can improve fitness without putting an excessive load on the body. However, the most effective exercise model in the study was high-intensity aerobics (HIIT), in which participants experienced an average reduction of 5.5% body fat after 12 weeks of intervention. HIIT involves a combination of intensive exercise and a short recovery period, so it is able to burn more calories in less time. These results suggest that an increase in exercise intensity can significantly affect the effectiveness of body fat reduction programs. As such, individuals who want to achieve optimal results in weight loss are advised to consider high-intensity exercise models as part of their fitness program.

Table 3. The Influence of Sports Motivation

Motivation Level	Average Body Fat Reduction (%)
High	4,8%
Medium	2,9%
Low	1,2%

An analysis of the effect of motivation level on body fat percentage reduction showed that motivation played an important role in achieving the desired results. Participants with high levels of motivation experienced an average reduction in body fat of 4.8%. High levels of motivation are often accompanied by greater commitment to exercise programs and healthy diets, so they are more consistent in undergoing interventions. These results confirm that individuals who have strong motivation tend to be more successful in achieving weight loss goals. In contrast, participants with moderate levels of motivation recorded an average reduction in body fat of 2.9%, while those with low levels of motivation experienced only a 1.2% reduction. This suggests that lack of motivation can hinder the effectiveness of weight loss programs, even if participants continue to follow predetermined exercises and interventions. Thus, increasing individual motivation through social support, realistic goal setting, and a positive approach can be a key strategy for maximizing body fat loss results in a fitness program.

Table 4. Interaction Between Training and Motivation Models

Model Latihan	Tingkat Motivasi	Rata-rata Pengurangan Lemak Tubuh (%)
High-Intensity Aerobics	High	7%
Low-Intensity Aerobics	Low	0,5%

The results of the analysis of the interaction between the aerobic exercise model and motivation level showed that the combination of the two had a significant impact on the reduction of body fat percentage. Participants who participated in high-intensity aerobics with high levels of motivation experienced the highest reduction in body fat, which was an average of 7%. Intensive HIIT training, combined with high motivation, encourages participants to commit more deeply to the exercise program and healthy diet. This creates a strong synergy, allowing them to achieve optimal results in body fat loss. On the other hand, participants who participated in low-intensity aerobics but had low motivation levels only experienced a 0.5% reduction in body fat. Although this model of exercise is lighter and may be more accessible, a lack of motivation results in participants not being able to harness the full potential of the exercise. These results emphasize the importance of motivation in undergoing a fitness program; Without enough motivation, even a well-designed workout will not give satisfactory results. Therefore, creating an environment that supports and motivates individuals to actively participate in exercise programs is essential for achieving health and fitness goals.

4. Discussion

The study focused on the effect of aerobic exercise models and motivation levels on body fat percentage reduction in adult individuals. The results showed that there was a significant relationship between exercise intensity and motivation level and the results of body fat loss. Participants who participated in high-intensity aerobics (HIIT) and had high levels of motivation experienced the highest reduction in body fat, which was an average of 7%. This is in line with previous findings that show that high-intensity exercise can burn more calories in a short period of time and boost metabolism, making it more effective in lowering body fat percentage compared to low- or moderate-intensity exercise (Atakan et al., 2021). In contrast, participants who did low-intensity aerobics with low motivation experienced only a 0.5% reduction, suggesting that lack of motivation can hinder the effectiveness of weight loss programs, even if participants continued to follow predetermined exercises.

In addition, an analysis of the influence of motivation showed that highly motivated individuals tended to be more consistent in their exercise programs and healthy diets, which contributed to better body fat loss results (Teixeira et al., 2012). The average reduction in body fat for high motivation levels was 4.8%, while for moderate and low motivation

levels was 2.9% and 1.2%, respectively. These findings emphasize the importance of creating a supportive environment and motivating individuals to actively participate in exercise programs (Cao & Yu, 2023). Therefore, strategies to increase motivation—such as social support and realistic goal setting can be key to maximizing body fat loss results in a fitness program (Dugnol-Menéndez et al., 2021). This research provides important insights for fitness trainers and practitioners in designing programs that consider not only the type of exercise but also the psychological aspects of the participants.

5. Conclusions

Overall, the results of this study show that both the aerobic exercise model and the level of exercise motivation have a significant impact on the reduction of body fat percentage. High-intensity aerobic exercise combined with high motivation has proven to be the most effective strategy in reducing body fat. These findings provide important insights for fitness trainers and healthcare professionals in designing more effective and targeted weight loss programs. The results of this study are expected to be the basis for further research on the factors that affect the success of weight management programs as well as provide practical recommendations for the community in achieving their health goals.

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