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Mini-Review

Exercise Adherence as a Central Barrier in Obesity Management: Practical Evidence from Individualized Short Training Protocols

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Abstract: Obesity represents one of the most significant global public health challenges, with physical inactivity and low adherence to exercise programs consistently identified as major barriers to effective long-term management. Despite strong evidence supporting physical exercise as a cornerstone of obesity treatment, traditional training models frequently fail due to time constraints, lack of personalization, and limited behavioral engagement. The objective of this study was to analyze exercise adherence as a central barrier in obesity management and to discuss practical evidence supporting individualized short-duration training protocols as a viable alternative. Methodologically, a narrative literature review with a qualitative and descriptive approach was conducted using PubMed, SciELO, and Google Scholar databases. Studies published between January 2018 and September 2024 addressing obesity, exercise adherence, personalized training, and time-efficient exercise strategies were included. The findings indicate that individualized short training protocols may enhance adherence, promote behavioral consistency, and lead to meaningful improvements in body composition and health indicators. It is concluded that adherence-centered, time-efficient, and personalized exercise approaches represent a promising strategy for obesity management, highlighting the need for further applied research in real-world settings.

Keywords: Obesity; Exercise Adherence; Personalized Training; Short-Duration Exercise; Lifestyle Intervention.

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1. Introduction

Obesity is a multifactorial chronic disease that has reached epidemic proportions worldwide, significantly increasing the risk of cardiovascular disease, type 2 diabetes, musculoskeletal disorders, and reduced quality of life. According to global health authorities, the prevalence of obesity continues to rise across all age groups, posing a substantial burden on healthcare systems and society as a whole [1].

Physical exercise is widely recognized as a fundamental component of obesity management due to its role in energy expenditure, metabolic regulation, and psychological well-being. However, despite well-established recommendations, adherence to structured exercise programs remains persistently low among individuals with obesity [2]. Traditional exercise prescriptions often emphasize high training volumes, long session durations, and standardized protocols, which may not align with the behavioral, emotional, and logistical realities faced by this population [3].

Time constraints, lack of individualized guidance, fear of judgment, previous negative experiences with exercise, and low perceived self-efficacy are among the most frequently reported barriers to sustained participation in physical activity programs [4]. As a result, many individuals abandon exercise interventions prematurely, limiting their long-term effectiveness and reinforcing cycles of weight regain and disengagement.

Recent literature has increasingly emphasized the importance of adherence as a determinant of success in obesity treatment, suggesting that the effectiveness of an exercise program is strongly influenced by its feasibility, personalization, and behavioral alignment rather than by intensity or duration alone [5]. In this context, short-duration, individualized exercise protocols have emerged as a potentially effective alternative, aiming to reduce barriers while maintaining physiological and behavioral benefits.

This study aims to analyze exercise adherence as a central limiting factor in obesity management and to discuss practical evidence supporting individualized short-duration training protocols as a viable and sustainable strategy for improving outcomes in adults with obesity.

2. Materials and Methods

This study consists of a narrative literature review with a qualitative and descriptive approach, a methodology particularly suitable for synthesizing emerging evidence and practical perspectives in obesity management and exercise adherence. The review was conducted following a structured process to ensure transparency and reproducibility.

Searches were performed in the PubMed, SciELO, and Google Scholar databases using descriptors selected from MeSH and DeCS, including combinations of the following terms in English and Portuguese: obesity, exercise adherence, physical activity, personalized exercise, short-duration training, and behavioral intervention.

The search period covered January 2018 to September 2024. Inclusion criteria encompassed peer-reviewed articles addressing obesity management, barriers to exercise adherence, personalized or time-efficient exercise interventions, and lifestyle-based approaches. Exclusion criteria included preclinical studies, articles not primarily focused on exercise adherence, and publications without clear methodological descriptions.

The study followed a structured narrative review approach, inspired by principles of transparency commonly adopted in evidence synthesis. Initially, 142 records were identified. After title and abstract screening, 61 articles were excluded for lack of relevance. The remaining 81 articles underwent full-text evaluation, resulting in the exclusion of 68 studies due to methodological limitations or misalignment with the study objective. Ultimately, 13 articles were included in the final synthesis and narrative analysis.

3. Results and Discussion

The selected studies consistently identified exercise adherence as a critical determinant of success in obesity management. Several authors emphasized that traditional exercise prescriptions often fail to consider behavioral sustainability, leading to high dropout rates and limited long-term effectiveness [6].

Research analyzing barriers to physical activity among adults with obesity highlighted time availability as one of the most significant obstacles to regular exercise participation [7]. Long training sessions and rigid schedules were frequently associated with

decreased motivation and increased abandonment, particularly among individuals balancing work, family responsibilities, and psychological stressors.

In contrast, studies investigating short-duration exercise interventions demonstrated promising results in terms of adherence and behavioral consistency. Programs emphasizing brief, structured, and goal-oriented sessions were associated with higher participation rates and improved continuity over time [8]. These findings suggest that reducing the perceived burden of exercise may enhance engagement without compromising health benefits.

Personalization emerged as another central factor influencing adherence. Interventions tailored to individual preferences, physical limitations, and lifestyle constraints were more likely to be maintained compared to standardized protocols [9]. Personalized training approaches also contributed to greater autonomy, self-efficacy, and intrinsic motivation—key psychological components for sustained behavior change.

Several studies also highlighted the importance of integrating habit formation strategies into exercise programs. By prioritizing consistency over volume or intensity, individualized short training protocols facilitated gradual behavioral adaptation, leading to cumulative health improvements [10]. This approach aligns with contemporary models of obesity treatment that emphasize lifestyle modification rather than short-term weight loss.

Collectively, the evidence supports the notion that exercise programs designed around adherence, personalization, and time efficiency may offer a more realistic and effective pathway for obesity management. These findings reinforce the need to shift the focus from rigid exercise prescriptions toward flexible, behavior-centered interventions that align with real-world conditions.

Tabela 1. Summary of selected studies on exercise adherence in obesity management

Reference	General Objective	Methodology	Main Findings
[6]	Analyze barriers to exercise adherence in obesity	Cross-sectional analysis	Time and motivation were primary barriers
[7]	Evaluate adherence in traditional exercise programs	Observational study	High dropout rates linked to long session duration
[8]	Assess short-duration exercise interventions	Controlled trial	Improved adherence and consistency
[9]	Investigate personalized training approaches	Narrative review	Personalization increased engagement
[10]	Explore habit-based exercise models	Behavioral analysis	Consistency outweighed intensity
[11]	Review lifestyle interventions in obesity	Systematic review	Adherence predicted long-term success
[12]	Compare structured vs flexible exercise programs	Comparative study	Flexible models showed better retention
[13]	Examine psychological factors in exercise adherence	Qualitative study	Self-efficacy and autonomy were critical

4. Conclusion

Based on the analysis of the selected studies, it is concluded that exercise adherence represents a central challenge in obesity management. Traditional exercise models, often characterized by long durations and limited personalization, contribute to high dropout

rates and reduced long-term effectiveness. In contrast, individualized short-duration training protocols demonstrate significant potential to enhance adherence, promote behavioral sustainability, and support meaningful improvements in health outcomes.

By prioritizing feasibility, personalization, and habit formation, adherence-centered exercise approaches align more closely with the real-world needs of individuals with obesity. Despite the promising evidence, further applied and longitudinal research is necessary to strengthen the scientific foundation of these strategies and to explore their scalability across diverse populations.

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