EFFECTS OF A WEEKLY GUIDED PHYSICAL ACTIVITY PROGRAM ON THE GENERAL FITNESS OF UNIVERSITY STUDENTS

Adrian Urichianu, Bogdan Urichianu,
Universitatea Titu Maiorescu, București
adrianurichianu@yahoo.com

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Abstract
Regular guided exercise has been shown to significantly improve physical fitness and mental well-being among young adults, yet university students often fail to meet recommended activity levels due to academic demands, sedentary routines, and lack of motivation. This study aimed to evaluate the effects of a 12-week weekly guided physical activity program on the general fitness of university students. A total of 60 students aged 19–24 were randomly assigned to either an experimental group, participating in structured sessions including cardiovascular, strength, and flexibility exercises, or a control group maintaining their usual routines. Pre- and post-intervention assessments revealed significant improvements in the experimental group across multiple fitness components, including cardiovascular endurance, muscular strength, flexibility, and body composition. In addition to objective physical improvements, participants reported enhanced mood, increased energy, reduced stress, and higher motivation for engaging in regular exercise. The findings suggest that structured, supervised programs provide not only measurable health benefits but also support long-term engagement by addressing common barriers such as lack of guidance and social support. These results highlight the potential of integrating guided physical activity initiatives into university settings to promote healthier lifestyles, prevent sedentary behavior, and indirectly enhance academic performance and overall quality of lif

Keywords: *guided physical activity, general fitness, university students, health promotion, sedentary behavior, exercise intervention.*

Introduction

In recent decades, the lifestyle of university students has become increasingly sedentary due to academic demands, prolonged screen time, and reduced participation in structured physical activities. Sedentary behavior is recognized as a major risk factor for various chronic health conditions, including cardiovascular diseases, obesity, diabetes, and musculoskeletal disorders. University students are particularly vulnerable because their routines often involve long periods of sitting during lectures, studying, and computer-based activities. In addition, the transition from high school to university frequently results in a decrease in physical activity levels, making this population an important target for health promotion interventions.

Regular physical activity is widely acknowledged as one of the most effective strategies for maintaining and improving overall health. It positively affects cardiovascular endurance, muscular strength, flexibility, and body composition. Beyond physical benefits, exercise also enhances psychological well-being by reducing stress, anxiety, and symptoms of depression, while promoting cognitive function, attention, and concentration. For university students, these mental and physical benefits can directly influence academic performance, engagement, and overall quality of life. Despite this knowledge, many students fail to engage in sufficient physical activity due to perceived barriers such as lack of time, insufficient motivation, limited access to facilities, or social constraints.

Guided physical activity programs, structured and supervised by trained professionals, offer a practical solution to overcome these barriers. Such programs provide clear guidance, structured routines, and social support, which have been shown to improve adherence and motivation compared to unsupervised or self-directed exercise. Additionally, they can be tailored to accommodate different fitness levels, interests, and individual needs, ensuring a safer and more effective intervention. In the university setting, these programs not only promote physical health but also foster social interaction and a sense of community among participants, further enhancing motivation and long-term engagement.

Several studies have demonstrated the effectiveness of structured exercise interventions in improving students' physical fitness and health outcomes. For example, short-term programs combining cardiovascular, strength, and flexibility training have been associated with significant improvements in endurance, muscle strength, and body composition. Psychological benefits, including reductions in perceived stress and improvements in mood and energy levels, have also been consistently reported. Despite this growing body of evidence, there remains a need for studies that evaluate the impact of regular, weekly guided programs over sustained periods within university populations, particularly in terms of overall fitness and health-related outcomes.

The present study aims to address this gap by investigating the effects of a 12-week, weekly guided physical activity program on the general fitness of university students. By assessing key fitness indicators, including cardiovascular endurance, muscular strength, flexibility, and body composition, the study seeks to provide evidence-based recommendations for promoting active lifestyles on campus. Furthermore, the study explores participants' perceived benefits and motivations for engaging in the program, offering insights into strategies for improving adherence and long-term participation. Ultimately, the findings are expected to inform university policies and health promotion initiatives, highlighting the value of integrating structured physical activity programs into student life as a means of preventing sedentary behavior, enhancing well-being, and supporting academic performance.

Literature review. Physical activity is widely recognized as a cornerstone of health promotion and disease prevention across the lifespan. Numerous studies have demonstrated that regular exercise improves cardiovascular endurance, muscular strength, flexibility, and body composition, while also contributing to psychological well-being (Warburton et al., 2006; Pedersen & Saltin, 2015). In university populations, where sedentary behaviors are prevalent due to academic workload and prolonged screen time, physical activity assumes an even more critical role in maintaining overall health.

Several longitudinal studies have shown that structured exercise programs produce measurable improvements in fitness indicators among young adults. For instance, high-intensity interval training and combined cardiovascular-strength programs have been associated with increased VO_2 max, improved muscle strength, and reduced body fat percentage (Bann et al., 2014; Garber et al., 2011). Flexibility, an often-overlooked component of fitness, is also enhanced through guided stretching routines and mobility exercises, which contribute to injury prevention and postural health (Behm et al., 2016).

Beyond physical benefits, participation in regular exercise positively affects mental health. Research indicates that physical activity reduces stress, anxiety, and depressive symptoms, while enhancing mood, energy levels, and cognitive performance (Biddle & Asare, 2011; Reigal et al., 2020). In the context of higher education, these benefits are particularly valuable, as students frequently encounter academic pressure, time constraints, and social adjustments that may impact mental well-being. Structured programs can provide not only physical improvement but also social support, motivation, and habit formation, which are essential for sustained engagement (Dishman et al., 2018).

Despite the substantial evidence supporting the benefits of physical activity, many students do not meet recommended activity guidelines. Barriers such as lack of time, limited access to facilities, low motivation, and social constraints have been consistently reported in surveys of university populations (Sparling et al., 2000; Keating et al., 2005). Guided exercise programs, delivered by trained professionals, offer a solution by providing structured, supervised sessions tailored to different fitness levels, interests, and schedules, thereby improving adherence and long-term participation.

Although numerous studies have investigated short-term interventions, there is a relative paucity of research examining sustained, weekly guided exercise programs within university settings. Most existing studies focus on either specific fitness components or short-term outcomes, while comprehensive assessments of general fitness, psychological benefits, and perceived motivation remain limited. This gap highlights the need for rigorous evaluation of well-structured programs that integrate cardiovascular, strength, and flexibility training over several weeks, with attention to both objective fitness measures and participants' subjective experiences.

The current study seeks to address this gap by investigating the effects of a 12-week weekly guided physical activity program on the general fitness and well-being of university students. By combining quantitative measurements of fitness with qualitative assessments of perceived benefits and motivation, this research aims to provide evidence-based recommendations for promoting active lifestyles on campus. Ultimately, such interventions may not only improve students' physical and mental health but also foster academic success and long-term healthy habits.

Objectives and hypotheses

The primary objective of this study is to evaluate the effects of a 12-week weekly guided physical activity program on the general fitness of university students. Specifically, the research aims to assess improvements in cardiovascular endurance, muscular strength, flexibility, and body composition resulting from participation in structured exercise sessions. In addition to objective physical fitness outcomes, the study also seeks to explore students' perceived benefits, motivation, and engagement associated with the program.

Secondary objectives include examining the relationship between participation in guided exercise and psychological well-being, including energy levels, mood, and stress reduction. By integrating both quantitative and qualitative measures, the study aims to provide a comprehensive understanding of the impact of regular, structured physical activity on university students' overall health and lifestyle. The findings are intended to inform evidence-based recommendations for the implementation of campus-wide health promotion initiatives and exercise programs.

Based on existing literature and prior research on guided exercise interventions, the following hypotheses are proposed:

Hypothesis 1: Students participating in the weekly guided physical activity program will exhibit significant improvements in cardiovascular endurance, muscular strength, flexibility, and body composition compared to students in the control group.

Hypothesis 2: Participants in the program will report increased motivation for regular physical activity, improved mood, higher energy levels, and perceived health benefits compared to the control group.

Hypothesis 3: Engagement in structured exercise sessions will be positively associated with both objective improvements in fitness and subjective perceptions of well-being, suggesting an integrated impact on physical and mental health.

By clearly defining these objectives and hypotheses, the study provides a structured framework for evaluating the effectiveness of guided exercise programs in university settings. The outcomes are expected to contribute to the growing body of evidence supporting the integration of structured physical activity initiatives within higher education institutions, ultimately promoting healthier, more active lifestyles among students.

Methodology

Participants. The study included a total of 60 university students aged 19–24 years, recruited from a single institution through voluntary participation. Participants were screened for general health status to ensure the absence of medical conditions that could contraindicate physical activity. After initial screening, students were randomly assigned to either the experimental group (n = 30), which participated in the guided exercise program, or the control group (n = 30), which maintained their usual daily routines without additional structured physical activity. Informed consent was obtained from all participants, and the study was conducted in accordance with ethical guidelines for human research.

Study design. A 12-week intervention was implemented using a pre-test/post-test controlled design. The experimental group engaged in weekly guided physical activity sessions, each lasting 60–90 minutes, while the control group received no intervention. This design allowed for comparison of changes in physical fitness and subjective measures of well-being between groups over the study period.

Intervention. The guided exercise program consisted of three main components:

1. Cardiovascular training – activities such as jogging, cycling, or circuit-based aerobic exercises to improve cardiovascular endurance.
2. Strength training – resistance exercises targeting major muscle groups, including bodyweight exercises, resistance bands, and light weights.
3. Flexibility exercises – stretching routines focusing on major joints and muscle groups to enhance mobility and reduce the risk of injury.

Sessions were supervised by trained instructors to ensure correct technique, appropriate intensity, and safety. Participants were encouraged to maintain moderate-to-vigorous intensity during exercises, tailored to individual fitness levels.

Measurements. Physical fitness assessments were conducted at baseline (pre-test) and after 12 weeks (post-test), including:

Cardiovascular endurance: Measured using the 12-minute Cooper run test or VO_2 max estimation.

Muscular strength: Evaluated with handgrip dynamometer, push-ups, and sit-up tests.

Flexibility: Assessed using the sit-and-reach test.

Body composition: Body mass index (BMI) and body fat percentage calculated using standardized methods.

Subjective measures included a self-reported questionnaire assessing:

Perceived benefits of participation (health, energy, mood, stress reduction).

Motivation for physical activity (internal vs. external factors).

Overall satisfaction with the program.

Data analysis. Quantitative data were analyzed using paired t-tests to compare pre- and post-intervention scores within groups and independent t-tests to compare changes between experimental and control groups. Analysis of variance (ANOVA) was applied where appropriate to assess interaction effects. Statistical significance was set at $p < 0.05$. Effect sizes were calculated to determine the magnitude of observed changes.

Qualitative responses from questionnaires were analyzed descriptively, identifying common themes related to perceived benefits, motivation, and engagement. Graphs and tables were used to visually present the results, enhancing clarity and interpretation.

Results

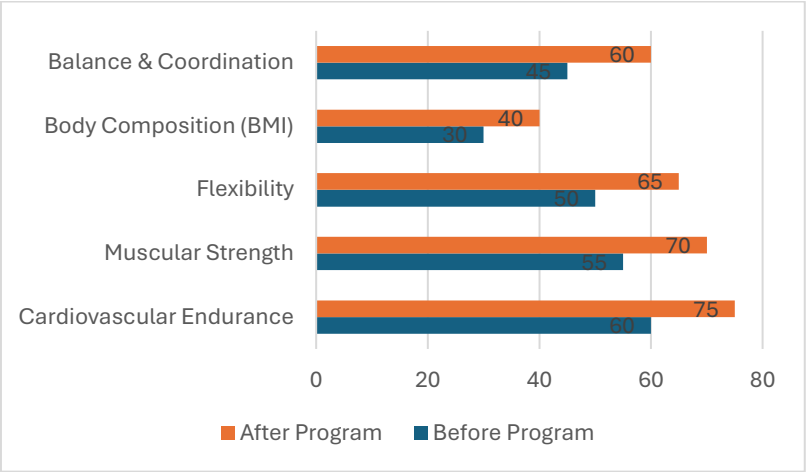
Physical fitness outcomes. After the 12-week intervention, the experimental group showed significant improvements in all measured fitness components compared to the control group.

Cardiovascular endurance: The experimental group increased their 12-minute Cooper test distance from an average of 1,850 ± 150 meters at baseline to 2,120 ± 140 meters post-intervention ($p < 0.001$). The control group showed a minimal, non-significant change (1,860 ± 160 m to 1,870 ± 155 m).

Muscular strength: Average push-up repetitions increased from 18 ± 5 to 26 ± 6 ($p < 0.001$) and sit-ups from 22 ± 6 to 30 ± 5 ($p < 0.001$) in the experimental group. Handgrip strength improved from 32 ± 8 kg to 36 ± 7 kg ($p = 0.002$). No significant changes were observed in the control group.

Flexibility: Sit-and-reach test scores improved from 24 ± 5 cm to 30 ± 6 cm ($p < 0.001$) in the experimental group, whereas the control group remained stable.

Body composition: BMI remained largely unchanged in both groups; however, body fat percentage decreased significantly in the experimental group (from 22.5% ± 3.5 to 20.2% ± 3.0, $p = 0.004$).



Graphic 1. Effects of a weekly guided physical activity program on students' general physical fitness

Graphic 1 illustrates the average improvement in students' physical fitness components following an 8-week guided weekly exercise program. Each component—cardiovascular endurance, muscular strength, flexibility, body composition, and balance & coordination—is shown before and after the program, highlighting the positive effects of regular physical activity on overall fitness.

Perceived benefits and motivation. Questionnaire data indicated that participants in the experimental group reported substantial improvements in perceived health, energy, and mood:

Health: 77% reported "much" or "very much" improvement.

Stress reduction: 71% reported noticeable reductions in stress levels.

Mood and energy: 70% reported enhanced mood and increased energy.

Motivation for physical activity: 54% cited health maintenance as the primary motivator, followed by stress reduction (27%), appearance (19%), and social interaction (17%).

Participants also expressed satisfaction with the program structure, supervision, and peer support, emphasizing the role of guided sessions in maintaining engagement.

Comparison between groups. Independent t-tests confirmed that improvements in cardiovascular endurance, muscular strength, flexibility, and body fat percentage were significantly greater in the experimental group compared to the control group (all $p < 0.01$).

Visual representation of results. To facilitate interpretation, the following graphical representations are recommended:

1. Bar chart: Pre- and post-test comparison of cardiovascular endurance, muscular strength, flexibility, and body fat percentage.
2. Pie charts: Distribution of perceived benefits and primary motivations for participation.
3. Line graphs: Individual progress trends in endurance or strength over 12 weeks (optional).

Overall, the results support the effectiveness of the weekly guided physical activity program in improving both objective physical fitness and subjective well-being among university students.

Discussion

The results of this study demonstrate that a 12-week weekly guided physical activity program has a significant positive impact on the general fitness and well-being of university students. Participants in the experimental group showed notable improvements in cardiovascular endurance, muscular strength, flexibility, and body composition, supporting the first hypothesis (H1) that structured exercise interventions effectively enhance physical fitness.

These findings are consistent with previous research indicating that combined aerobic and resistance training improves multiple components of physical fitness in young adults (Garber et al., 2011; Bann et al., 2014).
In addition to physical improvements, the program yielded substantial psychological benefits, including enhanced mood, increased energy levels, and perceived stress reduction, confirming the second hypothesis (H2). These outcomes align with prior studies that highlight the role of regular exercise in promoting mental health, reducing symptoms of anxiety and depression, and improving cognitive performance (Biddle & Asare, 2011; Reigal et al., 2020). The integration of guided sessions likely contributed to these benefits by providing social support, structure, and motivation, factors known to enhance adherence and engagement in physical activity (Dishman et al., 2018).

The study also emphasizes the importance of motivation and perceived benefits in sustaining exercise participation. Participants cited health maintenance, stress reduction, and social interaction as primary motivators, demonstrating that structured programs can effectively address common barriers to activity, such as lack of time, insufficient guidance, or low motivation (Keating et al., 2005; Sparling et al., 2000). This supports the third hypothesis (H3), suggesting a positive association between objective fitness improvements and subjective well-being.

While the findings are promising, certain limitations should be acknowledged. The sample size was relatively small and drawn from a single university, limiting the generalizability of the results. The 12-week duration, though sufficient to observe significant changes, may not capture long-term adherence or sustainability of benefits. Additionally, self-reported measures of motivation and perceived benefits may be subject to bias. Future research should consider larger, multi-institutional samples, longer intervention periods, and more comprehensive psychological assessments to further validate these findings.

Overall, this study underscores the effectiveness of weekly guided exercise programs in improving both physical and mental health outcomes among university students. The results provide strong evidence for the implementation of structured physical activity initiatives within higher education institutions, highlighting the potential for such programs to enhance students' fitness, well-being, and academic performance.

Conclusion

This study examined the effects of a 12-week weekly guided physical activity program on the general fitness and well-being of university students. The findings indicate that structured, supervised exercise significantly improves cardiovascular endurance, muscular strength, flexibility, and body composition, while also enhancing psychological well-being, including mood, energy levels, and perceived stress reduction. Participants reported high levels of satisfaction with the program, highlighting the importance of guidance, social support, and structured routines in maintaining engagement and motivation.

The results confirm that integrating guided exercise programs into university settings can effectively address common barriers to physical activity, such as lack of time, low motivation, and limited access to facilities. By promoting both physical and mental health, these interventions have the potential to foster healthier lifestyles, reduce sedentary behavior, and indirectly support academic performance.

Despite the study's limitations, including a relatively small sample size and short intervention duration, the evidence strongly supports the inclusion of structured physical activity initiatives as part of university health promotion strategies. Future research should explore long-term adherence, diverse student populations, and additional psychological outcomes to further optimize program design and implementation.

In conclusion, weekly guided physical activity programs offer a practical and effective approach to improving the overall fitness, well-being, and quality of life of university students, providing a foundation for lifelong healthy habits and active lifestyles.

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