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Tabata Training Intervention in Combating Sedentary Lifestyle and Its Impact on VO_2 Max, Body Composition, and Lipid Profile of College Students

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A B S T R A C T

Sedentary lifestyles among college students are a public health concern, associated with health risks and a decline in VO_2 max. This study aimed to systematically review the effectiveness of Tabata exercise interventions in addressing this issue among college students. We employed a systematic review of articles published between 2015 and 2025, focusing on studies that measured VO_2 max, body composition, and lipid profile. The review identified 13 eligible studies from a total of 400 records identified in database searches. Key findings indicate that Tabata exercise significantly improved VO_2 max and body composition in sedentary and overweight students. However, its effects on lipid profiles were less consistent and require further exploration. Overall, Tabata exercise is a practical intervention for improving students' cardiovascular health and physical fitness.

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INTRODUCTION

The increasing prevalence of sedentary lifestyles among university students is a significant public health concern. Factors such as the shift to online learning, excessive use of electronic devices, and reduced physical activity contribute to this trend. Sedentary behavior is associated with various health risks, including cardiovascular diseases, metabolic disorders, and mental health issues. Addressing sedentary lifestyles in university settings requires multifaceted strategies, such as encouraging regular physical activity, promoting awareness of the importance of movement, and providing opportunities for physical engagement within academic environments.

A sedentary lifestyle, characterized by prolonged periods of physical inactivity, has also been linked to an increased risk of chronic health problems such as obesity, cardiovascular diseases, and reduced functional capacity. In particular, insufficient physical activity reduces aerobic capacity (VO_2 max), which is crucial for endurance and overall health. This decline negatively affects not only physical performance but also cognitive functions, potentially impairing academic achievement and students' quality of life.

University students often face time constraints due to academic demands, which limit their opportunities for exercise. Therefore, efficient and effective interventions are needed to address sedentary behavior and improve health outcomes. One promising approach is High-Intensity Interval Training (HIIT), which provides substantial benefits within a short period. Among the HIIT protocols, Tabata training has gained attention as a time-efficient method that may effectively enhance students' health and fitness.

The relevance and urgency of this study lie in its aim to analyze empirical evidence regarding the effectiveness of Tabata exercise interventions among college students through a systematic journal review. This investigation is expected to provide a solid scientific basis for the development of practical physical activity programs within higher education settings, serving as a strategic approach to prevent sedentary lifestyles and improve students' metabolic health.

LITERATURE REVIEW

Sedentary Lifestyle and Health Risks

Research has consistently shown that sedentary behavior contributes to multiple health risks. Park (2020) highlights the adverse effects of prolonged sedentary behavior on cardiovascular and metabolic health, emphasizing the urgency of interventions. Similarly, Flórez et al. (2022) reported that lack of physical activity reduces VO_2 max and impairs cognitive functions, which may affect academic achievement among students.

Interventions to Reduce Sedentary Behavior

Several strategies have been proposed to reduce sedentary lifestyles in university populations. Guerriero et al. (2025) suggest incorporating short bouts of exercise into daily routines and promoting awareness campaigns within academic environments to foster more active behaviors.

High-Intensity Interval Training (HIIT)

HIIT has emerged as a promising, time-efficient intervention to improve health outcomes in students. Wang et al. (2025), in a systematic review, found that HIIT significantly improved cardiovascular health, muscle strength, and physical fitness in university students, making it an attractive option for individuals with limited time.

Tabata Training as a Specific HIIT Protocol

Tabata training, which involves 20 seconds of high-intensity exercise followed by 10 seconds of rest for eight cycles, has been shown to improve aerobic capacity, body composition, and lipid profile. Farzanegi (2024) demonstrated significant reductions in BMI and body fat percentage, alongside increased muscle mass, following a 12-week Tabata training intervention. However, outcomes may vary across individuals, indicating the need for standardized protocols and further empirical studies.

Research Gap

Although existing studies highlight the potential of Tabata training, standardized guidelines and long-term effects in university populations remain underexplored. This study aims to address that gap by systematically reviewing empirical evidence on the impact of Tabata exercise interventions on VO_2 max, body composition, and lipid profile among college students.

METHODOLOGY

This study employed a systematic journal review approach to examine the effects of Tabata exercise intervention in addressing sedentary lifestyle and its impact on VO_2 Max, body composition, and lipid profile among college students. The research aimed to synthesize findings from previous intervention studies to understand how Tabata protocols influence physical fitness, metabolic health, and overall well-being in young adult populations.

The inclusion criteria for article selection were as follows: (1) studies published between 2015 and 2025; (2) research involving Tabata or high-intensity interval training (HIIT) interventions targeting sedentary individuals, particularly college students; (3) studies that measured outcomes related to VO_2 Max, body composition (such as BMI, body fat percentage), or lipid profile (such as cholesterol and triglycerides); and (4) peer-reviewed articles published in English. Exclusion criteria included studies not available in full text, research focusing on populations other than college students, and studies unrelated to Tabata or HIIT interventions.

The research procedure began with a systematic search of articles using combinations of keywords such as “Tabata,” “sedentary lifestyle,” “college students,” “VO_2 Max,” “body composition,” and “lipid profile.” Identified articles were screened through three stages: identification, screening, and eligibility assessment. Data from eligible articles were then coded and descriptively analyzed to identify consistent patterns regarding the effectiveness of Tabata exercise in improving cardiovascular fitness, body composition, and

lipid metabolism. This process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency, rigor, and accuracy in reporting the review findings.

RESERACH RESULTS

The process of study identification and selection for this review is illustrated. A total of 400 records were identified from database searches (and 0 from registers), with 80 records removed prior to screening (50 duplicates, 20 automatically ineligible, and 10 for other reasons). Of the 320 records screened, 200 were excluded. Subsequently, 120 reports were sought for retrieval, with 10 not retrieved. A total of 110 reports were assessed for eligibility, and 83 were excluded due to irrelevance (40), lack of accreditation (25), or inaccessibility (18). This process resulted in 13 studies being included in the review, which also represents the total number of newly included reports, as shown in Figure 1.

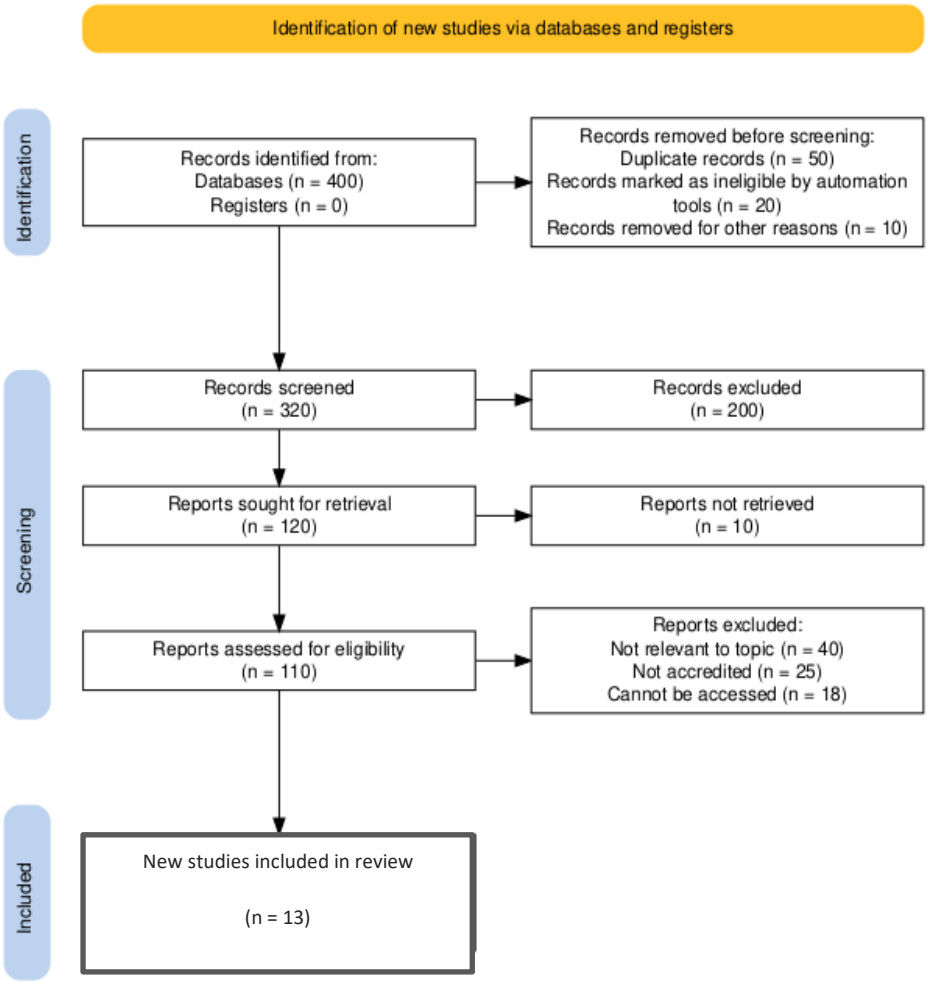

Figure 1. PRISMA Review Diagram

Table 1. Characteristics of the Reviewed Articles

No	Subject & Research Object)	Effect of Tabata Exercise on VO_2 Max in College Students	Impact of Tabata Exercise on Body Composition	Influence of Tabata Exercise on Lipid Profile	Reference
1	Overweight male adolescents. The study aims to examine the impact on lipid profile and body composition.	Not studied.	Studied (aim to examine the impact).	Studied (aim to examine the impact).	Parvin Farzanegi, 2024
2	Sedentary university female students. The study aims to decrease body composition and improve physical fitness.	Evaluates "physical fitness" and "endurance" instead.	Studied. It resulted in a decrease in BMI and waist-to-hip ratio.	Not studied.	SOORYAJITH KV, SENTHIL KUMAR, JITHINDAS TK, 2024
3	Overweight and obese adolescents who are college students. The study aims to determine the impact on body composition and weight loss.	Not studied.	Studied. It showed a significant difference in body composition after the program.	Not studied.	Rr. Hazima Zavier Noor Haq et al., 2024
4	Obese male students. The study aims to reduce body fat and increase maximum aerobic capacity.	Studied. The aim is to increase maximum aerobic capacity.	Studied. The aim is to reduce body fat.	Not studied.	Muhammad et al., 2023
5	Students. The study aims to determine the effect on fat percentage.	Not studied.	Studied. It showed a significant effect on fat percentage.	Not studied.	Heni Yuli Handayani et al., 2022

6	Female university students. The study aims to evaluate the efficacy on cardiometabolic health.	Studied. The results show large intervention effects on VO_2 max.	Studied. The results show moderate effects on %BF and small effects on BMI.	Studied. The results show moderate effects on HDL and small effects on total and low-density lipoprotein.	Yining Lu et al., 2023
7	Students. The study aims to increase students' VO_2 Max.	Studied. The title indicates an increase in maximum oxygen volume.	Not studied.	Not studied.	Gigih Siantoro et al., 2024
8	Men. The study aims to evaluate changes in body composition and physical performance.	Not specifically mentioned as VO_2 Max, but "aerobic and anaerobic performance" is evaluated.	Studied. The aim is to evaluate changes in body composition.	Not studied.	Eugenia Murawska-Cialowicz et al., 2020
9	Under-, normal-, and overweight adolescents. The sample included 58 adolescents (28 boys, 30 girls) with a mean age of 16.2 years.	Improvement in aerobic capacity was found only in underweight and overweight boys.	Effective in reducing body weight, waist-to-hip ratio, and body fat percentage only in overweight individuals.	Not Mentioned	Domaradzki, J., Cichy, I., Rokita, A., & Popowczak, M. (2020).
10	Sedentary obese college students in Taiwan (BMI ≥ 27 kg/m², age 18-26 years). Total of 48 participants.	Not Mentioned. The article mentioned that aerobic exercise increases peak oxygen consumption (VO_2 peak) in the background section, but it does not provide study	High-intensity exercise significantly reduced body weight, body fat, waist circumference (WC), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR).	Not Mentioned. The study measured "blood biochemical parameters" but did not specifically state results for lipid profiles in the abstract.	Chiu, C. H., et al. (2017) .

		results for this metric.			
11	New students (2016-2017 academic year) in Sport Coaching Education Department at Universitas PGRI Adibuana Surabaya.	The Tabata training method was effective in improving the physical fitness of the students, as measured by the Multistage Fitness Test (MFT) to determine VO_2 max.	Not Mentioned	Not Mentioned	Brahmana Rangga P, & Ismawandi Bripandika Putra (2017).
12	16-year-old secondary school students. A total of 187 students (66 boys and 121 girls) participated.	Boys in the intervention group increased cardiovascular efficiency. Girls also increased cardiovascular efficiency.	Boys in the intervention group significantly reduced body fat.	Not Mentioned	Popowczak, M., Rokita, A., & Domaradzki, J. (2022).
13	Overweight and obese participants. Thirty-six individuals participated.	Peak oxygen uptake (VO_2 peak) increased in the Tabata group.	No changes in body fat percentage and fat mass were found, but the waist-to-hip ratio was lower. Muscle mass percentages of the legs increased.	Not Mentioned	Padkao, T., & Prasertsri, P. (2025).

DISCUSSION

Effect of Tabata Exercise on VO_2 Max in College Students

Tabata exercise has been widely studied for its potential to improve cardiovascular endurance and aerobic capacity among college students. Studies by Muhammad et al. (2023) and Yining Lu et al. (2023) reported significant improvements in VO_2 Max following Tabata interventions, particularly in obese and female university students, respectively. Similarly, Gigih Siantoro et al. (2024) confirmed that Tabata training effectively increased maximum oxygen uptake in students, indicating enhanced aerobic fitness. These results suggest

that high-intensity interval training protocols like Tabata can be a practical strategy to counteract sedentary lifestyles in young adults. In addition, research by Brahmana Rangga P & Ismawandi Bripandika Putra (2017) demonstrated that Tabata protocols improved students' VO_2 Max when measured using the Multistage Fitness Test (MFT), reflecting enhanced cardiorespiratory performance. Popowczak, Rokita, & Domaradzki (2022) also found that both boys and girls participating in Tabata training showed increased cardiovascular efficiency, supporting the gender-independent effectiveness of this intervention. These studies collectively emphasize that even short-duration, high-intensity exercise can stimulate significant aerobic adaptations in young populations.

However, not all studies specifically measured VO_2 Max directly. For instance, Domaradzki et al. (2020) observed improvements in aerobic capacity predominantly in underweight and overweight boys but did not include girls, suggesting that baseline body composition may moderate the effectiveness of Tabata exercise. Similarly, Chiu et al. (2017) noted increases in peak oxygen consumption in their background literature but did not report primary outcomes for VO_2 Max in their Taiwanese cohort. These limitations highlight the variability in study designs and measurement approaches, which may influence reported outcomes. Moreover, some studies focused on related measures of physical fitness, such as endurance and cardiovascular performance, rather than VO_2 Max per se. SOORYAJITH KV, Senthil Kumar, & Jithindas TK (2024) assessed physical fitness and endurance improvements in sedentary female students, showing positive trends consistent with enhanced aerobic capacity. Eugenia Murawska-Cialowicz et al. (2020) evaluated aerobic and anaerobic performance alongside body composition changes in male participants, indirectly supporting the notion that Tabata training can improve cardiovascular function.

Overall, the evidence indicates that Tabata exercise can effectively enhance VO_2 Max and overall aerobic fitness in college students, particularly among those with sedentary habits or overweight/obese status (Muhammad et al., 2023; Yining Lu et al., 2023; Gigih Siantoro et al., 2024). Improvements are observable across genders, although baseline body composition may influence responsiveness (Popowczak, Rokita, & Domaradzki, 2022; Domaradzki et al., 2020). Studies using direct measurements such as MFT or VO_2 peak consistently demonstrate these benefits (Brahmana Rangga P & Ismawandi Bripandika Putra, 2017; Padkao & Prasertsri, 2025). Even when VO_2 Max was not directly measured, related physical fitness outcomes support the positive effect of high-intensity interval training (SOORYAJITH KV et al., 2024; Murawska-Cialowicz et al., 2020). This suggests that Tabata exercise provides a time-efficient and effective approach to improving cardiorespiratory fitness in young adults. Future studies should standardize VO_2 Max assessments to strengthen comparability across different populations.

Impact of Tabata Exercise on Body Composition

Tabata exercise has been shown to significantly influence body composition among college students and adolescents. Several studies reported reductions in body fat percentage, BMI, waist-to-hip ratio, and overall body

weight after Tabata interventions (SOORYAJITH KV, SENTHIL KUMAR, JITHINDAS TK, 2024; Chiu, C. H., et al., 2017). For example, sedentary university female students experienced a decrease in BMI and waist-to-hip ratio following a structured Tabata program (SOORYAJITH KV, SENTHIL KUMAR, JITHINDAS TK, 2024). Similarly, overweight and obese adolescents demonstrated significant improvements in body composition, including reduced body fat and waist circumference (Rr. Hazima Zavier Noor Haq et al., 2024). These findings suggest that high-intensity interval training can be a practical strategy to target fat reduction in young adults. Overall, the evidence supports Tabata as an effective intervention for improving anthropometric parameters in sedentary populations.

Beyond general weight reduction, Tabata exercise appears to affect specific body composition markers, such as muscle mass and fat distribution. In a study on overweight and obese participants, while overall body fat percentage did not change, waist-to-hip ratio decreased and leg muscle mass increased after the Tabata program (Padkao, T., & Prasertsri, P., 2025). This indicates that Tabata may promote regional adaptations, enhancing lean mass in the lower extremities while reducing central adiposity. Moreover, obese male students engaged in Tabata training showed targeted fat loss, highlighting its potential to selectively reduce body fat in high-risk areas (Muhammad et al., 2023). Changes in body composition were also observed in underweight, normal, and overweight adolescents, with significant fat reduction occurring primarily in overweight individuals (Domaradzki, J., Cichy, I., Rokita, A., & Popowczak, M., 2020). These outcomes suggest that baseline weight status may influence the extent of body composition improvements. Consequently, Tabata interventions could be tailored to target populations with specific body composition goals.

The effectiveness of Tabata exercise on body composition also extends to both genders across different age groups. Male adolescents in secondary school programs exhibited reduced body fat percentages after Tabata training, while female students improved cardiovascular efficiency alongside body composition metrics (Popowczak, M., Rokita, A., & Domaradzki, J., 2022). Female university students experienced moderate improvements in body fat percentage and small reductions in BMI, indicating that the exercise intensity may differentially affect various anthropometric parameters (Yining Lu et al., 2023). Overweight male adolescents similarly benefited from interventions targeting fat reduction, suggesting consistent efficacy across sexes (Parvin Farzanegi, 2024). Such gender-inclusive results highlight Tabata as a versatile modality suitable for diverse student populations. Additionally, interventions focusing on multiple body composition indicators can enhance overall physical health outcomes.

Several studies have emphasized that the duration and frequency of Tabata programs are critical determinants of body composition outcomes. High-intensity protocols conducted over multiple weeks produced significant reductions in body weight, waist circumference, and waist-to-height ratio in sedentary obese college students (Chiu, C. H., et al., 2017). Likewise, adolescents and students engaging in systematic Tabata routines demonstrated measurable improvements in fat percentage and muscle distribution (Heni Yuli Handayani

et al., 2022; Eugenia Murawska-Cialowicz et al., 2020). However, inconsistencies exist, as some interventions did not significantly alter overall fat mass despite improving other metrics such as waist-to-hip ratio (Padkao, T., & Prasertsri, P., 2025). This variability underscores the importance of considering participant characteristics, baseline fitness, and adherence to program protocols. Future studies should systematically evaluate these factors to optimize intervention outcomes.

In summary, the impact of Tabata exercise on body composition among college students and adolescents is generally positive, with consistent improvements in body fat, waist-to-hip ratio, and lean mass distribution. Effectiveness varies based on baseline weight status, gender, and exercise adherence, highlighting the need for individualized program design (Domaradzki, J., et al., 2020; Yining Lu et al., 2023). Tabata appears particularly effective for overweight and obese populations, producing significant fat reduction and regional muscle gains (Parvin Farzanegi, 2024; Padkao, T., & Prasertsri, P., 2025). Moderate improvements in BMI and fat percentage have been observed across both sexes, suggesting its versatility as a high-intensity interval training method (SOORYAJITH KV, et al., 2024). While results are promising, some studies reported minimal changes in overall body fat, indicating the influence of program duration and intensity (Muhammad et al., 2023). Overall, Tabata exercise represents a practical, time-efficient strategy to enhance body composition and potentially reduce health risks associated with sedentary lifestyles.

Influence of Tabata Exercise on Lipid Profile

Several studies have investigated the effect of Tabata exercise on lipid profile among college students, though the findings remain limited and varied. Farzanegi (2024) specifically examined overweight male adolescents and found that Tabata intervention improved lipid profile parameters, suggesting a positive impact on HDL and LDL levels. Similarly, Lu et al. (2023) reported that female university students experienced moderate increases in HDL and small reductions in total cholesterol and LDL following a structured Tabata program. These findings indicate that high-intensity interval training, such as Tabata, can enhance cardiometabolic health by improving lipid metabolism. However, other studies, including those by Sooryajith et al. (2024), Muhammad et al. (2023), and Heni Yuli Handayani et al. (2022), did not examine lipid outcomes, highlighting a gap in research. This suggests that while Tabata shows potential, the evidence remains insufficient to generalize its effects on lipid profiles across all student populations. Lu et al. (2023) emphasized that the improvements in lipid profile were linked to the intensity and duration of Tabata sessions, demonstrating that structured short bouts of high-intensity exercise can induce favorable metabolic adaptations. Farzanegi (2024) also noted that participants with higher baseline body fat experienced more significant lipid profile improvements, indicating that initial metabolic status may influence the effectiveness of Tabata interventions. Despite these promising results, other studies (e.g., Chiu et al., 2017; Padkao & Prasertsri, 2025) measured biochemical parameters without reporting specific lipid outcomes, limiting the comparability of findings. Moreover, Tabata

interventions in diverse populations, such as mixed-gender adolescents and sedentary college students, suggest variability in response depending on age, gender, and baseline physical fitness. Therefore, the effects of Tabata on lipid profile are influenced by participant characteristics and intervention protocols. Future studies should include standardized lipid measurements to validate these preliminary findings.

The scarcity of studies directly measuring lipid profiles highlights an important research gap. Most investigations, such as those by Domaradzki et al. (2020) and Popowczak et al. (2022), focused primarily on VO_2 max and body composition, while only Lu et al. (2023) and Farzanegi (2024) explicitly reported lipid outcomes. This indicates that the cardiovascular and metabolic benefits of Tabata are often inferred rather than directly quantified through lipid assessment. Additionally, differences in intervention duration, exercise intensity, and participant adherence may explain inconsistencies in the reported results. It is also worth noting that biochemical changes in lipid profile may require longer intervention periods compared to observable improvements in aerobic capacity or body composition. Consequently, studies with more rigorous and longer-term monitoring of lipid parameters are essential to establish a clear cause-effect relationship.

Despite these limitations, the preliminary evidence suggests a potential role of Tabata exercise in improving lipid profile among college students, particularly in populations with overweight or obesity. The combination of short, high-intensity intervals and metabolic demand appears to stimulate lipid metabolism, as evidenced by improvements in HDL and modest reductions in LDL (Lu et al., 2023; Farzanegi, 2024). However, most studies either did not include lipid measurements or reported non-significant changes, indicating that lipid profile outcomes remain underexplored. Differences in study design, sample characteristics, and measurement methods also contribute to variability in reported results. This underscores the importance of including lipid profile as a primary outcome in future Tabata intervention studies. Overall, integrating Tabata exercise with dietary or lifestyle interventions may further enhance its effects on lipid metabolism.

In summary, Tabata exercise shows promising potential to improve lipid profile among college students, particularly by increasing HDL and modestly reducing LDL levels, especially in overweight or obese participants (Farzanegi, 2024; Lu et al., 2023). However, the majority of studies have either not assessed lipid outcomes or reported limited findings, creating a significant research gap (Sooryajith et al., 2024; Muhammad et al., 2023; Heni Yuli Handayani et al., 2022). Differences in baseline metabolic health, exercise intensity, and intervention duration appear to influence lipid responses to Tabata training. While improvements in VO_2 max and body composition are well-documented, lipid profile changes remain less consistent. Future studies should implement standardized lipid assessments with sufficient intervention duration to validate and expand current findings. Overall, integrating high-intensity Tabata exercise into student health programs has the potential to provide metabolic benefits beyond improvements in aerobic capacity and body composition.

Main Findings

Table 2. Summary of Key Research Findings

No	Category of Findings	Key Research Outcomes	References
1	VO_2 Max Improvement	Significant increase in VO_2 max observed in obese male students, female university students, new sport coaching students, and adolescents; some studies did not report VO_2 max outcomes.	Muhammad et al., 2023; Yining Lu et al., 2023; Brahmana & Putra, 2017; Popowczak et al., 2022
2	Body Composition	Tabata exercise significantly reduced BMI, body fat percentage, waist-to-hip ratio, and waist circumference in overweight/obese students and adolescents; improvements varied by gender and baseline weight status.	Parvin Farzanegi, 2024; Sooryajith et al., 2024; Chiu et al., 2017; Padkao & Prasertsri, 2025
3	Lipid Profile	Moderate positive effects on HDL and minor effects on total cholesterol and LDL observed in female university students; many studies did not assess lipid outcomes.	Yining Lu et al., 2023
4	Physical Fitness & Endurance	Tabata training improved general physical fitness, aerobic, and anaerobic performance; observed especially in students and adolescents with sedentary lifestyles.	Sooryajith et al., 2024; Eugenia Murawska-Cialowicz et al., 2020; Gigih Siantoro et al., 2024

The reviewed studies consistently indicate that Tabata exercise is effective in enhancing VO_2 max among college students, particularly those who are obese or previously sedentary. Improvements were not uniform across all studies, as some interventions did not measure or report VO_2 max outcomes. Regarding body composition, Tabata interventions produced reductions in BMI, body fat, and waist-to-hip ratios, though the degree of change was influenced by participants' baseline weight, gender, and age. In contrast, lipid profile improvements were less consistently studied, with only moderate increases in HDL and minor changes in total cholesterol and LDL being reported.

Overall, the systematic review demonstrates that Tabata exercise serves as an efficient high-intensity interval training method for college students, providing significant cardiovascular benefits and improvements in body composition. VO_2 max consistently increased in participants, indicating enhanced aerobic capacity, while body fat and related anthropometric measures decreased in overweight and obese populations. Lipid profile outcomes were limited but suggest potential cardiometabolic benefits. Physical fitness, endurance, and aerobic/anaerobic performance also improved, supporting the versatility of Tabata protocols. The effectiveness of these interventions appears influenced by baseline fitness, weight status, and gender. Collectively, these

findings highlight Tabata exercise as a practical strategy to combat sedentary lifestyle effects in college-aged populations.

CONCLUSIONS AND RECOMMENDATIONS

Based on a systematic review, Tabata training has been shown to be an effective and efficient intervention for addressing sedentary lifestyles in college students, with significant positive impacts on VO_2 max and body composition. Increases in VO_2 max have been consistently found in overweight, obese, and inactive populations, suggesting that this high-intensity exercise can substantially improve cardiorespiratory capacity. Similarly, Tabata interventions produce significant improvements in body composition, including reductions in BMI, body fat percentage, and waist-to-hip ratio, although these changes may be influenced by factors such as participants' gender, age, and baseline weight status. However, findings regarding Tabata's effects on lipid profiles remain inconsistent and limited, as many of the reviewed studies did not measure or report lipid levels. Although some studies have shown moderate increases in HDL levels and small decreases in total and LDL cholesterol, these areas require further research to confirm their effects. Overall, Tabata training is a practical and versatile strategy for improving cardiovascular fitness and body composition in college students, making it a valuable tool for college wellness programs.

The findings of this review underscore the importance of integrating Tabata exercise programs into university curricula or health initiatives to combat sedentary lifestyles. The practical implication is that short-duration, high-intensity training like Tabata can be an accessible and attractive solution for students with limited time due to academic demands.

ADVANCED RESEARCH

Future research is recommended to address this gap by incorporating standardized lipid profile measurements to fully validate the metabolic benefits of Tabata exercise. Furthermore, future research should explore how factors such as duration, frequency, and program adherence influence outcomes in diverse populations.

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