



REGULAR PHYSICAL EXERCISE PARTICIPATION AND ITS RELATIONSHIP WITH PHYSIOLOGICAL HEALTH OUTCOMES AMONG ADULTS

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Abstract

Regular physical exercise is widely recognized as an important contributor to the maintenance of good health and the prevention of non-communicable diseases among adults. Despite the well-documented benefits of physical activity, many adults remain physically inactive, increasing their susceptibility to cardiovascular diseases, obesity, metabolic disorders, and poor psychological health. This study examined the relationship between regular physical exercise participation and selected physiological and psychological health outcomes among adults in Ogba/Egbema/Ndoni, Local Government Area, Rivers State. Specifically, the study investigated the relationship between regular physical exercise participation and cardiovascular fitness, muscular strength and endurance, body composition management, metabolic health improvement, and psychological well-being. A correlational survey research design was adopted for the study. The sample comprised 200 adults who participated in organized physical exercise programmes and were selected using simple random sampling. Data were collected using a structured questionnaire. Mean and standard deviation were used to answer the research questions, while Pearson Product Moment Correlation (PPMC) was employed to test the hypotheses at the 0.05 level of significance. The findings revealed significant positive relationships between regular physical exercise participation and cardiovascular fitness ($r = 0.680, p < 0.05$), muscular strength and endurance ($r = 0.560, p < 0.05$), body composition management ($r = 0.630, p < 0.05$), metabolic health improvement ($r = 0.610, p < 0.05$), and psychological well-being ($r = 0.660, p < 0.05$). These results indicate that adults who engage consistently in physical exercise are more likely to exhibit better cardiovascular function, improved muscular fitness, healthier body composition, enhanced metabolic function, and greater psychological well-being than those who participate less frequently. The study concludes that regular physical exercise is positively associated with important indicators of physiological and psychological health among adults. The findings provide evidence that can guide healthcare professionals, exercise specialists, and policymakers in developing community-based physical activity programmes and workplace wellness initiatives aimed at improving population health and reducing the burden of lifestyle-related diseases. The study therefore recommends increased participation in regular physical exercise as a practical strategy for promoting healthy living and improving overall quality of life.

Keywords: Physical Exercise, Cardiovascular Fitness, Body Composition, Metabolic Health, Psychological Well-being.

Introduction

Exercise physiology is an important area of human kinetics and sports science that focuses on how the human body responds to and adapts to physical exercise. It helps explain the role of exercise in maintaining good health, improving physical fitness, preventing chronic diseases, and promoting overall well-being. Regular exercise is widely recognized as an important part of a healthy lifestyle because it can improve cardiovascular fitness, muscular strength and endurance, body composition, metabolic health, and psychological well-being. For this reason, regular physical exercise is recommended as an effective approach to reducing the risk of non-communicable diseases such as obesity, hypertension, cardiovascular diseases, and type 2 diabetes mellitus (Bull et al., 2020; WHO,



2022; ACSM, 2022). Previous studies have provided considerable evidence on the health benefits of regular physical exercise. Adults who participate regularly in aerobic and resistance exercises generally show better cardiovascular fitness, greater muscular strength and endurance, healthier body composition, improved metabolic functioning, and better psychological well-being than those who are physically inactive (Kenney et al., 2022; Brooks et al., 2022; Biddle et al., 2019). Ross et al. (2016), for example, found that higher levels of cardiorespiratory fitness are linked with a lower risk of cardiovascular health problems. Similarly, Colberg et al. (2016) reported that regular exercise can improve insulin sensitivity and help regulate blood glucose. These findings demonstrate that exercise can play an important role in maintaining physical health and improving quality of life among adults.

However, the findings of previous studies are not completely consistent. The extent to which exercise is associated with particular health outcomes appears to vary according to factors such as the type, frequency, intensity, and duration of exercise, as well as the age, sex, lifestyle, and socioeconomic circumstances of individuals. For instance, although some studies have reported clear improvements in body composition and metabolic health among physically active individuals, other studies have reported weaker or varying relationships (Ding et al., 2016; Weaver et al., 2022; Tao et al., 2023). Similar differences have been observed in relation to psychological outcomes. Although regular exercise has generally been associated with reduced stress, improved mood, and better psychological well-being, the extent of these benefits may differ across individuals and settings. These variations indicate that the relationship between exercise participation and health outcomes may not be the same for every population. The population studied is another important consideration. A considerable proportion of previous research has focused on athletes, clinical populations, older adults, or populations in developed countries. Comparatively less attention has been given to apparently healthy adults in local community and institutional settings in developing countries. In Nigeria, in particular, there is still a need for more evidence on how regular exercise participation relates to different aspects of adult health. Differences in lifestyle, occupation, level of physical activity, urbanization, and access to opportunities for structured exercise may influence the outcomes observed in this population. Consequently, findings from studies conducted in other populations or countries may not necessarily reflect the experiences of adults in the Nigerian context.

Although the individual benefits of exercise have been widely examined, the relationship between regular physical exercise participation and a combination of physiological and psychological health outcomes remains less clear. Many previous studies have focused on one or two outcomes, such as cardiovascular fitness, body composition, metabolic health, or psychological well-being, rather than examining these outcomes together. This makes it difficult to obtain a broader understanding of how regular exercise participation is related to different dimensions of adult health within the same population. Examining these relationships together may provide a more complete understanding of the potential benefits of regular exercise and help identify areas where exercise participation may have the greatest health relevance. The present study is therefore necessary because of the variations in findings from previous studies, the limited evidence involving adults in the Nigerian context, and the limited research examining several physiological and psychological outcomes together. The study investigates the relationship between regular physical exercise participation and cardiovascular fitness, muscular strength and endurance, body composition management, metabolic health improvement, and psychological well-being among adults. By providing evidence from the study population, the research is expected to contribute to existing knowledge in exercise physiology and provide useful information for health promotion, exercise prescription, and public health interventions. The findings may also be useful to health professionals, fitness practitioners, researchers, and policymakers in developing strategies that encourage regular exercise and promote better health and well-being among adults.

Objectives of the Study

The study sought to:

1. Determine the relationship between regular physical exercise participation and cardiovascular fitness.



2. Examine the relationship between regular physical exercise participation and muscular strength and endurance.
3. Investigate the relationship between regular physical exercise participation and body composition management.
4. Examine the relationship between regular physical exercise participation and metabolic health improvement.
5. Determine the relationship between regular physical exercise participation and psychological well-being.

Research Questions

The following research questions guided the study:

1. What is the relationship between regular physical exercise participation and cardiovascular fitness among adults?
2. What is the relationship between regular physical exercise participation and muscular strength and endurance among adults?
3. What is the relationship between regular physical exercise participation and body composition management among adults?
4. What is the relationship between regular physical exercise participation and metabolic health improvement among adults?
5. What is the relationship between regular physical exercise participation and psychological well-being among adults?

Research Hypotheses

The following hypotheses were tested at 0.05 significant level:

1. There is no significant relationship between regular physical exercise participation and cardiovascular fitness.
2. There is no significant relationship between regular physical exercise participation and muscular strength and endurance.
3. There is no significant relationship between regular physical exercise participation and body composition management.
4. There is no significant relationship between regular physical exercise participation and metabolic health improvement.
5. There is no significant relationship between regular physical exercise participation and psychological well-being.

Methodology

A correlational survey research design was employed to examine the relationship between regular physical exercise participation and selected physiological health outcomes among adults. The design was considered appropriate because it permits the examination of relationships among variables without manipulating the participants or study conditions. The variables considered in the study were cardiovascular fitness, muscular strength and endurance, body composition management, metabolic health, and psychological well-being. The study population comprised 8,000 adults aged 18 years and above who participated in organized physical exercise programmes in selected fitness centres, recreational facilities, and community health programmes in Port Harcourt, Rivers State, Nigeria. The exercise programmes included aerobic exercises, jogging and running programmes, resistance and strength-training exercises, fitness classes, recreational exercise activities, and other structured physical activity programmes. The eligible population consisted of adults who were registered with or regularly participated in these organized exercise programmes during the period of the study.

A sample of 200 respondents was selected from the population using the simple random sampling technique. The sample size was justified using an a priori power analysis for a Pearson Product Moment



Correlation, assuming a two-tailed test, a significance level of 0.05, an anticipated correlation effect size of $r = 0.20$, and a statistical power of 0.80. The analysis indicated that approximately 194 respondents were required to detect the anticipated relationship at the specified level of significance and statistical power. Consequently, the selection of 200 respondents exceeded the minimum required sample size and was considered adequate for the study. The use of 200 respondents therefore provided sufficient statistical power while remaining feasible in terms of time and resources.

Data were collected using a researcher-developed questionnaire consisting of items on regular physical exercise participation and the selected physiological and psychological health outcomes. Responses were measured on a four-point Likert scale of Very High Extent (4), High Extent (3), Low Extent (2), and Very Low Extent (1). The instrument was subjected to face and content validation by experts in Exercise Physiology, Human Kinetics, and Health Sciences. Their comments and suggestions were used to improve the clarity, appropriateness, and relevance of the questionnaire before its final administration. The reliability of the instrument was established using the split-half method, which produced a reliability coefficient of 0.82, indicating satisfactory internal consistency and demonstrating that the instrument was reliable for the study. The data collected were coded and analyzed using descriptive and inferential statistics. Mean and standard deviation were used to answer the research questions, while the hypotheses were tested using the Pearson Product Moment Correlation (PPMC) at the 0.05 level of significance. Before data collection, the purpose of the study was explained to all participants, and informed consent was obtained from each respondent. Participation in the study was entirely voluntary, and participants were informed of their right to decline or withdraw at any stage without any negative consequences. To protect participants' privacy, no identifying information was collected, and all responses were treated with strict confidentiality and used solely for research purposes.

Results

Research Question One: To what extent does regular physical exercise improve cardiovascular fitness?

Table 1: Influence of Regular Physical Exercise on Cardiovascular Fitness (N = 200)

S/N	Item	VHE	HE	LE	VLE	Mean	SD
1	Regular exercise improves heart efficiency and endurance.	93	93	14	0	3.40	0.62
2	Exercise enhances blood circulation and oxygen transport.	92	80	24	4	3.30	0.75
3	Regular exercise reduces the risk of cardiovascular diseases.	70	97	28	5	3.16	0.73
Grand Mean						3.29	0.10

The results presented in Table 1 indicate a grand mean of 3.29, showing that respondents perceived regular physical exercise to have a high level of influence on cardiovascular fitness. Among the items, improvement in heart efficiency and endurance recorded the highest mean score (3.40), followed by enhanced blood circulation and oxygen transport (3.30). The reduction in the risk of cardiovascular diseases had a mean score of 3.16. The findings suggest that respondents viewed regular physical exercise as an important factor in improving cardiovascular fitness.

Research Question Two: To what extent does regular physical exercise improve muscular strength and endurance?

Table 2: Influence of Regular Physical Exercise on Muscular Strength and Endurance (N = 200)

S/N	Item	VHE	HE	LE	VLE	Mean	SD
1	Exercise increases muscular strength.	71	80	42	7	3.08	0.83
2	Exercise improves muscular endurance.	46	94	51	9	2.89	0.83
3	Exercise enhances physical work capacity.	41	87	65	8	2.82	0.82
Grand Mean						2.93	0.11

Table 2 shows a grand mean of 2.93, indicating that respondents perceived regular physical exercise as having a high influence on muscular strength and endurance. Among the three items, exercise increases muscular strength recorded the highest mean score (3.08), followed by exercise improves muscular endurance (2.89). The item on enhancing physical work capacity had the lowest mean score (2.82), although it also fell within the high extent category. The findings suggest that regular participation in physical exercise contributes positively to the development of muscular strength and endurance.

Research Question Three: To what extent does regular physical exercise improve body composition management?

Table 3: Influence of Regular Physical Exercise on Body Composition Management (N = 200)

S/N	Item	VHE	HE	LE	VLE	Mean	SD
1	Exercise assists in maintaining a healthy body weight.	64	106	26	4	3.15	0.69
2	Exercise helps reduce body fat percentage.	63	108	19	10	3.12	0.71
3	Exercise improves overall body composition.	96	84	15	5	3.36	0.73
Grand Mean						3.21	0.11

Table 3 presents a grand mean of 3.21, indicating that respondents rated the influence of regular physical exercise on body composition management to a high extent. The item exercise improves overall body composition recorded the highest mean score (3.36), followed by exercise assists in maintaining a healthy body weight (3.15). The item on reducing body fat percentage had a mean score of 3.12. These results indicate that regular physical exercise is perceived as an important factor in maintaining healthy body composition.

Research Question Four: To what extent does regular physical exercise improve metabolic health?

Table 4: Influence of Regular Physical Exercise on Metabolic Health Improvement (N = 200)

S/N	Item	VHE	HE	LE	VLE	Mean	SD
1	Exercise improves glucose utilization.	95	83	18	4	3.35	0.74
2	Exercise improves insulin sensitivity.	61	102	29	8	3.06	0.71
3	Exercise promotes healthy metabolic functioning.	66	102	29	3	3.16	0.72
Grand Mean						3.19	0.12

Table 4 shows a grand mean of 3.19, indicating that respondents perceived regular physical exercise to have a high influence on metabolic health. Among the items, exercise improves glucose utilization recorded the highest mean score (3.35), followed by exercise promotes healthy metabolic functioning (3.16). The item exercise improves insulin sensitivity had a mean score of 3.06. The findings suggest that regular participation in physical exercise contributes positively to improved metabolic health.

Research Question Five: To what extent does regular physical exercise improve psychological well-being?

Table 5: Influence of Regular Physical Exercise on Psychological Well-being (N = 200)

S/N	Item	VHE	HE	LE	VLE	Mean	SD
1	Exercise reduces stress and anxiety.	95	82	21	2	3.35	0.73
2	Exercise improves self-esteem and confidence.	83	96	16	5	3.29	0.77
3	Exercise enhances overall quality of life.	79	91	25	5	3.22	0.76
Grand Mean						3.29	0.05

Table 5 shows a grand mean of 3.29, indicating that respondents rated the influence of regular physical exercise on psychological well-being to a high extent. The highest mean score (3.35) was recorded for

the item exercise reduces stress and anxiety, followed by exercise improves self-esteem and confidence (3.29). The item exercise enhances overall quality of life had a mean score of 3.22. These findings suggest that regular participation in physical exercise is associated with improved psychological well-being.

Hypotheses Testing

Table 6: Relationship between Regular Physical Exercise and Cardiovascular Fitness

Variables	N	Pearson <i>r</i>	Sig. (2-tailed)	Decision
Regular Physical Exercise and Cardiovascular Fitness	200	0.680**	0.000	Significant

Table 6 shows a Pearson correlation coefficient of 0.680 with a significance value of 0.000, which is less than the 0.05 level of significance. Therefore, the null hypothesis was rejected, indicating a significant positive relationship between regular physical exercise and cardiovascular fitness.

Table 7: Relationship between Regular Physical Exercise and Muscular Strength and Endurance

Variables	N	Pearson <i>r</i>	Sig. (2-tailed)	Decision
Regular Physical Exercise and Muscular Strength and Endurance	200	0.560	0.000	Significant

As presented in Table 7, the correlation coefficient of 0.560 was statistically significant ($p < 0.05$). The null hypothesis was therefore rejected, indicating a significant positive relationship between regular physical exercise and muscular strength and endurance.

Table 8: Relationship between Regular Physical Exercise and Body Composition Management

Variables	N	Pearson <i>r</i>	Sig. (2-tailed)	Decision
Regular Physical Exercise and Body Composition Management	200	0.630	0.000	Significant

Table 8 indicates a correlation coefficient of 0.630 with a significance value below 0.05. Based on this result, the null hypothesis was rejected. This finding shows a significant positive relationship between regular physical exercise and body composition management.

Table 9: Relationship between Regular Physical Exercise and Metabolic Health Improvement

Variables	N	Pearson <i>r</i>	Sig. (2-tailed)	Decision
Regular Physical Exercise and Metabolic Health Improvement	200	0.610	0.000	Significant

The result in Table 9 shows a Pearson correlation coefficient of 0.610 with a significance value of 0.000. Since the probability value is less than 0.05, the null hypothesis was rejected, indicating a significant positive relationship between regular physical exercise and metabolic health improvement.

Table 10: Relationship between Regular Physical Exercise and Psychological Well-being

Variables	N	Pearson <i>r</i>	Sig. (2-tailed)	Decision
Regular Physical Exercise and Psychological Well-being	200	0.660	0.000	Significant

Table 10 presents a Pearson correlation coefficient of 0.660 and a significance value of 0.000. As the significance level is below 0.05, the null hypothesis was rejected. The result indicates a significant positive relationship between regular physical exercise and psychological well-being.

Discussion of Findings

The findings of the study showed a significant strong positive relationship between regular physical exercise participation and cardiovascular fitness ($r = .680$). This suggests that adults who participated regularly in physical exercise generally had better cardiovascular fitness than those who exercised less regularly. This finding is in line with the views of the American College of Sports Medicine (ACSM, 2022), Kenney et al. (2022), and the World Health Organization (WHO, 2022), which recognize regular physical activity as an important factor in maintaining and improving cardiovascular health. Regular exercise places repeated demands on the heart and circulatory system, allowing the body to gradually



adapt and work more efficiently. These adaptations may include improved cardiac efficiency, increased stroke volume, better blood circulation, greater capillary development, and more effective use of oxygen by the muscles. The relatively high correlation obtained in this study suggests that cardiovascular fitness was closely associated with regular exercise participation among the adults studied. However, since the study used a correlational design, the finding should be understood as an association and not as proof that exercise alone caused the improvement in cardiovascular fitness. Other factors, such as age, diet, genetics, previous fitness level, occupational activity, and health status, may also have played a role. Nevertheless, the finding supports the importance of encouraging regular and appropriately structured physical exercise as part of programmes aimed at maintaining or improving cardiovascular fitness among adults.

The study also found a significant moderate-to-strong positive relationship between regular physical exercise and muscular strength and endurance ($r = 0.560$). This means that adults who participated more regularly in physical exercise tended to have better muscular strength and endurance. The finding agrees with previous evidence from ACSM (2022), Garber et al. (2011), and Kenney et al. (2022), which indicates that regular resistance, functional, and other appropriately prescribed forms of exercise can improve muscular fitness. One possible explanation is that repeated physical activity allows the muscles and nervous system to adapt over time. Regular exercise can improve neuromuscular coordination, motor-unit recruitment, muscle development, and the ability of the muscles to withstand fatigue. Although the correlation of 0.560 represents a meaningful relationship, it was lower than the correlation observed for cardiovascular fitness. This difference may be related to the type of exercise performed by the participants. For instance, adults who mainly engaged in aerobic activities may have experienced greater improvements in cardiovascular fitness than in muscular strength. The finding therefore suggests that exercise programmes intended to improve muscular fitness should include appropriate resistance and functional exercises alongside aerobic activities. At the same time, factors such as age, previous training experience, nutrition, recovery, and exercise intensity should be taken into consideration. A significant strong positive relationship was also found between regular physical exercise and body composition management ($r = 0.630$). This finding suggests that adults who participated regularly in exercise tended to have better body composition management. The result is consistent with Holmes and Racette (2021), Weaver et al. (2022), and WHO (2022), who emphasize the importance of regular physical activity in healthy weight management and the maintenance of favourable body composition. Regular exercise increases energy expenditure and can support the body's ability to use stored energy, improve fat metabolism, and maintain or develop lean muscle tissue. These effects may contribute to a healthier balance between body fat and lean mass, particularly when physical activity is combined with appropriate eating habits. The correlation of .630 indicates that body composition management had a strong association with exercise participation in the present study. However, body composition is not determined by exercise alone. Dietary habits, genetics, age, sex, sleep, occupational activity, and socioeconomic circumstances can also influence body composition. Therefore, the result should not be interpreted to mean that exercise independently determines body composition. Rather, it reinforces the value of including regular physical activity as part of broader healthy-lifestyle and weight-management programmes.

The findings further revealed a significant strong positive relationship between regular physical exercise and metabolic health ($r = 0.610$). This indicates that adults who participated regularly in physical exercise tended to have better metabolic health. The finding is consistent with Colberg et al. (2016), Ehrman et al. (2018), and ACSM (2022), who identify regular physical activity as an important component of maintaining healthy metabolic function and reducing the risk of metabolic disorders. Regular exercise can influence metabolic health in several ways. During physical activity, the muscles use more glucose for energy, while repeated exercise can improve insulin sensitivity and the body's ability to regulate blood glucose. Exercise can also increase energy expenditure, support healthy body weight, and contribute to healthier lipid metabolism. The correlation of 0.610 therefore suggests that metabolic health was substantially associated with regular exercise participation among the adults studied. However, metabolic health is influenced by several other factors, including diet, heredity, medication use, age, sleep, stress, and existing health conditions. The finding should therefore be



viewed as support for physical activity as one part of a broader approach to promoting metabolic health rather than as evidence that exercise alone can prevent or treat metabolic disorders. The study further established a significant strong positive relationship between regular physical exercise and psychological well-being ($r = 0.660$). This finding indicates that adults who participated regularly in physical exercise tended to report better psychological well-being. The result agrees with Biddle et al. (2019) and WHO (2022), which recognize the positive relationship between physical activity, mental well-being, and quality of life. Exercise may contribute to psychological well-being in several ways. It can provide opportunities for social interaction, help individuals manage stress, improve self-confidence, and create a sense of achievement. Regular participation in physical activities can also provide structure and opportunities for individuals to develop a stronger sense of competence and personal satisfaction. The correlation of 0.660 shows that psychological well-being had one of the strongest relationships with regular exercise in the study. However, the result does not establish that exercise directly caused better psychological well-being. It is also possible that adults who already had better psychological well-being were more likely to participate regularly in exercise. Other factors, such as social support, employment, financial circumstances, sleep, and general lifestyle, may also have influenced the finding. Thus, physical exercise should be viewed as a useful component of broader health-promotion efforts rather than as the only solution to psychological or mental health concerns. When the findings are considered together, regular physical exercise showed significant positive relationships with all five outcomes examined: cardiovascular fitness ($r = 0.680$), muscular strength and endurance ($r = 0.560$), body composition management ($r = 0.630$), metabolic health ($r = 0.610$), and psychological well-being ($r = 0.660$). This overall pattern is consistent with established exercise physiology and health literature, which recognizes physical activity as an important part of healthy living. The correlations indicate that regular exercise participation was meaningfully associated with different aspects of adult health. The strongest relationship was found between exercise and cardiovascular fitness, followed by psychological well-being, body composition management, and metabolic health, while muscular strength and endurance had the lowest correlation. This variation may be partly explained by differences in the types of exercise performed by the participants. If a large proportion of the participants engaged mainly in aerobic activities, for example, stronger relationships with cardiovascular fitness would be expected. Similarly, the strong relationship with psychological well-being may reflect not only the physical effects of exercise but also the social interaction, sense of achievement, and stress relief that may accompany regular participation.

Despite the agreement between the present findings and previous research, some limitations should be considered. First, the correlational design means that the study cannot establish a cause-and-effect relationship between exercise participation and the health outcomes. Second, the study relied on a researcher-developed questionnaire, and participants' responses may have been influenced by personal perceptions, memory, or the desire to provide socially acceptable answers. Third, the study did not experimentally control the type, intensity, frequency, or duration of exercise undertaken by the participants. Differences in these factors could have affected the strength of the relationships observed. In addition, factors such as diet, age, sex, genetics, socioeconomic status, sleep, occupational physical activity, and existing health conditions may have influenced the outcomes but were not fully controlled. Finally, the study focused on adults participating in organized exercise programmes in Port Harcourt, Rivers State. Consequently, the findings should be generalized with caution to adults in other locations or to individuals who do not participate in organized exercise programmes. The findings demonstrate meaningful positive relationships between regular physical exercise participation and cardiovascular fitness, muscular strength and endurance, body composition management, metabolic health, and psychological well-being. The results are generally consistent with previous research and with established explanations of the physiological and psychological benefits of regular physical activity. However, the correlation coefficients should be interpreted as measures of association rather than evidence that exercise directly caused the observed outcomes. Even with this limitation, the findings provide useful support for promoting regular, appropriately structured physical exercise as part of comprehensive health-promotion programmes for adults. Such programmes are likely to be most beneficial when exercise is combined with healthy nutrition, adequate recovery, and other positive lifestyle practices and when activities are adapted to individual needs and abilities.



Conclusion

The findings of this study showed that regular physical exercise participation was significantly related to cardiovascular fitness, muscular strength and endurance, body composition management, metabolic health, and psychological well-being among adults. Positive and statistically significant relationships were found between regular physical exercise and each of the variables examined. The results indicate that adults who participated regularly in physical exercise reported better cardiovascular fitness, greater muscular strength and endurance, healthier body composition, improved metabolic health, and better psychological well-being than those with lower levels of exercise participation. Conclusively the findings suggest that regular physical exercise is associated with improvements in both physiological and psychological health outcomes. The study therefore concludes that regular participation in physical exercise is an important factor associated with cardiovascular fitness, muscular strength and endurance, body composition management, metabolic health, and psychological well-being among adults.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Adults should engage in regular physical exercise as part of their daily routine to promote cardiovascular fitness, muscular strength and endurance, healthy body composition, metabolic health, and psychological well-being.
2. Healthcare professionals should encourage regular physical activity as part of routine health promotion and disease prevention, particularly for individuals at risk of lifestyle-related diseases.
3. Employers should promote workplace wellness programmes that provide opportunities for employees to participate in regular physical exercise and recreational activities.
4. Government and private organizations should provide and maintain accessible recreational and sporting facilities to increase participation in physical activity within communities.
5. Educational institutions should strengthen physical education and recreational programmes to encourage the development of lifelong exercise habits.

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