International Journal of Engineering Inventions
e-ISSN: 2278-7461, p-ISSN: 2319-6491
Volume 15, Issue 6 [June 2026] PP: 118-121

Proposing some measures to enhance physical activity for first-year students at the Thai Nguyen University of Technology - Thai Nguyen University

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ABSTRACT: *Improving students' physical activity levels is a top priority in Physical Education (GDTC) classes. Exercise density is an indicator reflecting the level of participation in physical activity during a physical education class. In practice, students, especially first-year students, have limited physical activity levels when participating in internal and external GDTC classes. The research results assessed the current level of physical activity density among students during physical education classes and its impact on physical education performance This proposes several measures to improve the physical activity density during physical education classes for first-year students at Thai Nguyen University of Technology (TNUT), aiming to positively motivate learners in accordance with the practical conditions of the university.*
Keywords: Current situation, activity density, GDTC class hours, Thai Nguyen University of Technology, first-year students.

Date of Submission: 13-06-2026 Date of acceptance: 27-06-2026

I. INTRODUCTION

Enhancing physical activity for students has always been a top priority in physical education in schools.

The WHO has recommended that adults aged 18-64 should engage in at least 150 minutes of moderate-intensity activity or at least 75 minutes of vigorous-intensity physical activity or a combination of moderate-intensity and vigorous-intensity activity throughout the week (World Health Organization, 2020). The research results of Tinazci et al. (2019) showed that a significant proportion of students did not adhere to global recommendations for optimal PA levels during the week. Low levels of physical activity are a significant risk factor for cardiovascular disease, cancer, and diabetes (World Health Organization, 2020).

Lack of physical activity reduces concentration and is a significant cause of declining health and obesity development (Osipov and associates, 2018).

Recognizing the importance of physical education, TNUT's training process always focuses on methods to improve the quality of education and help students develop comprehensively in terms of virtue, intellect, and physical beauty in order to meet the increasingly high demands of society and enhance the status and prestige of the school. TNUT has gradually focused on physical education activities and invested appropriately in renovating and improving facilities to serve physical education and sports training activities for students. In fact, although physical education has undergone significant improvements and innovations, certain limitations remain. This significantly impacts the quality of physical education, requiring the coordinated implementation of various measures to gradually improve the quality of physical education in particular, and the quality of training in schools in general.

In recent years, TNUT, with its determination to use quality as a measure of the school's reputation in its training programs, has placed increasing emphasis on training. Educational training is a specialized subject, and improving the quality of educational training is always a priority and a priority for schools. In practice, the goal is to improve the quality of physical education subjects, in addition to equipping them with facilities and teaching staff, and strengthening management... One of the indispensable tasks is to come up with solutions that encourage students to participate in regular exercise, thereby increasing physical activity for students, especially first-year students. This is a group that needs attention, a habit of physical activity, and active participation in extracurricular activities, thereby gradually improving physical fitness and avoiding social vices.

Based on the above reasons, we conducted research “Proposing some measures to enhance physical activity for first-year students of the Thai Nguyen University of Technology – Thai Nguyen University”.

In our research, we employed the following methods: document analysis and synthesis; pedagogical observation; interviews; pedagogical testing, pedagogical experiments, and statistical mathematics.

II. RESEARCH RESULTS AND DISCUSSION

2.1. Benefits of physical activity

Numerous studies have shown that regular physical activity reduces the risk of many types of adverse outcomes and for all ages. Physical activity helps reduce the risk of all-cause and cardiovascular death by 20-30% in healthy individuals (depending on the level of physical activity). Physical activity also helps reduce the risk of death in people with risk factors for coronary artery disease and in those who already have cardiovascular disease. Physical activity has a positive impact on all risk factors, including hypertension, dyslipidemia, obesity, and type 2diabetes. This effect has been observed in both men and women and at all ages, from children to the elderly. Physical activity not only improves physical health but also enhances mental health.

Long-term observational studies have shown an association between above-average levels of leisure activity and reduced cardiovascular mortality and all-cause mortality. Mortality rates decreased by 30 – 40% in moderately active individuals (consuming approximately 1000 kcal/week of energy during leisure time) compared to inactive individuals.

However, recent studies show that morbidity and mortality rates are most significantly reduced in people who were previously inactive and began engaging in regular physical activity. Therefore, some authors also suggest that the level of physical activity should be considered on an individual basis instead of giving a general level of ≥3 MET for everyone.

2.2. The harmful effects of a sedentary lifestyle

- Muscular weakness: Muscles are strongest when they are trained regularly. Muscles can easily improve their strength and endurance. However, when sitting still for long periods, they tend to weaken. If excessive sitting continues for a prolonged time, muscles and other body structures will no longer be able to adapt to movements such as running, jumping, or even standing (according to MSN).

- Poor sleep: According to the U.S. Centers for Disease Control and Prevention (CDC), if you are experiencing sleep problems, it may be because you do not exercise regularly. Exercise can benefit sleep for everyone, even people with insomnia. Exercise helps improve sleep because the brain compensates for physical stress by increasing the amount of deep sleep. Furthermore, exercise promotes sleep by raising body temperature, which then drops back down over the next few hours. This decrease in temperature helps you fall asleep more easily and sleep more soundly.

- Reduced endurance: Regular exercise improves cardiovascular and lung health and reduces shortness of breath in both healthy individuals and people with chronic lung disease. This means the body can absorb oxygen more effectively, even when tired. If you do not exercise regularly, you may become breathless quickly after climbing stairs or carrying heavy objects. For those who exercise consistently, however, this does not happen as quickly.

- Weight gain: Physical inactivity is one of the leading causes of weight gain today. Overweight and obesity are major contributors to blood pressure and blood sugar disorders. A sedentary lifestyle causes fat to accumulate around the abdominal area.

- Increased feelings of boredom, stress, and depression: Exercise also affects mental health. For people diagnosed with clinical depression, exercise can help reduce symptoms. However, even if you have not been diagnosed with a mental health condition, regular exercise is still important. To improve mood, it is best to exercise regularly, regardless of whether the intensity is high or low.

- Blood sugar-related diseases: One harmful effect of physical inactivity is that it causes the body to experience frequent stress and fatigue, which are also among the leading causes of stroke.

In the current context, everyone should maintain physical activity by exercising at home. Spend about one hour each day exercising; even simple movements can benefit the body and prevent sluggishness. Developing a habit of physical training is also one of the most effective ways to fight disease and support effective disease prevention.

2.3. Current State of Physical Activity among First-Year Students at Thai Nguyen University of Technology (TNUT)

To assess the current state of physical activity among first-year students at TNUT, we evaluated their level of physical activity during both curricular and extracurricular activities.

- During regular classes (curricular activities): The amount of physical activity in Physical Education (PE) classes refers to the level of bodily activity during the learning process, expressed through the intensity, duration, and degree of student participation in movement-related activities. Physical activity density (PAD) in PE classes is the ratio of time spent performing exercises to the total lesson time, which is an important factor determining the effectiveness of PE programs for students.

In regular classes, students follow the schedule arranged by the Academic Affairs Office. Specifically, students complete a total of 30 periods per course over 10 weeks (2 periods per week, with each period lasting 75 minutes). Each class consists of approximately 60 to 85 students. Under these conditions, the amount of physical activity varies among students due to both subjective and objective factors. For first-year students, the current level of physical activity in PE classes still has many limitations and has not achieved high effectiveness. The reasons include:

First: the amount of time devoted to actual physical activity during a lesson is sometimes limited. This is partly because class sizes are too large, while lesson duration and facilities are insufficient. In addition, time is often spent on attendance-taking, explaining lesson content, demonstrating techniques, and correcting movements. As a result, the actual time students spend engaging in physical activity may be significantly reduced compared to the total class duration.

Second: the level of physical activity is not uniform among students. Some students have good physical fitness, actively participate, and complete all exercises at high intensity. In contrast, many students engage in physical activity at a low level, participate merely to fulfill requirements, or lack genuine interest and concentration. This leads to differences in training outcomes as well as PAD among individuals.

Third: the learning content directly affects the amount of physical activity. Subjects such as sprinting, football, badminton, pickleball, and volleyball generally generate higher levels of activity. Meanwhile, lessons focusing on movement techniques or theory may involve lower levels of physical activity because students must spend more time observing and practicing step by step.

In addition, factors such as weather conditions, facilities, class size, and learning motivation also influence the amount of physical activity. Overcrowded classes may reduce the practice time available for each student, thereby affecting exercise effectiveness.

- During extracurricular activities:.This period provides students with opportunities to participate voluntarily in sports and health-enhancing activities. However, in reality, the proportion of first-year students who participate regularly remains relatively low.

Some students actively join sports clubs such as football, badminton, volleyball, gym training, pickleball, or running clubs. However, many students spend most of their free time on social media, video games, or other sedentary recreational activities. Living away from family, difficulties adapting to a new environment, and poor time-management skills also prevent many students from developing and maintaining regular exercise habits.

Moreover, extracurricular activities often lack incentive mechanisms, qualified instructors, and a diverse range of sports clubs, while facilities may not adequately meet students' training needs. These factors significantly affect students' participation in extracurricular physical activities.

From the above situation, it can be seen that first-year students' physical activity remains imbalanced between actual needs and the level of participation. Therefore, it is essential to develop regular exercise habits, encourage participation, and create favorable conditions for students to engage in physical activities, thereby increasing their overall level of physical activity, especially among first-year students.

2.4. Propose several measures to enhance physical activity among first-year students at Thai Nguyen University of Technology.

Each person's physical activity is different. Depending on their health and preferences, each individual will choose a suitable way to increase their level of physical activity. People who lead a gentle, slow-paced lifestyle mainly engage in everyday activities such as walking around the house, taking walks, watering flowers, and doing household chores, all of which are also considered physical activity.

For people who engage in intense physical activity or heavy labor, increasing their level of physical activity is already accomplished daily through their work or through strenuous training regimens such as weightlifting, boxing, wrestling, etc.

Simple yet effective ways to increase physical activity that can be done at home or carried out independently every day include the following exercises:

1) Innovate teaching methods in Physical Education classes.

+ Organize exercises in small groups or station-based formats, allowing more students to be physically active at the same time.

+ Limit the use of traditional methods (such as having students stand in long lines waiting for their turn to perform movements) and increase the use of circuit training and continuous exercises to enhance students' physical activity levels.

+ Incorporate movement-based games to create interest and increase physical activity, thereby improving students' physical fitness.

+ Integrate health education content into the curriculum.

+ Enhance the capacity of Physical Education lecturers: Encourage PE lecturers to participate in professional development and training programs to improve their expertise, enabling them to apply diverse

teaching methods, increase actual movement time, and regularly monitor and assess students' activity density during class.

2) Enhance students' awareness and motivation for physical exercise.

+ Promote the benefits of physical activity for physical and mental health so that students recognize its importance and voluntarily engage in exercise.

+ Encourage students to develop daily exercise habits.

+ Coordinate with functional departments and the Youth Union to organize more competitions and activities that help students learn about the role and significance of physical activity for health.

3) Develop extracurricular sports activities.

+ Attract and encourage students to participate in sports clubs such as football, volleyball, badminton, running, and pickleball through appropriate incentives and policies.

+ Increase the frequency of student sports tournaments and athletic events.

+ Encourage students to participate in at least one sports activity outside of class hours.

4) Improve facilities for both curricular and extracurricular activities.

+ Invest in and renovate sports fields, gymnasiums, and sports equipment to support sports activities and ensure adequate quantity and quality.

+ Create open exercise spaces on campus. Arrange convenient times and locations so that students can easily participate in physical activities and training.

III. RESULTS AND DISCUSSION

The study assessed the current level of physical activity among first-year students at TNUT and indicated that increasing students' physical activity density requires coordination among the university, lecturers, and the students themselves. The research proposes four measures to improve and enhance the physical activity density of first-year students at TNUT, including:

1) Innovating teaching methods in Physical Education classes.

2) Raising students' awareness and motivation for exercise and training.

3) Developing extracurricular sports activities.

4) Improving facilities to support both curricular and extracurricular activities.

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