# Lựa chọn bài tập phát triển thể lực chung cho nam sinh viên không chuyên ngành Giáo dục thể chất năm thứ 2, Trường Đại học Quy Nhơn


## TÓM TẮT

Nghiên cứu này tập trung vào việc lựa chọn và thử nghiệm hệ thống bài tập phát triển thể lực chung (TLC) cho nam sinh viên không chuyên ngành Giáo dục thể chất (GDTC) năm thứ hai tại Trường Đại học Quy Nhơn. Kết quả khảo sát ban đầu cho thấy thực trạng thể lực của phần lớn sinh viên không đạt tiêu chuẩn của Bộ Giáo dục và Đào tạo, đặc biệt là các chỉ số về sức mạnh và sức bền. Bằng cách vận dụng các phương pháp tổng hợp, phân tích tài liệu và phỏng vấn chuyên gia, nghiên cứu đã xây dựng thành công 16 bài tập TLC có tính khả thi và ứng dụng cao để đưa vào thực hành. Sau bốn tháng thực nghiệm, các chỉ số thể lực của nhóm thực nghiệm đã cho thấy sự cải thiện đáng kể so với nhóm đối chứng. Những phát hiện này cung cấp một cơ sở thực tiễn quan trọng để điều chỉnh và nâng cao chất lượng chương trình GDTC, góp phần vào sự phát triển thể chất toàn diện của sinh viên Trường Đại học Quy Nhơn.



**Từ khóa**: *Trường Đại học Quy Nhơn, Bài tập phát triển thể lực chung, Giáo dục thể chất, sinh viên.*

# Selection of General Physical Development Exercises for Second-Year Non-PE Male Students at Quy Nhon University


## ABSTRACT

The study investigated the selection and testing of a system of General Physical Development (GPD) exercises for second-year non-Physical Education (PE) male students at Quy Nhon University. An initial assessment of the students' current physical fitness status revealed that the majority did not meet the standards set by the Ministry of Education and Training, especially in the indices of strength and endurance. Utilizing methods of synthesis, document analysis, and expert interviews, a system of 16 GPD exercises with high feasibility and applicability was successfully selected and implemented. Following a four-month experiment, the physical indicators of the experimental group demonstrated a significant improvement compared to the control group. These findings provide a crucial practical basis for adjusting and improving the quality of the PE curriculum, thereby contributing to the comprehensive physical development of students at Quy Nhon University.



**Keywords:** *Quy Nhon University, General Physical Development Exercises, Physical education, students.*


## 1. INTRODUCTION

Physical Education (PE) plays a foundational and essential role in developing comprehensive physical fitness, health, and character formation for university students.[1,2] At Quy Nhon University (QNU), the PE curriculum has been implemented with various elective sports to enhance students' physical fitness, and some preliminary research on institutional physical fitness assessment standards has also been conducted.[3]

However, during implementation, QNU is still facing many challenges related to effectively designing and selecting General Physical Development (GPD) exercises for non-major students. In practice, most previous studies have typically focused on developing specialized physical fitness for PE majors,[4] while research on GPD exercise systems specifically for non-PE majors remains limited and often lacks standardization. This challenge is also reflected in international studies concerning the PE curriculum for non-sports major students.[5]

To address this research gap and improve the quality of PE, the assessment of the current physical fitness status of second-year non-PE male students is an urgent step. A key objective of this study is to research and select a suitable system of GPD exercises aimed at improving students' deficient physical qualities, such as speed, strength, endurance, agility, and flexibility, thereby promoting their holistic development, similar to the proven effectiveness of structured intervention programs.[6]

Therefore, the purpose of this study is to assess the current physical fitness status and subsequently select and propose a system of optimal GPD exercises for second-year non-PE male students at Quy Nhon University. The research utilizes routine scientific methods in the field of Sports and Physical Education, such as Literature Synthesis and Analysis, Pedagogical Testing, Pedagogical Observation, and Mathematical Statistics,[7] to ensure the accuracy and reliability of the data.

## 2. THE STUDY

This section presents the research process, starting from the assessment of the initial physical fitness status of the student participants, the selection of intervention exercises, up to the evaluation of the effectiveness of the applied exercise system on the Experimental Group.

### *2.1. Status of General Physical Fitness of Second-Year Non-PE Male Students*

The study initially involved testing the physical fitness of 64 second-year non-PE male students according to the physical fitness assessment standards set by the Ministry of Education and Training (MOET Standards). The initial test results (Table 2.1) indicate that the physical fitness of most of the participants was low, particularly in indicators related to strength, endurance, and coordination.

**Table 1.** Results of the Initial Assessment of General Physical Fitness of Second-Year Non-PE Male Students, Quy Nhon University (n = 64)

| Content | $\bar{x}$ | δ | Cv% | MOET Standards (Percentage of Students Classified) | | |
|---|---|---|---|---|---|---|
| | | | | Good | Satisfactory | Fail |
| Dominant Hand Grip Strength (kg) | 42.3 | 4.75 | 11.21 | 22.22% | 48.15% | 29.63% |
| Standing Long Jump (cm) | 198.8 | 11.95 | 6.01 | 11.10% | 44.46% | 44.44% |
| 30m Sprint from Standing Start (s) | 4.95 | 0.12 | 2.50 | 21.48% | 71.11% | 7.41% |
| 5-minute Maximum Effort Run (m) | 929.07 | 58.92 | 6.34 | 0% | 8.89% | 91.11% |

Specifically, the result for the 5-minute Maximum Effort Run (m) showed a low mean value ($\bar{x}$ = 929.07 ± 58.92), with a very high percentage of the students Failing (91.11%), indicating a severe weakness in endurance. Similarly, in the Standing Long Jump (cm), the percentage of students who Failed also accounted for 44.44%. Notably, although the mean score for Dominant Hand Grip Strength (kg) met the requirement ($\bar{x}$ = 42.3 ± 4.75), the Coefficient of Variation (Cv% = 11.21%) exceeded the 10% threshold, demonstrating a lack of uniformity in the students' physical fitness level for this index.

### *2.2. Selection of GPD Exercises*

To establish a system of intervention exercises aimed at improving the deficient physical fitness indices, the study conducted two rounds of interviews with 18 experts, lecturers, and stakeholders in the field of PE. The selection criterion was that each exercise must receive an agreement rate of over 75% of the maximum possible score from the interviewees. The interview results (Table 2.2) indicate that 16 GPD exercises were selected due to their high feasibility and applicability, covering exercises for developing speed, strength, endurance, and coordination.

**Table 2.** Results of the Expert Interviews for Selecting GPD Exercises for Second-Year Non-PE Male Students, QNU (n = 18)

| No | Exercise | Round 1 (n=18) | | Round 2 (n=18) | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| **1** | **Repeated sprints over 30m, 50m from standing start** | **14** | **77.78** | **15** | **83.33** |
| **2** | **High knee run in place with fast frequency (10s)** | **14** | **77.78** | **14** | **77.78** |
| **3** | **Repeated sprints over 80m** | **16** | **88.89** | **17** | **94.44** |
| **4** | **Jump training with hand touching a ball** | **15** | **83.33** | **15** | **83.33** |
| **5** | **Continuous step jumps 30 - 40cm** | **17** | **94.44** | **18** | **100.00** |
| **6** | **Squats with barbell load (standing up and sitting down)** | **15** | **83.33** | **16** | **88.89** |
| 7 | **Frog jumps** | **17** | **94.44** | **18** | **100.0** |
| 8 | Frog Jumps 18m x 2 repetitions | 8 | 44.44 | 9 | 50.00 |
| **9** | **Pull-ups on horizontal bar combined with knee-to-chest sit-ups** | **16** | **88.89** | **17** | **94.44** |
| 10 | One-leg squats (20 repetitions) | 13 | 72.22 | 13 | 72.22 |
| **11** | **Supine sit-ups** | **17** | **94.44** | **17** | **94.44** |
| **12** | **Prone push-ups** | **15** | **83.33** | **16** | **88.89** |
| **13** | **Run over 800m, 1500m, or 2000m** | **16** | **88.89** | **16** | **88.89** |
| 14 | High knee run transitioning to 20m acceleration run | 8 | 44.44 | 9 | 50.00 |
| **15** | **Two-foot hops** | **15** | **83.33** | **16** | **88.89** |
| 16 | Heel kicks run (20m) | 13 | 72.22 | 13 | 72.22 |
| **17** | **Leg swing kicks** | **15** | **83.33** | **16** | **88.89** |
| 18 | 5-minute distance run (test) | 13 | 72.22 | 13 | 72.22 |
| **19** | **Variable speed run over 400m - 600m** | **14** | **77.78** | **15** | **83.33** |
| **20** | **Ball snatching game** | **14** | **77.78** | **15** | **83.33** |
| 21 | 50m warm-up run | 13 | 72.22 | 13 | 72.22 |
| 22 | Prone back extension (20 seconds) | 8 | 44.44 | 9 | 50.00 |
| 23 | Zigzag Run around Cones | 8 | 44.44 | 9 | 50.00 |
| **24** | **Skipping / Jump Rope** | **16** | **88.89** | **17** | **94.44** |
| 25 | Squat Thrust / Burpee (30s) | 13 | 72.22 | 13 | 72.22 |
| 26 | 20m Zigzag Run | 10 | 55.55 | 12 | 66.67 |
| 27 | Wheelbarrow Push | 8 | 44.44 | 9 | 50.00 |
| 28 | Ball Rolling Relay | 10 | 55.55 | 12 | 66.67 |
| 29 | Standing Trunk Flexion | 13 | 72.22 | 13 | 72.22 |

### *2.3. Evaluation of the Effectiveness of the GPD Exercises*

After 4 months of experimentation applying the 16 selected exercises to the Experimental Group, the re-test results and comparison between the two groups confirmed the effectiveness of the exercises.

**Table 3.** Comparison of GPD Results of the Experimental Group (EG) and Control Group (CG) after Experimentation

| TT | Test | Group | Test result ( $n_{EG}$ = 32, $n_{CG}$ = 32) | | | |
|---|---|---|---|---|---|---|
| | | | $(\bar{x} \pm \sigma)$ | $C_v$% | $t_{calculated}$ | p |
| 1 | Dominant Hand Grip Strength (kg) | CG | 47.68 ± 3.35 | 7.03 | 4.63 | < 0,05 |
| | | EG | 47.9 ± 3.19 | 6.66 | | |
| 2 | Standing Long Jump (cm) | CG | 223.19 ± 9.59 | 4.31 | 3.48 | < 0,05 |
| | | EG | 231.92 ± 9.72 | 4.91 | | |
| 3 | 30m Sprint from High Start (s) | CG | 4.87 ± 0.11 | 2.47 | 2.57 | < 0,05 |
| | | EG | 4.82 ± 0.17 | 3.37 | | |
| 4 | 5-minute Maximum Effort Run (m) | CG | 1014.88 ± 55.45 | 5.46 | 5.67 | < 0,05 |
| | | EG | 1123.59 ± 62.03 | 5.52 | | |

The results show that the mean values of the EG were higher than the CG in all 4 contents, and this difference was statistically significant tcalculated > ttable= 1.96 at the p < 0.05 level. This confirms the effectiveness of the selected exercises. Furthermore, the Coefficient of Variation (Cv%) of the EG after the experiment in all contents was less than 10%, indicating that the physical fitness level had been successfully standardized.

Analysis according to the MOET standards (Table 2.4) shows a clear improvement in the physical fitness quality of the EG. The average percentage of the students classified as Good increased from 13.7% to 33.59%, and the Fail

rate sharply dropped from 43.14% to only 10.93%. Notably, in the 5-minute Maximum Effort Run (m), the Fail rate decreased from 91.11% to only 15.62%, while the Good rate increased from none to 10.93%. A similar improvement was seen in the Dominant Hand Grip Strength (kg), with the Good rate increasing from 22.22% to 73.43% and the Fail rate decreasing to only 4.68%.

**Table 4.** GPD Classification Results of the EG and CG According to the MOET Standards after Experimentation

| No | Test | Initial GPD Status | | | GPD Status after 4 Months | | |
|---|---|---|---|---|---|---|---|
| | | Good | Satisfactory | Fail | Good | Satisfactory | Fail |
| 1 | Dominant Hand Grip Strength (kg) | 22.22% | 48.15% | 29.63% | 73.43% | 21.87% | 4.68% |
| 2 | Standing Long Jump (cm) | 11.10% | 44.46% | 44.44% | 28.12% | 56.25% | 15.62% |
| 3 | 30m Sprint from High Start (s) | 21.48% | 71.11% | 7.41% | 21.87% | 70.31% | 7.81% |
| 4 | 5-minute Maximum Effort Run (m) | 0% | 8.89% | 91.11% | 10.93% | 57.81% | 15.62% |
| Average Rate (%) | | 13.7% | 43.15% | 43.14% | 33.59% | 51.56% | 10.93% |

In conclusion, the application of the selected exercise system yielded clear effectiveness, significantly improving the physical fitness of the students participating in the study, specially in what they were initially weak.

## 3. CONCLUSION AND REMARKS

This study successfully assessed the current status of general physical fitness among second-year non-PE male students and successfully selected a suitable system of GPD exercises for them to train. The four-month experimental results conclusively demonstrated the significant effectiveness of the applied GPD exercises in improving the students' physical fitness indicators, particularly in endurance and coordination, which were identified as their weakest qualities. This effectiveness is evidenced by a sharp decrease in the proportion of students classified as Fail, while the rate achieving Good and Satisfactory levels increased substantially according to the MOET standards. This robust evidence confirms the high applicability of the selected GPD exercise system for enhancing the quality of physical education for non-major students at the university level.

The result is believed to make significant practical and scientific contributions by providing a validated intervention tool for improving student fitness. This research is also expected to opens the door for future studies to focus on expanding the scope to female students and other year levels, as well as designing more specialized and personalized physical development programs to address the specific health needs of student subgroups with severely low fitness indices or particular medical conditions.

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