

Analysis of Physical Fitness Test Results of Pull-ups in Higher Vocational Collar Research on the Countermeasures — — Taking Anhui Business College as an Example

Zhen Cheng, Xianbin Shi

Anhui Business College, Anhui Wuhu 241002

Abstract: The pull-up project is a very important content in the physical fitness test of college students. In recent years, the test data show that the results are not optimistic. This paper makes a statistical analysis of the pull-up test results of Anhui Business College in the past three years. The number of students who failed the pull-up test in 2021 accounted for 74.74% of the total number of tests. The number of students who failed the pull-up test in 2022 decreased, but it was still as high as 63.82%. The situation has been very serious. The core factors affecting performance include lack of physical exercise, lack of professional guidance, lack of interest and motivation, and physical injuries and psychological constraints. This paper puts forward some countermeasures, such as strengthening the school's attention to students' physical health, strengthening exercise guidance, promoting the concept of healthy diet and aerobic exercise, enhancing students' enthusiasm for exercise, rehabilitation of physical injuries and psychological counseling, etc., to comprehensively improve students' physical health level in combination with the actual situation of the school.

Keywords: physical fitness test, pull-up, performance analysis, countermeasure research

Introduction

Pull-ups, as an important part of the physical fitness test of contemporary college students, is not only an assessment of students' upper limb strength, but also a comprehensive physical fitness test. Unfortunately, from the test data over the years, we can see that most of the students' pull-ups are not ideal, and there are differences between higher vocational colleges and undergraduate colleges. This phenomenon reflects the problem of students' physical health and the need to adjust and improve our teaching strategies. This paper will make an in-depth analysis of the results of pull-ups in Anhui Business College in the past three years, elaborate on the factors affecting the results, and put forward targeted countermeasures to provide a useful reference for improving students' physical health^[1].

1.Object and method of study

1.1 Object of study

The test results and data of pull-ups of students in Anhui Business College from 2021 to 2023 were taken as the research object.

1.2 Research methods

1.2.1 Literature method

Log on China HowNet, Wanfang, and other websites to search for the relevant literature of pull-ups in physical fitness test in higher vocational colleges, and to understand the research situation of pull-ups in higher vocational colleges in recent years.

1.2.2 Mathematical statistics method

The pull-ups test results of students in Anhui Business College in the past three years were collected, and the data were analyzed in depth by EXCEL tool.

1.2.3 Expert interview method

This paper interviews the students' pull-ups level with sports training experts and front-line physical education teachers in order to understand the training methods to improve the pull-ups level and the problems faced by the current teaching.

2. Analysis of the current situation of pull-up test results in Anhui Business College in recent three years

The results of male Students' pull-up from 2021 to 2023 were summarized as followed table1, and the research makes a statistical comparison from the perspective of excellent, good, pass and fail.

Table 1 Analysis of Male Students' Pull-Up Test Results in Anhui Business College in Recent 3 Years

Year	Number of samples	Excellent	Good (%)	Pass (%)	Fail (%)
2021	4308	1.73%	2.74%	20.79%	74.74%
2022	4053	3.75%	4.64%	27.79%	63.82%
2023	4018	4.92%	6.79%	30.37%	57.92%

From a large number of data analysis, the following conclusions can be drawn:

1. The overall performance is low: most of the students' pull-up scores do not reach the passing line, the excellent rate and the good rate are very low, but the failure rate is quite high. This shows that the overall strength and quality of students need to be improved.

2. Significant differences in performance: among the students who participated in the test, some students could easily complete multiple pull-ups, and their movements were standard and smooth; Some students can't do any of them, and there is a significant gap between them. This shows that the development of students' strength is not balanced.

3. The overall performance is slowly improving: the school has realized the importance of the physical fitness test of college students, and it is urgent to improve the comprehensive physical quality of students. Through various efforts, the performance has been improved to a certain extent.

4. Limited room for improvement: Despite the joint efforts of schools, teachers and students, the data in 2021 has improved compared with 2022, but the year-on-year growth in 2023 has declined, specifically, the passing rate has increased by 7% from 22 to 21, and only 2.58% from 23 to 22. It shows that there may be limitations in school policies, teachers' teaching methods and students' enthusiasm for exercise, which need to be adjusted in time.

3. Core factors affecting performance

3.1 Lack of physical exercise

After entering colleges and universities, due to academic pressure and participation in other activities, contemporary

college students often neglect physical exercise, "curtilage" lifestyle is very common, leisure time students are more willing to stay in the dormitory to play games, sleep, rather than go out of the dormitory to exercise, and students in higher vocational colleges are shorter than undergraduates^[2]. Lack of exercise will lead to the decline of the functions of various parts of the body, the increase of body fat rate, the increase of body weight base, the increase of movement difficulty coefficient, and even more reluctant to exercise after developing bad habits such as smoking and alcoholism, thus affecting the performance of pull-ups.

3.2 Lack of professional guidance

Pull-ups are a kind of exercise with high technical content. The latissimus dorsi and round muscles of the upper limbs are the main muscle groups, and they need the coordination of the whole body. Students lack correct technical guidance and training methods, and the training methods of teachers' teaching are not updated in time. Students with different physical conditions adopt the same training methods. This situation is prone to problems such as wrong posture, unsmooth movement and slow improvement of performance.

3.3 Lack of interest and motivation

The improvement of pull-up performance is inseparable from long-term systematic practice, which is a slightly boring sport. Over a long period of time, some students may lack interest in the action, lack motivation to learn and train pull-up projects, lack a deep understanding of the importance of physical fitness testing for college students, and always hold an attitude to complete the task. Therefore, they can not invest enough energy and time to improve their performance.

3.4 Physical injuries and psychological constraints

Some students may be unable to carry out normal pull-up training due to physical injuries or diseases, resulting in poor performance.^[3] Fear, lack of self-confidence and other emotions restrict students' performance to a large extent. Their fear and lack of confidence in pull-ups may lead them to think they can't do them in the first place, and they may not be willing to put in more time to improve, so that they can't perform at their best level during the test.

4. Countermeasures and suggestions

4.1 To strengthen the school's attention to students' physical health

According to the documents such as "Basic Standards for Physical Education Work in Colleges and Universities" and "National Standards for Students' Physical Health (Revised in 2014)", the management of students' physical health can be further strengthened at the school level by combining "flexible" with "rigid" policies, such as strict requirements for the length of exercise per week, and the use of Weixin, QQ and learning. Monitor the frequency of students' exercise and incorporate it into the section of physical and mental health development in the comprehensive evaluation at the end of the semester. Students whose grades have improved significantly can be given a certain bonus policy to promote students to strengthen exercise from the school level.

4.2 Intensive Practice Instruction

Front-line physical education teachers need to provide professional and detailed skills guidance, including correct grip posture, breathing style and power sequence. And in the formulation of exercise prescription, we should take into account the differences of students at different levels. The practice of pull-ups should be gradual, from easy to complex, through repeated practice and collecting students' feedback, to help students master the skills of pull-ups skillfully.

4.3 Promotion of healthy diet and aerobic exercise

The large weight base is also one of the reasons for the poor performance of pull-ups. We can promote the concept of healthy diet. Starting from the three aspects of canteen, classroom and dormitory, we can set up posters of balanced diet to encourage students to maintain healthy eating habits, minimize the phenomenon of takeout and effectively control body fat rate^[4]. For students who exercise systematically, professional sports nutrition advice can be provided, and protein amino

acids can be supplemented appropriately to help students control their weight and improve their physical function.

4.4 To enhance students' enthusiasm for exercise

The promotion of the results blindly rely on objective factors can not be long-term and the effect is not satisfactory, enhance the subjective initiative of students is the key measure. Although the students in higher vocational colleges have the characteristics of inertia and curtilage, their pursuit of beauty is widespread. Contemporary college students love fashion, dress up and beauty, and have begun to emerge in recent years. Boys advocate "eight-pack abdominal muscles" and "inverted triangle" body shape, which is fundamentally a pursuit of beauty^[5]. Physical education teachers can properly guide students to establish a correct concept of beauty in the curriculum, fully integrate into the ideological and political curriculum, through systematic practice can not only improve the performance of pull-ups, but also harvest a strong body shape, as a starting point, fundamentally enhance students' interest. Schools can properly carry out elective courses or online courses of body fitness and bodybuilding. Starting from aesthetic education, they can give students one more choice. They can learn more about the changes brought by physical exercise not only in body shape, but also in performance, and ultimately achieve the goal of good health and beautiful youth^[6].

4.5 Physical injury rehabilitation and psychological counseling

For students with common sports injuries, physical education teachers can give corresponding treatment methods and rehabilitation programs. Negative rest and wrong training will affect sports performance. Establish mental health courses or provide psychological counseling to help students overcome fear and lack of self-confidence. Through positive encouragement and affirmation, improve students' self-confidence and ability to cope with challenges. Encouragement comes not only from the encouragement of psychological teachers, but also from students, counselors and physical education teachers. The atmosphere of physical exercise in the whole school should be brave to overcome difficulties. Overcome the fear of difficulties and improve yourself.

4.6 Continuous attention and effect evaluation

In order to ensure the actual effect of the countermeasures, continuous attention and evaluation of students' pull-up performance are needed. Here are a few key steps:

1. Regular testing: set up a fixed periodic test, such as a monthly or quarterly pull-up test, in order to keep abreast of changes in students' performance.
2. Data analysis and adjustment: analyze the collected data in depth, find out the reasons for the changes in performance, give timely feedback to students and physical education teachers, and adjust the training plan and teaching methods.
3. Establish a long-term tracking mechanism: to track the physical health of students for a long time, and pay attention to their growth and changes in different grades and stages.

5. Conclusion and prospects

Through the in-depth analysis of the results of pull-up project in Anhui Business Vocational and Technical College, the author reveals the core factors affecting the results, and puts forward targeted countermeasures and suggestions to improve students' pull-up performance is not achieved overnight, but needs to start from many aspects and persevere in promoting. In the next step, the author will systematically study the specific training methods of pull-ups for students in higher vocational colleges from the aspects of physiological anatomy analysis, action analysis, training equipment and training programs. Through the research of this paper, I hope to provide a useful reference for the improvement of the performance of pull-ups in higher vocational colleges, and also contribute to the development of the physical health of young people in China.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Gao Lei, Cheng Jianwei, Xin Xianying. Three-year Follow-up Study on Physical Development of Students in Higher Vocational Colleges [J]. Contemporary Sports Science and Technology. 2021; 11 (3): 212-216+219.
- [2] Jiang Min, Xia Zhengmei. Analysis and Countermeasure Research on the Performance of Pull-ups for Freshmen in Higher Vocational Colleges in Guangzhou [J]. Youth Sports. 2019; (10): 101-102.
- [3] Chen Yan. Research on Physical Health Status and Improvement Countermeasures of Students in Higher Vocational Colleges [J]. Intelligence. 2018; (6): 40+42.
- [4] Yuan Yunhua. (2015) Analysis and Research on Physical Fitness Test Results of Higher Vocational College Students in Wuxi [D]. Physical Education Teaching of Suzhou University, Suzhou.
- [5] Huang Guangbin. Analysis of Physical Fitness Test Data of Students in Guizhou Vocational and Technical College [J]. Journal of Guizhou Radio and TV University. 2016; (1): 19-25.
- [6] Chai Longxian. Analysis on the Current Situation and Improvement Path of Students'Physical Fitness in Higher Vocational Colleges in Hunan Province [J]. Neijiang Science and Technology. 2022; 43 (6): 117-119.

Fund Project: General Project of Humanities and Social Sciences of Anhui Business College (2023KYR21)

About the author: Cheng Zhen, Wuhu city, Anhui Province, a lecturer in the Basic Teaching Department of Anhui Business College.

Shi Xianbin, an associate professor in the Basic Teaching Department of Anhui Business College.