

# Research and Practice of Vocational Physical Education in Secondary Vocational Schools—Take Secondary Vocational Cuisine Major as an Example

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**Abstract:** According to the professional characteristics of cuisine major in secondary vocational school, students need strong professional physical fitness to support their learning of professional skills, internship and employment, and the acquisition and improvement of students' professional physical fitness is mainly completed through physical education classroom teaching. This paper will elaborate from the current situation of physical education classroom teaching of secondary vocational cuisine major, the requirements of the new curriculum standard and the key points of teaching design, so as to form a set of physical education classroom teaching design suitable for the professional physical fitness needs of secondary vocational cuisine major, which will reasonably transfer to the professional physical education classroom teaching of other majors and help the sustainable development of students' professional ability.

## 1. Preface

Secondary vocational education is a part of vocational and technical education, including ordinary secondary professional schools, technical schools, vocational schools and various short-term vocational training. It is an important part of China's high school education. There are many similarities between secondary vocational education and ordinary high school education. The age of students is basically about 16-19 years old, which is in a typical middle and late adolescence. The main task of ordinary high school students in the school stage is to learn cultural knowledge. After graduation, they enter junior colleges or undergraduate colleges and universities to study for three, four or even longer years and then work. In addition to learning certain professional theories and cultural knowledge, secondary vocational education students also need to carry out a large number of vocational related skills training. After graduation, except for a small number of students who go to school, most students begin to enter the society and enter the workplace. As far as the current situation is concerned, there is little difference between the physical education classroom teaching in most secondary vocational education schools and that in ordinary high schools. It basically focuses on sports technology teaching, so that students can master certain sports skills. It is shown in Table 1.

According to the statistics of the current situation of physical education classroom teaching in Yangzhou secondary vocational schools, 40% of secondary vocational schools have set up vocational physical fitness classroom teaching independently, of which only 20% have set up more than two semesters. The physical education classroom teaching in other secondary vocational schools failed to set up professional physical fitness teaching. Physical education classroom teaching is the main position to improve professional physical fitness. At present, physical education classroom teaching in secondary vocational education is obviously lack of professional physical fitness teaching and there is a huge space for development.

Table 1 Investigation and statistics of physical education classroom teaching content of secondary vocational education in Yangzhou, Jiangsu Province

Serial Number	School Name	Independent Classroom Teaching of Professional Physical Fitness	Semesters Offered
1	Yangzhou Higher Vocational and Technical School	Yes	2
2	Yangzhou Tourism and Business School of Jiangsu Province	Yes	5
3	Baoying Secondary Vocational School of Jiangsu Province	No	0
4	Gaoyou Secondary Vocational School of Jiangsu Province	No	0
5	Jiangdu Secondary Vocational School of Jiangsu Province	Yes	2
6	Hanjiang Secondary Vocational School of Jiangsu Province	No	0
7	Yizheng Technician College	No	0
8	Yangzhou Culture and Art school	Yes	4
9	Yangzhou Life Science and Technology School	No	0
10	Yangzhou Tianhai Vocational and Technical School	No	0

## 2. Practical cases of classroom teaching design of professional physical fitness physical education for cuisine major in secondary vocational school

In 2020, the Ministry of Education promulgated *the Curriculum Standard of Physical Education and Health in Secondary Vocational Schools*, which clearly stipulates that physical fitness belongs to the basic module, and is a compulsory content in the secondary vocational stage. In particular, it emphasizes that physical fitness also involves professional physical fitness. The content of professional physical fitness is to train and develop specific physical fitness according to the needs of students' future posts.

Yangzhou Tourism and business school of Jiangsu province better adopts the vocational physical fitness teaching mode that meets the needs of students' professional development in the physical education classroom teaching of cuisine major in secondary vocational school. Firstly, based on the analysis of the characteristics of professional labor of cuisine major, such as bowing and bending, heavy repeated labor with arms, long-standing , extremely hard working environment and other professional labor characteristics, the strength of legs, the core area strength, upper limb and wrist finger strength, cardiopulmonary endurance and other physical quality are clarified as the main teaching materials, which need to be urgently developed. Secondly, attention should be paid to individual differences. In the auxiliary textbook physical fitness supermarket, we teach students according to their aptitude and independently develop a set of curriculum resources. Students independently choose exercise items according to the weaknesses of physical fitness test, combined with their interests and hobbies, and follow the interactive all-in-one machine to practice their own physical fitness development. The following is the teaching content arrangement of 6 professional physical fitness courses and 12 class hours for Chinese cuisine major. It is shown in Table 2.

Taking the third course "lower limb strength development training" as an example, the teaching design of the main and auxiliary teaching materials consists of five links: expert interview, sharing practice, pairing and mutual assistance, game competition and physical fitness supermarket. In the expert interview session, real training situations are introduced. Before class, teachers interview industry masters and record videos. The masters introduce the characteristics of cooking profession, analyze the required physical quality, and clearly inform students that cooking belongs to a

long-standing profession. The strength and endurance of lower limb muscles are professional support, and leg soreness and varicose veins are common chef occupational diseases, so as to stimulate the motivation of cooking students to develop lower limb strength. In the sharing practice session, the group representatives showed some methods of lower limb strength training found before the class, such as deep squat, one foot jump, frog jump, bow and arrow jump, etc. The teachers and students combed them together and carefully selected deep squat, bow and arrow jump, etc. as the content of single person learning in this class. The teachers organized learning exercises, and the students practiced independently to master the action essentials. In the practice of pair cooperation, in order to effectively develop the strength of lower limbs and increase the interest of practice, novel and interesting training contents of pair cooperation are designed, such as double deep squat practice. Three advanced exercises are designed. Version 1.0 is "hand in hand, deep squat together", version 2.0 is "wave hands and row together", and version 3.0 is "back-to-back, all united". With the difficulty increasing, on one hand, it tests the ability of mutual trust and cooperation between the two people. On the other hand, it actively guides and encourages students to dare to challenge and face difficulties. In the game competition, the kangaroo jumping sack and agile circle are used to design the kangaroo jump game of jump circle succession and jump circle relay. In the jump circle succession game, the teacher uses several agile circles to arrange the "s" type practice field. The students stand in the kangaroo bag in a column and stand close to one side of the field. The teacher requires the students to jump in the circle orderly one by one. In the process of jumping, the group shouts the password to control the rhythm. In the link of physical fitness supermarket, the combined practice of "wiper + ball clamping from both ends" is designed by using yoga ball to develop the core strength. The agility circle is used to develop the agility quality and to design a combination exercise of "left and right lap running". Rope skipping is used to develop cardiopulmonary endurance and to design a combination exercise of single and double jumps. Dumbbells are used to develop upper limb strength and to design a combination exercise of "side lift + shrug" (turning waste into treasure, self-made simple equipment, filling the empty oil pot abandoned in the kitchen with sand instead of dumbbells). The selection of the content of the physical fitness supermarket requires students to choose two of the four exercises to follow the interactive all-in-one machine according to their own physical energy status and for the purpose of enhancement and compensation.

Table 2 12 Class hours arrangement of professional physical fitness teaching for Chinese cuisine major

		Main Teaching Materials	Auxiliary Teaching Materials
Professional Physical Fitness	1	Theory: physical development, Self-cognition of physical condition, Preliminary formulation of personal exercise prescription	Physical fitness supermarket: Yoga ball, pedal, rope skipping, dumbbell
	2	Upper limb strength development training	Physical fitness supermarket: Yoga ball, agility circle, rope skipping, pedal
	3	Lower limb strength development training	Physical fitness supermarket: Yoga ball, agility circle, rope skipping, dumbbell
	4	Core area strength development training	Physical fitness supermarket: Yoga ball, rope skipping, pedal, dumbbell
	5	Wrist and finger strength and fine force development training	Physical fitness supermarket: Yoga ball, agility circle, rope skipping, pedal
	6	Theory: Exercise load measurement and regulation, Personal exercise prescription and plan	Physical fitness supermarket: Yoga ball, dumbbell, rope skipping, pedal

### **3. Suggestions on physical fitness teaching in secondary vocational physical education**

The classroom teaching of physical education in secondary vocational schools should take "educating people" as the highest goal and "lifelong occupation" as the main line, and closely combine "cultivating sports heart", "future life needs and students' professional needs", "enhancing operational ability and lifelong benefits" [1]. According to the characteristics of each major in the secondary vocational school, the physical education course should be integrated into the professional physical fitness course on the basis of the original physical education curriculum, so as to make the physical education teaching more humanized and professional, truly realize the coordinated development of professional sports skills, professional physical fitness and professional quality of professionals, enhance students' physique and develop students' personality, and promote the goal of comprehensive physical and mental health education for students. Physical education classroom is the main position to improve professional physical fitness. In order to improve the pertinence, effectiveness and feasibility of teaching, the following suggestions are put forward in the teaching design of Physical Education classroom:

#### **3.1 Deep analysis of teaching materials**

Teaching materials are the main basis for teachers' selection of teaching contents, which is of great significance for realizing the goal of physical education teaching. It is the basic element of teaching activities and an important condition for realizing the goal of physical education teaching. The completion of teaching activities of each content makes the whole teaching work closer to the realization of the final goal [2]. After the students entering the secondary vocational school, the major has been determined, which also provides help for the selection of vocational physical fitness teaching content. Teachers should thoroughly study the contents of the teaching materials before class, and make targeted research on the knowledge points of health education and professional physical fitness module in the teaching materials in combination with the current situation of the school and students' majors, especially the relevant knowledge points of occupational disease prevention and health care (such as obesity, tenosynovitis, lumbar disc herniation, emphysema, etc.) which is easy to occur in health education of the cuisine major should be penetrated in the teaching process. The practice method of professional physical fitness should also be selected in the corresponding classification of professional physical fitness. If the content is selected correctly, the students' professional physical fitness practice can reflect the effectiveness, pertinence and characteristics of the times.

#### **3.2 Comprehensively analyze the academic situation**

In recent years, teaching students according to their aptitude and personalized teaching has been highly valued in the field of education. How to analyze the students' learning situation, students' physical health test data and professional demand analysis are a good starting point. Since 2013, the national student physical health standard has been carried out for secondary vocational students every year. The test data is the main basis for each student's ready-made professional physical fitness. Its main contents include height, weight, vision, vital capacity, 50m running, 1000m running (male), 800m running (female), sitting forward flexion, standing long jump, pull-up (male) and 1-minute sit ups (female). The upper limb strength required by cooking can be objectively reflected in the students' pull-up data, the lower limb strength in the 50m running data and the cardiopulmonary endurance in the vital capacity data. This is the most scientific data on the basis of professional physical fitness of each student obtained through quantitative analysis. Teachers should make full use of these data to pave the way for teaching design. Students from secondary vocational cuisine major have determined their specific majors after entering the school. Through interviews with famous culinary teachers in the school, masters of cooking industry outside the school and other professionals, it is learned that in addition to strong wrist and finger, upper and lower limbs and other strength as support, they also need better cardiopulmonary endurance, flexibility and certain vision requirements. These academic situation analysis materials should be used reasonably and scientifically.

### 3.3 Clarify teaching objectives

Teaching objectives are the premise of teachers' lesson preparation, the guidance of teachers' teaching and the touchstone to test students' learning achievements. The teaching materials and learning situation are thoroughly analyzed. At this time, it is necessary to clarify the teaching objectives. The determination of reasonable and appropriate teaching objectives is conducive to prompt teachers' teaching and stimulate students' learning motivation, so the teachers and students can move forward in the direction of the established objectives. The establishment of classroom teaching objectives of professional physical fitness in secondary vocational cuisine major should cover three aspects: in terms of sports ability, we should understand the significance of developing professional physical fitness in cuisine major and master the methods of exercise. In terms of healthy behavior, we should use the knowledge and methods we have mastered to cultivate good exercise habits and improve social adaptability. In terms of sports spirit, we should cultivate students' spirit of hard work, mutual assistance and cooperation, integrity and friendliness, as well as the awareness of turning waste into treasure, environmental protection and conservation.

### 3.4 Optimize the teaching process

The teaching process is a process of guiding students to master systematic cultural knowledge and basic skills, develop intelligence and physical strength, form a world outlook, cultivate professional ethics and help lifelong career development according to teaching objectives, tasks and students' physical and mental development characteristics [3]. In the teaching process of cooking professional physical fitness in secondary vocational schools, we can try to optimize it according to the following process: professional cognition – self-analysis - intelligent selection and practice method - revision of prescription - lifelong physical education.

1) Professional cognition: through pre-class research, secondary vocational cooking majors need to learn professional skills such as knife work, carving, pastry and cooking during school. The main professional actions include knife work, spoon work, pot turning, dough kneading and other skills. Their working environment is mainly high temperature, high humidity and high oil fume. Through interviews with industry masters, students found that the professional posts of Chinese food cooking have different skills, such as wrist, finger and hand. The requirements of upper and lower limbs, waist and abdomen strength and cardiopulmonary function are high. At the same time, we realize that actively participating in physical exercise can effectively develop professional physical fitness and actively prevent the occurrence of neck, shoulder and wrist strain.

2) Self-analysis: according to the physical health files generated from the physical health test data, students analyze their physical status, clarify their professional physical strengths and weaknesses, establish the main goal of improving their professional physical weaknesses, and strengthen their strengths in combination with their personal interests and hobbies.

3) Intelligent selection and practice method: a scientific, reasonable, easy and practical teaching organization form is the organizational guarantee to exert the leading function of teachers and students' subjective initiative and improve the effect of bilateral activities of teaching and learning [4]. Before class, teachers record videos of relevant exercise methods according to the classification of developing wrist and finger, upper and lower limbs, waist and abdomen and cardiopulmonary endurance. Students can combine the results of self-analysis to make up for their shortcomings (improve the corresponding physical fitness test value) and improve their strengths (make the physical fitness test value better). In the classroom, they can select relevant exercise contents from multiple exercise methods provided by teachers (also known as physical fitness supermarket). For example, choose dumbbell curl exercise to develop biceps brachii, brachioradialis, radial wrist flexor and other muscle groups. This exercise is very similar to the mechanical analysis of pot holding force in cuisine major. Students wear smart bracelets throughout the exercise process, correlate heart rate and self-perception of exercise degree, and monitor physiological indicators such as exercise density, intensity and load in real time, so as to provide scientific basis for students to adjust their exercise intensity, frequency and time.

4) Revision of prescription: through intelligent selection exercise, students master the selection of exercise items, exercise methods and regulation of exercise load. On this basis, they revise and improve the exercise plan according to personal physical health test data, professional physical needs and personal interests and hobbies, so as to form a complete exercise prescription suitable for each student. Exercise prescription is not immutable. It needs to be revised periodically according to the actual situation in the process of daily study and life.

5) Lifelong Physical Education: the development of professional physical fitness cannot meet the needs only by physical education classroom practice, which requires students not only to complete the corresponding optional project practice in the classroom, but also teachers can release after-school homework through the teaching platform, and students can independently complete daily healthy exercise on the platform by punching in, showing videos and comparing results, so as to form an incentive and competition mechanism, cultivate the habit of lifelong sports and help the sustainable development of students' professional ability.

### **3.5 Make full use of evaluation**

A reasonable evaluation mechanism can effectively stimulate students' interest and enthusiasm in practice. The overall plan for deepening the reform of educational evaluation in the new era clearly puts forward: "adhere to scientific and effective, improve result evaluation, strengthen process evaluation, explore value-added evaluation, make full use of information technology, and improve the scientific nature, professionalism and objectivity of educational evaluation". [5] In view of this, physical education teaching in secondary vocational schools can be quantitatively evaluated from three dimensions: learning attitude, learning process and learning effect, especially making full use of modern intelligent wearable devices for tracking and recording, and meanwhile making qualitative evaluation from three aspects: student self-evaluation, student mutual evaluation and teachers' evaluation. In the previous evaluation, most teachers mainly evaluated quantitatively according to the physical fitness test standards, while ignoring the students' innate physical quality foundation and hurting some students with weak innate foundation but hard work. The proportion of students' self-evaluation, students' mutual evaluation and teachers' evaluation in the total score of students can be moderately improved to fully stimulate students' enthusiasm for exercise.

## **4. Conclusion**

To sum up, the reform of professional Physical Education in secondary vocational schools has realistic needs. According to the physical health test data and professional physical needs of secondary vocational schools and the principles of safety, comprehensiveness and accuracy of physical exercise, how to focus on the development of students' professional ability and to explore the vocational physical education suitable for all majors in secondary vocational schools needs our continuous investigation, reform and innovation, which is a teaching exploration road with heavy responsibilities and a long way to go.

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