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Physical education strategies for COVID-19 prevention and control in primary and secondary schools: A practical case from China

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Abstract

This study recognizes the severity of the coronavirus disease 2019 (COVID-19) pandemic and addresses the issue of preventing the virus spread while achieving good standards of school-level physical education (PE). Accordingly, it examines feasible scientific strategies to implement offline PE activities during the COVID-19 pandemic based on local practical experience in Hangzhou, China. A regular practical mechanism to implement sports activities and provide PE based on the recommendations of the local government's education bureau is well established for primary and secondary schools. To aid the local government in implementing scientific and reasonable PE programs, an operational guide was developed to carry out PE lessons and sports activities before, during, and after classes. The strategies discussed in this paper will facilitate the orderly practice of PE and sports activities in schools and the consideration of COVID-19 pandemic prevention measures, which can help PE teachers enhance students' physical fitness and health.

Keywords: pandemic, sports activity, curriculum, physical education

1. Introduction

Since the emergence of coronavirus diseases 2019 (COVID-19), primary and secondary education systems have faced many challenges, including ensuring that students remain physically active in the situation of a global pandemic¹. In accordance with the "Guidelines" developed by Beijing University and Central South University^[2] and the "Eight Recommendations" developed by the Department of Physical Education, Ministry of Education³, elementary schools in China have cooperated with pandemic containment efforts and conducted physical education (PE) using various teaching organization forms and teaching strategies in physical school environment (not online teaching). Even during the pandemic, primary and secondary schools in Hangzhou, China, did not find a single case of COVID-19 aggregation attributed to school-based offline PE activities because of their stringent employment of reasonable and effective measures, including the government-approved PE guidelines and pandemic prevention framework for primary and secondary schools (see Figure 1).

2. Measures of PE curricula

2.1 Three "ones" for preparation

2.1.1 One preparation per week

PE teachers should consider the relationship between online and offline content regarding class preparation and draw up a weekly teaching plan. They should arrange material to focus on various topics such as health education, teaching skills, and physical fitness recovery. Furthermore, they may collaborate with other PE teachers to implement mixed teaching strategies to achieve optimal learning.

2.1.2 One check per day

PE teachers should obtain their students' relevant health information before each class activity

and remind parents to notify them of any absence of sick students in advance to facilitate the efficient recording of such absences. Before conducting lessons, PE teachers should check whether the class will be conducted in a safe area, open the classroom windows to ensure adequate ventilation, and disinfect the teaching equipment. They should know the schedules of other PE class venues and any equipment requirements for sports activities and communicate these details in advance to avoid the risk of cross-infection and prevent the inadvertent gathering of large student groups.

2.1.3 One strategy per lesson

PE teachers should reduce the difficulty of lessons, slow down the progress of physical activities, and plan a route for students to enter and leave the classroom. Apart from teaching regular content, teachers should teach specific COVID-19 pandemic prevention and control strategies. They should familiarize themselves and their students with the school's emergency plan. Furthermore, PE teachers can select two or more key students and eight or more team leaders to assist them in their work. These students should be systematically trained to assume their own roles in sports activities and clarify their responsibilities to team members.

2.2 Three skills for teaching

In China, during the COVID-19 pandemic, a regular PE class should generally last 45 minutes and be divided into three parts: preparation (preparation before class, preparation of activities, etc.), the main part (activity and skill teaching), and the concluding part (relaxation and evaluation). Depending on the students' situation (their health status, level of physical fitness and training, cognitive ability, etc.), PE teachers should appropriately adjust all three parts to ensure 20 minutes of motor skill training and 10 minutes of physical fitness training (aerobic exercise). The practice form, learning content, and teaching method of the main part are the "three key skills" imparted during the PE class.

2.2.1 Modular practice

Students are required to learn and practice exercises independently, with task list learning as the main activity and without any confrontational or contact-based activity. The "practice task list" is one example of a task list generally used in PE classes. Junior (grades 8 and 9) students can make use of learning task cards, which not only gradually improve their independent learning ability and stimulate their interest in learning but also develop their innovation consciousness. According to the differences in students' physical fitness levels, a task card can be divided into a general task card and a special task card. The special task card extends the new learning task and improves the learning goal based on the general task card. Furthermore, certain points can be set according to task requirements. Finally, a scorecard can be used to increase students' interest, and appropriate language or material encouragement can be adopted to suit students with high scores (Department of Physical Education, Ministry of Education, 2020) ^[3].

2.2.2 Diversification in teaching content

To facilitate teaching, PE teachers can create new content according to their own abilities and school traditions, rather than following standard activities. For example, they can use techniques to make it easier for students to learn contactless activities, such as martial arts routines (e.g., Tai Chi), aerobics, and hip-hop. They can arrange activities such as

table tennis, tennis, and badminton that require the placement of nets between players. Additionally, students can perform flexibility exercises by using the desk for various purposes, such as supporting leg presses, push-ups, overhangs, and standing forward bends.

2.2.3 Interesting teaching methods

In classes held during the pandemic, PE teaching methods are restricted to being simple and straightforward, which makes them significantly less interesting than the pre-pandemic techniques. PE teaching must be done in a novel and interesting manner to ensure that students learn willingly. For example, two of the three weekly PE classes can be turned into "games lessons" by incorporating games, contests, points, and so on.

2.3 One check and two prompts after class

Teachers' responsibilities toward the maintenance of students' health behaviors after PE classes include checking their handwashing practices, reminding them to drink plenty of water, ensuring that they keep their bodies warm, and preventing excessively low or high temperatures in the classroom. Therefore, PE teachers should formulate appropriate supervision procedures, develop necessary routines for students, and gradually cultivate post-class healthy behavioral habits in their students. Accordingly, PE teachers can carry out "one check and two prompts" in class: Check each class once (check whether students wash their hands after class) and prompt twice (urge students to keep warm and drink adequate amount of water).

3. Reasonable arrangement of large-scale break-time and after-school activities

3.1 Exercise space

Since pandemic-related restrictions have been placed on sports competitions and group exercises, PE teachers should adjust the form and content of classes to ensure that students have one hour of physical exercise every day. Schools with insufficient space can divide class activities into several periods, subregions, or small groups and encourage the arrangement of individual, self-completed exercises. Pandemic guidelines mandate adherence to the following four types of "isolation": isolation time, isolation grade, isolation area, and isolation content. Accordingly, entry to and exit from a field should be divided by time, grade, class order, and interval. Each school should formulate and adhere to a specific schedule for site and equipment use based on time and activity requirements. Although schools may be able to conduct indoor exercises according to their own capabilities, they must ensure that students maintain the required 1.5-meters apart from one another based on epidemiological evidence. Classmates can supervise each other and ensure that adequate distance is maintained between them.

3.2 Other plans

In compliance with pandemic prevention requirements, proper planning of sports associations, elective sports courses, sports team training, and other extracurricular exercises must ensure venue and personnel safety. In case of batch and stratification, large-scale break-time (20-minutes) group activities can be conducted in relatively fixed areas with a defined number of personnel for specific periods. This can be done by focusing on practice intensity in different grades, mainly individual practice (e.g., jumping rope) and antagonistic practice (events where students are separated by a net, e.g., badminton).

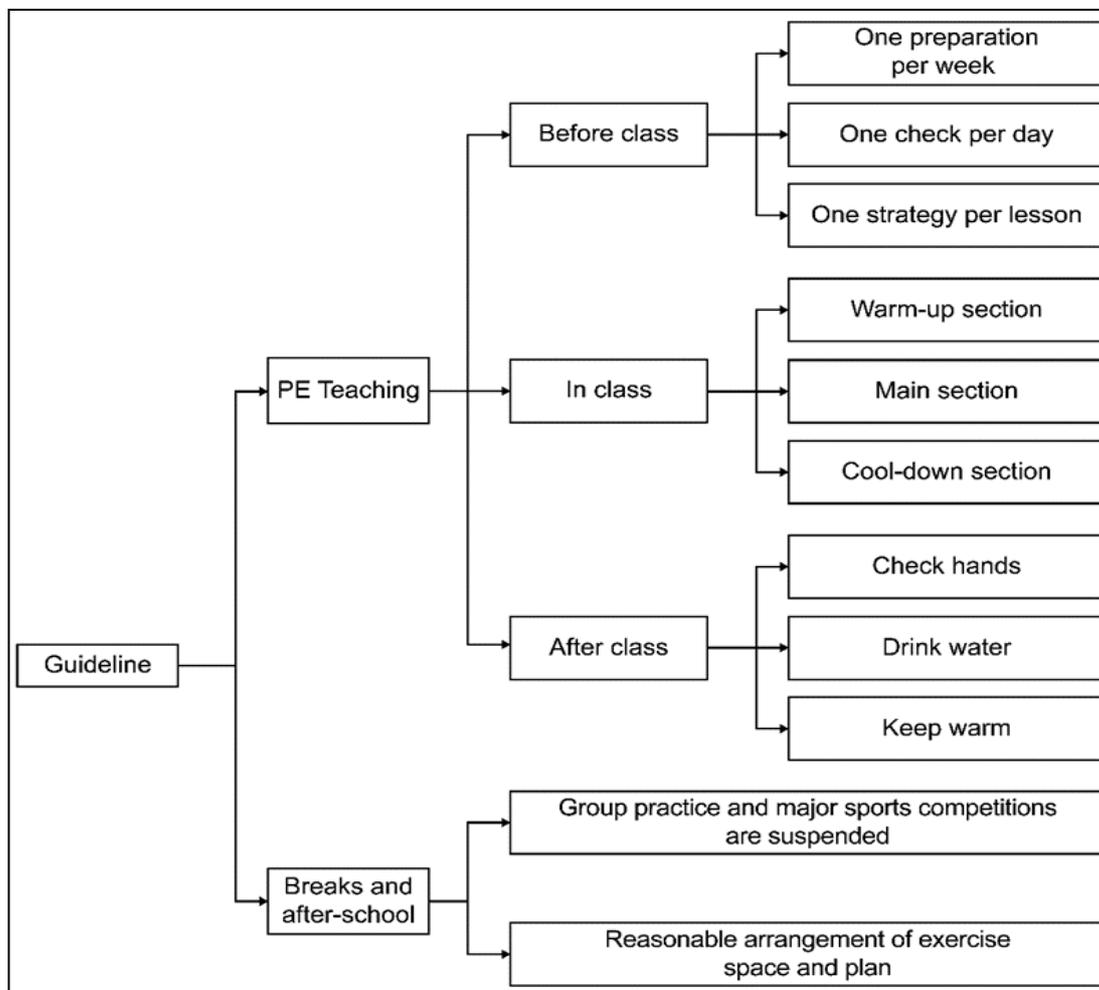


Fig 1: Guidelines for sports and physical education during pandemic prevention in Hangzhou, China

4. Conclusions

During the pandemic, PE teachers in Hangzhou adhered to the principle of student-oriented education, which focuses on the development of students' physical and mental health. They adjusted and reformed traditional offline PE teaching strategies according to students' psychological and physical needs and the requirements of COVID-19 pandemic prevention and control measures. The teachers revised the teaching methods with enthusiasm, initiative, and pleasure. Student surveys and long-term feedback indicated that such practices in the regional district achieved positive educational and learning effects. Teaching strategies of offline PE curricula should continually be improved and modified to enable teachers to achieve better educational outcomes in future.

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