

# Teaching Reform of Pathophysiology Experiment based on Clinical Practice

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**Abstract.** In order to improve the teaching quality of pathophysiology and do a good job in linking basic medicine with clinical medicine, we have carried out the exploration of pathophysiology experimental teaching reform based on clinical practice, including the implementation of "double-qualified" talents teaching with both clinicians and teachers, and the improvement of teachers' teaching practice ability; introducing clinical cases into situational teaching method to stimulate students' learning. Enthusiasm; student-centered, cultivate students' scientific attitude; pay attention to the cultivation of students' clinical thinking ability. Through the reform of teaching methods, it has been widely recognized by students, so that students' theoretical level and clinical practice ability can be strengthened, and become a real application-oriented medical talent.

**Keywords:** Clinical practice; Pathophysiology; Experimental teaching; Teaching reform.

## 1. Introduction

Pathophysiology is a bridge between basic medicine and clinical medicine, and plays a connecting role. The experimental teaching of pathophysiology is an important part of it. Through the practical operation of the experimental course, students can master basic experimental skills, understand the process of disease occurrence and development, deeply understand the pathogenesis of disease, cultivate students' good logical thinking ability, and prepare for the smooth development of the follow-up clinical course, so as to lay a solid foundation for future clinical work. Traditional experimental teaching of pathophysiology has some problems, such as students' lack of initiative, initiative and independent thinking ability. This paper explores the reform of pathophysiology experiment teaching, and takes clinical practice as the ultimate goal of the experiment teaching, so as to cultivate students' comprehensive quality.

## 2. Take the Cultivation of Talents as Its own Responsibility to Improve Teachers'teaching Practice Ability

Teachers shoulder the important task of personnel training. Teachers' quality determines the quality and effect of experimental teaching. Teachers should follow the "scientific concept of development" and keep pace with the times. According to the personality characteristics of post-95 College students, teachers should implement the requirements of the scientific concept of development into education and teaching, respect each individual, and take the all-round development of students as our pursuit. We believe that experimental teachers should not only have a solid theoretical basis, be familiar with the theoretical knowledge of pathophysiology, and be able to understand, but also have a certain clinical knowledge and background, perfect combination of clinical practice and theory, effectively link up, to improve the quality of medical personnel training. Therefore, the experimental teachers who participated in our teaching reform are those who have worked as clinicians for many years. Research reports [1] Clinicians play the role of "double-qualified personnel", which can improve medical students' understanding of the knowledge of patients and cultivate their innovative ability, and play a positive role in improving the actual ability of medical students.

Laboratory teachers need to improve their professional accomplishment, always pay attention to the image of "being a model of teachers", love students, reflect teachers' ethics and style of teaching from their speech and behavior, constantly update their knowledge structure, understand the development trend of subjects, and improve the level of educational theory. Before teaching, the experimental teachers conduct pre-job training in a unified way. The experienced senior teachers instruct the pre-experiment, prepare lessons collectively, unify experimental instruments and prepare

disinfectant articles in advance. In addition, our teaching and research department has also formulated a system of attendance, supervised by professors, and timely put forward rectification suggestions, which has greatly promoted the continuous improvement of teachers' teaching level.

### **3. Introducing the Situational Teaching Method into Clinical Cases to Stimulate Students' learning Enthusiasm**

The combination of clinical cases and pathophysiological experiments can organically combine theory with practice, stimulate students' interest in autonomous learning, and open students' greatest desire for knowledge. It is an effective teaching method to improve the quality of teaching. Situational teaching method is a teaching method that enables students to use their unconscious psychological activities and emotions to strengthen their conscious and rational learning activities in the created teaching situation. Situational teaching method, because of its clear goal and task orientation, is more conducive to stimulate students' interest and enthusiasm in actively craving knowledge in the process of solving problems, and help students master relevant knowledge [4]. Teachers introduce typical clinical cases by means of language or videos, so that students can be exposed to real situations and face patients and deal with problems in the role of doctors. Taking the animal model of hypoxia experiment as an example, when carbon monoxide poisoning experiment was conducted in mice, students realized the fatal effect of carbon monoxide on animals through practical operation. Teachers need to guide students to think about the mechanism of carbon monoxide poisoning. Then, the teacher reviewed the epidemiological situation of carbon monoxide poisoning in combination with the clinical cases of carbon monoxide poisoning emitted every year, and talked about the clinical symptoms in connection with the reaction of mice in the experiment. After that, the teacher introduced the clinical cases of carbon monoxide poisoning vividly and vividly. In the course of displaying the cases, the teacher raised the relevant clinical questions: What is the initial diagnosis of patients? What checks need to be improved? What treatment options do you take? Which patients need hyperbaric oxygen therapy? What sequelae do patients with carbon monoxide poisoning have? How to avoid carbon monoxide poisoning in life? Every problem requires students to think for themselves and study in groups. The whole teaching process stimulated the students' independent thinking ability, let the students explore with problems, find solutions to problems, and make the experimental course become a clinical practice course with full interest. Teachers here play the role of correctly guiding and rectifying the chaos. "Early clinical, multi-clinical, repeated clinical" is the core of our personnel training. When the clinical course has not yet started, this is the entry point of "early clinical", through early contact with clinical, medical students can form a clearer understanding of medical and health undertakings in the basic learning stage, let students understand in practice, and stimulate students' belief in medical undertakings.

### **4. Focusing on Students and Developing Students' Scientific Attitude**

In the course of the experiment, the teacher is mainly responsible for telling the purpose, content and matters needing attention of the experiment. Most of the time, the students are allowed to practice, and the students are the center, so as to strengthen the students' practical ability. Teachers should inspect the experimental groups and find out the errors or irregularities in operation and correct them in time. For example, students accidentally injured animal blood vessels in the experiment. Because they could not help making the experiment stagnate, they were depressed and almost gave up. On the one hand, the teacher comforted the students' depression. On the other hand, he took immediate action to stop bleeding and ligate quickly so that the experiment could be carried out smoothly. Teachers should be good at discovering the advantages of students and constantly encourage students to enhance their confidence. We were involved in the experiment with the students, affinity with them, attentively observing the results bit by bit. We find that teachers' personality charm plays a positive role in promoting students' learning. The research shows that [5] the personality charm of young teachers plays an edifying role in the formation of students' good moral qualities, promotes the

formation of students' three views, and guides students' quality education. At the end of the experiment, according to the results of the experiment, a student in each group was selected to report the results of the experiment, summarize the success or failure of the experiment, analyze many factors affecting the results of the experiment, and draw experimental conclusions.

At the same time, we should focus on training students' scientific attitude of "rigorous and realistic" and "meticulous" work style; educate students to practise medical experimental animal ethics in a timely manner, so that students know how to treat experimental animals well, reduce their suffering, and avoid unnecessary harm to them. Thereafter, medical students, with a heart of reverence for life, naturally show their love, support and understanding for patients in future medical work, silently embody the humanistic care of medicine, touch the heartstrings of patients, bring bright sunshine to patients, make patients cooperate with treatment happily in a warm environment full of love, and establish a harmonious doctor-patient relationship of mutual trust. Department, for the current doctor-patient relationship has opened up a good prescription. Facts have proved that only when patients' pain is regarded as their own pain and sympathy, and doctors meet patients in the depths of their hearts, is the embodiment of "patient-centered" humanistic feelings and an effective means of eliminating medical disputes.

## **5. Focus on Training Students' clinical Thinking Ability**

The ultimate goal of medical education is to transform basic knowledge into clinical application, and to train applied medical talents with independent thinking ability and ability to cope with and solve practical problems. The purpose of experimental teaching of pathophysiology should be consistent with the goal of personnel training. The establishment of a teaching model combining clinical medicine with basic medicine plays a vital role in solving clinical problems, promoting the ability of self-learning and cultivating clinical thinking. To infiltrate the teaching mode aiming at cultivating clinical thinking into teaching, and pay attention to the training of comprehensive analysis and application of knowledge, that is, the cultivation of ability [8].

Taking the animal model of pulmonary edema as an example, after successfully reproducing the pulmonary edema model, we asked the students to complete the following tasks: (1) the mechanism of pulmonary edema? (2) What factors can induce pulmonary edema? (3) What are the clinical manifestations of pulmonary edema? (4) Principles for the treatment of pulmonary edema? (5) How to prevent the occurrence of pulmonary edema? Through PBL (Problem Based Learning) teaching method to exercise students' clinical thinking. PBL, the teaching method of "problem-based learning", is a student-centered discussion-based teaching method based on problems. PBL teaching method is widely welcomed in the world. It is recognized as a major research field in students' learning and health science education reform. It provides a practical platform for students and cultivates their clinical thinking ability. It provides a feasible way to further strengthen their beliefs and serve the clinic, and helps to improve the teaching of courses aiming at clinical competence.

## **6. Summary**

Through the experimental teaching reform of pathophysiology, students' internal learning motivation was stimulated and widely praised by students. In the future curriculum reform, we will always adhere to the high unity of theoretical knowledge and clinical practice, keep in mind the training objectives of medical talents, pay attention to the frontier of theoretical research and clinical medicine application of this discipline, and improve the diversified teaching modes in order to better improve the teaching effect and cultivate applied medical talents in line with the needs of the times.

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