

# Influence of abdominal breathing on College Students' academic emotions

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**Abstract:** in order to explore the influence of abdominal breathing on College Students' academic emotions, the pre-test and post test design of unequal experimental group and control group was adopted. 213 students from four classes were randomly selected as subjects, and the academic emotions of college students before and after the intervention of abdominal breathing were measured using the general academic emotions questionnaire for college students. The results showed that: (1) there was no significant difference in all dimensions of the pre-test between the experimental group and the control group, indicating that the two groups basically matched and had the basis of the experiment. (2) After abdominal breathing training, the positive low wake-up value-added score of the experimental group was significantly higher than that of the control group, and the relaxation test value-added score of the experimental group was significantly higher than that of the control group. Conclusion: abdominal breathing can improve the positive academic emotions of college students, which is mainly reflected in relaxation.

**Key words:** abdominal breathing; College students; Academic emotions

## 1. Preface

In 2002, pekrun, a German psychologist, and others first clearly put forward the concept of academic emotions, and collectively referred to the emotions directly related to learning, classroom teaching and academic achievement as academic emotions. Based on pekrun's concept of academic emotions, Yu Guoliang and Dong Yan refined the scope of academic emotions and expanded the extension of academic emotions. They believed that academic emotions refer to various emotional experiences generated by students as the main body in the learning process and closely related to academic activities and academic achievements, including students' emotional experience in classroom learning, daily homework and examination, and the adolescent academic emotions questionnaire was compiled in 2007. Ma Huixia compiled the general academic emotion questionnaire for college students in 2008, which is mostly used in domestic researches on College Students' academic emotions.

At present, the research on College Students' academic emotions is mostly focused on the current situation of academic emotions, related research and intervention research. The existing intervention research mainly intervenes college students' academic emotions from two aspects of teaching methods and psychological regulation. For example, Ma Huixia et al. used the educational experiment method to explore the stimulating and regulating effects of traditional teaching method, attribution training intervention and activity teaching method on College Students' academic emotions in English classroom teaching. The results showed that attribution training intervention and activity teaching method had different emphasis on stimulating and regulating academic emotions, while the traditional teaching method had no significant effect. Li Ge conducted a cognitive behavioral group intervention on college students for two months. The results showed that cognitive behavioral group intervention could significantly reduce negative academic emotions and enhance positive academic emotions. Zhao Lijie tried to use group psychological counseling to intervene the academic emotions of nursing students in five-year higher vocational colleges, and found that the implementation of group psychological counseling can effectively improve the students' academic emotions. The above research shows that the intervention on academic emotions is feasible and effective. Whether the effects of different intervention programs on different groups are consistent, the extension of intervention and the popularization and application of research results need to be further verified. On the basis of existing research, researchers need to explore more scientific and effective intervention measures for college students' academic emotions, reduce the adverse effects of negative emotions, and improve positive academic emotions.

Abdominal breathing, also known as diaphragmatic breathing, is a common breathing training method in Chinese traditional health preservation, which can achieve the purpose of self-regulation by consciously prolonging the time of breathing and exhaling, and performing deep, slow and regular breathing exercises with abdominal fluctuations. Studies have found that abdominal breathing plays an important role in emotions. Zhao Rongxia and others selected 19 students with a state anxiety score higher than 47 from two graduating classes as subjects in the experimental group and the control group. The experimental group was given 12 days of progressive relaxation and abdominal breathing training. All subjects were investigated on their anxiety state one day before the college entrance examination. The results showed that the anxiety score of the experimental group was significantly lower than that of the control group. It shows that gradual relaxation and abdominal breathing training can effectively relieve anxiety. Yuan Yuan et al. discussed the effect of abdominal breathing training on preoperative anxiety and postoperative pain of patients with thoracic surgery. The results showed that abdominal breathing training can effectively relieve preoperative anxiety and postoperative pain of patients with thoracic surgery. In the research on abdominal breathing and emotions, researchers mainly focus on negative emotions, especially the effect of abdominal breathing on anxiety, and lack of research on positive emotions.

Abdominal breathing, as a simple, easy, self-operative relaxation training, is not limited by time and space, and has great popularization value. However, the current research mainly focuses on the application of abdominal breathing method in the clinical and nursing rehabilitation process, and the research on the combination of "abdominal breathing method" and classroom teaching is less, lacking the research of abdominal breathing on academic emotions. Therefore, this study uses abdominal breathing as an intervention method to study the changes of College Students' academic emotions before and after the intervention of abdominal breathing, so as to provide an empirical basis for improving college students' academic emotions in theory class.

## 2. Research methods

### 2.1 Subjects

Four classes of freshmen majoring in nursing in Guangdong Maoming health vocational college were randomly selected as subjects, two of which were the experimental group and the other two were the control group. There were 103 subjects in the experimental group and 110 subjects in the control group.

### 2.2 Experimental design

The pre-test and post test design of unequal experimental group and control group was adopted.

### 2.3 Experimental materials

#### 1. measuring tools for academic emotions

The college students' general academic emotions questionnaire compiled by Ma Huixia in 2008 is selected. The questionnaire consists of 10 subtests, including 88 items, involving 10 emotions. The 10 emotions are divided into four dimensions: negative high arousal (shame, anxiety, anger), negative low arousal (disappointment and boredom), positive high arousal (interest, happiness, hope), and positive low arousal (pride and relaxation). The questionnaire was scored at 5 levels, and the reliability coefficient was between 0.641-0.887.

#### 2. abdominal breathing learning video

The abdominal breathing video of the yangguangxinjian yg-sxfk-std body and mind feedback training system produced by Anhui yangguangxinjian Technology Development Co., Ltd. was selected as the learning video.

### 2.4 Experimental procedure

The experiment lasted 10 weeks.

#### 1. pre test

In the first week of the experiment, a questionnaire survey of College Students' general academic emotions was conducted in the weekly college students' mental health theory course.

#### 2. abdominal breathing training stage

In the second week of the experiment, the participants in the experimental group learned abdominal breathing with the video provided by the yangguangxinjian yg-sxfk-std physical and mental feedback training system. After mastering the basic requirements of abdominal breathing method, the experimenter began to practice, and then gave guidance one by one to ensure that each subject in the experimental group mastered the method.

From the 3rd to 10th week of the experiment, abdominal breathing training was conducted in the first 10 minutes of the weekly college students' mental health theory class. After the 10th week of abdominal breathing training, rest for 3 minutes before post test.

#### 3. post test

In the 10th week of the experiment, the experimental group and the control group were post tested in the weekly college students' mental health theory course. The interval between pre-test and post-test was the same in both groups, and the test content was the same as the pre-test.

## 3. Research results

### 3.1 Baseline level of academic emotions in pre test

By comparing the pre-test results of each dimension of Academic Emotions between the experimental group and the control group, it was found that there was no significant difference in the four dimensions between the two groups ( $P > 0.05$ ), and the results are shown in Table 1. It shows that the experimental group and the control group are matched and have the basis of the experiment.

**Table 1 baseline comparison of academic emotions between the experimental group and the control group**

Academic Emotions	experimental group (m ± SD, n = 103)	control group (m ± SD, n = 110)	t test (P value)
Negative high arousal	76.28 ± 20.09	74.75 ± 18.28	0.584 (P = 0.560)
Positive high arousal	72.16 ± 10.33	70.85 ± 9.35	0.965 (P = 0.336)
Negative low arousal	52.50 ± 14.21	53.15 ± 15.90	-0.314 (p=0.754)
Positive low arousal	59.87 ± 10.82	61.55 ± 8.83	-1.245 (P = 0.214)

### 3.2 Influence of abdominal breathing on academic emotions

In order to study the influence of abdominal breathing on Academic Emotions, we statistically analyzed the value-added scores of each dimension of Academic Emotions in the experimental group and the control group, and the results are shown in Table 2.

**Table 2 difference test of the average value-added score between the experimental group and the control group**

T-test (p-value) of increment score in experimental group and control group (m ± SD, n= 103) (m ± SD, n=110)			
Negative high arousal	1.96 ± 12.50	5.05 ± 16.25	-1.562 (p=0.120)
Positive high arousal	-1.80 ± 7.91	-1.57 ± 9.65	-0.184 (p=0.854)
Negative low arousal	0.52 ± 10.46	1.38 ± 13.39	-0.519 (P = 0.605)
Positive low arousal	-0.53 ± 7.57	-2.89 ± 8.38	2.149 (p=0.033)
Relaxation	-0.16 ± 5.12	-1.72 ± 5.72	2.095 (p=0.037)
Pride	-0.38 ± 3.99	-1.17 ± 4.39	1.380 (p=0.169)

Table 2 shows that after abdominal breathing training, the value-added score of the experimental group in the positive low arousal dimension is significantly higher than that of the control group. In order to further analyze the effect of abdominal breathing training on positive low arousal, the study statistically analyzed the value-added score of the two subtests of positive low arousal, and found that the value-added score of the relaxation test in the experimental group was significantly higher than that in the control group.

#### 4. Discussion

Academic Emotions refers to various emotional experiences related to students' academic activities in the process of teaching and learning. In previous studies, most studies on academic emotions mainly focused on negative emotions, such as test anxiety. As an emotional experience accompanying students' academic activities, academic emotions have both positive and negative emotions, which play different roles in students' academic achievements and academic related activities. In fact, students' academic emotions not only affect their academic achievement, but also affect their mental health. Therefore, it is particularly important to study how to cultivate good academic emotions from multiple disciplines and perspectives. Abdominal breathing is a relatively flexible relaxation training method. It can not only freely choose the length and intensity of training, but also choose the time and place for training according to its own situation. It is convenient and simple to operate, and is suitable for use as a relaxation method in the classroom.

The results of the experiment showed that the scores of positive low arousal dimension and relaxation test were significantly improved, indicating that the implementation of abdominal breathing training can improve the positive academic mood of college students, which is mainly reflected in relaxation. Relaxation refers to a kind of satisfied, calm and positive emotions generated when college students have a good evaluation of their learning activities or when the pain, tension and burden in the learning process are alleviated, relieved and relieved. In previous studies, Tang Mingjing found that breathing training can improve the level of relaxation; Li Jingcheng found that abdominal breathing method had a great impact on the inner peace and psychosomatic feelings of college athletes, but the above research did not belong to the application research of abdominal breathing method combined with classroom teaching. According to the literature at home and abroad, there is little research on the application of abdominal breathing method combined with classroom teaching, especially the research on classroom teaching in Colleges and universities. The results of this study provide a new empirical basis for related fields, and verify that abdominal breathing method can improve college students' positive academic emotions. The effect is obvious and feasible.

In addition, during the experiment, abdominal breathing training was only carried out for 10 weeks, once a week, and the total number of training was not much, which may be the reason why other tests and dimensions failed to reach significance. In the future research, whether increasing the number of abdominal breathing training per week or increasing the intensity of each abdominal breathing training can affect other subtests and dimensions; The effects of abdominal breathing training on relaxation and positive low arousal dimensions, which mechanisms are at work, and whether there is a mediating role need to be further explored and studied.

#### 5. Conclusion

In this study, the pre-test and post test design of unequal experimental group and control group was used to measure the academic emotions of college students before and after the intervention of abdominal breathing method. The results show that abdominal breathing can improve the positive academic emotions of college students, which is mainly reflected in relaxation.

#### References

- [1] Pekrun R , Thomas Gortz, Wolfram Titz. Academic emotions in students self-regulated learning and achievement: A program of qualitative and quantitative research[J]. Educational Psychologist, 2002, 37(2): 91-105.
- [2] Guoliang Yu, Yan Dong. Research on Academic Emotions and its significance to students' development[J]. Educational research, 2005, (10): 39-43
- [3] Yan Dong, Guoliang Yu Development and application of adolescent academic emotions questionnaire [J] Acta psychologica Sinica, 2007, 39 (5): 852-860
- [4] Huixia Ma, Lin Lin, Shijiang Su. Educational experiment of stimulating and regulating college students' academic emotions by different teaching methods [J]. Psychological development and education, 2010, 26 (4): 384-389
- [5] Ge Li. Research on the correlation between academic procrastination and Academic Emotion of college students and group intervention [D]. Shanghai: Shanghai Normal University, 2012
- [6] Lijie Zhao. Effect of group psychological counseling on academic emotions of higher vocational nursing students [J]. Chinese Journal of health psychology, 2014, 22 (3): 396-398
- [7] Changhong Wang, Zhong Cong. Clinical psychotherapy [M]. Beijing: People's military medical press, 2001
- [8] Rongxia Zhao, Huiying Li, Kele Yan. Gradual relaxation and abdominal breathing training can eliminate anxiety, experimental research on improving college entrance examination results [J]. Journal of health psychology. 2003, 11 (4): 299-302
- [9] Yuan Yuan, Dong Pang. Effect of abdominal breathing training on anxiety and postoperative pain in patients undergoing thoracic surgery [J]. PLA Journal of nursing, 2006, 23 (7): 6-10
- [10] Huixia Ma. Development of College Students' general academic emotions questionnaire [J]. Chinese Journal of clinical psychology, 2008, 16 (6): 594-596
- [11] Mingjing Tang. Effects of breathing relaxation training on physiological response and fatigue [D]. Suzhou University, 2018
- [12] Jingcheng Li. Effects of psychological training with different relaxation methods on subjective relaxation and autonomic physiological response [D]. Beijing Sport University, 2002

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