

The Effect of Yoga Practice to Psychological and Immunity System of College Students

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In this study, a yoga class was conducted to 255 college students of K University, Y University, and H University located in Seoul, Gyeonggi, and Chungnam areas for 16 weeks. The Symptom Check List – 90 (SCL-90), Physical Self-Perception Profile (PSPP), and the effect of yoga to the psychology and health of the college students were analyzed before and after the experiment while accessing the level of serum immunoglobulin. The results showed that yoga had significant effects to the symptoms related to somatization, sensitive personal relationship, and hostility while showing statistically significant effect in the confidence level in terms of the average score on compulsion, anxiety, depression, fear, and psychotic aspect. However, there was no significant difference in the confidence level with regards to the change in physical value, total PSPP scores, locomotive function, physical disposition, and physical condition. Nonetheless, the level of serum immunoglobulin IgM showed a significant difference after the yoga practice but the levels of IgG and IgA were not significantly different statistically.

Keywords: Yoga, psychological health, college students, serum immunoglobulin

I. Introduction

Yoga is a scientific, philosophic, and creative sports activity and it has been loved by many people for a long time. Also, yoga is the essence of mobile science that not only improves basic stamina needed by the human body but also the level of concentration, mentality, creativity, and patience. Yoga practice requires maintenance of stable mental state and demands the beauty of waiting with a pleasant and stable mind while eliminating unnecessary thoughts. Yoga expresses the vital and formative aspects of Yin and Yang, in other words, the contrast, unification, and harmonization of two contrasting aspects of everything. Thus, such natures of yoga practice serve a positive role for connecting various relationships that exist between person to person and person to nature (Min, 2006; Yang & Cho, 2008; Ha, 2010; Cho, 2009; Gwak, 2006). Thus, this study aims to analyze the effects of yoga in the psychological aspects and immunity by measuring the psychology-related index and serum immunoglobulin of the college students before and after the yoga practice.

II. Study method

1. Subjects

For the subjects of this study, a total of 255 college students composed of 136 male students and 119 female students from K University, Y University, and H University located in Seoul, Gyeonggi, and Chungnam areas were selected and the average age of the subjects was 20.3 (± 2.18) years old.

2. Study method

For the measurement instruments, Physical Self-Perception Profile (PSPP) was used, and the sub-category of PSPP contained General Physical Self-Worth as well as 4 areas of 'Sport Competence,' 'Condition,' 'Body,' and 'Symptom Checklist, SCL-90.' This category had a total of 90 questions and there are items on somatization, compulsion, sensitivity on personal relationship, depression, anxiety, hostility, fear, delusion, psychotic aspects, and other 10 factors in those categories. Meanwhile, the level of the subjects' psychological health was accessed using 5-grade scoring system and the level of serum immunoglobulin (IgG, IgA, IgM) among the subjects were measured using BT Semi-auto chemical analyzer. Having yoga as a measure of physical training, the study conducted the yoga program from Aug. 2009 to Feb. 2010 for a total of 16 weeks. Before and after the yoga practice, a survey on psychological health and Physical Self-Perception Profile (PSPP) were conducted while measuring the concentration level of serum immunoglobulin. The 510 copies of the survey questionnaire were distributed and 494 copies were retrieved before and after the yoga practice. The rate of the survey retrieval was 96.86%.

3. Data processing

For the data processing of this study, the survey questionnaire and measurement values were treated before and after the yoga practice. The acquired values were statistically analyzed using SPSS11.5.

III. Results and discussion

Comparison of each factor of SCL-90 before and after the yoga practice

The positive effect of the yoga practice was found in somatization, sensitivity on personal relationship, hostility, and delusion while having significant effect on the average score, compulsion, depression, anxiety, fear, and psychotic aspects.(Table 1)

Table 1. Comparison of each factor of SCL-90 before and after the yoga practice ($\bar{X} \pm S$)

| Each factor of SCL-90 | Before experiment | After experiment | T score | P score |
|-----------------------|-------------------|------------------|---------|---------|
| Somatization | 1.536±0.584 | 1.328±0.371 | 1.157 | 0.273 |
| Compulsion | 1.888±0.479 | 1.659±0.523 | 2.344 | 0.0330* |
| Sensitivityon | 1.855±0.822 | 1.561±0.442 | 2.412 | 0.024 * |
| personal relationship | 1.551±0.448 | 1.459±0.354 | 2.270 | 0.035 * |
| Depression | 1.556±0.471 | 1.425±0.372 | 1.346 | 0.242 |
| Anxiety | 1.497±0.655 | 1.489±0.434 | 0.739 | 0.563 |
| Hostility | 1.523±0.523 | 1.271±0.291 | 2.422 | 0.027 * |
| Fear | 1.795±0.605 | 1.544±0.535 | 1.121 | 0.241 |
| Delusion | 1.357±0.474 | 1.346±0.325 | 2.536 | 0.020 * |
| Psychotic aspects | 1.650±0.451 | 1.448±0.307 | 2.394 | 0.030 |
| Average score | | | | |

Comparison on Physical Self-Perception Profile (PSPP) before and after the yoga practice

In this study, non-significant effect of the yoga practice were shown(Table 2). It is, however, increased in the scores were shown in all factors after training.

Table 2. Comparison on each value of Physical Self-Perception Profile (PSPP) before and after the yoga practice ($\bar{X} \pm S$)

| Item | Before experiment | After experiment | T score | P score |
|---------------------|-------------------|------------------|---------|---------|
| Physical | 143.99±1.986 | 14.969±2.038 | -1.469 | 0.149 |
| self-perception | 13.926±2.761 | 15.270±3.369 | -1.459 | 0.148 |
| Locomotive function | 15.771±2.733 | 17.128±3.323 | -1.660 | 0.229 |
| Physical condition | 14.729±2.039 | 15.941±2.787 | -1.759 | 0.091 |
| Physical Strength | 14.501±2.325 | 15.499±2.837 | -1.579 | 0.139 |
| Capacity | 72.860±8.649 | 78.747±11.632 | -2.153 | 0.049 |
| Total PSPP | | | | |

Comparison on serum immunoglobulin before and after the yoga practice

The level of IgM before and after the yoga practice was shown to be significantly different. However, the levels of IgG and IgA were not significantly different regardless of the vivid change in value (Table 3).

Table 3. Comparison on IgG, IgA, and IgM before and after the yoga practice ($\bar{X} \pm S$)

| Serum immunoglobulin (g/l) | Before experiment | After experiment | T score | P score |
|----------------------------|-------------------|------------------|---------|---------|
| IgG | 11.08±1.32 | 10.51±1.50 | -0.872 | 0.379 |
| IgA | 1.39±0.39 | 1.56±0.49 | -1.757 | 0.181 |
| IgM | 1.22±0.27 | 1.16±0.40 | -1.986 | 6 |

The emotional state and the physiological reaction triggered by emotions have a direct effect to the emotional system. The active emotional state reinforces the immunity function while passive emotional state decreases the function of the immune system. The values of IgG and IgA derived after the yoga practice showed a distinctive change; however, no significant difference was shown. Such result implies that the yoga practice served an active role to the immune system of the yoga practitioners.

Yoga is not only a type of exercise but also the presentation of emptiness, essence, and beauty of nature. Meanwhile, it refreshes the human mind and helps the students release a certain level of mental pressure. It also controls the nerve activities, reinforces controlling capacity, and positively affects people to overcome the impatient and compulsive emotions.

IV. Conclusion

The philosophy of yoga pursues unification of heaven and human being, and this idea starts from one's own identity. Aiming at the mutual benefit and development of all substances, the Tao (The way of spiritual path) prevents isolation or destruction of a substance and promotes confronting harmonization of Yin and Yang. Moreover, it helps people promote a sound mind and body and form the right values.

As shown in this study, the yoga practice accelerated the psychological health of the college students. In such extent, it is expected to improve the mutual understanding based on consistent communication and to directly and effectively prevent any potential factor that may damage the psychological health of the college students.

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