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The change of muscle dysmorphia through bodybuilding for 12 weeks : Korean college students¹

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Abstract

The central purpose of the current research is to identify how 12-week bodybuilding exercise affects muscle dysmorphia. The research subjects consisted of an experimental group and a control group, each with 16 freshmen at college. MDI (muscle dysmorphic inventory), developed by Schlundt, Woodford, Brownlee (2000) was utilized to collect relevant data, which was analyzed by PASW 18.0. An independent two sample t-test was conducted to see whether there exists any significant difference between the two groups in the pre- and the post-tests. A paired t-test, in turn, was performed to identify whether there is any difference between the two tests for each group. The statistical significance level was set at $p < .05$. It was found that the experimental group marked a higher level of muscle dysmorphia than the control group in the pre-test. It was also found that muscle dysmorphia of the experimental group increased in the post-test, while no significant difference was manifested in the control group in the post-test.

Keywords : bodybuilding, muscle dysmorphia, motives for bodybuilding

1. Introduction

Bodybuilding helps control and build muscle through resistance exercise and those who are engaged in such exercises are called 'bodybuilders'. They might experience a variety of psychological experiences including physical beauty, sense of achievement, joy from pumping, pleasure, sense of challenge, delight, ecstasy, pride and satisfaction.

However, a growing number of people tend to do excessive training with the mere goal of growing muscle. Many researches have reported that bodybuilding might lead to physical or psychological side effects such as exercise injuries (Kim et al, Pope et. al., 2005; Siewe et al., 2014), eating disorders [1-3], muscle dysmorphia [4-5] and exercise dependence [6-7].

Muscle dysmorphia is a subtype of body dysmorphic disorder [3] and a relatively new concept. which is sometimes called "bigorexia", "megarexia", or "reverse anorexia". Body dysmorphic disorder (BDD), occasionally still called dysmorphophobia, refers to a mental disorder that is characterized by a distressing or impairing preoccupation with slight or imagined defect in one's physical appearance [8]. Those with this mental disorder try to hide such slight or nonexistent defects as hair loss or a small scar by wearing caps or growing a thick mustache or beard. Also, Park (2016) [9] claimed that if such symptoms continue or get serious, they might lead to addiction to cosmetic surgery.

While body dysmorphic disorder involves a preoccupied thought on a particular part of the body, muscle dysmorphia concerns the size of the whole body or the quantity of musculature, characterized by the idea that

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the body is too small or underweight. Those with this symptom might believe that their muscle mass is not sufficient, even though it is, in fact, normal or more than that. Such obsessed idea might lead them to be afraid of going to the places where their body should be exposed and to spend more time to build muscle [10]. Pope, Gruber and Mangweth(2000) [11] performed a survey on the ideal muscle mass to a group of men living in Australia, France and U.S.A. The survey showed that they would hope to have 13 kgs more muscle than what they have. Choi, Pope, & Olivardia(2002) [10] also found that a group with muscle dysmorphia suffered mentally more than a group without it from the thought that they are physically not attractive.

These past researches show that those with a distorted thought of their own body might suffer from physical, psychological and social disorders. It is true that bodybuilding might help increase muscle mass and look better, but the increased muscle mass/body in good shape would not lead to reduced time and quantity of exercise and workout.

Then, one might ask why they are more concerned with exercise, though they have greater muscle mass and better build? The more they do bodybuilding, aren't they greedy for a better shape? So far, there has been little research on the relationship between bodybuilding and muscle dyschomatism. Even so, since that research was a cross-sectional study, it seems to be more or less short of explaining the cause-and-effect relationship between bodybuilding and muscle dysmorphia. Thus, the current research is mainly targeted at those who have not had any experience of bodybuilding training and aims to identify how bodybuilding affects muscle dysmorphia. The research results are expected to provide practical base data that can help bodybuilding trainees' mental health.

2. Research Methods

2.1 Subjects

The research subjects consisted of a group of college students attending at N University located in C Province in Korea. The groups were classified into an experimental group and a control group. Out of 20 freshmen who signed up for joining the bodybuilding student club, 16 were chosen for the experimental group: they all did not have any experience of bodybuilding training and agreed to participate in the research project.

Table 1. General Characteristics of Subjects

		Mean	SD
Experimental (N=16)	Age	18.75	.89
	Height	174.63cm	3.93
	Weight	71.88kg	8.15
Control (N=16)	Age	18.50	.76
	Height	175.88cm	7.35
	Weight	72.00kg	.93

The research subjects in the control group did not have any experience of bodybuilding training and were randomly selected from those with no participation with any student club. The subjects in both groups had a good understanding of the purpose and meaning of the present research and agreed to participate in two times of measurement: a pre- and a post-test.

The average age, height and weight of the experimental group were obtained at 18.75, 174.63 and 71.88, respectively in contrast to those of the control group at 18.50, 175.88 and 72, as illustrated in Table 1.

2.2 Measurement

The measurement tool employed for the present research is the Muscle Dysmorphic Inventory(MDI) developed by Schlundt et al.(2000) [12] and adapted by Kim et al.(2012) [13]. This tool consisted of questions

concerning the mental stress and sense of inconvenience that might result from one's worry and concern that he or she is too small or does not have sufficient muscle. The subjects are asked to answer such statements as 'I think I am too small', and 'I tend to wear loose fitting clothes to hide a small build.' Each question is measured on a five-point scale: 0 = strongly disagree and 5 = strongly agree. The tool consists of a total of 16 items. The scores ranging from 0 to 64 reflect the degree of negative feelings of one's body: a higher score means more negative feeling. The reliability of these researches expressed in Cronbach α was .89 in Wolke and Sapouna(2008) [14] and .87 in D. Kim(2012) [15] and .77 in the current research, respectively.

2.3 Experiment and Measurement method

The research subjects were asked to come to the fitness center on the campus, were explained the purpose and meaning of the research again. The pre-test immediately started right after they agreed to actively participate in the project. The experiment lasted 12 weeks and the post-test was conducted at the 13th week. The students in the experimental group had a two-hour session of bodybuilding three times a week at the fitness center on the campus. During other days of the week, they would voluntarily did some exercise. The control group, on the other hand, did not participate in any bodybuilding-related exercise. Both groups were given a pre-test and a post-test after the 12 week experiment period. Each test lasted approximately 10 minutes and the survey was collected immediately after they finished answering the questions.

2.4 Data Analysis

The collected data was analyzed by using the statistical program of PASW 18.0 for frequency and descriptive analysis. Also, an independent t-test was conducted to see if there exists a significant difference in muscle dysmorphia between the two groups in the pre- and the post-test. Finally, a dependent t-test was performed to see whether there exists any significant difference the pre- and the post-test of the same group. The statistical significance level was established at $\alpha=.05$.

3. Results

3.1 Intergroup difference in muscle dysmorphia in the pre- and the post-tests

Table 2 shows the difference in muscle dysmorphia between the two groups in both the pre- and the post-tests.

Table 2. Intergroup difference in muscle dysmorphia between the two groups(dependent t-test)

test	group	mean	SD	t
pre	Experimental	27.88	7.00	-2.502*
	Control	19.63	6.16	
post	Experimental	30.50	7.11	-2.959*
	Control	18.63	8.85	

* $p<.05$

First, as for the intergroup difference in the pretest, the experimental group marked the mean of 27.88 (SD = 7.00) in contrast to the control group's 19.63(SD = 6.16), which means that there existed a statistically significant difference ($t = -2.502$). In the post-test, in turn, the mean of the experimental was obtained at 30.50 (SD = 7.11) in comparison with the control group's 18.63 (SD = 8.85). Thus, a significant difference was also found in the post-test ($t = -2.959$).

3.2 Intragroup difference in muscle dysmorphia in the pre- and the post-tests

Table 3, in turn, exhibits intragroup differences in the pre- and the post-tests. First, the mean of the experimental group was 27.88(SD=7.0) and 30.50(SD=7.11) in the pre- and the post-tests, respectively. The value of t was obtained at -2.420 , which is statistically significant at the level of $p<.05$. However, the control

group did not show significant difference between the pre- and the post-tests, as illustrated below in Table 3.

Table 3. Intragroup difference in muscle dysmorphia(paired t-test)

group	test	mean	SD	t
Experimental	pre	27.88	7.00	-2.420*
	post	30.50	7.11	
Control	pre	19.63	6.16	.553
	post	18.63	8.85	

* $p < .05$

4. Discussion

The main goal of the current research is to identify whether participation in bodybuilding exercise would lead to muscle dysmorphia. To that end, with an experimental group and a control one, both inter-group and intra-group differences in muscle dysmorphia were under investigation. First, analysis of the differences between the two groups in the pre-test showed that the experimental group had greater muscle dysmorphia than the control group. That is, the experimental group had, for some reason, more symptom and decided to sign up for the club to do bodybuilding training. In fact, as presented in Popeet al.(2000) [11], many men want to have more muscle than they have, which might mean that all those men are potential muscle dysmorphia patients. In Korea, a cultural trend to glamorize a muscular build has recently appealed to more and more men. In that sense, this research addresses a part of the cultural phenomenon.

Second, the analysis of the intragroup differences found that the experimental group showed a significant increase in the post-test, whereas the control group did not exhibit any difference in the two tests. It is often believed that bodybuilders might have a very positive image of their bodies. Also, people are encouraged to do bodybuilding in order to improve negative images of their bodies. However, the results of the current research might indicate that one's improved physical figure would not always lead to a better image of his or her body. That is, bodybuilding might rather increase muscle dysmorphia than reduce it.

The cause for muscle dysmorphia can be attributable to cognitive and psycho-dynamic account. Some researchers pointed out that many men might get to be dissatisfied with the image of their bodies because of being long exposed to mass media in favor of the muscular body [16]. Others argued that experiences in the childhood of being bullied or outcast may lead men to pursue muscular builds [14]. A recent research, Fang and Wilhelm(2015) [17], reported that some cognitive factors such as perfectionism, rejection sensitivity and fear of negative evaluation might be related with muscle dysmorphia.

It is not clear why the experimental group of the current research marked a higher score in the pre-test than the control group. It can be assumed that one of the reasons why they signed up for a bodybuilding club might be to reduce their unperceived muscle dysmorphia. And it was found here that participation in bodybuilding itself would increase muscle dysmorphia. Therefore, it is important to make sure that those doing bodybuilding should have an appropriate belief and attitude toward exercise.

5. Conclusion

The present research proceeded with a group of college freshmen who joined a bodybuilding club and a control group who did not. The 12 week longitudinal experiment was designed to identify how participation in bodybuilding exercise affects muscle dysmorphia. The research results might lead us to make the following conclusions. First, muscle dysmorphia might be the main motive in their participation in bodybuilding. Second,

interestingly and ironically enough, bodybuilding itself could increase muscle dysmorphia. That is, an individual who starts bodybuilding is likely to have muscle dysmorphia at first and the symptom might continue or even get worse. Thus, it seems necessary that they be wisely advised on the direction and guideline of training right from at the start of exercise. Also, those participants should be given appropriate counseling on a regular basis in order not to make excessive efforts just to gain muscle mass and get bulky.

It should be admitted that this research has limitations. First of all, changes in other psychological factors than muscle dysmorphia were not considered and analyzed. Further researches are expected to be equipped with a more strict and detailed research design to accurately identify the mechanism of generation of muscle dysmorphia. To take an example for a plausible issue, one might wonder how a particular life event might lead to this mental disease. Also, an interesting topic would be to see whether a particular culture or a certain trend or perception of body figure in a particular country has any effect on muscle dysmorphia.

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