

The Effect of Six Weeks of a Massage Program on Sub Skin Fat at Stomach Area

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Abstract

This research aims to study the impact of massage on decreasing subcutaneous fat of the stomach area in non-sportsperson male university students. In order to do that, 16 non-sportsperson male students of the ages of 20 to 27 who were of good general health were chosen randomly to participate in the research. The thickness of subcutaneous fat of stomach area was measured using a SKIN FOLD Caliper (Made in Iran with American spring and measuring error of 0.5 millimeters), before and after the research. After the first measuring, all the participants were subjected to a 6-week massage program designed specifically for the stomach area, which included 5 sessions a week, 15 to 20 minutes of massage per session. Descriptive analysis was used to calculate mean values and standard deviation values of the age, weight, and height of the participants, and correlated t statistic method ($p < 0.05$) was used to calculate the difference between subcutaneous fat values before and after the research. The results of the study showed that a 6-week massage program had an impact in decreasing subcutaneous fat of the stomach area of the participants and there was a significant difference between the mean values of subcutaneous fat of the participants before and after the massage program, at the level of $p < 0.05$. Therefore, regarding that the results of this study confirm the role of a designed massage program in decreasing the subcutaneous fat of the stomach area, using massage as a method for increasing local metabolism, and as a result, for stimulating local fat burning, can be an effective method for decreasing local fats of stomach area.

Keywords: Massage, Subcutaneous fat, Non-sportsperson male university students

Introduction

Obesity and weight control are of the problems which have recently been subjected to the attention of experts and researchers. Obesity is resulted from excessive fat piling in the body, and is regarded as a serious problem in developed countries [1]. Generally, when body, by means of exercising, cannot insert body fat in the process of energy production via metabolism, some of it is piled in subcutaneous layers, mostly in the areas of breast, stomach and leg. In this paper, by fat it is meant as excessive storage of fat under the skin, and clearly, this fat is as an extra load to body and has no role in increasing power and improving performance, and it may even have negative effects [2]. Furthermore, increased fat storage in the body endangers the health and is a risk factor in cardiovascular diseases and diabetes. 80% of insulin-independent diabetes cases which are prevalent among adults are due to diseases related to obesity. Based on ACSM reports, increased body fat is related to chronic

diseases such as cardiovascular diseases, high blood pressure, diabetes, a particular kind of cancer, etc. in addition, the risk of atherosclerosis and also insulin-independent diabetes development is significantly more in the adults who have extra fat in their upper body, particularly stomach, as compared to the adults which have extra fat in lower body and legs. Also, fat storing pattern in men (mostly in trunk and stomach) is a lot more dangerous than fat storage pattern in women (mostly in bottom, pelvis and legs) [1]. There are several ways to prevent the increase of fat storage in the body, including exercising and doing sports, going on diets, and using medical methods, although these methods may not be quite effective. Therefore, a complementary method is needed to solve this problem. Since the ancient times, many people of different nations used massage therapy as a common therapy for maintaining good health and treating some diseases, and this method has recently become of use in health management and treating diseases. People in America use several alternate and complementary treatments such as significance. A multivariate analysis of covariance (MANOVA) with age as covariate was used to

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massage therapy in order to maintain good health [3, 4, 5]. Massage therapy is also used by mothers and professionals to lessen children's weight [6]. Different reports show the development on massage therapy in preserving good health. Excessive fat storage is one of the general health problems [7] and local massaging is an effective method in increasing the metabolism of the area during the rest time, and also, until about 15 minutes after the massage, increased metabolism stimulates fat burning and consequently decreases local fat [8]. Due to the importance of the issue, and regarding that all the methods used in previous studies were mechanical, the current study has combined massage with exercise to show the importance of this method, especially to the people who suffer from limited movements of the joints for they can use the method to decrease the extra fat at the stomach area. Also disabled people, who cannot decrease fat body through typical exercise methods like running, cycling, and activities of this kind, can use this method. In addition, regarding the probable dangers during physical activities, people suffering from overweighting and obesity are looking for the easiest and most effective technique and method for decreasing weight and fat storage, particularly local fat. Also, most of these people, while losing weight and fat, do not want to become very thin, do much exercise or lose their beauty [7]. In addition, regarding that many nonscientific and nonstandard methods have become prevalent and sport clubs have claims which are not scientifically proved, finding a scientific answer for the question about the impact of massage on decreasing subcutaneous fat of the stomach area can help many people in decreasing extra body fats correctly and provide us with useful information about the impact of massage on decreasing subcutaneous fat.

Regarding that this research is looking an alternative method for decreasing fat storage, massage is used as a method for stimulating fat burning and increasing local metabolism, and as a method for decreasing local fat, particularly for people who cannot have physical activities. In addition, friction and petrissage massaging can directly lessen fat layers and increase food absorption, break fat layers and consequently overcome obesity, stimulate lipid glands and sweating glands due to its impact on the skin and through enforcing their activity it refusing body toxins, and this way also has impact on the side effects of obesity and treats them [9]. Hence, regarding what we mentioned and the importance of the issue, this study was designed to evaluate the impact of a massage program on decreasing subcutaneous fat at the stomach area in non-

sportsperson male students.

Research Methodology: this is a semi experimental and practical research with a pretest and posttest design. The statistic population consists of all the obese male students of Mashhad Ferdowsi University who have picked general physical education (1 or 2) for the second semester of the academic year 2008-9. After a public call 80 students who were interested in the issue made a written declaration that they were willing to participate in the research. From among them, by measuring skin fold fat 16 students of the mean age of 23.56 ± 1.69 years, the mean height of 175.31 ± 5.18 centimeters, and the mean weight of 85.04 ± 5.95 kilogram who were in good general health state and their skin fold fat at the stomach are was 25 millimeters, filled a questionnaire about their individual information and medical and athletic background, then had an appointment with a doctor to have their health confirmed in a letter, and ultimately, they were chosen as the statistic sample. Before the primary test, participants were orally informed about the importance of their regular presence in the research, not changing their diet (the food prepared for them in the dormitories), and not participating in any particular physical activity. Then, based on the schedule, participants filled the general information questionnaire, and before starting the program, their height was measured using a Height gauge, their weight was measured using a BEEM digital scale (Made in Germany) of 100 gram accuracy, and their subcutaneous fat was measured using a SKIN FOLD Caliper (Made in Iran with American spring, with the measurement error of 0.5 millimeters), and after participating in a 6-week program of the research, 5 sessions per week, their skin fold fat of the stomach area was measured again 24 hours after finishing the last session.

Measuring Skin Fold Fat:

A caliper was used to measure subcutaneous fat of the stomach area of the participants. Before measuring, it was assured that the caliper was correctly working, and then its hand was set on zero.

In order to measure subcutaneous fat of the stomach of the participants, the place was held between the left thumb and index finger, and the caliper was held in by the right hand. The opening of the caliper was placed 2 centimeters below the two left fingers, and the caliper lever was slowly released, and after 2 seconds by counting 1001 and 1002, the place of the caliper hand on the scaled plate was read and recorded immediately.

The subcutaneous fat of the stomach area was

Table 3: **result of MANCOVA with age as the covariate:** measured for two times, and in case there was a significant difference between the measures gained, the last measurement was carried out and recorded in a form (based on ISAK form). It should be mentioned that all the measures were taken from a point at 5 centimeters to the right of bellybutton by the tool error and measurement error of 0.63 millimeters.

Massage Program:

In order to prepare the area, the massage program consisted of patting, then friction (massage by using fingers) and then petrissage. In general, the program was light at first and became heavier gradually, patting was used in the intervals between techniques, and then deep and painful massage was used in a way that no sign of fat squashing or bruise was observed. The local fat was pressed between hands to stimulate fat burn. It should be mentioned that at the beginning of each session, patting, friction and surface rubbing was done for about 5 to 7 minutes, and then deep and painful massage was done for about 10 to 20 minutes, and in total, the program consisted of 20 minutes massage [10, 11].

After the course was finished, posttest was given

to the participants in the same environment and the same method as for the pretest, on the variable aimed by the research. Descriptive analysis was used to calculate mean values and standard deviation values of the participants' height, weight and age. Also using the software SPSS-13 and the statistic method of correlated t ($p < 0.05$), the impact of the program of 15 to 20 minutes massaging on decreasing skin fold fat of the stomach area was evaluated.

Results:

The information about the participants of this research is presented in table 1.

The results of correlated t test show that the mean values of skin fold fat of the stomach are of the participants before and after the massage program was 36.81 and 36.12 respectively, which shows a significant decrease after 30 sessions of massage ($p = 0.036$). Therefore, based on the results given in table 2, a 6-week massage program has a significant impact on the decrease of subcutaneous fat of the stomach area ($p = 0.036$, $t = 2.300$).

Table 1: Individual Features of the Participants

Variable	Age (year) M±MD	Height(cm) M±MD	Weight(kg) M±MD
Massage	23.56±1.69	175.31±5.18	85.04±5.95

Table 2: The comparison of pretest and posttest mean subcutaneous fat of the stomach area of the participants

Statistic indicator	Test	Mean Value	Standard Deviation	T value	sig
Skin fold fat	pretest	36.8125	6.0135	2.300	0.036
	posttest	36.1250	6.1087		

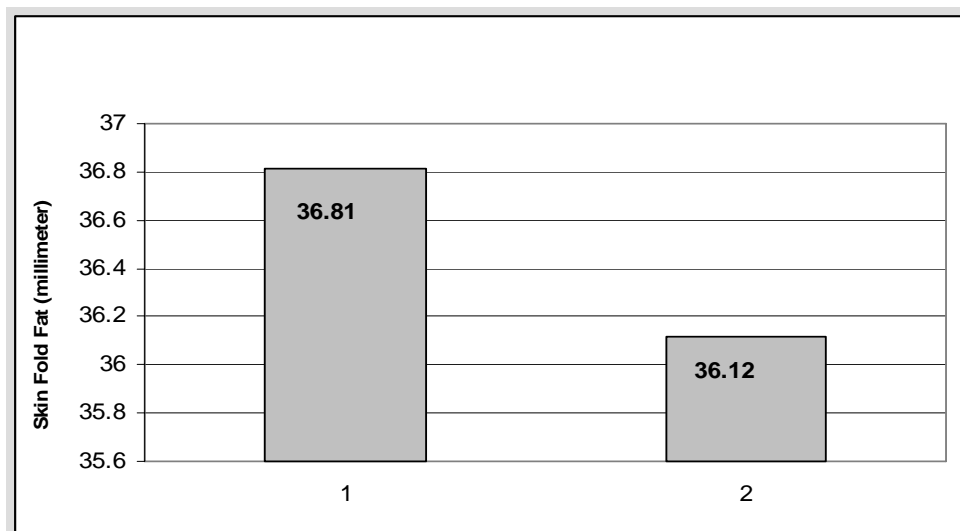


Figure 1: pretest (1) and posttest (2) mean values of the subcutaneous fat of the stomach area of the participants

Discussion:

This research aims to study the impact of a 6-week massage program on the level of subcutaneous fat of the stomach area in non-sportspersons male university students. The results of this showed that the 6-week massage program resulted in a significant decrease in subcutaneous fat of the stomach area ($p < 0.05$). Hence, based on the statistic data and significant decrease in skin fold fat of the stomach area, it can be stated that a local massage program results in a decrease in subcutaneous fat of the stomach area.

The risk of developing atherosclerosis and insulin-independent diabetes in the adults who have extra fat in their trunk, particularly the stomach area, is significantly higher than adults who have fat piling in lower body and legs [1], and this is one of the most important problems and concerns related to health. Many studies have shown that a massage program can decrease subcutaneous fat of the stomach area, and the result of the current study is in agreement with those studies [7, 8, 9, 10, 11, 12, 13, 14 and 15].

Denis Wilcho Brawn believes that friction massage decreases fat layers and therefore is a useful and effective way for overcoming obesity, particularly local obesity. On the other hand, petrissage is a very good way for decreasing the fat stored in legs, bottom and shoulders [12]. In addition, Valerian Nicolapovich Fookin (2003) has studied the impact of massage on different parts of the body and has emphasized that 10 minutes of stomach massage results in fat burn, and in addition, affect the internal organs and stimulates and increases the smooth movements of the colon [13].

Additionally, O. A. Petrosian, in his "Massage When Being Obese" (2003), discusses about the impact of massage in releasing energy in the body, the impact of massage on the body of obese people, and the massage techniques for different parts of the body of fat people, particularly the parts with fat piling such as stomach, legs, etc. and the results of the discussions show that massage facilitates metabolism and the refusing of the extra substances in the body, and also increases the absorption of metabolized food [11].

Subcutaneous fat increases by decreasing physical activities. While exercising the muscles oily acids are used as the main fuel source [14]. But there is no evidence to show that the oily acid burnt in the muscle is provided from the fat surrounding that very muscle. This means that exercising any group of muscles will burn oily acids from all over the body [14]. In a research conducted by Serin Purn et al, titled as "Losing weight and decreasing the size of waistline by means of massage with

herbal cream", it was concluded that massaging with a specific cream decreases the size of waistline and the weight of women by means of decreasing stomach fat storage, which was reported to be the result of the warming caused by massaging with the cream which resulted in the lipophese of the brown tissue of the stomach fat storage [7].

Also, Eliot Latch, in his study on the impact of massage and the combination of massage and electric waves on decreasing local fat piled in lower body, found that both methods of massage and massage combined with electric waves had a significant effect on decreasing local fat [15].

Regarding the agreement between the results of the present study with the results gained by the other researchers, it could be suggested that massage stimulates local fat burn. Hence, using massage as a way of stimulating local fat to be inserted in the metabolism cycle, results in more decrease in skin fold fat of the stomach area. Also, based on different references, it can be stated that the performed program stimulates local fat and as a result metabolism, during the execution of the program and even until several minutes after the end of the session, during the rest time, which consequently, decreases the skin fold fat of the stomach area.

Conclusion:

In general, findings of the present research showed a decrease in subcutaneous fat of the stomach area. Regarding the significant difference between the mean values of subcutaneous fat of the stomach area of the participants before and after the program, the decrease in the fat can be related to the impact of massage in stimulating fat burn and local metabolism during the massage sessions and even several minutes after the sessions, and it can be concluded that the local massage of the stomach area can be used as a way of decreasing local fat in the people who suffer from local obesity, particularly people who cannot have physical activity, while aerobic exercises immediately after the massage maximizes the effect of massage in decreasing local fat.

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