

Original Article

Effectiveness of Aromatherapy on Physical Vitals of Exercising Females

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Abstract

Objective Aroma or scent therapy is one of the traditional treatments, which is presumed to be helpful in supporting and balancing the mind, body and soul. It is a complementary therapy that has been clinically proven to be beneficial in improving various attributes of life. The aim of the study was to evaluate the effectiveness of aromatherapy on the physiological vitals of the healthy females. **Methodology** an observational study has been conducted to determine the effectiveness of Aromatherapy on Vitals and Physical Factors. This study targeted to recruit a small set of healthy females for the study. All the readings were collected at room temperature, between the months of November 2015 to January 2016. The recordings were compared by the two-tailed test, with probability taken as 1, to detect the influence of aromatherapy on physiological workings of the healthy human body that has been exposed to the physical strain due to the moderate level of exercise. The test involved the comparative analysis of the physiological vitals of those females who exercised regularly; their vitals were evaluated after a course of physical activity in two sets i.e. with and without aromatherapy. **Result** The result showed a significant difference in the pre and post status mainly in the readings for the cardiac output, pulse rate and body temperature, increases after physical activity of average intensity and is further supported by the aromatherapy. **Conclusion** The study came to the conclusion that aromatherapy has beneficial influences on the rate of body metabolism.

Keywords

Aromatherapy, Exercise, Physical Vitals, Metabolism, Complementary Therapies

Introduction

Aromatherapy is basically a derivative of two different words: aroma and therapy. Aroma means fragrance, smell or scent while therapy means remedy, cure or treatment¹. Aroma or scent therapy is one of the traditional treatments which is presumed to be helpful in supporting and balancing the mind, body and soul.

It is a complementary therapy that has been clinically proven to be beneficial in improving various attributes of life². It has been studied and found to be effective in

reducing the disease strain and relieving the pathological conditions like anxiety,^{1,3,4} asthmas, depression, stress, headaches, hypertension, insomnia, irritable bowel syndrome, eczema, rheumatism, childbirth⁴, psychiatric issues⁵, infections, alopecia are at a or hair loss, agitation, constipation, cancer related symptoms⁶, headaches and skin problems, like itching, scaling or patching¹.

The healing process in aromatic treatment involves the combination of two senses: touch and smell⁴. The good scents stimulate

the brain region responsible for the emotions. Each fragrance has a distinct effect on the nervous system and relaxes the body accordingly.

Nonetheless, the consciousness of the person also has a part in the aromatic treatment, as it is said that the faith of an individual in the effectiveness of this therapy tends to have an impact on the outcomes^{1,7}. Aromatherapy has been satisfying the professionals of the aesthetic and fitness fields since quite a long time.

Today, it has successfully seized the attention of researchers, scientists and medical practitioners⁸. The aim of the study has been to identify the influence of the aromatherapy on vital signs of healthy individuals as to inquire the effectivity of the treatment on the basic aspects of human health.

Methodology

An observational study has been conducted to determine the effectiveness of aromatherapy on vitals and physical factors. The study primarily constituted of recording of physiological vitals and body mass index that projected the efficacy of aromatherapy on human body where each individual has been asked to perform certain physical activity under observation.

The area of sampling included fitness center for women, situated in the city of Karachi. The administration of gym and all the participators, who contributed to the study, were pre-informed about the purpose and nature of the study. The readings and results were discussed with each contributor and the confidentiality of their data was assured.

The inclusion criteria had been strictly followed and recruited 16 healthy and

educated females who have had no history of any chronic pathology, belonged to the age range of 18 – 29 years and were either normal weight or overweight. The exclusion criteria made certain that no male was included in the study and all the participants were neither under the age of 18 nor above 29 years. None of the individuals were underweight, menstruating, and pregnant, following any specific diet, consuming any supplements or medicines or into substance addiction.

The survey form collected information for the demographic data, health profile and the documentation for physical vitals. The vitals included the recording of pulse rate, systolic & diastolic blood pressures, respiration rate and baseline body temperature while cardiac output was calculated by the means of recorded data. The selected females were engaged in a moderate intensity of exercise that included a fast pace walk on treadmill, at a speed of 4 miles per hour, for 10 minutes.

The vitals were recorded initially within the 5 to 10 seconds after exercise. Three days later, the similar exercise was performed again by the subjects but in the presence of an aromatic fragrance after which their vitals were recorded again within the 5 to 10 seconds post exercise. All the readings were collected at room temperature, between the months of November 2015 to January 2016.

The recordings were compared by the two-tailed test, with probability taken as 1, to detect the influence of aromatherapy on physiological workings of the healthy human body that has been exposed to the physical strain due to the moderate level of exercise. The data has been analyzed on the Microsoft Excel 2012 and SPSS Version 19.

Results

A total of 16 females were recruited in the study with the strict consideration of no current and history of chronic diseases and consumption of any drugs or supplements.

The average age of the study participants had been 21.5 + 3.74 years while the mean body mass index (BMI) had been 28.06 + 2.91.

Table 1: Sociodemographic and Clinical Characteristics of Study Participants.

Features	Frequency	Percentage
Age (Years)		
18 – 20	7	43.75%
21 – 23	6	37.5%
24 – 26	0	0%
27 – 29	3	18.75%
Body Mass Index		
Underweight (< 18.5)	0	0%
Normal Weight (18.5 – 24.9)	4	25%
Overweight (25 – 29.9)	5	31.25%
Obesity (30 - >30)	7	43.75%
Profession		
Student	13	81.75%
Employed	3	18.75%
Marital Status		
Single	15	93.75%
Married	1	6.25%
Record of Chronic Diseases		
History	0	0%
Present	0	0%
Healthy	16	100%
Use of Medication or Supplements		
Yes	0	0%
No	16	100%

Table 2: Average Baseline Physical Vitals of the Study Participants

Physiological Vitals	At Rest
Pulse Rate	90.25 + 14.42
Cardiac Output	6317.5 + 1009.7
Systolic Blood Pressure	108.4 + 11.4
Diastolic Blood Pressure	72.56 + 12.2
Breathing Rate	21.38 + 10.78
Baseline Body Temperature	37.25 + 0.62

Table 3: Comparative Analysis of Physical Vitals Taken After Exercise in Pre and Post Aromatherapy Status.

Vital	Status	Mean + Sd	P-Value
Pulse Rate (beats per minute)	Pre-Aromatherapy	95.63 + 18.97	0.000
	Post-Aromatherapy	114.31 + 8.49	
Cardiac Output (milliliters per minute)	Pre-Aromatherapy	6975 + 1226.64	0.010
	Post-Aromatherapy	8001.9 + 594.36	
Systolic Blood Pressure (mmHg)	Pre-Aromatherapy	118.50 + 23.37	0.672
	Post-Aromatherapy	121.25 + 14.62	
Diastolic Blood Pressure (mmHg)	Pre-Aromatherapy	75.88 + 18.12	0.848
	Post-Aromatherapy	74 + 10.08	
Respiration Rate (breaths per minute)	Pre-Aromatherapy	23.69 + 10.06	0.736
	Post-Aromatherapy	24.87 + 11.16	
Body Temperature (Celsius)	Pre-Aromatherapy	37.34 + 0.60	0.003
	Post-Aromatherapy	37.9 + 0.42	

Discussion

Cortisol is most likely the chief hormone that increases the breakdown of fat depositions in response to the physical stress during exercise⁹. However, too much cortisol can also induce the distress as after a certain limit, it begins to catabolize the proteins from the muscles¹⁰. Similarly, physical exertion decreases the release of insulin as it promotes the glycogen storage and increases the release of glucagon as it

promotes the wastage of stored adipose from the body¹¹.

The elevation of metabolic rate is the major cause of the physical stress that emerges during the exercise. Another exercise biochemical called Irisin, is regarded as one of the chief chemicals that burns up the fats and gives a boost to the metabolic rate¹². Likewise, catecholamine also plays a major role in adipolysis, addition to which they also enhance the cardiac output and blood

supply for fulfilling the oxygen demands of the tissues and muscles during the workout¹³.

The endocrine substances mark a great influence on the physiological aspects of the body and thus, they have a tendency to change the rhythms of the basic physical vitals, like the heartbeat, blood pressure, breathing rate and body temperature. These fluctuations are basically the adaptation of the biological systems to meet up the nutritional and homeostatic demands of the body during the strenuous phase¹⁴.

The physiological basis of 36 C to 37.5 C of normal body temperature has been identified as the various catabolic and anabolic processes that keeps on going in the body without any halt. The metabolism is the foundation source of vitality to the whole organism. The adipose stores serve as the primary supply for the energy products.¹⁴ It has been observed in the study that the body temperature rises after physical activity of average intensity and is further elevated on the intervention of aromatherapy (Table 3). It suggests that aromatic substances may store an ability of enhancing the metabolic rate that can help in burning more fats from the body at a greater degree and so, it can be addressed as a good source of physical eustress.

The increase in metabolism elevates the demands of the body for higher supply of oxygen and an efficient removal of waste produced by the strenuous muscular workout. For that matter, the breathing rate always increases with the physical activity; the more physical exertion is applied, the more oxygen is required and the more respiration is affected. Respiratory system is responsible for both the oxygenation of the blood and removal of the carbon dioxide from the same blood. Carbon dioxide is the

most abundant metabolic waste product and thus, its removal has to be very competent^{14, 16, 17}. It has been recorded in the study that the breathing rate increases after physical activity of average intensity and further raises on the intervention of aromatherapy (Table 3). It proposes that aromatic substances may enhance the activity of respiratory system despite the nature of physical activity; the round of treadmill workout was similar and still the respiration became more sufficient in the presence of a scent.

The respiration and cardiac activity are interrelated in a way that the heart beat increases with the breathing rate to keep up the supply of oxygenated blood to the body. As proposed by the 'Oxygen Lack Theory' or 'Nutrient Lack Theory', the local arteries dilate to accommodate more blood that can provide the needed substances with more efficacy to the tissues¹⁴. It has been seen in the results that the pulse rate elevates after physical activity of average intensity further increases on the intervention of aromatherapy (Table 3). The cardiac output depends upon the beating of the heart and so it is obvious that as the pulse rate increases during the exercise, so does the cardiac output. It has been indicated in the results that the cardiac output increases after physical activity of average intensity and is further supported by the aromatherapy (Table 3). The increase proves the fruitful adaptation of the cardiac system for fulfilling the demand and supply requirements of the body during strenuous activity. Moreover, it has been recorded in the study that the systolic blood pressure also elevates after physical activity of average intensity with more elevation observed with aromatherapy (Table 3). The increase shows a modified support of the cardiovascular system provided to meet the

systematic needs during the exercise. It has been observed that diastolic blood pressure increases after physical activity of average intensity, however, a change has been observed that when aromatherapy was provided with exercise a drop in diastolic pressure emerged (Table 3).

Conclusion

We observed that the Vitals, Physical Factors, Pulse Rate, Cardiac Output, and Body Temperature showed marked influence in aroma therapy, so it is recommended that we can conduct this study on larger scale with better interventions.

Conflict of Interest

None

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