

## Effects of Geranium Aromatherapy Massage on Premenstrual Syndrome: A Clinical Trial

### Abstract

**Introduction:** This study evaluated the effects of geranium aromatherapy massage on premenstrual syndrome (PMS). **Methods:** A total of 120 female students with diagnosed PMS were randomly divided into three groups as control group, aromatherapy massage group, and massage group. Essential oil of geranium 2% in almond oil and sweet almond oil were used in aromatherapy massage group and massage group, respectively. Aromatherapy massage protocol was run for 8 weeks. **Results:** The study revealed that aromatherapy massage decreased the PMS physical and mental symptoms and massage therapy decreased the PMS physical and mental symptoms too ( $P < 0.001$ ); however, this decrease was more in aromatherapy massage group ( $P < 0.001$ ). **Conclusions:** This study recommends aromatherapy massage, as a complementary treatment, to improve PMS.

**Keywords:** Aromatherapy, geranium, massage, premenstrual syndrome

### Introduction

The changes which gradually disappear with the onset of menstruation are called premenstrual syndrome (PMS).<sup>[1]</sup> Today, using herbs is one of the most common treatment methods, and aromatherapy and massage with solutions and aromatic oils are considered an alternative or complementary treatment. Geranium, scientifically known as *pelargonium graveolens*, which has an essential oil called geranium extracted from its leaves, stimulates the adrenal cortex and is used to treat diseases in which hormonal balance is needed.<sup>[2]</sup> The effects of geranium aromatherapy massage on depression in postmenopausal women were investigated in a study and the severity of depression reduced in postmenopausal women.<sup>[3]</sup> Furthermore, Matsumoto *et al.* investigated the effects of inhalation aromatherapy on PMS emotional symptoms, but so far no research has been conducted on the effects of aromatherapy massage on PMS symptoms.<sup>[4]</sup> Furthermore, Boukhatem *et al.* introduced geranium as an anti-inflammatory medication.<sup>[5]</sup> To date, aromatherapy massage has been used in the treatment of chronic diseases such as dysmenorrhea, depression, anxiety, and sleep disorders.<sup>[2,3,6]</sup> Given the high prevalence of PMS in the community and its effects on women's individual and

social function, as well as complications of prolonged treatment and costly medical procedures, this study was conducted to determine the effects of aromatherapy massage on PMS.

### Methods

Accessible population was Rafsanjan University of medical sciences female students whom were lived in university dormitory by age range between 18 and 29 years. Inclusion criteria included menstrual periods between 21 and 35 days, not taking antidepressant medication, no hormone therapy, not using vitamins, surgery, and death of a loved one in the past 3 months. The exclusion criteria included allergy to aromatherapy, starting hormone therapy or using medication affecting treatment, absence from aromatherapy for more than two sessions. Then students with at least 5 PMS symptoms and not depressed according to Beck depression questionnaire were entered into the study and completed daily record of symptoms, that's includes 18 symptoms of PMS which are sorted as physical and mental symptoms. He subjects, who were diagnosed with the syndrome randomly divided into aromatherapy massage, massage alone, and control groups. In aromatherapy massage group, each person performed aromatherapy massage by herself for 30 min/week

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for 8 weeks according to training. Treatment included massage with geranium 2% essential oil in almond oil. In the massage therapy group, participants also performed massage by herself for 30 min/week for 8 weeks with sweet almond oil alone (placebo).

The massage was performed with effleurage technique and each time 8 ml of oil was used on the abdomen and arm regions gradually. Effleurage massage is done with very light and rhythmic touch in the lower abdomen in circular strokes to the left and the right, without exerting any pressure from the palm or fingers. The daily record of symptoms form was gathered at the end of every month, and the results were evaluated at the end of treatment. Collected data were analyzed using SPSS software version 12 (Barij Essence pharmaceutical company, Mashhad, Iran). Using paired *t*-test for before-after comparison and ANOVA statistical tests for comparing between groups. For *post hoc* tests, we used Schaffe test too ( $P < 0.05$ ).

## Results

In this study, 120 participants were assigned into three groups of 40. Five participants excluded from the study due to absent in more than two sessions and the analysis was ultimately performed on 115 participants: aromatherapy massage group ( $n = 37$ ), massage group ( $n = 38$ ), and control group ( $n = 40$ ). The mean score of PMS physical and mental symptoms showed no significant difference in three groups before beginning the trial ( $P > 0.05$ ). After eight sessions, a statistically significant difference was observed in the mean of physical and mental symptoms in both interventions groups ( $P < 0.001$ ). However, there was no such difference in the control group [Table 1].

Comparing groups before and after intervention showed that the mean difference between PMS mental and physical symptoms. Finally, the severity of PMS physical and mental symptoms was further reduced in the aromatherapy massage group compared to the massage group and control group [Table 2].

## Discussion

In this study, the severity of PMS physical and mental symptoms in all participants who had received eight sessions of intervention had a significant reduction compared to the control group; however, the reduction was higher in the aromatherapy massage group than in the massage group alone. Reviewing articles showed many studies on aromatherapy, but very little research has been done on aromatherapy massage particularly its effects on PMS. Matsumoto *et al.*'s<sup>[4]</sup> investigated only the effects of aromatherapy on PMS emotional symptoms, and their study showed that aromatherapy inhalation reduced PMS emotional symptoms, but we

**Table 1: The effect of aromatherapy massage and massage therapy on PMS**

	Before (mean±SD) A	After (mean±SD) A	P*
Aromatherapy massage			
Mental Sign	9.35±2.33	2.68±0.85	<0.001
Physical Sign	1.62±0.86	0.47±0.30	<0.001
Massage therapy			
Mental Sign	9.13±2.13	6.50±1.95	<0.001
Physical Sign	1.66±0.97	1.11±0.64	<0.001
Control			
Mental Sign	10.83±2.51	10.77±2.51	0.001
Physical Sign	1.95±0.83	1.94±0.63	0.07

\*  $p < 0.05$  considered significant. A: Data are presented as Mean±SD. Based on paired *t*-test. SD=Standard deviation

**Table 2: Comparison of mental and physical signs mean difference before and after intervention between groups**

Variables	Mean±SD			P
	Aromatherapy massage	Massage therapy	Control	
Mental sign	6.66±1.67	2.62±0.93	0.05±0.09	<0.001
Physical sign	1.14±0.62	0.54±0.43	0.54±0.43	<0.001

Based on ANOVA test. SD=Standard deviation

studied aromatherapy massage and both mental and physical symptoms. This study also showed that the severity of physical symptoms such as a headache, chest pain, bloating, and limb edema decreased more in the aromatherapy massage group than in the massage group and also the control group. Therefore, it would be considered more effective when the positive effects of aromatherapy are added to massage therapy. Since this research is the first study in the field of aromatherapy massage and its effects on PMS, and positive results have been obtained, further studies are recommended to confirm the findings.

## Conclusions

In general, the results show that geranium aromatherapy massage improves PMS physical and mental symptoms by increasing cerebral blood flow, improving depression and restoring metabolic balance. As PMS creates many limitations for women during the reproductive years, geranium aromatherapy massage is recommended for improving PMS symptoms as a complementary, low-cost and noninvasive treatment.

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## Conflicts of interest

There are no conflicts of interest.

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