

〈Regular Article〉

Influence of Counseling Intervention on the Stress-Reducing Effect of Bergamot Oil and on the Concentration-Improving Effect of Rosemary Oil in Aromatherapy

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Abstract

There is growing evidence that aromatherapy can improve patients' stress and refreshment levels. Also, an explanation to patients of the anticipated pharmacological effects of drugs may serve to improve compliance and to enhance subjective treatment benefit. Here, we aimed to examine the effectiveness of counseling as a means of improving the stress-reducing efficacy of bergamot oil and the concentration-improving effect of rosemary oil in 23 healthy young women. Efficacy was evaluated by using a self-reported questionnaire and multi-dimensional fatigue inventory-20 (MFI-20) as subjective indicators, together with near-infrared spectroscopy (NIRS)-evaluated blood flow in the inferior frontal cortex and amylase concentration in saliva as objective indicators. Counseling combined with bergamot aromatherapy significantly improved physical fatigue and mental fatigue and also improved sleepiness, concentration, and activity ($p < 0.01$, $p < 0.05$). Counseling combined with rosemary aromatherapy significantly improved motivation ($p < 0.05$). Regional blood flow in the inferior frontal cortex was decreased totally. Especially partial right field of the prefrontal cortex area was decreased significantly by exposure to bergamot oil with counseling. By contrast, rosemary oil with counseling was decreased significantly in partial left of the prefrontal cortex area. Interestingly, we found that levels of salivary amylase (a sensitive biological marker of stress) were increased by counseling in subjects with low scores for resilience (capacity of individuals to resist stress). This finding may indicate that counseling was stressful to these subjects. Overall, our results indicate that counseling intervention increased the effectiveness of aromatherapy. Focused counseling taking account of behavioral differences between individuals may be a promising strategy to maximize patients' benefit.

Key words: aromatherapy, clinical study, influence of counseling, blood flow in interior frontal cortex, resilience.