

Sigma's 30th International Nursing Research Congress

Influence of Scent and Music on Concentration

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Essential oils have been widely applied for a variety of purposes of getting relaxation or comfort, or of antimicrobial effect. Some essential oils have the effect of refreshing or increased concentration^{1,2}. I reported that the concentration increased by smelling the scent of peppermint in this Congress last year using the Psychomotor Vigilance Test (PVT), which is a widely used to objectively measure the continuousness of attentiveness and the degree of drowsiness in the field of hypnology³⁻⁶. On the other hand, there are many reports that listening to the Mozart increased IQ scores⁷, improved work efficiency⁸, or activated neuronal cortical circuits⁹, so called Mozart effect. This study was designed to clarify whether listening to the favorite music has the effect of enhancing the concentration.

Fifteen females participated in this study (21.4 ± 0.8 yrs.). PVT was applied to the participants for 10 minutes in the room with the fragrance of peppermint oil, with listening to their favorite music (music), or with neither the odor nor the music (control). These experiments were performed in different room and the order of measurement was at random. In music, the participants were asked to bring their favorite music and listened to it via earphone continuously for 10 minutes during PVT. Some drops of peppermint oils were dripped on the thick filter paper in the diffuser and the oil was warmed by a miniature bulb from the bottom of the filter paper. The fragrance of peppermint was allowed to fill the room 10 minutes before the start of the measurement. The participants were asked to press a response button, located on the right side of the device, as soon as the visual stimuli appeared at random from 2 to 10 sec interval. Visual Analogue Scale (VAS) was also used for subjective sensation (0, no concentrate at all; 100, concentrate very much). Reaction time (RT) to visual stimulation was measured for evaluation of concentration using PVT. The significance of difference among groups was evaluated by applying the Wilcoxon rank sum and were considered significant at $p < 0.05$. This study was submitted to and approved by Ethics Committee of Ehime University Graduate School of Medicine under protocol no.28-12.

Mean of RT was 258.2 ± 35.6 msec in control, 242.0 ± 32.8 msec in peppermint oil, or 256.5 ± 34.1 msec in music, and the mean RT of peppermint oil was significantly smaller than other groups. Subjective sensation by VAS showed 67.9 ± 21.8 in peppermint oil, 50.1 ± 20.0 in music, and 44.5 ± 18.8 in control. There was a significant difference between peppermint oil and music or control. There was no significant correlation between RT and subjective sensation. Namely, there were some participants who reacted to visual stimulation quickly in PVT, although did not feel to concentrate at all under the scent of peppermint. Furthermore, there were no differences in "Lapse" which means more than 500 msec of reaction time, among three groups.

These results indicate that the concentration must increase by smelling the fragrance of peppermint oil but not listening to the music. Since all music used in this study were the music each subject selected their own favorite one, it seems that concentration might center on that music. Therefore, it may be worth trying other music, such as Mozart. Many nurses working in the hospital have to work at night. When nurses work at night and get tired, the scent of peppermint may be effective for improved attention in nursing practice.

Title:

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References:

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Abstract Summary:

This study is designed to investigate whether the concentration increase with music or scent. The results showed concentration increase by smelling the scent of peppermint, not listening to music. When nurses work at night and get tired, the scent of peppermint may be effective for improved attention in nursing practice.

Content Outline:**I. Introduction**

Some essential oils have effects to increase concentration. On the other hand, it has been known to improve work efficiency by increasing concentration.

This study was performed to clarify whether listening to the favorite music has the effect of enhancing the concentration in 15 female subjects.

II. Body

Concentration or subjective sensation was evaluated by using Psychomotor Vigilance Test (PVT) for 10 minutes or Visual Analogue Scale (VAS), respectively.

Mean reaction time in smelling the fragrance of peppermint oil was the smallest than listening to the music or control with neither the odor nor music.

VAS showed the same results as that of PVT.

III. Conclusion

The concentration must increase by smelling the fragrance of peppermint oil but not listening to the music.

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Author Summary: I am teaching the subject of anatomy and physiology in school of nursing at Ehime University. My special is to investigate the effect of nursing care on human body by measuring autonomic nervous function. Furthermore, I interested in complementary alternative therapy including aromatherapy or music and so on.