Research on individual differences of comfortable effects of human back pressure massage

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Abstract: According to the individual differences of massage chair users in three aspects (basic physiological characteristics, differences in back size, muscle fatigue characteristics), this paper conducted experiments to test the body surface electromyography (sEMG), event related potentials (ERP) and massage comfort subjective feelings before, during and after massage. It studied the significant impact of individual differences on massage effects by the method of single factor analysis of variance, and established the relationship between the different individual characteristics and massage effects. Based on the typical individual characteristics, it focused on the relationship between muscle fatigue characteristics and massage effect, established an model of the relationship among external stimulus massage—body parts physiological characteristics—ERP—overall comfort feeling. It revealed the mainly impact factor and the law of back massage effects and subjective comfort degree.

The results of research were as follows:
(1) Effects of muscle fatigue characteristics on human back pressure massage were the most significant, however, the effects of the basic physiological characteristics and difference in back size were not obvious.
(2) External massage stimulation could improve the fatigue of the back muscles to a certain extent.
(3) Back pressure massage could effectively reduce the human subjective fatigue and bring better overall comfort.
(4) Back pressure massage can lead to stable exogenous ERP components, which showed individual high stability. The ERP components were significantly affected by the intensity, frequency of the massage stimulation.

Keywords: human back pressure massage; muscle fatigue characteristics; sEMG; ERP; subjective comfort degree; massage effects
References:


