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Title:

Physical and Psychological Effects of the Relax Chair in Young Adults

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ACCEPTED

Session Title:

Research Poster Session 1 (Saturday/Sunday, 16 & 17 November)

Slot:

RSC PST1: Sunday, 17 November 2019: 11:45 AM-12:15 PM

Abstract Describes:

Ongoing Work/Project

Applicable Category:

Researchers

Keywords:

emotion, intervention and modulation

References:

1. Zemp, R., Taylor, W.R., Lorenzetti, S. (2016), Seat pan and backrest pressure distribution while sitting in office chairs. *Appl Ergon.* 53 Pt A:1-9. doi: 10.1016/j.apergo.2015.08.004.

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3. Singh, R., Carranza, Leon, D.A., Morrow, M.M., Vos-Draper, T.L., Mc Gree, M.E., Weaver, A.L., Woolley, S.M., Hallbeck, S., Gebhart, J.B. (2016), Effect of chair types on work-related musculoskeletal discomfort during vaginal surgery. *Am J Obstet Gynecol.* 215(5): 648.e1-648.e9. doi: 10.1016/j.ajog.2016.06.016.

4. Snyder, M., Tseng, Y., Brandt, C., Croghan, C., Hanson, S., Constantine, R., Kirby, L.(2001), A glider swing intervention for people with dementia. *Geriatr Nurs*, 22(2):86-90.

5. van Vledder, N., Louw, Q. (2015), The effect of a workstation chair and computer screen height adjustment on neck and upper back musculoskeletal pain and sitting comfort in office workers. *S Afr J Physiother*. 71(1):279. doi: 10.4102/sajp.v71i1.279.

6. Watson, N. M., Wells, T. J., & Cox, C. (1998). Rocking chair therapy for dementia patients: Its effect on psychosocial well-being and balance. *Am J Alzheimers Dis Other Demen*, 13(6), 296-308.

Abstract Summary:

The study aimed to examine the physiological and psychological effects of the relax chair in healthy young adults. Accordingly, our results indicate that the relax chair could have possible implications for individuals with mood disorder or behavioral and psychological symptoms of dementia.

Content Outline:

Purpose

This study aimed to verify whether the physiological and psychological effects of the relax chair in healthy male adults.

Methods

This study performed a randomized control trial with a cross-over design, to elucidate the effects of the relax chair. The relax chair is manufactured by the company, Proassist. Ltd. in Japan, and has multiple functions of slow swaying, music for healing and imperceptible vibration. The relax chair is specially designed for the user to feel comfort, but evidence for the relief mechanisms have been not proven in human studies. Therefore, we compared sitting in the relax chair with sitting in a normal chair as a control.

Results

Immune-globulin A in saliva significantly increased after sitting in the relax chair ($p=0.008$), revealing that acute physiological stress could be inhibited by of sitting the relax chair. CgA was not significantly different after sitting in the relax chair. Neither CgA nor IgA were significantly different after sitting in the control chair. Each subscale score of Tension-Anxiety ($p=0.002$), Fatigue-Inertia ($p=0.03$), Confusion-Bewilderment ($p=0.004$) and total mood disturbance ($p=0.004$) significantly decreased after sitting in the

relax chair. In contrast, the Vigor-Activity ($p=0.045$) subscale significantly decreased after sitting in the control chair, revealing that positive emotion state was inhibited by sitting in the control chair. The VAS score for comfort significantly increased after sitting in the relax chair ($p<0.001$), whereas no significant difference was observed with the control chair. Moreover, both state ($p=0.001$) and trait ($p=0.004$) anxiety scores using the STAI significantly decreased after sitting in the relax chair. Conversely, state and trait anxiety scores were not significantly different after sitting in the control chair. Therefore, a positive emotional response was induced by sitting in the relax chair and negative emotions were inhibited by sitting in the relax chair, although these mechanisms remain unclear.

Conclusion

These findings reveal that sitting in the relax chair for 20 minutes could temporary relieve not only physical stress, but also psychological stress. Therefore, the relax chair could have possible implications for individuals with mood disorder or behavioral and psychological symptoms of dementia.

Topic Selection:

Research Poster Session 1 (Saturday/Sunday, 16 & 17 November) (25745)

Abstract Text:

Background

The effects by rocking chair and the glider intervention has reported in human (Watson, N. M., Wells, T. J., & Cox, C. , 1998; Snyder, M., Tseng, Y., Brandt, C., Croghan, C., Hanson, S., Constantine, R., Kirby, L.2001). These interventions are very convenient and are employed as a relatively safe option for improvements of negative emotion and physical stress. In addition, nurses play an important role in positive regulating patients' emotional statuses in clinical setting. Although the researches about working environment of comfort/discomfort of office chair have been performed frequently (Singh, R., Carranza, Leon, D.A., Morrow, M.M., Vos-Draper, T.L., Mc Gree, M.E., Weaver, A.L., Woolley, S.M., Hallbeck, S., Gebhart, J.B., 2016; Zemp, R., Taylor, W.R., Lorenzetti, S., 2016; van Vledder, N., Louw, Q., 2015; Zemp, R., Taylor, W.R., Lorenzetti, S., 2015), the physical and psychological effectiveness by sitting on the rocking chair or the relax chair is less well-studied in adults. That is, conclusive study on the intervention effects for sitting-induced comfort is sparse. Therefore, we aimed to examine the physiological and psychological effects of the relax chair.

Study Aim

The aim of this study was to examine the physiological and psychological effects of the relax chair in healthy young adults. We compared sitting in the relax chair with sitting in a normal chair (control).

Methods

The relax chair is manufactured by the company, Proassist. Ltd. in Japan, and has multiple functions of slow swaying, music for healing and imperceptible vibration. The relax chair is specially designed for the user to feel comfort, but evidence for the relief mechanisms have been not proven in human studies. Therefore, we conducted a randomized control trial with a cross-over design to elucidate the effects of the relax chair. The study was conducted in an experimental room maintained at a temperature and

humidity of 26.8±2.7°C and 28.3±3.5%, respectively. The subjects were 20 young male subjects aged 21.25±0.7 years. The subjects sat in each chair for 20 minutes during the experiment. The relaxation efficacy was evaluated by measuring chromogranin A (CgA) and immune-globulin A in saliva as indicators of acute stress, comfort was evaluated with a visual analogue scale (VAS), anxiety was evaluated with the State-Trait Anxiety Inventory-Form (STAI), and emotions were evaluated with the Profile of Mood States 2 (POMS 2). Sampling data were collected before and after sitting in each of the chairs and then compared. The study protocol was approved by the ethics committee of the Institutional Review Board, Kansai University of Social Welfare in Japan. The subjects provided written informed consent to participate after receiving an explanation of the purpose and procedures of the study, which was a joint research project between Kansai University of Social Welfare and The Proassist Company.

Statistical Analysis

All data are expressed as mean ± standard deviation of the mean. The statistical analyses were carried out using the paired-*t* test. The criterion for statistical significance was $p<0.05$.

Results

Results showed that immune-globulin A significantly increased after sitting in the relax chair ($p=0.008$), revealing that acute physiological stress could be inhibited by the relax chair. CgA was not significantly different after sitting in the relax chair. Neither CgA nor IgA were significantly different after sitting in the control chair. Each subscale score of Tension-Anxiety ($p=0.002$), Fatigue-Inertia ($p=0.03$), Confusion-Bewilderment ($p=0.004$) and total mood disturbance ($p=0.004$) significantly decreased after sitting in the relax chair. The other subscales were not significantly different after sitting in the relax chair. In contrast, the Vigor-Activity ($p=0.045$) subscale significantly decreased after sitting in the control chair. The other subscales showed no significant difference in the control condition. The VAS score for comfort significantly increased after sitting in the relax chair ($p<0.001$), whereas no significant difference was observed with the control chair. Moreover, both state ($p=0.001$) and trait ($p=0.004$) anxiety scores using the STAI significantly decreased after sitting in the relax chair. Conversely, state and trait anxiety scores were not significantly different after sitting in the control chair. Therefore, a positive emotional response was induced by sitting in the relax chair and negative emotions were inhibited by sitting in the relax chair, although these mechanisms remain unclear.

Conclusion

Acute physiological stress based on IgA in saliva was significantly inhibited after sitting in the relax chair for 20 minutes. Additionally, positive emotions were induced by sitting in the relax chair. Furthermore, sitting in the relax chair inhibited the expression of negative emotions. These findings reveal that sitting in the relax chair could temporary relieve not only physical stress, but also psychological stress such as anxiety and fatigue in healthy adults. The relax chair could have possible implications for individuals with mood disorder or behavioral and psychological symptoms of dementia since sitting in the relax chair for 20 minutes is very brief and easy intervention.