

27th ECSS Anniversary Congress, 30.08 – 02.09.2022

Development of a system aimed at improving motivation for squat training

Inoue, Y., Tomonari, H., Yasutome, S.

Osaka Institute of Technology

Introduction

In recent years, people have begun to exercise for their health. However, many people find it difficult to exercise continuously and often drop out of training before realizing the benefits of exercise. In this study, we considered that a more enjoyable and motivating training system would increase the enjoyment of exercise and lead to continued exercise. Therefore, we developed a system that makes people perform squats by presenting visual and auditory feedback. In addition, as a new approach, we attempted to use real-time recognition of the participants' facial expression to evaluate the enjoyment of exercise.

Methods

In order to compare the effect of the contents on the participants, four types of contents were created using Unity: the first one displays only text (text condition), the second one counts the number of squats with an avatar squatting with one participant (avatar condition), the third one displays the avatars cheer while dancing, and at four avatars appear every two seconds (cheering condition), and the fourth one presents an avatar lying down and simply watching over the participant (watching condition). The participants were 16 healthy male university students. They were asked to experience four contents in one day. The measurement items were electrocardiogram, 6 types of facial expression recognition, a questionnaire at the end of each content, and a final questionnaire after the completion of all the contents.

Results

The heart rates were 101-105 beats per minute during the content experience, about 10 beats higher than that at rest. In the facial expression recognition, neutral facial expressions were shown about 60% of the squatting time, and happy expressions were expressed about 20%. Negative emotions (anger, fear, sadness, and surprise) were about 20%. The results of the final questionnaire showed that the avatar condition and the cheering condition were more effective in enjoying exercise and increasing motivation. In the watching condition, many participants answered that their motivation did not improve much.

Discussion

The results of this study indicate that, for the purpose of exercise continuation, it is effective to have an avatar on the display that trains with the participants and cheers for the participants as a feedback display. Future prospects include increasing the number of movement patterns of the avatar and presenting instructions on effective squatting methods. We conclude that by conducting research with a wider range of participants, we can find a more effective feedback method that is appropriate for younger and older people.

References

Hirasawa, Y., Ishioka, T., Gotoda, N., Hirata, K., Akagi, R. (2019). LNCS 11570, 492-501.

Topic: Psychology

Presentation form: Poster

European Database of Sport Science (EDSS)

Supported by SporTools GmbH



21892