Researchers warn people with type 1 diabetes to use fitness video games with caution

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The authors of a new study are warning people with type 1 diabetes to use fitness video games with caution.

The study by Staffordshire University and Federal University of Vale do Sao Francisco has found that 'exergames' can change people's perceptions of how fatigued they are—which is potentially harmful to those with the condition.

Dr. Pooya Soltani, Senior Lecturer in Games Technology at Staffordshire University, explained: "Type 1 diabetes patients need to control their blood glucose regularly, both before and after exercise, to prevent complications. As part of this, it is important to regulate the intensity of exercise, whether real or virtual.

"Most patients use a simple chart to measure how exerted they feel on a scale of 1—10, from hardly at all to using maximum effort. While this has proven to be effective for traditional exercise, we wanted to investigate whether this scale can also be used when exercising with video games."

The trial assessed correlations between physiological measurements of exercise intensity, including metabolic equivalent (MET), oxygen consumption, and heart rate in both real and virtual sessions.

Type 1 diabetes patients performed two 30-minute sessions of moderate-intensity exercise, either running or playing the Kinect *Adventures!* video game. A rate of perceived exertion (RPE) was measured on the 6—20 point Borg scale after the sessions.

The study's co-author Jorge Luiz de Brito Gomes, from the Federal University of Vale do Sao Francisco, said, "The RPE and MET values were strongly correlated in real exercise but were moderately correlated during the virtual exercise session. Other metabolic and physiological variables were mostly low and lacked statistical significance during the virtual exercise."

"This highlights that it is crucial to exercise caution when extending the use of the 6—20 point RPE scale to other types of exercise, especially virtual sessions, as they may not accurately reflect the physiological and metabolic intensity of the exercise."

The researchers recommend that older measurement tools, such as the 6—20 point RPE scale, should be adapted to newer types of virtual game platforms.

Dr. Soltani added, "Active video games and virtual reality are recent exercise trends that can provide motivation to participants and might increase their adherence to physical activity. Light to vigorous-intensity exergaming sessions may also benefit people with type 1 diabetes."

"But our research shows that the current 6—20 RPE scale needs to be updated so that everyone can safely benefit from using immersive games. In the meantime, health care professionals who want to incorporate virtual sessions with exergames into their practice should cautiously use methods like this, which subjectively measure physical activity."

The article, "Is rating of perceived exertion a valid method for monitoring exergaming intensity in type-1 diabetics?," is published in the *Journal of Bodywork and Movement Therapies*.

More information: Jorge Luiz de Brito Gomes et al, Is rating of perceived exertion a valid method for monitoring exergaming intensity in type-1 diabetics? A cross-sectional randomized trial, *Journal of Bodywork and Movement Therapies* (2023). DOI: 10.1016/j.jbmt.2023.05.018

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