Desktop vs. Headset: A Comparative Study of User Experience and Engagement for Flexibility Exercise in Virtual Reality

ABSTRACT

This study aimed to investigate the effectiveness of Virtual Reality (VR) technology for flexibility exercise and compare the physical outcomes, user experience, and engagement of VR desktops and VR headsets. The VR exercise application was designed using motion capture technology and exported to different VR devices. Each of the devices was used by 30 participants to perform a flexibility exercise in VR. Physical outcomes were measured using the sit-and-reach test, and user experience and engagement were evaluated using questionnaires and group discussions. The results showed that VR desktop participants had higher sit-and-reach scores. However, VR headset participants reported a more immersive experience (reality judgment) and motivation (value and usefulness). They also had higher engagement (focused attention and reward) levels than VR desktop participants. There were no significant differences between the two approaches in terms of enjoyment, effort, pressure, choice, correspondence, absorption, perceived usability, and aesthetic appeal. The study highlights the importance of considering physical outcomes, user experience, and engagement by comparing two different VR approaches for flexibility exercise. Further research is needed to explore the limitations and potential benefits of VR technology for physical activity.