

Altering Cue-Response Substance Use Behaviors and Enhancing Self-Efficacy Via a Kinect v2 Motion Control Game

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Relevance: Addiction is common and may be potentially responsive to a motion control game designed to enhance self-control over substance use. See www.TakeControlGame.com for details.

Introduction: With support from the NIH/National Institute on Drug Abuse (Grant #N44DA-13-4415) we are developing and evaluating a motion-controlled virtual reality (VR) game based on Kinect for Windows v2 for patients to develop power over substance-related cues. Cue-exposure therapy and extinguishing behaviors in a virtual environments have been shown to improve substance abuse treatment outcomes (e.g., Girard B, et al, *Cyberpsychol Behav.* 2009; Lee JH et al, *Cyberpsychol Behav.* 2007).

References

- 1) Girard B, Turcotte V, Bouchard S, Girard B. Crushing virtual cigarettes reduces tobacco addiction and treatment discontinuation. *Cyberpsychol Behav.* 2009. 5:477-483. PMID: 19817561. <http://www.ncbi.nlm.nih.gov/pubmed/19817561> .
- 2) Lee JH, Kwon H, Choi J, Yang BH. Cue-exposure therapy to decrease alcohol craving in virtual environment. *Cyberpsychol Behav.* 2007. 5:617-23. PMID: 17927528. <http://www.ncbi.nlm.nih.gov/pubmed/17927528> .

Methods: In the Take Control game patients in treatment for addiction act out crushing and rejecting behaviors in an environment (bar, alleyway, kitchen, etc.) of their choice and choose the substance to counteract. Reaching out and grabbing behaviors such as those related to seeking help and support are supported by the Kinect's recognition of hand grabbing actions (vs. pointing or punching).

The game, designed to used before or after an addiction treatment appointment, aims to transfer the skills and behaviors learned by playing this game into real-life action. We seek to improve treatment outcomes for addicted patients, including attitude, self-efficacy, and behavior related to substance use.

Results: In initial usability testing with patients in treatment for substance abuse, patients chose a background and then kicked, punched or otherwise thwarted virtual bottles of alcohol that were moving toward them. Participants response to the game was positive, indicating that the game was fun and engaging, understandable, and appropriate.

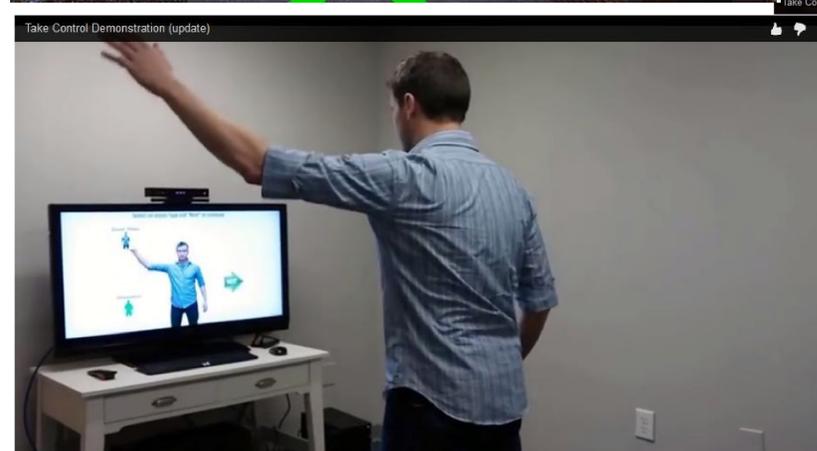
Acknowledgments/Disclosure

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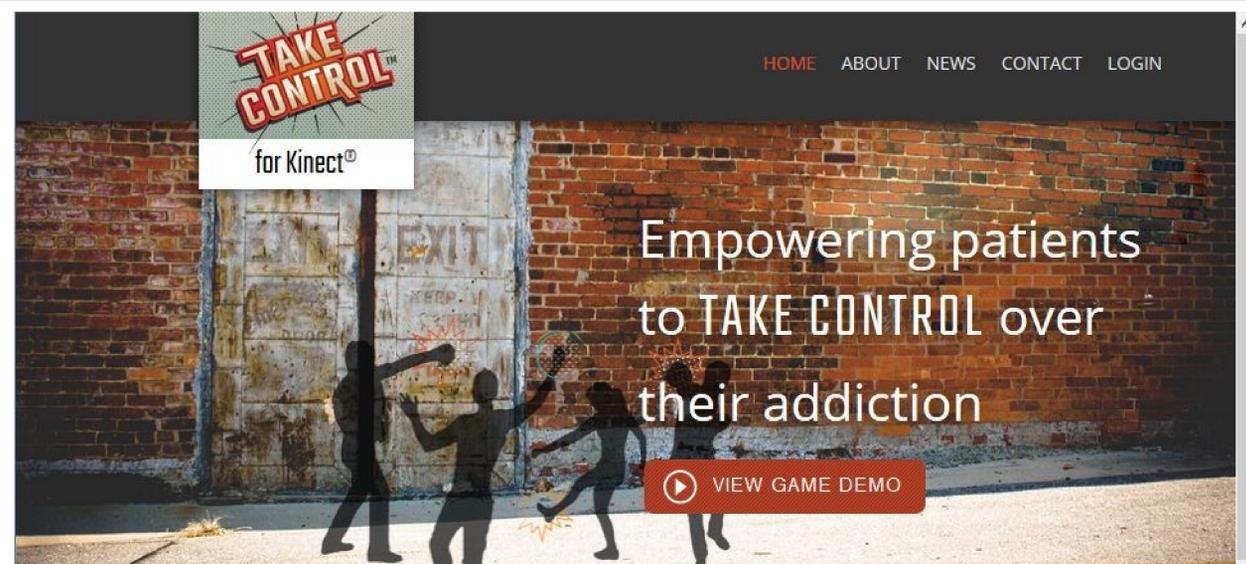
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Discussion: The release version will be integrated into an appointment/therapy session and used as a substance use treatment/recovery tool. During 2015 the game is being tested in multiple clinics via standardized instruments to assess effectiveness in improving treatment outcomes.



BRING TAKE CONTROL TO YOUR CLINIC

Join us as we assess this exciting new tool to aid addiction treatment. During the next phase of development we will send clinics the necessary hardware, software, and technical support required for patients to play the game. Clinics will need to provide a quiet and private space for patients to play the game. Our [interest form](#) includes full details about the evaluation of the game and the role of clinics