

## Virtual Reality and Interactive Gaming Technology for Obese and Diabetic Children: Is Military Medical Technology Applicable?

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### Abstract

The Telemedicine and Advanced Technology Research Center has pursued a number of technologies that may have application to the problems of obesity and diabetes management in children. Children are getting fatter because of increased caloric intake and less physical activity. Furthermore, technology advances have failed to significantly improve metabolic control of type 1 diabetes. Behavioral strategies should target video games, mobile phones, and other popular items used by children and seen by them as necessities. Exergaming is considerably more active than traditional video gaming and can be equivalent to moderate-intensity exercise. Diabetes equipment such as continuous glucose monitors and insulin pumps lack integration and live connectivity and suffer from a poor user interface. In contrast, mobile phones offer wireless connectivity, an excellent voice-enabled interface, and cloud connectivity that could possibly serve as a motivational and compliance tool for diabetes patients through text messaging to the patient, parents, and physician. Mobile phones have the potential to motivate and educate obese children as well. Exergaming for obese children could also be integrated into award systems of game consoles and game play time. The key to successful implementation of these strategies depends on the ability to integrate and connect the various technologies.

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**Abbreviations:** (A1C) hemoglobin A1c, (DDR) Dance Dance Revolution, (MMORPG) massive multiplayer online role playing game, (TATRC) Telemedicine and Advanced Technology Research Center, (VR) virtual reality

**Keywords:** blood glucose monitoring, exergaming, military health care, military readiness, pediatric diabetes, pediatric obesity, videogames, virtual environment, virtual reality

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