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Technology as a Means for Therapeutic Modalities

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Technology is being used more and more in professional settings across the globe. One might assume that the only technologies being used professionally are things like computers, the internet, or electronic readers; however, technologies like the Nintendo Wii and Apple iPad are being utilized as well. Occupational Therapists are starting to use the latter two devices as therapeutic modalities while treating patients. The American Occupational Therapy Association defines an Occupational Therapist as someone who "helps people across the lifespan participate in the things they want and need to do through the therapeutic use of everyday activities (occupations). Common occupational therapy interventions include helping children disabilities to participate fully in school and social situations, injury rehabilitation, and providing supports for older adults experiencing physical and cognitive changes" (What is Occupational Therapy?). More and more occupational therapists are using the Nintendo Wii and iPad with people of all ages and varying disabilities in order to enhance their therapy experience. The Wii can be used for bilateral work by integrating both sides of the body as well as helping with hand/eye coordination and other visual skills. This form of virtual reality can also be used to improve balance. The iPad is often used to enhance visual tasks, handwriting, and cognitive skills regarding choice making and problem solving. Occupational Therapists’ use of the Wii and the iPad is a great example of how professionals are incorporating new technologies into their specific niches of work in order to benefit themselves and others.

Many occupational therapists who work with children are starting to incorporate technologies to keep the patients interested and to utilize applications to promote better health and lifestyle techniques. Early intervention services are provided to infants, toddlers, and their families in order to promote function and encouragement in daily habits and routines (What is Occupational Therapy?). New technologies, like the iPad and the Wii, are being integrated into early intervention services to support the progress the occupational therapists make with the patients and their families. Most people in the modern world have access to technologies with applications to help assist occupational therapy techniques, so parents are able to continue therapy techniques with their children while the therapist is not present.

The iPad and similar tablets have many applications that can help children with limitations participate as fully as possible in typical daily activities. An article discussing the many benefits of iPad applications in a school based setting states, “The iPad, along with various applications, has been and continues to be used as an intervention method to help individuals who have deficits and/or limitations in communication, handwriting, motor schools (both fine- and gross-motor), coordination, visual perception, cognition, activities of daily living, and to improve participation in academics” (Bouvat). Many children that require occupational therapy have trouble with time management and transitioning from one activity to the next. The therapist will work with the child and family to come up with strategies to help ease the tensions when it is time to change activities to make the family’s days run smoother. This is an excellent place to incorporate technology into therapy. There is an iPad application called Choiceworks that helps children with their switches between undertakings. It allows children to select pictures to make a schedule so that they can plan what they want to do during their free time. The timer goes off when it is time to go to the next activity, when when the free time is over. This allows the child to feel in control and have a tangible way to manage time. The therapists or guardians can gradually increase the time before the timer goes off on each activity so that the child can slowly learn to be engaged in a particular activity for a longer period of time (More). Choiceworks is an excellent way to translate occupational therapy over to daily life when the therapist is not present and to allow the child to feel like they have power over their decisions.

Fine motor skills are another major focus of pediatric occupational therapists. Therapists work with clients to build up their hand strength in order to improve their abilities to perform fine motor activities such as holding pencils and scissors properly. Children progress through writing development stages as they age, starting with scribble writing, then moving on to symbols, and then to letters. From there, children learn to put letters together to form words, and later on form sentences. There are many iPad applications that help foster development in motor, cognitive, and communication skills in order to help with these developments, especially when children are having trouble. First, an app called Dexteria can be used to help develop young-children’s fine motor skills and handwriting readiness. Children can trace objects, pinch at animated critters crawling across the screen, and tap buttons. Multi-user tracking is also available so therapists are able to keep track of the progress of each of their clients using this application. Once the children have started to work on their fine motor skills, an app called LetterSchool can help teach letter formation with animations. On this application, children can practice tracing letters A-Z and numbers 1-10 and also engage in games incorporating these letters and numbers to keep them interested in learning. Occupational therapists can use an additional application called Talking ABC to help teach children the alphabet letters through animals (Gerde). Another great feature about these applications is that parents are able to download them and work on them with their children when the therapist is not present as to reinforce what the therapist has been working on with the child.

The Nintendo Wii also has great benefits when it comes to occupational therapy techniques with children. The Wii creates a kind of virtual reality for its users that has proven to be an extraordinarily beneficial therapeutic tool. Therapists treating children with Hemiplegic Cerebral Palsy (HCP) have found that there have been great effects of using the virtual reality-based bilateral arm training to improve these children’s’ upper limb motor skills. HCP is a neurological symptom that appears on only one side of the body in both the leg and arm, causing muscle weakness. Due to the abnormal muscle tone that comes along with this, children with HCP have difficulties in body coordination postural control. A recent study has shown that after twelve 30 minutes of Wii bilateral arm training, children with HCP had major improvements in upper limb motor skills and bilateral coordination ability when compared to the baseline (Ji-Hye).

Other major areas of specialty for occupational therapists are geriatrics and with adults rehabbing from things like falls and strokes. Occupational therapists are integrating technology into their therapeutic techniques not only with children, but with these groups of people as well. The Wii especially has proven to be extremely helpful with bilateral work and improving balance. These skills are especially helpful for the elderly to avoid falls, and for stroke patients to recover.

In the elderly population, balance has proven to be a huge problem. More than one third of adults 65 and older fall per year, and “every 18 seconds, an older adult is treated in an emergency room secondary to a fall, and every 35 minutes, an older adult dies as a result of injury from a fall” (Williams). Because of this, occupational therapists are often involved in the lives of the elderly to try to help combat such balance issues. Recently, many occupational therapists have been incorporating a virtual reality through the use of the Nintendo Wii application Wii Fit, which uses a balance board, into their therapy techniques. This adds a fun element of interactive gaming to balance exercises that can be otherwise tedious. A study was recently conducted on balance at a community living facility for older adults. For 4 weeks, the subjects participated in three 20-minute sessions of Wii Fit activities each week. These activities involved Wii Fit balance and aerobic activities. At the end of the four weeks, the post-test balance scores were statistically significantly higher than the pre-test balance scores, thus indicating that the Nintendo Wii is a good therapeutic tool for improving balance (Williams). Balance is a major factor in predicting falls, so by improving the balance of people in this older population, their risk of falling will be lessened.

Another time occupational therapists utilize the Nintendo Wii is when they are treating stroke patients. After suffering a stroke, many people have balance issues upon standing and walking because they tend to put more weight on their non-paralyzed leg to increase the swing of the upper body to move them along. In addition, the loss of muscle strength and balance that comes along with having a stroke leads to falling. Previously, occupational therapists primarily used treadmills to improve strength and balance for these patients. Nowadays, occupational therapists are incorporating the Nintendo Wii to develop muscular strength and regulate balance. The virtual reality of the Wii allows stroke patients to feel as in touch with reality as possible by giving them visual feedback from their movement. In a recent study, researchers divided stroke patients into two groups, one who will perform exercises on a treadmill and one who will perform virtual reality exercises through the use of the Wii. At the end of the eight weeks of training, the treadmill group had significant differences in balancing ability, while those who were in the Wii group had significant differences in both balance and walking ability (Bang). The Nintendo Wii produced better results than the treadmill because “Virtual reality training providing visual feedback may enable stroke patients to directly adjust their incorrect weight center and shift visually. Virtual reality may be appropriate for patients who need improved balance and walking ability by inducing their interest for them to perform planned exercises on a consistent basis” (Bang). With this knowledge, occupational therapists have gone ahead and used the Wii as a helpful therapeutic tool.

The Nintendo Wii and Apple iPad are two excellent examples of technologies that occupational therapists can use as therapeutic modalities to help better the treatment they give their patients. There are an endless amount of applications on each of these devices that can help aid in treating the symptoms a variety of different disorders, disabilities, and injuries. As technological advancements continue to be made, occupational therapists must continue to evolve and learn about the new ways they can use the technologies as therapy tools. These technologies coupled with the fundamental therapy treatments occupational therapists use will continue to improve the life and wellbeing of individuals who require occupational therapy.

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