The Hug Machine- Deep Pressure Stimulation
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This paper describes some of the symptoms that those with autism exhibit, as well as some causes of the stressors those with autism experience to bring on their symptoms. The paper also discusses an invention by a person with autism called the Hug Machine, that helps those with autism deal with the effects of those stressors.

Autism affects approximately 1 in 110 children in the United States and millions worldwide. Autism is part of a group of disorders known as Autism Spectrum Disorders (ASD) and is characterized by intellectual disabilities, poor communication skills and social behaviors, and sometimes repetitive behaviors. Not all of these symptoms have to be present however; some children can excel at school subjects but have impaired social interaction skills. These symptoms show up differently in every individual. Also, children with Autism are more susceptible to stress and anxiety. The root cause of this stress can be from an infinite number of environmental stressors, but the most common are changes in a routine and transitions between activities and/or places. These stressors are the driving force behind the invention of “The Hug Machine”.

The Hug Machine, which utilizes deep pressure stimulation as a source of relaxation for people with autism, was invented by Temple Grandin in 1965. Temple was an adult with Autism who had severe anxiety and realized that many times she had a desire to be held, or hugged, in order to obtain that deep pressure feeling which relieved her anxiety. Most of the time, these hugs would end up over stimulating her because of either too much or too little pressure being administered which then caused the opposite effect of that she was seeking. It was not until she observed cattle being branded in a squeeze chute and noticed that when the cattle were placed in the squeeze chute they immediately calmed down when pressure was applied. After seeing this, she thought that since the deep pressure seemed to have an overall calming effect on the cattle that maybe it could help calm her overstimulated nerves. Observing this is what gave her the idea for The Hug Machine.

The Hug Machine, as I mentioned previously, uses deep pressure in order to relax individuals with autism. The Hug Machine is made out of pieces of plywood with thick, soft padding in the shape of a V and a control unit to control the pressure. There is also an air compressor that the control leads to, which directly controls the administered pressure. A picture is shown to the left.

As you might imagine, this design is pretty big and too costly, which makes it impractical for in home use. This is the issue that Biomedical Engineering students from Carnegie Mellon University in Pennsylvania targeted when trying to recreate the Hug Machine and make it more practical for in home use. The hope for their project was to make this device more affordable for parents and also easier to put together so parents and clinics could easily put them together. Their improved device consisted of a twin bed air mattress with a built in remote control fan inflator and an adjustable and collapsible plywood frame. Like its previous design, the user can still control the amount of applied pressure with the remote control device. This design won first place in a national student design competition in 2007.

By designing it with simple materials, they made the device much more practical in a social context as far as affordability and assembly. As mentioned before, this machine works so well because the user can control the amount of pressure being applied. In contrast to regular hugs, which can sometimes have the opposite of the desired effect if too much or too little pressure is being applied, this device allows for equal pressure being applied to the lateral surfaces of the body to literally squeeze the stress out of the patient. This device has been proven to be a very effective therapy for people with autism in coping with the many stressors they are faced with in the world.

Citations