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Rewired for Life

Deep Brain Stimulation Gives Life Back to Teen Boy

Nineteen-year-old Jacob Bayne was unable to walk for six years, immobile for 10 years. His sense of normalcy depended on others; friends carried him into movie theaters and malls; his family helped him attend school. And at its worst, Bayne's disorder was completely debilitating, until he underwent deep brain stimulation (DBS) at Barrow Neurological Institute at St. Joseph's Hospital and Medical Center.

Bayne was diagnosed with dystonia at age nine. A neurological movement disorder that causes muscles to severely contract and twist resulting in abnormal postures, dystonia left Bayne bedridden and unable to live a normal teenage life.

"We couldn't wait any longer for Jacob to get better," says Danielle Shenker, Bayne's mother. "We knew there wouldn't be a medical breakthrough to cure his disease; we knew DBS was our best shot."

In 2009, Bayne was "rewired" through DBS, an FDA-approved surgery to help reduce the symptoms of movement disorders such as primary dystonia and Parkinson's disease. With DBS, steady pulses of low-voltage electricity are delivered to the brain via neurotransmitter that resembles a heart pacemaker and is the size of a stopwatch. It's believed that the electrical pulses block the abnormal firing of neurons. One battery pack is now buried in Bayne's chest area and hidden wires snake up the side of his neck and behind his ears to the DBS electrodes located deep in his brain.

The dramatic results of the procedure, according to Guillermo Moguel-Cobos, MD, significantly reduced Bayne's symptoms until they are almost nonexistent.

"The outcome of Bayne's DBS is amazing," says Dr. Moguel-Cobos. "On average, it's well-documented that symptoms improve in primary dystonia patients by 50 to 70 percent with DBS and in Bayne's case, he's above that percentage. His quality of life has improved tremendously."

Since DBS, Bayne has done what his mother thought was unattainable – graduate from high school and even attend his high school prom.

"It's like the biggest pot of gold at the end of the rainbow," says Shenker. And Bayne agrees, "I hope one day to go to college, but for now I'm going to live life for the first time. I have a lot to discover."

— Barrow —