

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TOPIC: PERSONALIZED CMT BRACES MAKE JULIE STRONGER!
REPORT: MB #4849

CHARCOT-MARIE TOOTH DISEASE (CMT): Charcot-Marie-Tooth disease is an inherited disorder that causes nerve damage. The damage is mostly in the arms and legs. Charcot-Marie-Tooth disease is also called hereditary motor and sensory neuropathy. It results in smaller, weaker muscles and you may experience loss of sensation, muscle contractions, and difficulty walking. Foot deformities such as hammertoes and high arches also are common. Symptoms usually begin in the feet and legs but may eventually affect the hands and arms. The symptoms of Charcot-Marie-Tooth disease typically appear in adolescence or early adulthood but may also develop in midlife. It occurs when there are mutations in the genes that affect the nerves in your feet, legs, hands, and arms and sometimes, they damage the nerves. Other mutations damage the protective coating that surrounds the nerve. Both cause weaker messages to travel between your extremities and brain which means some of the muscles in your feet may not receive your brain's signal to contract, so you are more likely to trip and fall. Your brain may also not receive pain messages from your feet.

(Source: <https://www.mayoclinic.org/diseases-conditions/charcot-marie-tooth-disease/symptoms-causes/syc-20350517>)

DIAGNOSING CMT: Your doctor may check for signs of muscle weakness in your arms, legs, hands, and feet, decreased muscle bulk in your lower legs that results in an inverted champagne bottle appearance, reduced reflexes, sensory loss in your feet and hands, foot deformities and other orthopedic problems. Your doctor may also recommend tests including nerve conduction studies which measure the strength and speed of electrical signals transmitted through your nerves, an electromyography (EMG) that will allow your doctor to determine the distribution of the disease by testing different muscles, a nerve biopsy where a small piece of peripheral nerve is taken from your calf and a laboratory analysis distinguishing Charcot-Marie-Tooth disease from other nerve disorders.

(Source: <https://www.mayoclinic.org/diseases-conditions/charcot-marie-tooth-disease/diagnosis-treatment/drc-20350522>)

ANKLE, FOOT ORTHOSES (AFO'S) HELPING CMT PATIENTS: The use of ankle and foot orthoses such as braces, or other special devices to correct alignment or provide support can help improve the gait and balance of patients with Charcot-Marie-Tooth disease. Eric Weber, National Orthotics Specialist with the Hanger Clinic states, "AFO or ankle, foot orthoses, are specifically designed to assist or prohibit specific movements from the middle of the calf all the way through the foot, specifically with CMT. It is goal and task oriented and tailored to the patient. Specifically, the AFO is trying to prevent a weak foot from dragging on the ground. Further, it assists with standing balance and prevention of falls while standing. Also, it assists in correcting certain alignments and preventing maligned joints from forming. There is research now and medicine surrounding CMT, but in the current environment there is not any great pharmaceutical option. The treatments tend to be in the therapeutic rehab and orthotic world. So, the ability to communicate needs and respond accordingly from both the patient and orthotist is key."

(Sources: <https://charcot-marie-toothnews.com/2018/08/10/orthoses-linked-improved-gait-balance-cmt-patients-review0study/>)

FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com.