Utilizing Dynamic Bracing Orthosis in Forward Head Posture Rehabilitation

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Forward Head Posture (FHP) is a disorder in which the head is protracted in front of the body causing a misalignment of the spine. It is a common postural issue occurring between 66%-90% of the world's population. Patients who suffer from FHP often develop neck pain. Sufferers may also experience pain in the back, spine and shoulders. As the condition worsens, the neck protrudes forward causing a greater deviation of the spine. The additional force placed on the neck may result in nerve and spine damage, compacted vertebral discs, weakened lung capacity and kyphosis. With no conventional braces designed to address the specific needs of Forward Head Posture patients, previous experimentation and fabrication has proven that a design is attainable. The previous Pulley System Design (Prototype #2), was completely redesigned to provide a more comfortable experience in fixing a patient's posture. It was re-engineered into a new model that also functioned to realign the neck and spine. The improved prototype now implements a resistance variable and integrates moldable plastics, shapeable foam, and less rigid materials into a new streamline design. Testing and trials included two human participants. Subject #1 served as the experimental control, while Subject #2 wore the brace to examine the effectiveness of the new model. Results show a definite change and improvement of Subject 2's posture after wearing the brace. The latest prototype, paired with the daily exercise and stretch routine, supports this design as a new alternative solution for posture rehabilitation.

Awards Won: