

This research aims to explore the potential of tuned mass damping (TMD) for reducing supination-pronation tremors. TMD is a passive technique that involves a mass-spring-damper system to absorb and dissipate energy from vibrations. The device design includes magnets held by springs on both ends and covered by an aluminum plate, using Eddy current damping. The experimental setup involved connecting an arm to a servo motor to simulate tremors and analyzing the amplitude of arm vibration with and without the TMD device. Magnet mass and strength and spring elasticity were optimized to provide the most effective dampening to 4 Hz vibration of the forearm, the most common tremor frequency. The results showed an average of 35% reduction in tremor amplitude and more consistent oscillations compared to not using the TMD device. Although further testing is required to confirm the effectiveness of TMD, this research suggests a promising avenue for reducing tremor symptoms.