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### **Material nano-modified to orthosis manufacturing**

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The usage of orthosis on patients with motor and sensitive disorders is a standard procedure. The most common material used is a low temperature thermoplastic. The problem rises due to the remold process and its final cost. The aim of this study was to develop a new class of composite material nano-modified with graphite nanosheets to solve this problem. Stiffness were appraised by tensile test and compared to conventional thermoplastics (Ezeform®), one of the most widely used materials for orthosis manufacturing. Results show significant superiority ( $p < 0,05$ ) in mechanical properties of fiber reinforced composites with low loading of graphite nanosheets. By dispersing 3% by weight graphite in epoxy resin, there was a dramatic improvement in stiffness (11788 MPa) in comparison to conventional thermoplastic (671MPa). Beyond, the new composite costs are at least 60% less than conventional thermoplastics. This study showed that nano-modified composite should be an interesting and cheaper alternative to thermoplastic material for orthosis manufacturing in occupational therapy practice.