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SANDWICH COMPOSITE DEVELOPMENT FOR ORTHESES CONFECTION AND THE COMPOSITE ORTHESES' EFFECTS IN HAND FUNCTION AND IN FOREARM MUSCLES ACTIVATION

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Nowadays, the low temperature thermal deformation materials are part of the main group of material used in the fabrication of ortheses. In Brazil the availability of this material is very limited and there are no similar material in the country, made here. This study aims develop a low cost and high performance composite for ortheses confection, trial its mechanical characteristics while being used by the client, in specific tasks and evaluate the effect of the use of fist immobilization ortheses in hand function. A sandwich composite was developed for wrist ortheses manufacturing. Each volunteer participated was submitted to hand function evaluation (Jebsen-Taylor Hand Functional Test) without the ortheses and with the Composite and Ezeform ortheses. Results showed that Ezeform® ortheses showed higher deformation during tasks performance than the composite ortheses and composite elasticity pattern aim to a sufficient rigidity to bear the load applied in the ortheses during daily tasks performance. Beyond, ortheses use interference to function. With Ezeform® ortheses, the time necessary for all second tests performance was higher than with Composite Ortheses. Results for forearm extension and flexion muscles indicate that the use of any ortheses can interfere in this muscles activation in all second tests performed. Ezeform® ortheses and Composite ortheses increased flexion forearm muscles action and decreased extension forearm muscles action. It can be concluded that the Composite can be a material indicated to substitute Ezeform® in ortheses confection.