

# Experimental Study on the Process and Performance of Pre-dressing-assisted Laser Joining of Vascular Tissues

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## Abstract

Blood vessels are an important part of the human circulatory system [1-4]. In clinical surgery, the common method for treating ruptured blood vessels is suturing, but this method can cause inflammatory reactions [5-6]. With the popularization of lasers, they have been widely used in the medical field. However, due to the poor absorption of laser energy by tissues, the tensile strength of tissues after joining is low. To further improve the tensile strength after laser joining, this study analyzed the law of the effect of pre-dressing-assisted laser on the tensile strength and thermal denaturation of vascular tissues after joining with different components and concentrations by designing experiments. The experimental results showed that the tensile strength of the joined tissues could reach 50.978 KPa, and the degree of thermal denaturation was only 0.025, which is of great significance for the study of laser-joined vascular tissues.

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