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# Structural Testing of a Transtibial Socket Using Iso 10328 Standards: The Process

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### Abstract:

This study explains the process to perform the structural analyses of 3D printed trans tibial prosthetics using ISO 10328 standards. Currently with little development, these devices present many advantages compared to regular sockets. They are easily customizable for a patient needing modifications on his socket, cheaper and faster to produce. Therefore, they represent a great future alternative to already existing prosthetics in this biomechanical domain. This paper outlines all the steps required to conduct the structural analysis tests. Starting from how to obtain the 3D model of a socket and its design to the manufacturing of fixtures needed to secure the prosthetic inside a universal testing machine. Two tests will be performed in the "heel strike" position of the gait cycle including static proof test and ultimate strength test. By analyzing the socket's behavior to the loads imposed by the ISO 10328 standards, it will be possible to determine if the socket is suitable for usage.

## **Keywords:**

Socket, Prosthetics, Printing, Structural Analysis, Iso 10328.

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