THESIS ABSTRACT

DESIGN AND MANUFACTURE OF A TRANSFEMORAL PROSTHETIC SOCKET WITH SILICONE BRIM AND STUDYING ITS EFFECT ON PRESSURE RATES IN PROXIMAL WEIGHT BEARING AREAS IN COMPARISON WITH CONVENTIONAL SOCKET.

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ABSTRACT

INTRODUCTION
Amputation is loss of entire or a part of a limb through surgery that results from trauma, vascular diseases, congenital problems, tumors and etc.

MATERIAL AND METHODS
This study was a concept examination study. Four unilateral traumatic Trans femoral amputees participated in this study. Pressure in socket brim was measured and recorded using a device developed for this study consisted of force sensing resistors (FSRs) and a microcontroller board (Arduino Due). The pressure in socket brim was measured in for conditions with two types of socket: bipedal standing, unipedal standing (on prosthetic leg), walking while maximum pressure on heel sensor and walking while maximum pressure on metatarsal head sensor.

RESULTS
According to the measurement results, in comparison with non-silicone brim socket, socket with silicone brim decreased pressure on stump in all studied conditions and the subjects reported more comfort with it.

CITATION
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KEYWORDS
Prosthesis, Prosthetic suspension, Amputee, Amputation, Transfemoral prosthetic socket, Silicone brim socket, Pressure, Weight bearing areas.

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