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Technology**  
**College of Engineering**  
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**Lower Limbs Prosthetics Evaluation In  
Sudan**

Submitted in partial fulfillment of the requirement of B.sc  
(honor) degree in Biomedical engineering

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## **Abbreviations**

AKA	Above knee Amputation
BKA	Blow knee Amputation
TMA	Tran metatarsal Amputation
NAPO	National Association of Prosthetics and orthotics

## **Abstract**

Despite the progress and technological development and technical progress and the means of modern science, but the complications of diseases and conditions of the war and traffic accidents left disabilities stretched and affected families and the surrounding community for the disabled, prompting a scientific project of integrated services to provide medical services to the Sudanese people.

## **المستخلص:**

رغم التقدم والتطور التكنولوجي والتقني وتقدم وسائل العلم الحديث وإلا أن مضاعفات الامراض وظروف الحرب وحوادث المرور خلفت اعاقات امتدت وطالت الاسر والمجتمع المحيط بالمعاق مما استدعى قيام مشروع علمي متكامل لتطوير الخدمات الطبية لتقديم خدمات للشعب السوداني.

# **CHAPTER One**

# **Introduction**

## **1.1 General review**

Sources mention that the actual design of the prosthetic began in 1529 when he designed one of the surgeons forward industrial to help veterans who have lost some of their limbs during the wars, but the idea of using prostheses date back to the fifth century BC, when one prisoners of war to cut off his leg in order to escape from the chains prison, and then he saw people walking, was amazed and so when considering checked and found that he used a wooden party. Industrial parties began in Sudan after the Second World War and was manufacturing workshops are competent in the mechanical maintenance of existing industrial zone of Khartoum. The manufacturing is of local materials such as wood, iron, leather etc ....

These were the parties limited movement - somewhat - compared with the parties that are currently available, but it was that enables users of movement. Seem to be competent institution industry prosthetic limbs, a National Authority for the parties to engage in industrial action and so in 1964 and has been tracking the transfer of mechanical.

## **1.2 Problems statement:**

The deterioration in the Sudan in the field of prosthetics and many individuals with disabilities do not have artificial limbs and even the disabled who have prostheses are facing problem in use and maintenance. International used high-quality materials in the manufacture of artificial limbs such as propylene, In Sudan used plastic which is not the quality of the materials used globally.

## **1.3 Solutions:**

Must provide artificial limbs for the disabled and trained to use and provide maintenance centers.

Provide high quality materials as possible.

## **1.4 objectives:**

### **1.4.1 General objectives:**

- 1- General evaluation of Lower limbs prosthetics.
- 2- Improve and develop the industry of artificial limbs to reach the international standards.
- 3- Helping the Disabled.

### **1.4.2 Specific objectives:**

- 1- Link between biomedical engineering department and working in the field of prosthetics.
- 2- Applied science in the prosthetics.

## **1.5 Thesis layout:-**

Chapter ONE: determine the problems that facing the individuals with disabilities in Sudan.

Chapter two: view background of anatomy, amputation levels and types of prosthetics.

Chapter three: view Background study.

Chapter four: view the methods Followed in this research (visiting centers, questionnaire).

Chapter five: show the Discussion and Recommendation.

Chapter six: shown the References and Supplement.