SPECIMEN FORMAT FOR THESES OF MONTH

Faculty	:	Home Science
Department	:	Resource Management
Branch/ Area:	:	Ergonomics
Sub Subject Heading:	:	Prosthesis
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Title of the thesis	:	Accessibility & Adaptability of Lumb Prosthesis – Au Ergonomic Concern
(i) In Roman Script		-
(ii) In roman Script		-
Nomenclature of Degree:	:	Ph.D
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Name of Supervisor	:	Dr. Visalakshi Rajeswari
Designation of Supervisor	:	Professor & Head of the Department
Centre/department/school in which research was conducted	:	Resource Management
University's Name & Address	:	Avinashilingam University

Abstract within 300 words:

The most common causes of impairment and disability include chronic diseases such as diabetes, cardiovascular disease and cancer; injuries such as those due to road traffic crashes, conflicts, falls, birth defects, malnutrition and other communicable diseases (NHRC 2005). Among these, diabetic foot ulcers cause elongated hospitalisations with high treatment costs and high rates of lower extremity amputations resulting in increased morbidity and decreased quality of life (Akcay, 2012). Diabetic neuropathy and its three subcategories can leave the lower extremity vulnerable to silent or painless trauma. That is the triggering event that can ultimately lead to lower extremity amputation, reports, Hinkes (2009). A compromised circulatory system fails to bring enough fresh oxygenated blood, nutrients, and antibiotics to a traumatic wound and the immune system cannot resolve an infection by fighting bacteria and cleansing the wound site on a cellular level, leading to amputation. In developed countries, vascular complications are the major contributors to lower limb amputations, whereas in developing countries, traumatic accidents are the major cause. Vascular complications and diabetes are burgeoning health issues in developing countries, and diabetic ulcers are precursors of lower limb amputation (Sage, 2006). Thus this group of people, who were amputated during the period of study, formed an ***Amputated Cohort*** and the technical team of prosthesis fabricators, the ***prosthetist cohort.*** Both contribute to and gain from the Science of Ergonomics. Being an ardent Research Scholar in Resource Management inspired a genuine interest to study the interplay of the two disciplines in rejuvenating the living standards of the concerned group, in the mean time analyse their attitudinal change towards self care too.

In any attempt made at rehabilitation, researchers stress the measurement of 'outcomes,'geared obviously by the need for evidence – based practice, in place of giving services that have a traditional 'sake of service' note. This field, especially where the beneficiary essentially has to be a proactive participant has seen parallel increase in the use of outcome measures. A judicious mix of their limitations, variations, capabilities with functional requirements, societal demands and gifts from science and technology can have a long term advantage over an adversary. No more does humanity have the privilege to look at this cohort with a socially myopic eye. On their part, (the samples) it is high time they rose up to the occasion and joined the mainstream of personal and national development. Motivation and encouragements in the form of access and strategies for adoption have been on board for them for a safe sail. It is up for the beneficiaries to take them or reject them in their stride.

Objectives

- *Investigate the causes of amputation*
- *Examine the compromises made by the amputees to lead normal living and manage stress*
- *Know the functional capability of the prosthesis users citing access and adaptability*
- *Understand the rehabilitative practices adopted by prosthetic teams*
- *Comprehend the role of Ergonomics in fabrication and use of Prosthetics.*

Hypothesis

- *The transtibial adapt better than transfemoral in Rehabilitative phase*
- *Age does not influence lower limb anthropometry in prosthetic design*
- *Duration of amputation and total limb length of amputees are not associated*
- *Prosthetic prescription is not based on individual anthropometry*
- *Cost factor and sophisticated bio-mechatronics largely influence consumer satisfaction and access*

Limitations of the Study

The study is typically aimed at studying only those samples with below-knee amputation. Only adults have been chosen for the study. Children below 18 years were not included because of frequent changing of prostheses, due to their growth phase. The investigator had approached three different Centres for gait analysis – two in Tamil Nadu (CMC, Vellore and CLRI, Chennai) who refused permission and one in Karnataka (Bangalore) who permitted her to do. Despite obtaining ethical clearance and permission, the analysis could not be done as the Centre (laboratory) was closed for
15 renovation work and the investigator's study period got exhausted by the time the clearance was obtained. It will be taken up as a follow up study. Upper limb amputees were not included in the study

as the sample size were less in number compared to lower limb amputees and also because they were the frequent rejecters of prosthesis.

This study was focused on a **behaviour trajectory**, considering the **user as a" consumer**". The benefits they acquire or what they lose is thought of as **a discount, as their health** is an essential resource, which can help them sustain, overcome their discomfort and lead a quality living. It is also envisaged that the outcomes of the study would make the device **more "accessible"** than being **affordable** and pave a positive way for realistic and fruitful use of the device (prosthesis), for its **"designed use".** It is hoped that the study would throw light on an important segment of the population whose acquired limb can witness green pastures in their life span of rehabilitation.

Findings of the study show symptoms of a good awakening which is expected to gain momentum and become stronger in the near future

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