Title
An alternative method for fabricating trans-tibial sockets through the use of socket cones

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Special Themes
Research and evidence-based practice

Objective
The aim of the study was to produce trans-tibia prostheses using socket cone technique, through direct application procedure of fabricating fitting; determination of patient compliance, satisfaction as well as estimating the cost and time spent in producing prosthesis.

Introduction
Direct socket cone method, allows trans-tibia prosthetic socket to be manufactured directly onto the stump. Direct socket cone is a new technology that does not require high skills for fabrication. The hypothesis is, it could be a technology of choice. It is made from a low temperature (60-70 ^{O}C) thermoplastic reinforced with Kevlar, high strength, light weight fiber used to make such products as airplane wings, spacecrafts parts, and bullet resistance–vests (Miki F. 2007).

Methods
The study was an observational cohort structured study whereby convenient sampling procedure was used for all amputees i.e. nine (9) who were seen at the KCMC Orthopaedic Clinic in four clinical days within one month. A precision level of confidence was 0.1 and therefore the sample was size was a total number of eight (8) 88.9% (8/9) subjects were used for the study of which four (4) were females and four (4) were males.
All the subject were requested to participate in the project and the participant/ the subject agreed by signing the consent form.

Results
Subjects Demographics
All the subjects had been using prostheses for more that two years. Out of the eight(8) subjects, the cause of amputation was due to trauma in 5, gangrene in 1, snake bite in1 and diabetes mellitus in one(1) subject respectively. The age distribution was grouped as 18–30 (Young Adults) 50%(4/8);31–50 (Middle Aged Adults) 37.5%(3/8);and 51–60 (Senior Aged Adults) 12.5%(1/8). 62.5%(5/8) of the subjects resides in urban while 37.5%(3/8) resides in rural areas.

Socket Fitting
With the new socket 87.5%(7/8) subject indicated that the fitting was good and that they did not find any problem during ambulation. However 12.5%(1/8) of the subjects indicated that, the socket was wide, although they continued using the prosthesis during the whole period of trial.

Subject compliance and satisfaction

All the subjects complied and satisfied with the fitting and acceptance in the community. The eight(8)subjects,did wear them for a time period ranging from10-20 hours a day and did walk different surface structure in the community.

Time spent on producing prosthesis

Time spent for dir.socket cone method was 25%(2/8) as compared to using traditional method with polypropylene. The time spent for Dir.Socket Cone method was 12.5%(2/16)as compared to that of traditional method on Lamination.

Conclusion

Amputation can cause permanent disability if mobility issue are not addressed through rehabilitation so the initial result of the socket fit of direct socket cone method for trans-tibia amputee is encouraging. The technique of fabrication does not require high skill, consume and extensive amount of time. It does not also require a lot of machineries neither are it difficult to use in Community Based Rehabilitation (CBR) outreaches programmes.