UPPER LIMB PROSTHECTICS RESEARCH, ARE THERE DIRECT BENEFITS FOR THE AMPUTEE?

Greg Bush, B.A., C.P.(c)
Institute of Biomedical Engineering
University of New Brunswick
Fredericton NB Canada

In today’s era of cost containment, managed health care and ominous requests for outcome measures, we must ensure that present research does have a positive impact or benefit to the amputees we serve. A critical review of past research reveals some very impressive insights into design and function of upper limb prostheses. Which of these designs and functional attributes have been successfully transferred to modern day practice and why have some been neglected?

We must always have an awareness of where we technologically evolved from in order to direct our future steps in upper limb prosthetics research. The next technological advance that will have a major impact on this field is unpredictable and its resultant effect unknown. It is an exciting time with great promise of benefits for the upper limb amputee.

If research is to benefit the amputees we serve it will be important to set priorities. It maybe necessary that collectively we focus more on evaluative research as a major priority at this time. There is a critical need for objective and convincing documentation to validate the effectiveness of existing prosthetic systems. We need prosthetic outcome measurement protocols that validate not only functional/psycho-social benefits we also need to consider physiological benefits. If we can’t convince funding agencies and other health care professionals of benefits of existing prosthetic devices, how can we hope to continue to develop new devices.

Since the numbers of upper limb amputees is limited and distributed over a vast area, a collaborative multi-centre effort to capture the present trends in fittings is needed.

The nature of technological advances precludes large retrospective studies since the technology is continually evolving and changing. Studies should be limited to a shorter time period so the technology evaluated is constant. It is also important that amputees who are consumers of this prosthetic technology be consulted and involved in the research process. Current trends in funding of prosthetic research encourage and support partnerships between consumers, researchers, government funding agencies, industries and universities.

Upper limb prosthetics research like any other ongoing science or technology will have research which has no direct benefit to the amputees we serve, but it does help to build a critical mass of experience and scientific knowledge, which we can utilize as a valuable resource. Upper limb prosthetics has an impressive historical past which has helped to form some of our most basic principles of clinical practice. It is essential that we review the work of the past. As related technologies advance and mature their application may become a reality and ultimately benefit the upper limb amputee.