INTRODUCTION

In the world of Orthotics and Prosthetics we see patients face a broad variety of challenges on a daily basis just to make it through every day activities. When activities of daily living like grocery shopping or getting the mail pose a challenge, it may seem that recreational activities they once participated in may be out of reach. Contrary to this sentiment, in recent years there are hundreds of individuals that have shown that this couldn’t be further from the truth and recreation is within reach. New devices entering the market place have allowed patients to regain useful function in extreme ways that were unheard of 20 years ago. Sports such as skiing, wakeboarding, and even motocross are now within reach of the motivated amputee. The devices that make this possible are much different from the devices used in normal everyday life and experience forces that are above and beyond what a normal prosthesis will see in daily use. Understanding these forces and how they affect the prosthetic user and the prosthesis itself is important to being able to further their use. With the ultimate goal of prosthetic use being full functionality, striving to get the utmost from these devices is a goal worthy of pursuing. Therefore gaining quantitative data on extreme recreational use is a worthy goal that will help patients return to the recreational activities that define quality of life.

A particular example of this is an amputee in his who has returned to the sport of motocross racing. New advances in prosthetic knees and other componentry have allowed him increased function and competitiveness in riding. However there are very few studies that pertain to competing in recreational sports while using a prosthesis and virtually none for the side using a prosthesis as opposed to the contralateral side. This data will then be used to determine if the rider is favoring a certain side while riding.

RESULTS

This project is in progress as we are working through the IRB approval process and will move to data collection procedures very shortly.

DISCUSSION

Moving forward we are planning on taking the project one step further after this assessment to using electric strain gauges. Instead of peak forces this will give us real time data at moments in time. Once the peak forces are understood, it will give us a better base of knowledge to selecting testing equipment appropriate for the task at hand. This assessment using pressure film will provide the base needed for further observational studies to build on.

CONCLUSION

Currently we are still in the process of IRB approval, material selection, and implementation of data gathering procedures. At this point in time we cannot make a definite conclusion as to what we will find. By the time of the symposium we will have completed data gathering, analysis and will have findings ready for display.

CLINICAL APPLICATIONS

There are many clinical applications that can be furthered from gathering data in this manner that will result in improved patient outcomes in recreational use. Gaining information on the forces being experienced by the prosthesis and unaffected side will provide knowledge that can then be used to select proper components to allow the patients to perform to their maximum potential.

REFERENCES


American Academy of Orthotists & Prosthetists
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