Abstract—The purpose of this paper is to show a relation of prosthetics and sports. Particularly how it impacts the people who use prosthetics in sports, and how sports have helped those people.

I. INTRODUCTION

In the articles I looked at they showed how prosthetics have improved to where amputees can now participate in sports with more comfort and normalcy. The articles have shown that participation in sports have had a positive impact on the amputees’ lives. Advanced sports prosthetics are enabling today’s top athletes not only participate in their chosen sport, but to excel on an international level as well. [1] Athletes with impairments demonstrate increased exercise endurance, muscle strength, cardiovascular efficiency, flexibility, improved balance, and better motor skills compared with individuals with impairments who do not participate in athletics. In addition to the physical benefits, the psychological benefits of exercise include improved self-image, body awareness, motor development, and mood. Athletes with impairments have fewer cardiac risk factors, higher high-density lipoprotein (HDL) cholesterol, and are less likely to smoke cigarettes than those who are disabled and inactive. [2] Now there is controversy over an imbalance between similarly disabled and conditioned athletes. [2] But that’s a debate for another day. My focus was on how prosthetics are improving amputee’s lives.

II. METHODS

About 60% of amputees do not participate in any regular physical activity or sports. That is due to lack of awareness and access to all of the opportunities available for athletic participation. [2] That could be resolved by physicians going over options of what amputees can do with prosthetics. A survey done by one of the articles showed that 20-39 year olds have interest of high, moderate, and low energy sports. That is now suggesting that prosthetics are not a hindrance in why amputees don’t participate in sports. Now there are new prosthetics to help amputees compete in the competitive and recreational sports. Some examples are keels and also new and updated equipment like there are different types of cycles.

III. RESULTS

Amputation of a lower extremity significantly affects the energy cost of ambulation (walking). [2] The energy cost is calculated by functions of distance, rate, and velocity. Therefore, in athletic competition, the amputee athlete will need to increase the rate of oxygen consumption to maintain a velocity similar to that of a non-amputee athlete. When comparing ambulation of amputees to that of non-amputees, the rate of oxygen consumption per unit distance is increased in the limb-deficient population. [2] But the quality of life seems to have improved for amputees for those participating in a sport.

IV. DISCUSSION

Now it seems there is a competitive imbalance between similarly disabled and conditioned athletes. That is from how some other prosthetics can create more power than what the human body component can. But in some sports amputees are limited to what kind of prosthetic they can use to compete with. In conclusion properly designed prosthetics can expand the opportunities in sports for amputees and enhance goals for rehabilitation for each and every patient. [2] It seems like the future may hold wireless microprocessors BION to send signals to multichannel systems of neural prosthetic which is intended to pick up signals from nerves and send movement instructions to the robotic prosthetic. [2]

REFERENCES