



Inside APC...

November 2008

"eNewsletter from APC Prosthetics"



Welcome to our newsletter on Upper Limb Prosthetics.

We hope you enjoyed our first quarterly newsletter, which introduced Cameron Ward from APC (Sydney). In August, he attended the Beijing Paralympics helping many athletes ensure their prostheses were functioning well for their big day. It was great to see many of our athletes win medals, break records and achieve personal bests. Congratulations to every athlete who represented their country.

This eNewsletter will focus on Upper Limb Prosthetic technology. But first read about Richard Curby, from APC Sydney who recently attended the Upper Limb Prosthetic Symposium in Canada.

Ron Wright APC Prosthetics (Hunter)

Inside This Issue

Team Profile: Richard Curby

Topic: Upper Limb Prosthetics in the 21st Century

Focus Technology: The iLimb

News: Beijing 2008 Paralympic Wrap Up

Team Profile – Richard Curby

What is new in your life?

We have just finished some renovations to our house. This means me doing lots of painting under close supervision and the watchful eye of my good wife.

What do you get up to outside of work?

I am a keen gardener and always busy tending my vegetable garden and looking after my fruit trees. I am a keen swimmer and spend large parts of my weekend at the beach. I enjoy watching my children play sports and at one stage was the coach for my daughters' netball team. Not that I knew any of the rules, but having played much basketball at school I used the same tactics. This of course had nothing to do with the team losing all but one game, and this was won on forfeit.



How long have you been involved in Prosthetics and Orthotics?

I started at RALAC in North Sydney in 1979. This was when the now Department of Veterans Affairs had prosthetic facilities in all capital cities and provided services to veterans as well as community patients. In 1987 my wife and I moved to Brisbane where I worked with Brisbane Prosthetics and Orthotics for 6 years before returning to Sydney in 1993. On returning to Sydney I worked with the RALAC again for about a year before joining the private sector and establishing a branch in Artarmon on Sydney's north shore. In 1998 I branched out on my own forming a partnership which is now APC Prosthetics.

What do you enjoy about prosthetics?

It is about working closely with people. It is about the challenge of returning a person suffering from limb loss to as close as possible to their previous lifestyle. It is about working through problems collectively and communicating well to fully understand what the needs are and what can or cannot be achieved. I enjoy this interaction with people and thrive on its challenges.

There are not many professions where you can use your technical skills to fabricate a product from raw materials. This can and often does include a combination of leather work, wood work, metal work, plastics, and plaster work.

What do you see the future bringing?

In almost 30 years in the profession, I have seen many dramatic changes in the industry. Apart from the changes to the fabrication side, the real advances are in the introduction of new technologies. These technologies are many, but specifically the interface systems that are now available provide a far better connection between patient and prosthesis. We do not see the same number of "friction" related injuries as we saw in the past. The advent of computerisation and miniaturisation of components provides a far greater range of affordable and practical solutions to prosthetic problems. I believe the "Six Million Dollar Man" is almost here.

Upper limb Prosthetics in the 21st Century

Richard's experience from the international Myo-Electric Symposium 2008

I was fortunate enough to attend the most recent MEC '08 (Myo Electric Control) Symposium held in August in the town of Frederickton, Canada.

It is a tri-annual symposium that has been held for over 25 years with the focus being on research and development in upper limb prosthetics.

There were about 150 participants with the main delegates being Occupational Therapists, Prosthetists, Engineers and representatives from upper limb prosthetic suppliers.



With large numbers of American servicemen returning seriously injured from various war zones, the US Army is spending vast amounts of money on research and development to improve upper limb technology. Although much of this technology is not yet commercially available, it is pleasing to see such innovative development in upper limb prosthetics, having been overlooked for so long.

With rapid advancements in technology, the Myo-electric controlled prosthesis is capable of controlling a vast array of functions. Each new function requires the means with which the patient can control this function. This then means more gadgetry, increased weight, greater costs, more complexity and more training required. All of this results in a system which is almost impossible to use.

One presentation focused on a new procedure called "Targeted Muscle Re-innervation". It involves a surgical procedure where functioning nerves are re-routed to an active muscle site. For example, on the amputated side a nerve that previously controlled the little finger could be reconnected to a muscle in the chest. An electrode built into the prosthetic socket fits over this muscle site. If the patient then tries to move his/her little finger, the electrode picks up the muscle activity in the chest and signals for the motor to open or close the prosthetic hand. Thus if many of the nerves previously controlling the hand can be "targeted" to different muscle sites, a great number of controls are available to drive the prosthesis.

There have been a number of these procedures performed in Europe and in the USA with encouraging results. With the introduction of any new procedures and technology there are always many different barriers to overcome. The part I am most excited about is that more "real life" options will become available over time, and the prosthetics profession will be able to offer the upper limb amputee superior alternatives to what is currently available.



5 finger grip



Typing



Key grip

Technology Focus: "The iLimb" – Touch Bionics

APC Prosthetics recently fitted their first iLimb – "the worlds first fully articulating bionic hand" by Touch Bionics www.touchbionics.com

This prosthetic hand has a small motor driving each finger independently which gives the user the ability to grasp small and irregular shaped objects, for example picking up a pen or grasping a wine glass. The independent movement of each finger including the thumb allows a key grip to be formed or the index finger to be pointed and used for typing. It comes with its own top end silicone cosmesis and when coupled with natural movement the outcome is a natural looking prosthetic hand.

The APC Prosthetics client who was recently fitted with the new iLimb is extremely happy with his new hand. It has helped in a speedy return to work, allowed him to get back to push bike riding as well as many other activities he performs daily in raising his small children.

Beijing 2008 Paralympic Wrap Up



Cameron with Madagascan Athlete Josefa Randrianony

Cameron Ward – APC's man in Beijing - Helping Our Athletes Win Gold!

Well the Paralympics have unfortunately come and gone for another 4 years and what an amazing games they were. The only plus side to them having finished is that we here at APC can get some sleep after the long nights staying up late watching all of the incredible achievements and inspirational efforts.

Those of you that visited us during the games would know that we had a TV set up in the waiting room at APC Prosthetics and whenever an APC athlete was competing the call came upstairs and a mad rush of people came flying down the stairs to watch and cheer them on. The results listed below say it all. Thanks for all the feedback from those who read my 'Beijing blogs' it was great to see how much interest the Paralympics generated. Look out for the Winter Paralympics in two years and of course London in 2012.

Cheers Cameron

You can read Cameron's "Beijing Blog" online by [clicking here!](#)

Results for APC's Athletes

Heath Francis

Gold Medal - Men's 200m (T46) 21.74s New World Record (breaking 16 year world record)
Gold Medal - Men's 400m (T46) 47.69s New World Record.
Gold Medal - Men's 100m (T46) 11.05s
Bronze Medal - Men's 4x100 Relay Team (T42-T46) 45.80s

Christine Wolf

Gold Medal - Women's Long Jump and set a New World Record 3.73meters.
Bronze Medal - Women's 100m (T42) 17.49s

Aaron Chatman

Silver Medal - Men's High Jump - (F44/46) 2.02m
Bronze Medal - Men's 4x100 Relay Team (T42-T46) 45.80s

Paul Raison

Silver Medal - Men's Shot Put 15.83m.
5th Place - Men's Discus Throw 49.77m
Bronze Medal - Men's 4x100 Relay Team (T42-T46) 45.80s

Kelly Cartwright

6th Place - Women's 100m (T42) 18.36s

Stephen Wilson

5th Place - Men's 100m (T44) 11.78SB
5th Place - Men's 400m (T44) 55.49SB
Bronze Medal - Men's 4x100 Relay Team (T42-T46) 45.80s

Michael Milton

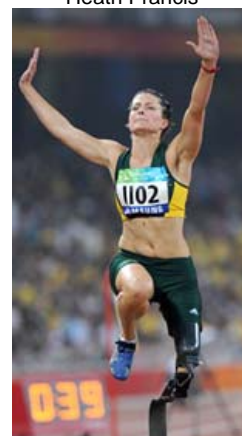
9th Place - Men's 1Km TT Cycling (LC3/LC4) 1:21.578
21st Place - Men's Individual Road Race Cycling (LC3/LC4/CP3) 1:49.29.54
8th Place - Men's Ind Pursuit Cycling (LC3) 4:10.439

Men's 4x100 Relay Team (T42-T46)

Bronze Medal - Heath Francis, Stephen Wilson, Aaron Chatman, Paul Raison. 45.80s



Heath Francis



Christine Wolf



Paul Raison