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ALEX PATERSON’S BESPOKE SILICONE HAND

Dorset ambassador Alex Paterson, who was the first person to undergo upper limb osseointegration surgery in the UK, has decided to use a cosmetic hand to be worn on special occasions.

After a series of discussions, Alex opted for a bespoke silicone hand for his existing arm prosthesis. Handmade, colour-matched silicone prostheses is something Dorset Orthopaedic are renowned for globally. We have many years of experience making everything from fingertips to full-length transfemoral leg covers for clinics all over the world.

**Colour Match:** The first stage in any silicone prosthesis a colour-match appointment. We start by taking an impression of the sound side hand or foot we will be replicating. In the case of upper limb amputees, this gives us all the information we need about the shape and length of the client’s fingers, the dimensions of their hand and what level of creases, wrinkles and veins to apply. Next we make notes on details such as hair, follicles, freckles and nail colour. We try to match as many details as are evident on the client, as all of these add levels of depth and realism to the final product. Finally, we custom match the client’s skin tones as closely as possible which is often a challenging task as hands change colour with blood flow and temperature more than you would realise.

**Manufacturing the silicone prosthesis:** We tend to use an off-the-shelf prosthetic hand to form an understructure for our work. Using the client’s hand cast as a guide, we manipulate this to give the correct position and curvature of the fingers. We reduce the hand to create a scaled down version and the coloured silicones we add on top will bring it up to the correct size.

**Flesh tones:** The silicone is added in layers, colours being added in the position noted down in the client’s colour match appointment. The product looks very rough at this stage, as we are simply building up the shapes and the colours will be carefully blended together later. The nails, which have been created separately, are then added at the correct point on the fingers.

When everything is in the correct place, we can add skin details. For Alex’s hand, there are some raised veins on the top of the hand and at the top of the fingers. We also added some light freckling in this area. Once the colours have been blended and we are happy with the shape and bulk, the product is smoothed to prepare it for the next stage.
**Pinks:** All of the pink on the knuckles and the colours inside the palm are applied next. This is done by applying thin layers of colour onto the flesh colour underneath. We blend the layers out to make them look natural. The pinks have been noted down in the colour match appointment, so we know how much to apply and where.

This stage really starts to bring the product to life! Once these colours have been applied, we can add details such as the lines on the knuckles and the creases on the palm. The hand is checked over again to make sure the dimensions are still correct and we neaten up areas such as around the edges of the nails.

**Cosmetic check:** The level of detail in a silicone prosthesis means there is no substitute for seeing it in person. For silicone clients at our Southern and Midlands clinics, we offer the opportunity for them to come in and see the silicone prosthesis before we complete the manufacturing process. We can then make small tweaks and adjustments with the client present.

This gives us the best chance of matching them as closely as possible and creating something that is exactly what they want. In the case of Alex’s hand, we added some hair to the back of the hand and a little to the fingers as well.

**Delivery:** Once the silicone has been hardened, it can be made ready for the client by neatly trimming any edges and smoothing the inside of the product. Alex attended the Midlands clinic to receive the finished arm, the fitting was performed by Alex’s prosthetist James Buckett.

The silicone hand is detachable, meaning the same arm can be used for different functions as desired. Alex was very satisfied with the final outcome and we wish him well with using it in the future.
ARCTIC ONE ROUND UP

In May 2019, Dorset Orthopaedic once again proudly sponsored the popular Arctic ONE Tri and Para Tri event at Eton Dorney Lake for the 3rd year running.

Staff members teamed up with our amazing patients to tackle open water swimming, cycling and running. Patients, ambassadors, friends and family travelled from across the UK to be part of this wonderful event in support of The Arctic One Foundation. Arctic One was launched in 2011 and became a charity in 2012 and believes that sport should be accessible to all. It aims to provide disabled people, groups and clubs the opportunity to get involved in sport and become more active.

The Tri and Para Tri events, took place on the Bank Holiday Monday at the end of May and conditions were almost perfect for the day, although a strong headwind presented a challenge at times. The events comprised several different challenges suited to all standards of competition. To begin with, the sprint event (750m swim, 20km cycle, 5km run), was represented in the swim by clinical services director Matt Hughes, Dorset ambassador Grum Leesmith and SAFO specialist Ben Cunningham.

The cycling part of the race was competed in by orthotist Kim Pickering, silicone specialist Anne-Marie Kersse and ambassador Malcolm Hingle, with the 5km run achieved by Dorset ambassador Dave Henson and physiotherapist Mary Tebb.
Next up was the super sprint event (400m swim, 10km cycle, 2.5km run) and swimming for their teams were world para-triathlon champion Hannah Moore, SAFO wearer Denise Park and amputee Josephine Bridges. Midlands clinic manager Moose Baxter competed in the 10km cycle race with Dorset ambassador Colin Edwards running 2.5km for his team.

Additionally, Dorset’s own Rio Woolf took part in the children’s fun run event at the end, giving his new running blade a try for the first time. Everyone involved in the Arctic One event had a fantastic time and all the money raised on the day at Arctic ONE goes towards the organisation’s Forward Motion grant programme.
At the beginning of June 2019, a record number of delegates attended Dorset Orthopaedic’s fourth annual conference, held at the De Vere Staverton Estate in Daventry.

Almost 100 case managers and solicitors attended the two-day event, which this year had a theme of Dynamic Rehabilitation and featured a host of interesting talks and live demonstrations from experts and patients.

The event began with the traditional pre-conference dinner, which this year had entertainment courtesy of close-up magician James Phelan and an after-dinner speech by decorated Paralympian Susie Rodgers.

Susie, who was born without a fully formed leg and arm on her left side, became a prolific Paralympic swimmer, winning 50m butterfly gold in Rio 2016 as well as two bronze medals, and triple bronze at the London 2012 Paralympics Games. She talked about her life as an amputee, her desire and passion for sport and how it became a powerful tool for those living with a disability.

The following day, delegates were treated to an Informative and fascinating agenda, beginning with a live casting demonstration of the Symphonie Aqua Casting System with Vector Control, which saw Dorset patient Colin Edwards be cast for a new socket live on stage.

Once cast, Colin shared his own patient story with the delegates before leaving the venue to travel to Dorset’s Midlands clinic in Burton-on-Trent, where prosthetist James Bucket was waiting to make Colin’s new socket. During the course of the next few hours, the audience were treated to live footage of the socket’s manufacture via a video link.

After Colin left the stage for Burton, the delegates enjoyed an interesting talk by physiotherapists Beth Langley and Emily Brader about treatment techniques given to patients during their rehabilitation, as well as Manual Therapy Assessments.

This was followed by an inspirational and frankly honest talk by one of the more recent rehabilitation patients, Josephine Bridges, an above knee amputee who is using her story to inspire others via her own charity, Positive Bones.
Renowned surgeon Norbert Kang talked about the various surgical intervention options to aid neurological pain relief for amputees. This was followed by a discussion on osseointegration, which included patient outcomes and details on Dorset’s partnership with Relimb to provide the UK’s first private referral pathway for a complete surgical and rehabilitation package.

The remainder of the morning’s agenda included an uplifting patient testimony by aspiring Paralympic rower Sophie Harris and a presentation on partial hand prosthetic solutions.

After lunch, there was a fascinating demonstration on the Myo Pro; an orthotic exoskeleton for people with upper limb weakness, sustained through stroke or brachial plexus injury. The device uses sensors to pick up weak electric signals in the muscles and amplify them to create movement.

This was followed by the latest innovation in lower limb orthotics, the new C-Brace, which contains more intuitive technology than its predecessor as well as a much sleeker and discreet appearance. The device was demonstrated by Melvyn Hause, who travelled from Germany to showcase its capabilities.

Mary Tebb and Dorset patient Wendy Bearton discussed in depth what a week in Residential Rehabilitation is like and the benefits it offers, before world para-triathlon champion and below knee amputee Hannah Moore shared her compelling story.

The conference came full circle with Colin Edwards returning from Burton and appearing on stage with his new leg, showing how quickly a socket can be made using the Symphonie Aqua System. To view the highlight video please click here.

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At the age of 17, I was diagnosed with terminal bone cancer in my left tibia and had major surgery to save the leg and my life. After a remarkably successful trial treatment I defied my diagnosis and walked out of the hospital nine months later; however after 11 years and five failed surgeries to salvage my leg, I chose to have my leg amputated above the knee.

Even prior to my amputation I was in communication with Dorset Orthopaedic, arranging a visit to the Midlands clinic in Burton-upon-Trent to discuss prosthetic options, get advice on life after an amputation and in all truth, decide if I really felt ready to do this.

They were lovely, showing me what's on the market, answering my myriad of questions and letting me know about possible physio options going forward. However, more importantly than all of this, they were honest. They told me openly how hard it might be, the difficulties I might face and what problems may occur. It was this information that was most valuable to me and in truth helped me make my final decision to amputate.

After watching many videos of various prosthetics online I knew there was a chance to do more, to not have to stop along the adventure when everyone else is carrying on. So I set up Positive Bones online, firstly to help guide other people possibly making the same decision or just going through a tough period in their life and secondly as a platform for fundraising.

I would like to highlight at this point that this isn’t just about me. Once we have fundraised for my leg, we have plans to start a charity for others in a similar situation and motivate people who just want the opportunity to continue their hobbies. When we get to the point of making it a charity, the first gift I would like to give an amputee is the same gift I was given in the start of my prosthetics journey at Dorset Orthopaedic.

Before the NHS were considering a leg for me, before they were getting me upright, I was already walking through the park at the end of my physio week with the amazing Beth Langley. At six weeks post-op, the incredible staff at Dorset got me up and not just moving but walking, going up ramps and climbing stairs. That's the gift I would give because it gave me hope, it showed me a future of possibility, a future of saying yes. To read the full story please click here.
The technology, which is a first for Europe, contains sensors which pair with Ottobock myoelectric hands including bebionic, learns and remembers movements from its user to activate hand grips and actions.

Conventionally, myoelectric arms contain one or two specific sensors to pick up muscle contractions, which then in turn operate grip patterns in a myoelectric hand. The wearer has to think and contract these specific muscles in order to activate the hand.

In contrast, Myo Plus contains a network of sensors which learn the movements of the person operating it and remember it for the next time an action is repeated. This means they won’t always have to think about contracting specific muscles as the hand will do it automatically. This artificial intelligence means when an amputee repeatedly performs an action like tying shoelaces, lifting a cup of tea or turning a doorknob, the Myo Plus remembers the action and automatically activates the correct grip pattern.

A Myo Plus app is available for wearers to train with and the app visualises the movement patterns so they can see where they’re strongest and where they need more practice. For more information on Myo Plus or to arrange as consultation click here.

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