



## FUTURIS 1 Healthy Aims

### ENGLISH SCRIPT

01:00 GENERIQUE FUTURIS

01:08 Southampton Hospital, UK: SOT Anthony Batchelor, patient

"I'm not frightened a bit, I want it done - it's a new life for me.  
When I'm fit enough, I'll be able to see my granddaughter married (coughs). And she's only seven."

01:22 Anthony Batchelor with dr. Paul Roberts

After several heart attacks and triple bypass surgery, 70 year old Anthony Batchelor is about to receive a de-fib-rillator implant to regulate his heart rate in line with his physical activity. The accuracy of pre-surgery measurements is vitally important.

01:38 SOT Paul Roberts, consultant cardiologist, Southampton Hospital

"One of the difficulties that we've found is trying to measure patient's activity, then compare it to physiological responses - such as heart rate, blood pressure, respiratory rate, oxygen saturation. And so we have the technology and the ability to record those physiological parameters, but the only way we can assess activity is by asking the patient. And that's a very subjective measure, by definition. What we want is an objective measure."

02:10 Southampton Hospital

Such objective data of a patient's daily activity levels can be collected using a new device, developed in Codicote, north of London.

02:18 Codicote, UK: Diana Hodgins with horses - The Codicote Innovation Centre

After successful tests on horses, the Activity Monitor is now being used for the medical monitoring of patients suffering from cardiovascular diseases, diabetes or obesity.

02:31 Activity Monitor demonstration

The single lightweight device, worn on the person's waist, uses a three-axis accelerometer to measure the type, intensity and duration of activity throughout the day. It can run for up to 24 hours, storing data directly onto a flash memory card. The records can then be uploaded to the PC for analysis using algorithms developed within the project. No more need for relying on a patients' own estimates of his or her activity levels.

03:05 Clean room, Diana enters

The Activity monitor is one of numerous devices, developed by 25 partners from 10 countries participating in the Healthy Aims project.

03:13 SOT Diana Hodgins, Healthy Aims project coordinator

"The common theme from the technology point of view is that we're using electrodes and strain gauge technology which is very simple, but can be fabricated in the nano scale and then you can make systems what are micro scale what can fit in or on the body without causing any detrimental effects to the human, so you can treat things that previously you could not envisage treating."

03:44 Poole, UK - Marci Lelliott opens her garage to show the jet-ski



03:47 SOT Marci Lelliott, STIMuGRIP implant recipient

"It's jet-ski, it's my favorite thing in the whole world, I have to say! Any chance I get to to out on the water, we go out into the harbor and then into the ocean. I can jump waves, I can do all sorts of things, and it makes me very happy."

03:58 Marci closes the garage door

04:02 Salisbury Hospital Archive: Marci prior to implant surgery, her left hand completely paralysed

After surviving a stroke at the age of 12, Marci Lelliott was left paralysed on one side. Today she lives an active life, works as a teacher of disabled children and is gradually getting movement back in her left hand.

04:14 SOT John Spensley, Managing Director, FineTech Medical

"We've developed an implant what goes into the forearm, where two sets of electrodes are attached to muscle bundles and nerve bundles, which operate two functions: the first function is to extend the wrist, and the second function is to open the fingers."

04:32 Salisbury Hospital: Marci's testing her hand functions picking up and moving objects; dr. Paul Taylor monitors

The implant in Marci's forearm is powered and controlled wirelessly by the removable box strapped over it. Like the Activity monitor, the STIMuGRIP system uses accelerometers to detect its position. A specific arm movement triggers electrical stimulation of muscles and nerves to open and close the wrist and fingers. Marci has become one of the first patients to use the newly developed device.

04:57 SOT Paul Taylor, Biomedical Engineer, Salisbury Hospital

"Up until this point there has been very little that could be done for the upper limb in stroke. To large extent it's been ignored by the medical profession, and people had just been left to get on with it. We now have a possibility of offering a new treatment for people who have not been able to use their hands, and this really is the first."

05:20 Marci drives back home

The device has several programmed modes to control or exercise the wrist in different situations.

05:26 SOT Marci Lelliott

"You can feel the implant if you press it, it's quite lumpy, but you can't actually see it, apart from the scar. When the electricity is actually going through into the arm, it just feels a bit like pins and needles, really, but not nasty, you can get used to it, it's just a bit of a sort of tingle, really... The Healthy Aims project is very exciting for me, and just to be involved in something for stroke patients, and if it helps me - it's great, but it will help people in the future."

05:53 Marci reading the Teacher magazine... Mechelen Campus - Mechelen, Belgium. Cochlear Technology facilities. Maurice Vertongen in the testing room, listening to music. At 06:18 he removes his external hearing device and the music suddenly disappears until he plugs it back at 06:26.

05.53

Similar technology is being used to send electrical impulses to the cochlea which is the auditory portion of the inner ear - to restore hearing.

In Mechelen, Belgium, another participant of the Healthy Aims project is developing a new generation of a cochlear implant. It should help deaf people to communicate in noisy conditions and enjoy music.



Maurice Vertongen lost his hearing at a young age...

Traditional hearing aids which amplified surrounding sounds were ineffective. Their quality only allowed the minimum comprehension of speech....the frequency range of sound was very limited.

06:33 SOT Maurice Vertongen, cochlear implant recipient

"I have not been able for more than 20 years to listen to music. Not that I didn't hear anything, but I could not listen to music."

06:46 The cochlear implant on display, Maurice in the testing room

The implant has changed Maurice's life and that of his family who now no longer have to help him.

06:56 SOT Maurice Vertongen, cochlear implant recipient

"I'm a normal person to them now. You see? That's the difference."

07:01 Set-up Bart Volkaerts

The hearing system consists of a wearable ear hook, similar to traditional hearing aids, with the wirelessly connected cochlear implant placed under the patient's skin.

07:10 SOT Bart Volkaerts, technology research coordinator, Cochlear

"The external part, which is worn behind the ear - it contains the microphones, the sound processor and also the batteries. This external part communicates by means of wireless link to the implanted casing that contains the electronics, that generates the stimulation pulses."

07:33 Clean room, electrodes under the microscope

The goal of the new research, undertaken within the Healthy Aims project, is to develop a fully implantable system without any external parts. With this in mind, Researchers have developed a safe implantable battery and improved electrodes that provide a better-quality sound and are easier for the nervous system to adapt to.

07:53 SOT Maurice Vertongen, cochlear implant recipient

"My doctor, professor Offeciers, has told me, that the main job is not done by him or by the device. "The most important work,"- he says to me, - "is being done by your own brain".

08:12 Set-up Dr. Erwin Offeciers

One of the pioneers of the cochlear implantation - Dr. Erwin Offeciers believes, systematic screening of newborn children and early implantation for those born non-hearing may open the way to a world without deafness.

08:26 SOT Erwin Offeciers, hospital of Antwerp

"Now, with ever improving technology, we can realise dreams. It's a little like when Jules Verne was discussing how to get to the center of the Earth, or into Space, or when Leonardo da Vinci was drawing helicopters and submarines. The ideas are not new - but our technological means to do that are. And, of course, the financial backup from the larger European community to achieve this - this is extremely important."