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Bixeps machine helps athletes flex muscles again



National cyclist Darren Lim, 22, putting his leg through the Bixeps machine at Alexandra Hospital. The device can also be used on arms to promote muscle recovery. Looking on is his teammate Samuel Leong, 19. ST PHOTO: GAVIN FOO



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After injuring his right meniscus three months ago, recreational basketball player Liew Ee Bin did rehabilitation exercises of squats, lifts and stretches on his own at home every day for 10 to 15 minutes.

After five weeks, while he felt that he was 50 per cent better, he still did not feel strong enough to return to the court. Feeling impatient, he decided to sign up for a 12-week course with Bixeps, which involves a machine that uses low-energy magnetic fields to stimulate cells in the muscles and promotes muscle recovery. He was back on court midway through the programme.

"I felt that it would take quite a long time to be over 90 per cent recovered so I decided to sign up and do this treatment," said Liew, 47, who owns a consultancy that focuses on healthcare and technology. "By the sixth session, I was strong enough to go back on court. This was in combination with the same exercises I was doing and I think I saved 20 per cent of recovery time."

He had learnt of the technology from the founding scientist Alfredo Franco-Obregon of the National University of Singapore's (NUS) Yong Loo Lin School of Medicine.

Associate Professor Franco-Obregon, 62, explained that the magnetic fields activate mitochondria in cells, creating energy without the need for physical exertion. Myokines, which aid the regeneration of muscles, are also released.

But he noted that using the Bixeps machine is not a substitute for exercise or any part of training, but rather a complement to other training and recovery programmes.

He said: "When athletes are injured, they inevitably lose some training gains because of immobilisation so myokine production helps with regeneration and their injuries can heal faster."

A typical cycle consists of 12 weekly 10-minute sessions, as too much exposure causes the cells to stop responding. Each session costs \$30 to \$50.

Between 2015 and 2017, the team conducted two clinical trials. The first involved 10 healthy volunteers who received 10 minutes of the treatment in one leg once a week for five weeks. By the end of the trial, they showed a 30 to 40 per cent improvement in muscle strength in both legs.

The second trial involved 20 patients who had undergone anterior cruciate ligament knee surgery. Half of them were treated for 10 minutes a week, in addition to their normal rehabilitation therapy for four months following surgery and "on the metabolic level the results were very promising", said Prof Franco-Obregon.

The current intellectual property is co-owned by NUS and Swiss university ETH and research on the technology has been published in eight scientific publications so far, including Nature.

Patients usually put their legs through the machine but Ivan Goh, chief executive officer of QuantumTx, which put the machine on the market, said the device can also be used on the arms.

While the company initially focused on improving mobility for the elderly, he said it is also looking into sports rehabilitation and performance for national and recreational athletes.

Bernard Cheong, who plays badminton twice a week, is on his fourth 12-week cycle and said he feels stronger on court and can move quicker since he first started using the machine last April.

National cyclist Dominic Tan also used the technology while he was recovering from a fractured collarbone and unable to train since the end of October. The 19-year-old had his own rehabilitation and exercise regimen and said the Bixeps programme did not substitute any part of his training.

He added: "I returned to training last month and... I was surprised (my power) didn't drop as much as I thought it would. It might be because of the placebo effect but I would recommend it to those who are injured because it's really a confidence booster."

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