Case study

Ex-Fix Bike Ergo

CHALLENGE

In 2009 MOD and the Defence Medical Research Centre (DMRC) Headley Court challenged industry to come up with innovative ideas and share current research and developments in these areas. Frazer-Nash Consultancy were quick to recognise the opportunity to adapt some of their work supporting Paralympic athletes for medical rehabilitation.

SOLUTION

We designed and manufactured an exercise bike that will specifically aid victims of blast injuries. Exercise bikes benefit rehabilitation in leg injuries but some patients with fixator cages are unable to use standard bikes. These cages are used to set complex bone fractures but the structures often restrict the patient's ability to exercise during the rehabilitation process.

We initially carried out a review with physiotherapists, consultants and patients to determine the requirements and understand what attributes would be beneficial. This allowed us to design a training bike that can be adjusted to suit the patient's requirements and aid mobility. Crucially, patients and clinicians are able to adjust the operating envelope of the bike to ensure the optimum conditions are set for the rehabilitation process.

BENEFITS

Frazer-Nash's bike is adjustable allowing independent control of movement for each leg and lateral pedal spacing. We also believe the NHS may be able to use the equipment for other conditions as well as rehabilitation for injured patients.

Client
Centre for Defence Enterprise

Business need
Design and manufacture of an exercise bike for patients restricted by an external fixator cage.

Why Frazer-Nash?
We have significant experience in capturing system requirements and designing innovative solutions to complex problems.

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FRAZER-NASH CONSULTANCY