



BIObelt

Abdominal Training Belt

In collaboration with Lifelab Innovations Ltd and designer Eden Smith

The BIObelt abdominal training belt facilitates effective and safe abdominal exercise, by giving the user instantaneous feedback of abdominal muscle activation, enabling unprecedented levels of abdominal muscle contraction and training efficiency.

BIObelt is a concept formulated by Lifelab Innovations Ltd, a health and lifestyle innovation company. Final year Virtual Product Design student Eden Smith worked closely with the development team at Lifelab to develop the product which was a continuation from previous collaborative work between Lifelab and Brunel.

Building on earlier short term projects with Lifelab, this project focused on concept development of health and fitness products for global markets based on innovative ideas and strong scientific evidence.

This project developed the concept to a stage where it can be mass manufactured. The process included production of working prototypes, demonstrating the mechanics and proposed aesthetics of the product.

Brief

The BIObelt project builds on an earlier Designplus collaborative project, with the very specific aim of producing working prototypes to form part of a pitch for marketing the product in the US health and fitness market where sales volumes of similar products reach six figures.

Lifelab's primary aim is to develop products which aim to improve the physical fitness and health of the consumer. A method was needed to measure accurately the level of decrease in waist girth during a user's workout, providing a metric to judge the effectiveness of a user's workout.

Approach

Extensive research into the anatomy of the human body, studying how the core abdominal muscles function and how these traits can be utilised best, allowed for the most appropriate function of the BIObelt to be proposed. Over a series of months, Smith and specialists from Lifelab Innovations worked closely to identify the methods and mechanisms which could be employed to enable the BIObelt to fulfil its function of measuring the effectiveness of abdominal core training.

Smith used 3D CAD packages to develop and refine the mechanism at the core of the product before using this data to produce rapid prototypes for inspection and further refinement.

Result

The BIObelt provides a method of continuously measuring the degree of abdominal compression throughout core training, allowing for user feedback and greater training efficiency.

By utilising the results of extensive research and testing, the BIObelt has been developed taking into account three key factors; the consumer, LifeLab and the potential licensee. The development process encompassed proof of principle prototypes, Finite Element Analysis work, further user testing, design for manufacture and cost analysis. These areas were highlighted as being of key importance in producing a final BIObelt design for LifeLab that represents a viable product which the company can license for manufacture.

At end of the major project period the prototypes were delivered and the pitch was successful in getting the concept to the next stage of development. Since the end of this major project period, a second iterative prototype has been produced. Smith continues to be an important member of the team with an active role in the development and testing of prototypes.

