

Bandcizer - A Tool to Assess Dosage of Elastic Band Exercises



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Introduction

Home based treatment or rehabilitation is one the most blooming and evolving trend among budding and established physiotherapists as it gives improvement in pain intensity, quality of life and muscle strength at the comfort of being at home. Home based exercises are often carried out by patients with help of home-based exercise equipment's. Bandcizer is a sensor for resistance Training. It helps to assess the dosage of Thera band resistance and Intensity Figure 1.

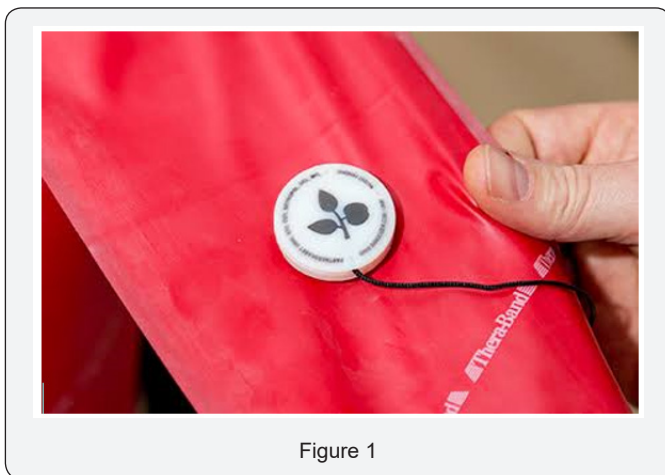


Figure 1

What is the use of Bandcizer?

Elastic band or resistive exercise ropes are used by many now a day as it provides the sufficient resistance for doing strengthening exercises. The duration, method, repetition and technique of using such exercises are a matter of concern for the physios who recommend home based exercises. Recent studies are suggesting the fact that secondary injuries following the practice of home-based exercises have increased drastically. It's unclear why such injuries happen and it's a serious which has to be looked into at the earliest.

Founder

BandCizer ApS is founded by Anders S. Sørensen & Tim Bang. A new commercially available sensor has been developed which automatically records and stores exercise data into its memory card or directly send into the mobile phone. The University Southern Denmark and the national Danish jointly developed "BANDCIZER™". This new sensor may help clinicians as well as researchers to monitor the Home-based exercise program with ease. The BandCizer is a small device (slightly larger than a quarter) that attaches to TheraBand resistance bands.

BandCizer is capable of automatically storing the data such as day, time and quantifying important aspects of exercise such as ROM and important details such as TUT (Time under tension). It measures the changes in thickness of the elastic band. It is equipped with a LSM3330 3D digital gyroscope with a sample rate of 20Hz. The data recorded by the sensor is sent to a computer directly in form of text files via Bluetooth.

How it Works

BandCizer 's 3D gyroscope measures rotation and angular velocity occurring around three axes: x, y and z. The positions of these axes are constant in the BandCizer and cannot be altered. For example: if rotation movement occurs around a vertical axis, the x-axis of the gyroscope will register and record this movement, under the condition that the x-axis of the gyroscope is always positioned on theraband to point vertically.

BandCizer App guides you towards optimal performance, compliance and progression your training and also provide interactive supervision with live bio-feedback, tailored for the individual [1-5].

Advantages and Usage

- To increase quality in rehabilitation, sport and fitness.

- b) To boost motivation and provide interactive supervision.
- c) To document compliance and visualise performance.
- d) To share result with therapist (Figure 2).



Figure 2

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