25. Title: Digital Mosso Ergograph

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Keywords: Muscle fatigue Analysis

Domain: Healthcare

Summary: A digital, wireless, Graphical User Interface (GUI) enabled mechatronic device is developed which quantifies muscle fatigue and recovery of skeletal muscles of the forearm. This digital Mosso ergograph is developed for the physiological measures of muscular contraction, fatigue, endurance, strength, and physical capacity or endurance. The device synchronizes the displacement data with the inbuilt Electromyography system and provides more insight into the relation between central and peripheral fatigue. This digital device is applicable for subjects of different limb lengths and different muscular strengths along with the adjustable position of hand rest.

Image: Digital Mosso Ergograph

- Digitization: Digitizing the experimental setup of existing Mosso's Ergograph
- Automatic and Deeper Analysis: Including complex analysis of data with a more meaningful understanding of physiology
- Interesting experiment experience for undergraduate medical students: Converting all manual analysis to programming-based analysis to indulge the coding learning among medical students.
- Nervous component of fatigue: Synchronizing the displacement data with an inbuilt EMG system will provide more insight into the relationship between central and peripheral fatigue
- Laboratory experiment to Research Equipment: Introducing the switching-based conversion between isotonic and isometric makes it suitable for research equipment status.

Advantages:

- Accurate data available which is transferrable for further analysis.
- The shelf life of data is infinite.
- It also measures the force applied by the muscles during Isotonic and Isometric Contractions

Applications: Medical devices Industries and the sports technology industries

Scale of development: A functional prototype device is developed and results are validated by testing in a Laboratory environment

Technology Readiness Level: 5

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