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Muscle strength measuring device

Development status

Phase 2

Feasibility study. There is a realistic design of the technology and the initial tests in the laboratory are leading to the specification of the technology requirements and its capabilities.

IP protection status

Czech patent no. 308216, priority 19. 10. 2018, PCT/CZ2019/050045

Partnering strategy

Co-development, Collaboration, investment, licensing

Challenge

Measuring muscle strength may be an important component of physical training or nutrition evaluation and assessment. Manual muscle-testing and the use of a dynamometer are the most common methods to measure muscle strength. Currently used methods of semi-and quantitative measurement of maximal muscle strength require subject cooperation and thus depends on engagement of tested subject.

Description

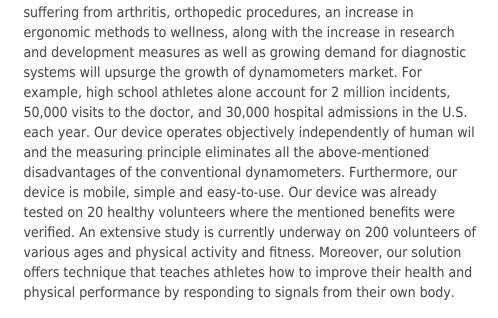
The lack of quantitative data of muscle strength resulted in the development of our device. Our solution is objective dynamometry. The device works on the principle of electrical stimulation of the musculus tibialis at the motor point by a series of stimulations with increasing intensity. Our device uses standard commercially available electrostimulators provided with electrodes that are glued to the skin at the motor point of the muscle. Pressure sensor measures pressure in the pressure cuff placed in the splint. The maximum muscle strength and muscle fatigue are determined from the measured values. Our device is intended not only for sports medicine (effect of training and nutrition on athletes' performance) and for athletes themselves, but also for intensive medicine (sarcopenia, coma, long-term diseases). We have developed a prototype of second generation according to regulations that are required to follow for devices of such type. The device has CE mark for non-medical use (athletes).

Commercial opportunity

Currently, the devices on the market are based on dynamometric principle engaging human will. These devices are characterized by low sensitivity or large measurement variance that may be for example also dependent on the daytime. The size of medical dynamometers market for 2017 has been estimated at 554 mil. USD, while the expected market growth for the period 2016 - 2025 is estimated at 6.5% (CAGR). The significant factor attributing this market's growth is the growing incidence cases of sports injuries, a rise in patients

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Institution



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