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Topic PI - Development of a sports belt based on modulated medium frequencies for mobile applications, for postnatal muscle development of the deep abdominal and pelvic floor muscles

Objective

For every mother, pregnancy and childbirth mean hard labour that leaves its mark on the body. After the birth, the muscles, especially in the abdomen and pelvic floor, need to be strengthened. The aim was to develop a new type of smart textile to build up the deep muscles (abdominal and pelvic floor muscles) on the basis of modulated medium frequencies (EMA) for mobile use in the postnatal period and afterwards.

Approach and results

Similar to a climbing harness construction, a textile system was developed that covers the abdomen, thighs and buttocks and positions electrodes in the muscle zones to be trained. To ensure that the harness is washable, textile electrodes have been developed which are fixed directly into the harness system. Thanks to a special textile construction, the belt can adapt to the user's decreasing girth during use, so that the electrodes remain in place on the corresponding parts of the body even after prolonged use and weight loss. The battery-operated control unit has been miniaturised as far as possible so that it can be attached to the belt. The user can select a programme and regulate the intensity using a detachable remote control.

The entire system is easy to put on and intuitive to use. The sports belt is ideal for use at home, as it does not restrict freedom of movement and makes it easy to integrate regression training into everyday life with a baby.

Pattern of a knitted electrode

Postnatal attempts at carrying

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