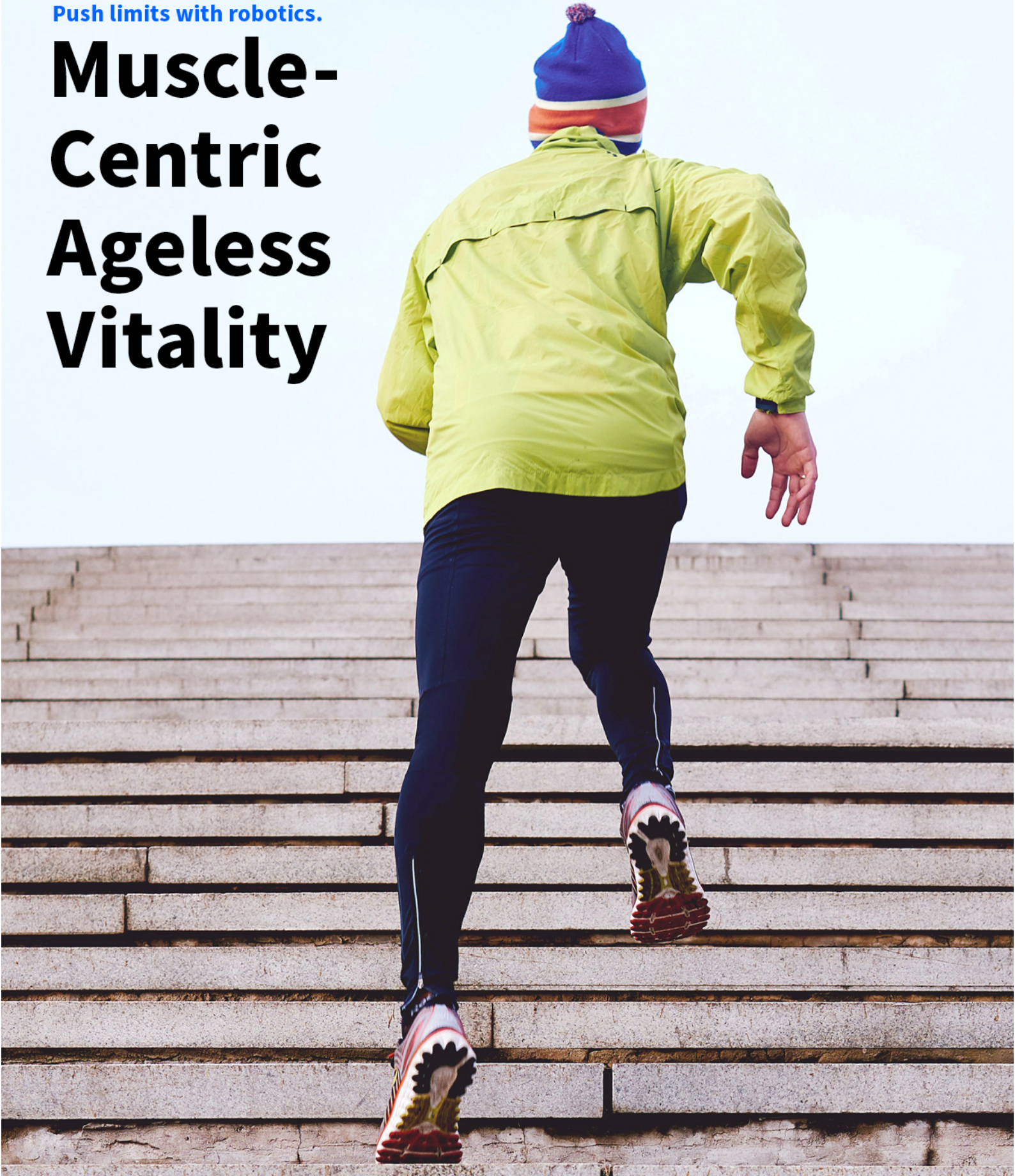
Push limits with robotics.

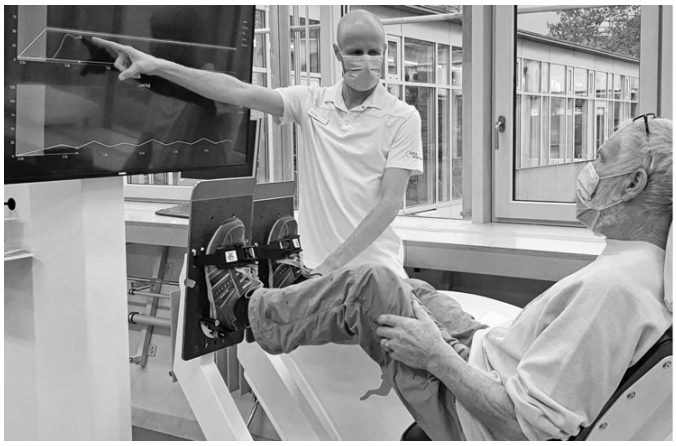
Muscle-Centric Ageless Vitality



ddrobotec

Muscle-Centric Ageless Vitality

In Switzerland, almost 300'000 people experience a fall each year. Up to 35% of people aged over 65 years fall at least once a year – causing a great deal of suffering and expense. Major fall risk factors are age-related declines in muscle mass, strength, speed, power and cognitive function.



Losses in skeletal muscle mass and overall strength translate directly to functional challenges because they lead to a decrease of available force and power [1]. The resulting decline in physical performance limits the ability to perform basic activities of daily living, such as getting up from a chair, climbing stairs or preventing a fall. Many studies and meta-studies have reported that the most effective intervention for fall prevention is a combination of **muscle strength** and **balance** exercises [2].

For people aged over 65 years, however, the annual decline of muscle power (3–6%) is larger than the annual decline of muscle mass and strength (1–3%) [3]. Therefore, for daily activities such as preventing a fall, the ability to move quickly and with a high force (**emphasizing muscle power**) is more often the limiting factor than the ability to produce a high force (emphasizing muscle strength). This fact suggests that to reduce the risk of falls, muscle power sessions need to be included in the training and rehabilitation of older adults. An **increase in lower extremity muscle power**, besides benefitting balance and reaction time, also contributes to better cognitive function, improved mobility, increased vitality and lower mortality [4][5].

Effectively preventing falls with a dedicated fall prevention program critically relies on the possibility to **train, test and track** an invidual's cognitive, motor and physical performance. The cloud-based **ddrobotec®** robotic personal trainers are designed precisely for this task. They offer a fun and simple muscle-centric testing and training platform that everybody can use.

Unlike any other diagnostics and training system, **ddrobotec®** measures, exercises and improves the interaction between the central and peripherous system and the lower extremity. Its

personalized and gamified user experience **motivates** users to participate in and **adhere** to programs of high velocity resistance training (30–60% 1RM). Especially in older adults, this moderate load training promotes greater functional improvements than resistance training performed at slower velocities [6].

The **task-oriented** and **gamified** workouts on the **ddrobotec®** systems trigger the brain's intrinsic pleasure and reward mechanisms, ensuring a post-workout boost of dopamine. This **empowers** people to develop habits with a long-lasting positive impact on their physical and mental health and their lifestyles.

Stay strong, live long and prosper.

References

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ddrobotec® article on the topic

The Benefits of Better Mobility for Elderly People

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