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Title of the Paper

Muscle Health Promotion System for Prevention of Muscle Function Decrease

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Background General health in late life is closely related with muscle function. Maintaining muscle function is essential for maintaining the function of vital organs by activation of cardiovascular system and metabolism. So exercise itself is the most important tool for anti-aging. However, unexpected accidents or diseases cause people to be weakened and accelerate aging-associated reduction of muscles function.

Objectives Medical support is necessary for the people who cannot do exercise or who have difficulties in exercise. We are developing a system composed of functional foods and medical device for exercise-mimetic effect. It must be helpful in prevention of muscle function decrease or improve its function.

Methods We are developing functional food from natural resources for synergistic effect on muscle function during exercise or artificial stimulation of muscle by device. We screened the library of natural herb and seaweed. Evaluation system includes cell-culture and animal model including drosophila and mice. Genetically engineered animals and normal animals are used. We are developing a device for artificial stimulation of muscle. Integration of some physical stimulations is designed. For clinical test, dynamometer and CT scanning are used for standard measure of muscle function and the amount of muscle mass.

Results We compared some convenient methods including BIA for simple and reasonable evaluation of muscle function with standard measure tools. We are developing the algorithm for the objective measurement of muscle function with conventional measure tools. Even though it is under the process of development, we are looking for better way of simple assessment of muscle function.

Conclusions Some natural materials seem to be helpful for muscle function improvement. Some essential modules of device are developed and optimized. The combination of the functional foods and device seem to be helpful for prevention of muscle function decrease or improvement of its function by synergistic exercise-mimetic effect.