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The relationship between recovery from muscle fatigue of the skeletal muscle and magnetic stimulation

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Abstract

Muscle fatigue is common in everyday life and sports. Magnetic stimulation therapy is known to be effective for early recovery from muscle fatigue. However, the mechanism is still unknown. In order to clarify the mechanism of magnetic stimulation effect on muscle fatigue, we performed magnetic stimulation on the muscle during isometric contraction for fourteen normal adult males. The load strength of the exercise assumed 30% and 60% maximum voluntarily contraction (MVC). Moreover, exercise performance was evaluated using an electromyography analysis technique under two conditions: use and non-use of magnetism stimulation. No significant difference was observed between the two conditions regardless of load strength. In a previous study, an improvement in exercise performance was observed when magnetic stimulation was applied to a resting muscle after an exercise with 60% MVC. Careful assessment of the physiological difference between resting and exercising reveals possible differences in energy consumption. In order to this difference, it might occur for the recovery effect difference by the magnetic stimulation.

		60% MVC (n=10)			30% MVC (n=4)		
		Endurance time [s]	Rate of change of iEMG [%/seg]	Rate of change of MPF [%/seg]	Endurance time [s]	Rate of change of iEMG [%/seg]	Rate of change of MPF [%/seg]
Magnetic Stimulation	With-out	59.15	+1.699	-0.712	225.3	+0.250	-0.700
	With	52.13	+2.342	-0.758	244.7	+0.898	-0.825
Significant difference (p<0.05)		Non	Non	Non	Non	Non	Non

Table 1: Results of the experimentation

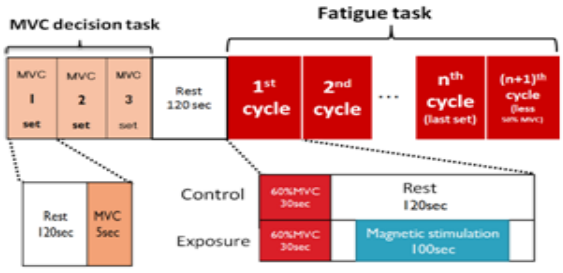

Fig 1: Experimental protocol of our previous study

References

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