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EFFECT OF GINGER ON MUSCLE PERFORMANCE

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ABSTRACT

Loss of muscle protein mass and muscle function occurs with increasing age, with risk of physical disability, poor quality of life, and death. Preventative diet, exercise, or treatment may help to improve health span. The most rational approach to delay the progression of muscle loss is based on the combination of proper nutrition, associated with the use of supplements, and a regular exercise program. *Zingiber officinale* Roscoe Zingiberaceae or ginger contains many phenolic compounds such as gingerol, shogaol and paradol that exhibit antioxidant, anti-tumor and anti-inflammatory properties. *Zingiber officinale* has been shown to accelerate the recovery of maximal strength following muscle damage suggesting it could be useful in muscle loss prevention. The present study aimed to determine the effect of ginger extract on muscle performance in an animal model.

Keywords: muscle, ginger, delay, animal

1. INTRODUCTION AND OBJECTIVES

Loss of muscle protein mass and muscle function occurs with increasing age, with risk of physical disability, poor quality of life, and death. Preventative diet, exercise, or treatment may help to improve health span. The most rational approach to delay the progression of muscle loss is based on the combination of proper nutrition, associated with the use of supplements, and a regular exercise program. To determine the effect of ginger extract on muscle performance by measuring grip strength and muscle function.

2. METHOD

Zingiber officinale extract is used for intervention in improving muscle performance. The experiment was tested on an animal model. Ginger extract is used to feed the animal model for 3 months. After each month of supplementation the muscle strength of the animal model is measured using the Bioseb Grip Strength Test Machine.

3. RESULTS

Ginger effectively improved muscle strength in adult rats at 3 months of supplementation. The potential use of ginger extract for the promotion of muscle function should be further investigated in human.

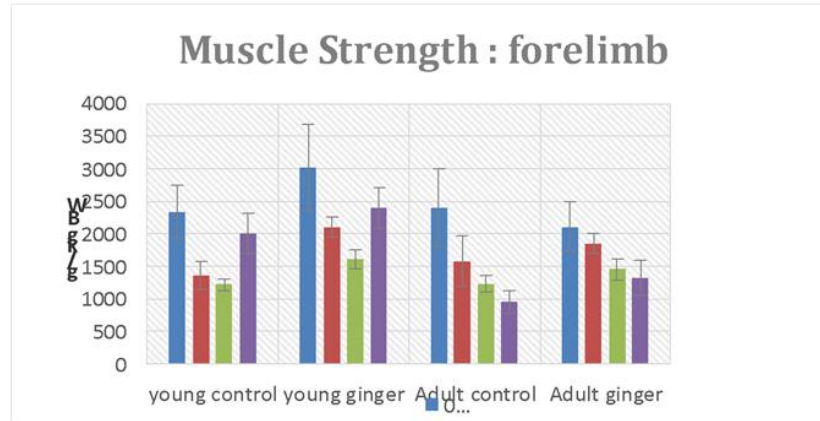


Figure 1. Graph Plot Muscle strength against treatment of ginger

Treatment with ginger increased muscle strength of forelimb of young rats after 1 and 2 months of ginger treatment. In adult rats, treatment of ginger increased muscle strength after 3 months of ginger treatment.

3.1. Findings and Arguments

The findings of this study provide natural supplement for the prevention of muscle strength loss and promotion of muscle growth and improvement of muscle performance without any chemical substances.

4. CONCLUSION AND SUGGESTION

Successful intervention in an animal model will further used for human study which may include the elderly and athlete. Some sort of supplement will also be further investigated to help the elderly prevent muscle loss by consuming it.

REFERENCES

1. Wikipedia. 12 May 2015, Ginger, 17 Desember 2019 <https://en.wikipedia.org/wiki/Ginger>
2. International Osteoporosis Foundation. 13 April 2010, WHAT IS SARCOOPENIA?, 13 Desember 201 <https://www.iofbonehealth.org/what-sarcopenia>
3. US National Library of Medicine National Institutes of Health. 9 August 2003, Ginger, 3 Desember 2019 <https://www.ncbi.nlm.nih.gov/pubmed/12757751>
4. healthline. 9 February 2005, What Causes Muscle Wasting?, 7 Desember 2019 <https://www.healthline.com/health/muscle-atrophy>
5. Carosio, S., Berardinelli, M. G., Aucello, M., Musaro, A. 2011. Impact of ageing on muscle cell regeneration. *Ageing Res Rev* 10(1): 35-42.
6. Charge, S. B., Rudnicki, M. A. 2004. Cellular and molecular regulation of muscle regeneration. *Physiological reviews* 84(1): 209-238.
7. Collins, C. A., Olsen, I., Zammit, P. S., Heslop, L., Petrie, A., Partridge, T. A., Morgan, J. E. 2005. Stem cell function, self-renewal, and behavioral heterogeneity of cells from the adult muscle satellite cell niche. *Cell* 122(2): 289-301.



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Kelulusan daripada pihak YBhg. Profesor dalam perkara ini amat dihargai.

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