

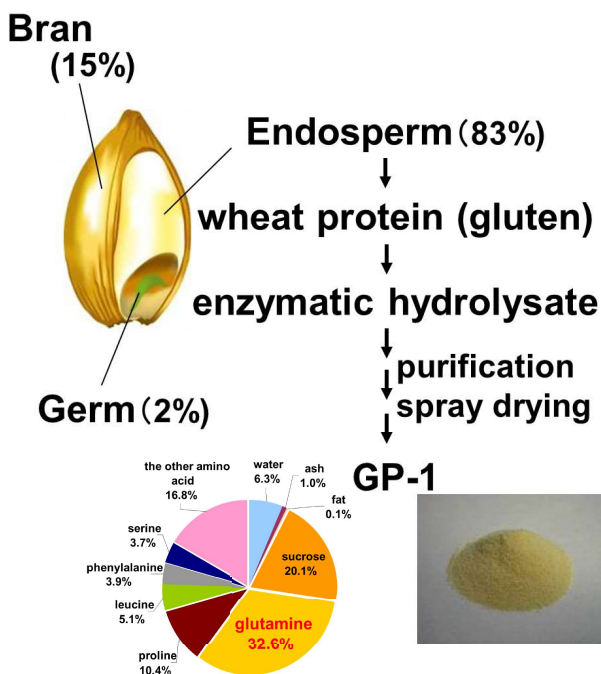
Glutamine rich peptide



Glutamine peptide GP-1

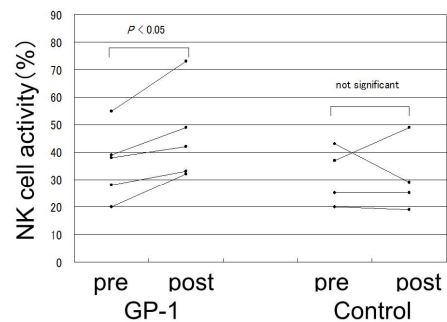
The Glutamine Peptide GP-1 is a wheat gluten hydrolyzed which contains high concentration of glutamine as peptide form. Its solubility into water is higher than that of wheat gluten. It is suitable for various food and beverage applications as it has less bitter taste. Furthermore, it is more stable and better utilized by the body as compared with free form L-glutamine.

Manufacturing process of GP-1



Increase of NK (Natural Killer) cell activity

Participants	Number of Participants	Study design	Intervention
healthy human	GP-1, n=5 control, n=4	open study	Period: 6 days Form: powder

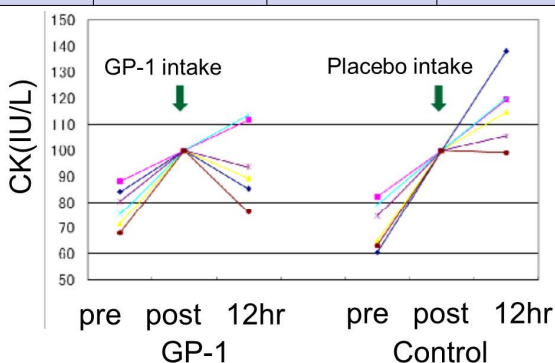


Biosci. Biotechnol. Biochem., 69(12), 2445-2449, 2005

GP-1 supplementation increases NK cell activity. NK cells are known to play a critical role in immune surveillance.

Inhibition of delayed onset muscle soreness

Participants	Number of participants	Study design	Intervention
healthy human	n=6	double-blind, crossover study	Period: single Form: granule

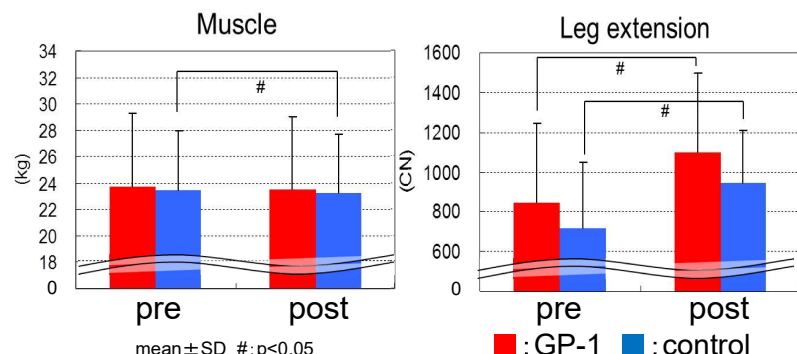


Aoki, et al., *J. Clin. Sports Medicine*. (2007)

Consumption of GP-1 after soccer training inhibited the release of CK as a marker of muscle damage into the blood for 12 h after exercise stress.

Maintain muscle mass

Participants	Number of participants	Study design	Intervention
healthy human	GP-1, n=13 control, n=12	double-blind, parallel-group, comparative study	Period: 3 months Form: tablets



mean ± SD #: p < 0.05
Shinmura et al *Japanese Society of Physical Fitness and Sports Medicine* (2012)

Exercise training with GP-1 supplementation increased muscle strength, and suppressed the muscle mass decrease.