New Evidence!

Expectations for the Synergistic Effect of "Acerola × Exercise"! Demonstrating the Antioxidant Effect of Acerola through Human Trials

As a result of research, it was found that **acerola significantly enhances the expression of the PGC-1α gene**[*1] and **increases the amount of ATP production and mitochondria**[*2] in experimental cells used to evaluate effects on skeletal muscle (hereinafter referred to as "C2C12 cells").
Additionally, in human intervention trials, a combination of **exercise and acerola intake showed an improvement in grip strength** and **a significant increase in the "BAP test"**[*3] **values, which indicate the antioxidant capacity in the blood**.

*1: A gene that controls the formation of mitochondria and blood vessels and is also involved in muscle endurance (slow-twitch muscle).
*2: ATP is a substance that stores and releases energy and is present in all cells. Mitochondria are organelles responsible for producing ATP.
*3: Biological Antioxidant Potential test.

In this joint research, a functional evaluation test was conducted to verify the effects of acerola on exercise performance.

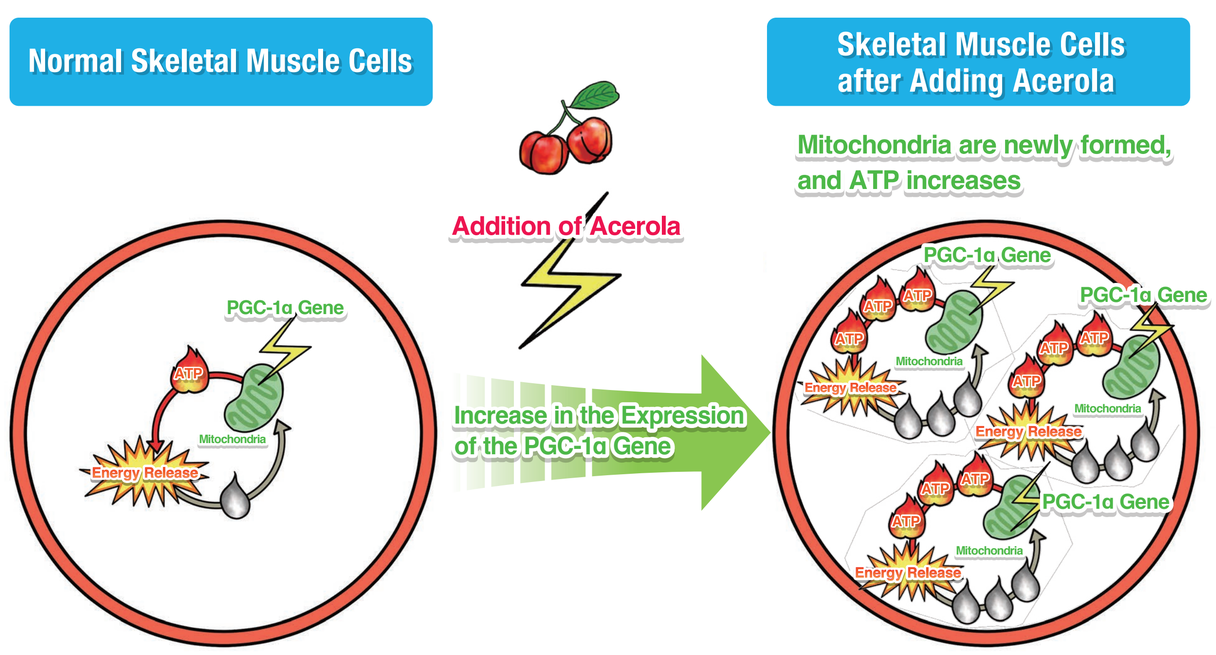
Contents of the Functional Evaluation Test

①: Adding acerola, which was pureed by crushing the pulp, to C2C12 cells
②: Measuring the amount of ATP production in ①
③: Measuring the amount of mitochondria in ①
④: Analyzing the impact on the PGC-1α gene in ①

Research Results

The addition of acerola resulted in an increase in ATP production, the amount of mitochondria, and the expression of the PGC-1α gene in C2C12 cells, **with a particularly significant increase in the expression of the PGC-1α gene**[*4].

Activation of Exercise Function by Adding Acerola



*4: An increase in the expression of the PGC-1α gene is known to promote the amount of mitochondria and ATP production in skeletal muscle, thereby enhancing muscle endurance (slow-twitch muscle).
References: Miura S et al, J Biol Chem 278: 31385-31390 (2003). Miura S et al, Am J Pathol 169: 1129-1139 (2006). Tadaishi M et al, PLoS ONE 6(12): e28290 (2011).

Based on the results of the cell tests, a preliminary human intervention trial was conducted to examine the effects of acerola intake on muscle mass, muscle strength, stress, and fatigue in general adults.

Contents of the Preliminary Human Intervention Trial

①: Dividing 16 adult males into two groups (acerola intake + exercise: 8, exercise only: 8)
②: Conducting exercise three times a week for 8 weeks
③: The acerola intake + exercise group consumed 200g of pureed acerola per exercise session
④: Measuring the impact on muscle mass, muscle strength, stress, and fatigue of the subjects in ①

Research Results

The acerola intake + exercise group showed an improvement in grip strength and a significant increase in the "BAP test" values, which indicate the antioxidant capacity in the blood. This is **the first time that the antioxidant effect of acerola in the blood has been demonstrated through human trials**. We will continue to verify the effects of acerola through human studies in the future.

*Photos and illustrations are for illustrative purposes only.

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