

Blueberry Hills

## Apple Peel Powder

Ingredients: 100% Pure Farm Fresh Apple Peel  
8 oz | 16 oz

**ABSOLUTELY NOTHING ADDED!** Our apples are grown in the hot, high desert conditions of the Lake Chelan Valley (located in North Central Washington State), on our 100 year old apple orchard that's been in our family for 5 generations. Our products are all super fresh - and made right here on the farm.

**APPLE PEEL IS HIGH IN URSOLIC ACID – and is the most concentrated source of Ursolic Acid found in nature.**

Ursolic acid is one of those ingredients that shows huge potential as a bodybuilding supplement, yet struggles to get the kind of academic attention that's necessary to get funding for human clinical trials. Ursolic acid isn't a new compound; there are studies dating back to the 1940s. What's new to us are the body-recomposition properties it has.

Perhaps the first study to make us take notice was **published in 2011** in which researchers used a “connectivity map” to search for compounds with anti-catabolic properties. The map allowed them to test more than 1,300 compounds for their effects on genes involved with muscle atrophy. As you can guess, **ursolic acid rose to the top as a relatively powerful inhibitor of genes associated with muscle atrophy. It was then tested in mice, which received an injection of ursolic acid and then were fasted for 24 hours. Sure enough, ursolic acid reduced the expression of two key genes responsible for muscle atrophy in vivo.**

Then the researchers wondered, naturally, if ursolic acid can prevent muscle atrophy during catabolic stress (i.e., fasting), might it cause muscle hypertrophy with the catabolic stress removed? So they gave rats ursolic acid in their chow for five weeks and then compared muscle mass to a group who didn't receive it. Sure enough **ursolic acid caused significant increases in muscle mass and strength in the mice that received it in their chow.**

This study was followed a year later by another study in mice, and it was demonstrated that **ursolic acid not only increased muscle mass but also increased what is called “brown fat” while decreasing overall fatness.** Brown fat differs from white fat in that it is mainly used to generate heat in the body...brown fat cells are like little space heaters whereas white fat cells are used to store energy, not burn it. As a result, the mice receiving ursolic acid had less body fat, even on a high-fat diet.

Most recently, ursolic acid was shown to extend the anabolic response to a bout of resistance exercise. The mTORC1 is part of a signaling pathway critical to stimulating muscle growth. Ursolic acid was shown to extend the activity of this pathway beyond six hours, whereas with training alone the pathway had returned to baseline by that time. This effect is of particular interest to veteran lifters who struggle to make gains because of a shortened anabolic response to training.

We've just detailed the "potential" that this supplement has, but now we must acknowledge what is keeping ursolic acid from reaching its potential. The problem with ursolic acid as a dietary supplement is its poor bioavailability. It's thought that only ~1% of a dose of ursolic acid is actually absorbed. Efforts are currently underway to improve its bioavailability. Possible solutions include using cyclodextrins and reducing its particles down to nano size. Unfortunately, neither of these technologies are currently available in dietary supplement form. For those in the know, there is a transdermal form—but the cost is arguably outrageous considering that the theoretical improvement in bioavailability is yet unproven. For now, the most affordable way to get a hefty daily dose of ursolic acid is probably as a bulk powder. If you can stand the taste (it's bad) it can be added to protein drinks. Otherwise plan on taking as many as 18 capsules per day. Either way you decide, take it with a meal (the animal studies we spoke about had it incorporated into their food) in case this may enhance absorption.

Find out more about our family farm and award winning restaurant and farm at:  
**WILDABOUTBERRIES.COM**

\*Disclaimer: The information presented by Blueberry Hills Farms, LLC on this website at wildaboutberries.com, is intended for educational purposes only. These statements have not been evaluated by the FDA or USDA. I didn't ask NSA what they thought either. (Hi guys.) These statements are not intended to diagnose, cure, treat or prevent disease. Individual results may vary, and before adding anything to an already healthy diet and lifestyle, please consult with your own health care provider!

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**Because I've been asked by several customers, I found this information online regarding taking Apple Peel Powder. Please keep in mind -- I am not an expert.**

## **Suggested Dosage per 2011 study**

Animal studies have found benefits with ursolic acid in the diet at 0.05-0.2% of the diet, which is around 10-40mg/kg (based on their weight and food intake) and the estimated human dose equivalent to this is 1.6-6.4mg/kg bodyweight; for a 150lb adult it would be the range of 110-440mg.

The lone human study used the higher end of this range, **150mg (.03 tsp) three times a day with meals totaling 450mg (.09 tsp) each day**, and found some biological activity. Until further research arises, thrice daily dosing of 150mg with meals is recommended. Ursolic acid is a phytochemical found in a wide variety of plants but most well known for being in apple peels. Although the science is preliminary, it seems to be able to reduce fat accumulation and increase muscle mass gain when in a fed state, and to induce fat burning and preserve muscle mass when in a fasted state.