BGG
Your natural partner

APPLEPHENON®

A PROVEN NATURAL SOLUTION FOR WEIGHT MANAGEMENT AND MORE

MEETING CONSUMER DEMAND FOR SAFE, EFFECTIVE WEIGHT-LOSS SOLUTIONS

With almost half of all adults now overweight or obese,[1] weight management is a major focus for global consumers.

Since the start of the decade, GLP-1 anti-obesity medications have created a huge impact on the weight-loss market. Yet they are far from universally accepted, with many consumers concerned about their unpleasant side effects and high cost.

NielsenIQ research has found that consumer reluctance to use GLP-1s is now creating significant opportunities for trustworthy, proven, and more affordable weight-loss solutions.[2]

ApplePhenon® is a natural, dietary solution derived from apples. Suitable for use in supplements, food and drink, it provides a safe, convenient, and easy-to-use option. Crucially, it doesn't require any changes to diet or activity levels, and is free from side effects.

ApplePhenon® delivers proven results for effective weight loss, with multiple published, peer-reviewed, human clinical studies demonstrating its efficacy and safety. It's ideal for consumers who do not wish to use GLP-1s or are not medically suitable for them, and for those seeking weight-management support post-GLP-1 use.

This white paper takes a deep dive into the research behind this unique apple extract and its science-backed benefits for weight and metabolic health. These include reductions in body weight, waist and hip circumference, total fat and visceral fat, as well as improvements in cholesterol and blood sugar.

APPLEPHENON®: A PROVEN DIETARY SOLUTION FOR WEIGHT MANAGEMENT AND METABOLIC HEALTH

Huge numbers of consumers around the world are trying to lose weight. Research shows that 82% of US consumers[3] and 79% of those in Europe[4] are actively engaged in some form of weight management.

While GLP-1s have stolen the spotlight in recent years, they are not for everyone. Nearly 70% of global consumers cite potential side effects as a key barrier to GLP-1 use, while a third say they aren't willing to pay the high prices that GLP-1s command.[2]

ApplePhenon® can provide the alternative. It is an apple procyanidin extract with clinically proven benefits for weight management and metabolic health.

Its unique phytochemistry profile means it is rich in antioxidants and far more easily absorbed into the bloodstream than other antioxidant polyphenol extracts such as grape seed and green tea extracts. This potent combination of high antioxidant activity and high bioavailability makes it a safe, effective, and affordable long-term option for consumers seeking to achieve or maintain weight reduction.

- Apple procyanidins are phytochemicals – natural, bioactive plant compounds – found in apples. They belong to a class of phytochemicals called polyphenols, which are known for their antioxidant and anti-inflammatory properties.
- Preclinical studies have shown that ApplePhenon® reduces the activity of genes responsible for fat synthesis in cells, producing an effect similar to that of a calorie-restricted diet.[5,6]

EFFECTIVE WEIGHT MANAGEMENT WITH APPLEPHENON®

ApplePhenon® offers a convenient, natural solution for weight management, with its efficacy demonstrated in two randomized, double-blind, placebo-controlled clinical trials.

Significant reductions in visceral fat

Unlike subcutaneous fat, which is stored under the skin, visceral fat accumulates deep in the body in areas including the stomach, liver and intestines. Excess visceral fat increases the risk of type 2 diabetes, high blood pressure, fat-metabolism disorder, and arteriosclerosis (hardening of the arteries).[7]

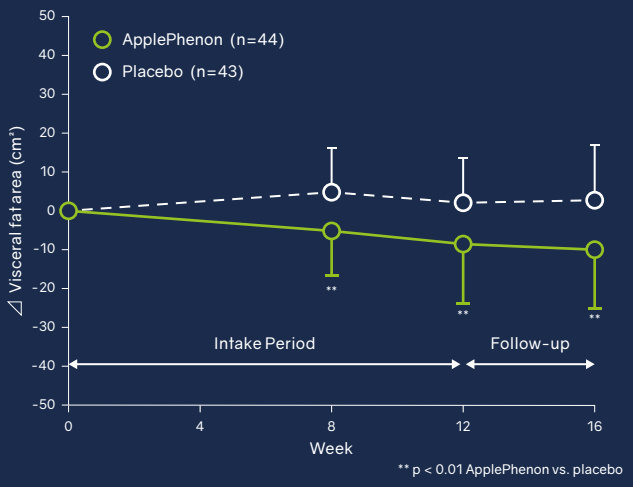
A landmark human clinical study by Akazome *et al.* found that ApplePhenon® supplementation significantly reduced excess visceral fat.[7]

In the study, 94 adults took either a beverage containing 600mg ApplePhenon® or a placebo beverage each day at dinner for 12 weeks. All the participants were overweight (BMI 25-30) and did not follow a weight-loss diet or increase their activity levels during the trial.

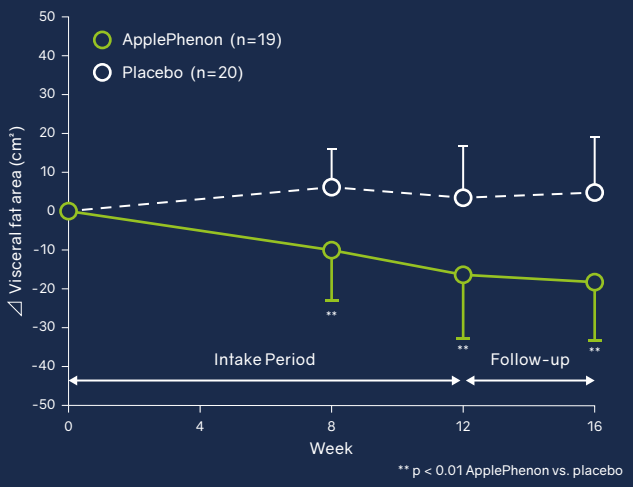
Visceral fat was measured by CT scan at baseline, eight weeks, and 12 weeks, as well as after a four-week follow-up period. By week 16, significant reductions from baseline were seen in the ApplePhenon® group compared to placebo:

- **Visceral fat area decreased by 8.9% (-9.4cm²)**
- **Total fat area decreased by 5.6% (-16.3cm²)**

The reduction in visceral fat area was even more noticeable in a subgroup of participants with a visceral fat area ≥100cm² at baseline.



Changes in visceral fat area for all trial participants

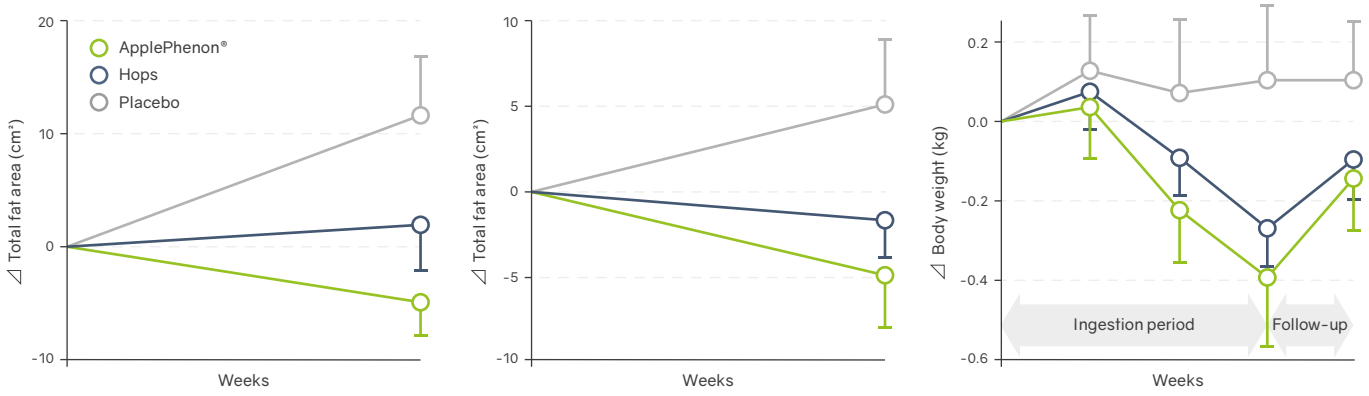


Changes in visceral fat area for participants with a visceral fat area ≥100cm² at baseline

The study corroborated the results of an earlier clinical trial of 71 adults with BMI 23-30 (normal weight to overweight) and normal or borderline cholesterol levels.[8] For 12 weeks, participants took either 600mg ApplePhenon®, 600mg hops, or 600mg placebo each day before dinner. Again, the participants made no changes to their diet, smoking habits or exercise levels during the trial.

Compared to baseline, hops supplementation, and placebo, consumption of ApplePhenon® resulted in:

- **A significant reduction in total fat and visceral fat**
- **A serial decrease in body weight after four weeks' ingestion**



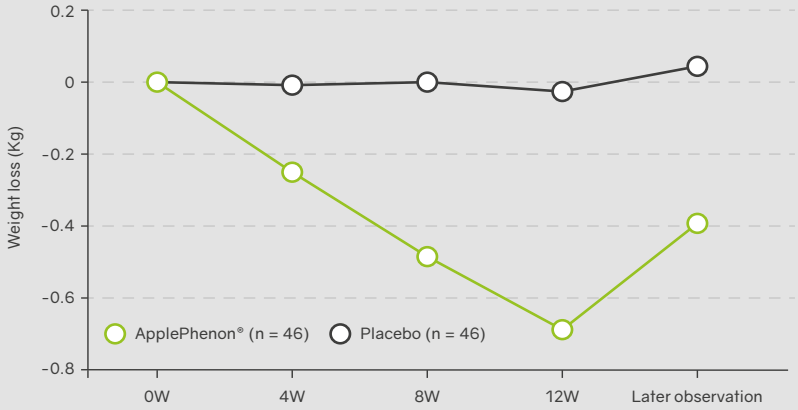
Improvements in waist and hip circumference

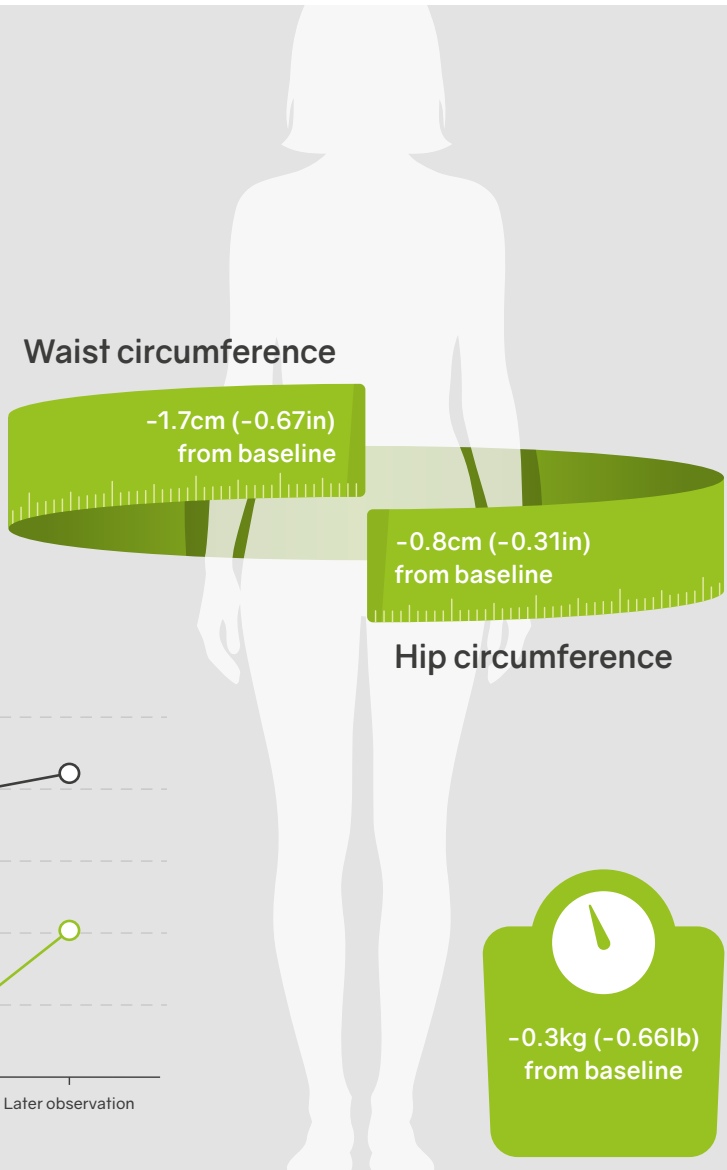
A large waistline is strongly indicative of excess visceral fat, and a higher waist-to-hip circumference ratio may be a better tool for predicting the risk of chronic health problems than BMI.[9]

In the study by Akazome *et al.*,[7] the ApplePhenon® group showed significantly greater reductions throughout the trial compared to placebo in:

- **Waist circumference**
- **Hip circumference**

Body weight with ApplePhenon® was also significantly lower than placebo at all measurement points during the trial, including the follow-up period.





APPLEPHENON® FOR METABOLIC HEALTH BENEFITS

In randomized, double-blind, placebo-controlled clinical trials, ApplePhenon® has also been shown to help address other key metabolic health issues associated with excess weight.

Excess weight is a major risk factor for metabolic syndrome.[10] This is a group of interrelated metabolic imbalances, including abdominal obesity, hypertension, high blood sugar, low "good" HDL cholesterol, and high blood triglycerides, which can raise "bad" LDL cholesterol levels.

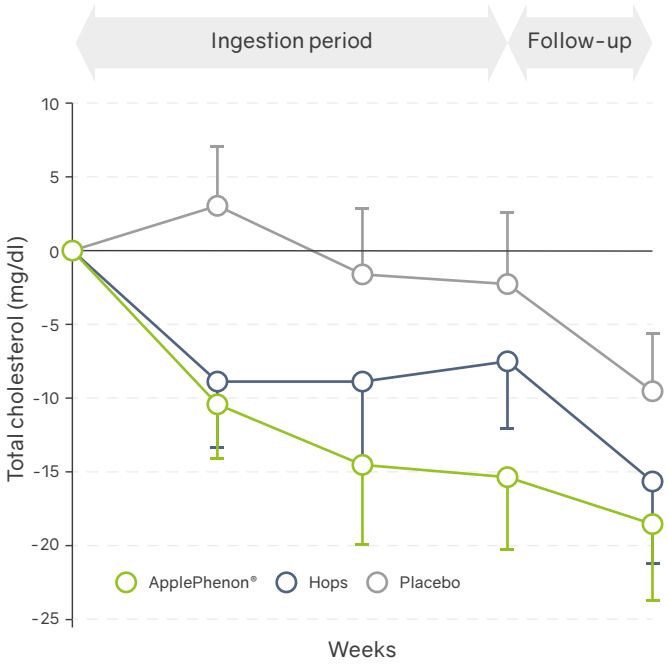
Improvements in cholesterol

In the ApplePhenon® vs. hops vs. placebo study (page 5), ApplePhenon® supplementation resulted in significantly reduced levels of total cholesterol and LDL cholesterol.[8]

An earlier clinical study also demonstrated similar cholesterol-lowering effects.[11] In the four-week trial, 48 healthy adults with slightly elevated cholesterol levels (200-260mg/dL, 5.2-6.7mmol/L) at baseline consumed either a placebo or 300mg, 600mg, or 1,500mg of ApplePhenon® each day. Participants made no lifestyle changes during the trial.

After four weeks, compared to the placebo group, the ApplePhenon® participants showed:

- **Significant and dose-dependent decreases in total cholesterol**
- **Significant reductions in LDL cholesterol**
- **An increase in HDL cholesterol**



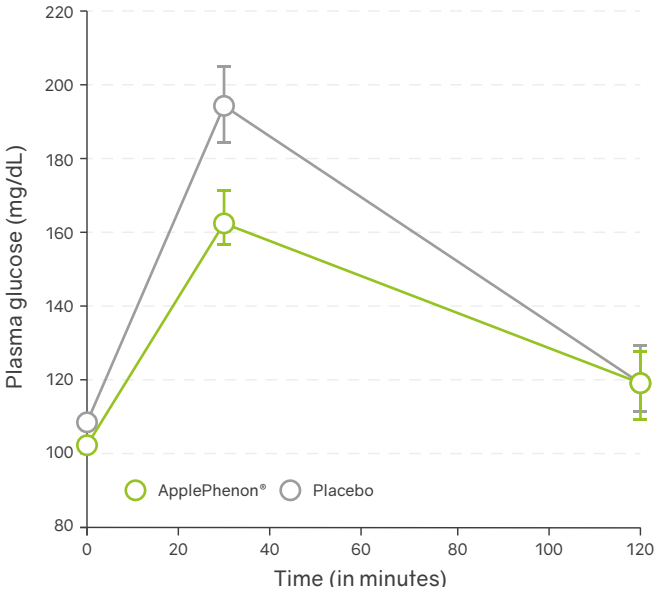
Benefits for blood sugar control

Elevated blood sugar levels (hyperglycemia) after an oral glucose tolerance test (OGTT) indicate impaired glucose regulation, often due to insulin resistance or inadequate insulin response. This can be a signal that the individual is at increased risk for – or already suffering from – type 2 diabetes.[12]

A 12-week clinical trial looked at the effects of ApplePhenon® on blood sugar levels in 65 adults with fasting plasma glucose levels of 100-125mg/dL (5.6-6.9mmol/L).[12] The diagnostic threshold for type 2 diabetes is ≥126mg/dL (7mmol/L).

Participants took either 600mg ApplePhenon® or a placebo once a day. After 12 weeks, the ApplePhenon® participants with high-normal/borderline blood sugar levels at baseline had a significantly smaller rise in blood sugar levels 30 minutes post-OGTT than the placebo group.

Earlier preclinical research suggested that this was due to ApplePhenon®'s potential for improving insulin sensitivity in the liver by suppressing chronic inflammation.[13]



PRODUCT INFORMATION

- ApplePhenon®'s high quality is underpinned by:
  - Rigorous screening and manufacturing processes
  - Non-GMO third-party certification
  - GRAS status
  - Protection by five international product, process, and use patents
- ApplePhenon® is ideal for oral consumption in everyday applications to eliminate pill fatigue and fit conveniently into consumer lifestyles
- ApplePhenon® does not require any changes to diet or exercise
- ApplePhenon® also provides clinically proven benefits for skin,[14,15] gut,[16] and oral health[17,18,19,20]

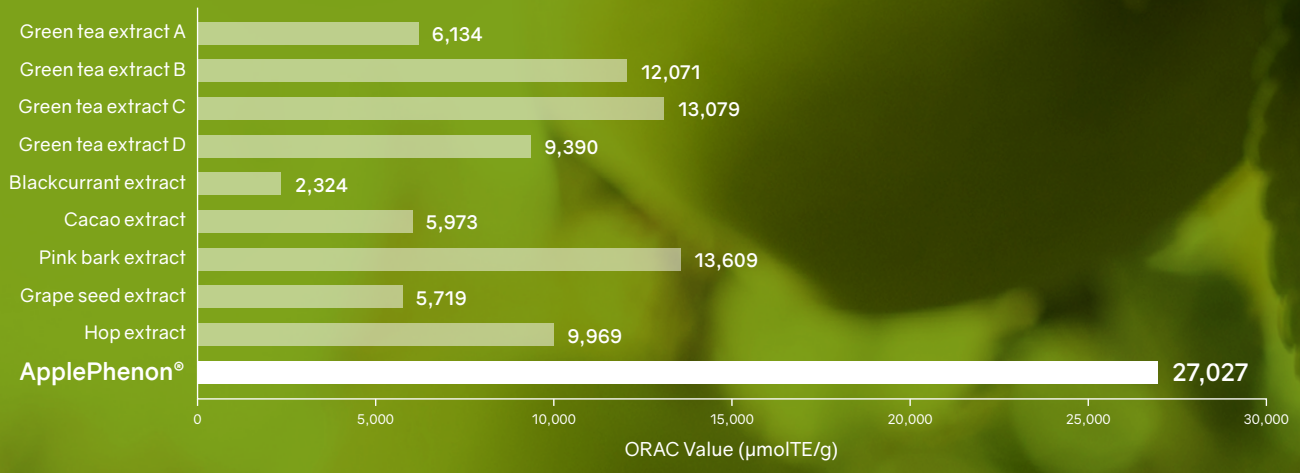
Easy to formulate

- **600mg daily dose for weight management**
- **Water-soluble**
- **Highly stable – resistant to heat, acid, and light**
- **36-month shelf life**

ApplePhenon® is extracted from upcycled apples with a naturally high procyanidin content. BGG's proprietary extraction process and advanced purification technology preserve strong antioxidant activity and a unique, optimized phytochemical profile of oligomeric procyanidins, which are highly bioavailable.

In ApplePhenon®, 60% of the polyphenols are procyanidins, and 70% of these comprise very small oligomers – short chains of two to six molecules. Their small size makes oligomeric procyanidins more readily absorbed from the gut into the bloodstream than other polyphenol-rich products, which have a higher proportion of polymers (longer chains of molecules).

In ORAC (Oxygen Radical Absorbance Capacity) tests, ApplePhenon® outperformed well-known antioxidants.



ApplePhenon® demonstrates high antioxidant activity, with significantly higher ORAC values than other popular antioxidant ingredients

Applications

Capsules · Tablets · Beverages · Gummies · Dairy · Chewing gum · Bars · Cereals

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ApplePhenon® is a unique apple extract that meets consumer demand for a natural, effective weight-management solution from a popular and familiar source.

Our experts are on hand to provide technical support and guidance for using ApplePhenon® for weight-management applications and more.

Contact us now to explore the possibilities:

support@bggworld.com
supporteu@bggworld.com
www.bggworld.com

BGG: Your natural partner

Since its inception in 1995, BGG has become a global leader in specialty extracts and compounds encapsulating the best of fruit, marine, and herbal offerings. BGG produces clinically validated natural ingredients from premium and non-GMO sources for the dietary supplement, food and beverage, pharmaceutical, animal nutrition, and cosmetic sectors. BGG is adept at partnering with clients to develop innovative health products and optimize their success in the market. With local offices in the US, Switzerland, China and Japan, BGG assures seamless service and technical assistance.

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