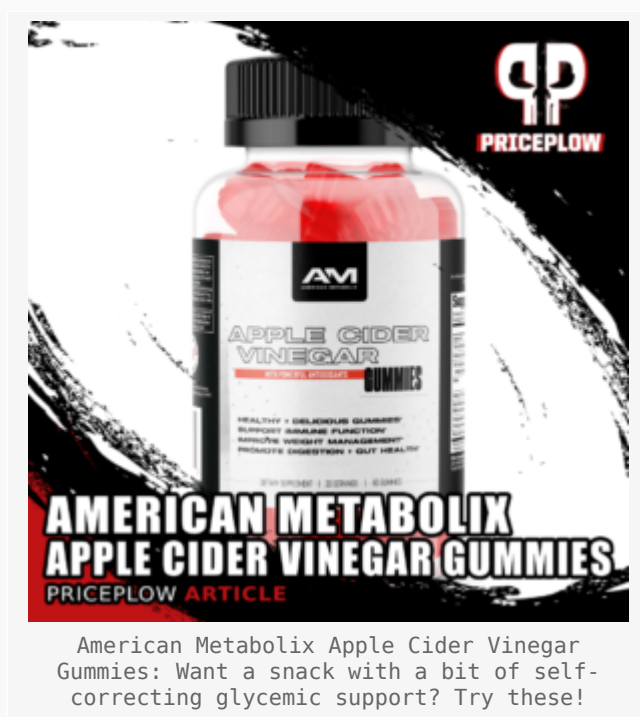


American Metabolix Apple Cider Vinegar Gummies: Snack Smart with ACV

written by Mike Roberto | April 5, 2022

We're back for the second of two articles on the new American Metabolix Gummies, this time digging into American Metabolix Apple Cider Vinegar Gummies.

Previously, we covered their turmeric counterparts in our article titled *American Metabolix Turmeric Gummies: A Smarter Ginger-Flavored Snack*. In those, there was a noticeable zing of ginger that may definitely sway some taste buds.



American Metabolix Apple Cider Vinegar Gummies: Want a snack with a bit of self-correcting glycemic support? Try these!

Today's a bit more straightforward – we have a “standard” fruit punch flavored gummy that's enhanced with apple cider vinegar, so there *is* a bit of bite to it, but the taste and texture are spot on.

Similar to our discussion in the *Turmeric* article linked above, the same rules apply – we believe these are a *smarter* snack if you're looking for a hit of sugar that's *not* bogged down by corn syrup or processed oils.

Below, we discuss the research behind apple cider vinegar, and how it's been shown to improve glycemia in both humans and animals. Additionally, there's some synergistic doses of *folate*, *vitamin B12*, *pomegranate juice*, and *beet juice* that add some fuel to the fire.

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American Metabolix Apple Cider Vinegar Gummy Ingredients

In a single *two gummy serving of Apple Cider Vinegar Gummies from American Metabolix*, you get the following:

- **Folate – 400 micrograms Dietary Folate Equivalent (240 micrograms folic acid) (100% daily value)**

Supplement Facts		
Serving Size: 2 Pieces Servings Per Container: 30		
Amount Per Serving	%DV	
Calories: 24	Calories from fat: 0	
Total Carbohydrates	6g	2%
Sodium (as Sodium citrate)	12mg	<1%
Sugar	4g	**
Includes Added Sugars	4g	8%
Folate	400mcg DFE (240 mcg folic acid)	100%
Vitamin B12 (as Cyanocobalamin)	2mcg	83%
Apple Cider Vinegar Powder <i>(Malus pumila mill)</i> (Fruit)	1000mg	**
Pomegranate Juice Powder <i>(Punica granatum L.)</i> (Fruit)	80mcg	**
Beet Juice Powder <i>(Beta vulgaris L)</i> (root)	80mcg	**

† Percent Daily Value is based on a 2,000 calorie diet
** Daily Value (DV) not established

Other Ingredients: Glucose Syrup, Sugar, Glucose, Pectin, Citric Acid, Natural Apple Flavour, Vegetable Oil (Contains Carnauba Wax), Purple Carrot Juice Concentrate, B-Carotene.

Folic acid is an essential nutrient, meaning that our bodies cannot synthesize it endogenously, so we must obtain it from diet or supplements.[1,2] It plays

a crucial role in DNA synthesis and important enzymatic reactions in the body.[1]

However, contrary to popular belief, *folic acid* and **folate** are *not* the same thing. Folate refers to a class of chemical compounds with molecular structures that are similar to that of folic acid.[1]

Folate occurs naturally in many foods, but only a few have concentrations high enough to supply an adult man or woman with their daily recommended intake of folate. Good sources of folate include egg yolks, citrus fruits, leafy green vegetables (especially spinach) and legumes.[1]

Both folate and folic acid must be *methylated* before they can be biologically active in the human body.

Specific uses of folate include the synthesis and repair of DNA, reproduction and division of cells, red blood cell development, and reduction of homocysteine to methionine.[2] Folate's participation in the methionine-homocysteine cycle is particularly important because evidence is mounting that elevated homocysteine levels are associated with cardiovascular disease.[3]

Other diseases in which folate *deficiency* is a contributing factor include anemia, neural tube defects, and cancer.[2] Best to work to avoid that, and it could be as simple as taking a couple delicious gummies to help you get there!

- **Vitamin B12 (cyanocobalamin) – 2 mcg (83% DV)**

Vitamin B12's various forms are referred to as the "cobalamins" because they all contain *cobalt* atoms.[4]



Deficiencies in this water-soluble vitamin can cause huge problems for those afflicted, including anemia, cognitive dysfunction, major depression, peripheral neuropathy, demyelination, and elevated levels of *homocysteine*,[5] a problematic amino acid discussed in the folate section above.

Because vitamin B12 occurs mostly in animal products and absorption decreases with age, vegans, vegetarians and the elderly are at highest risk for developing vitamin B12 deficiency.[5]

Even a *slight* deficiency of vitamin B12 can significantly impair your cognitive performance,[6] a problem that, if caught early enough, is easily corrected by appropriate supplementation.

Because of B12's crucial role in regulating *homocysteine* levels, a B12 deficiency can put you at elevated risk for cardiovascular disease.[5] Other issues potentially contributed to by B12 deficiency are cancer, cerebrovascular disease (a group of conditions that affect blood vessels and blood flow in the brain), and generally poor mental health.[5] Vitamin B12 and folate complement each other,[5] which is why American Metabolix stacked them together here.

Now for the star of the show:

- **Apple Cider Vinegar Powder – 1,000 mg**

Apple cider vinegar (ACV) has been used for a long time in traditional and folk systems of medicine.

How apple cider vinegar is made: more than just acetic acid

The process of making ACV is similar to making beer, wine, and spirits: yeast is added to crushed apples prior to fermentation. The result is an alcoholic substance.[7] After that, special bacterial cultures (*acetobacter*[8] – the “mother”) are added to the liquid, where they create **acetic acid** as a metabolic byproduct.



Image courtesy Wikimedia

Acetic acid is the main component of *vinegar*, but with *apple cider vinegar*, we get other beneficial constituents including phenolic compounds like *gallic acid*, *chlorogenic acid*, *catechin* and *epicatechin*, *caffeic acid*, and *p-coumaric acid*. [9]

As a substance, ACV has been mocked as a nutritional “free lunch”, in spite of its amino acid, vitamin, mineral, and antioxidant content. It clocks in at a mere 3 calories per teaspoon, and there’s a growing body of evidence that it provides numerous health benefits.

Historically, ACV has been used to treat a wide range of ailments, from colds to obesity. But it wasn’t until recently that modern science started taking your grandmother’s wisdom seriously. Now they’re formally verifying her claims.

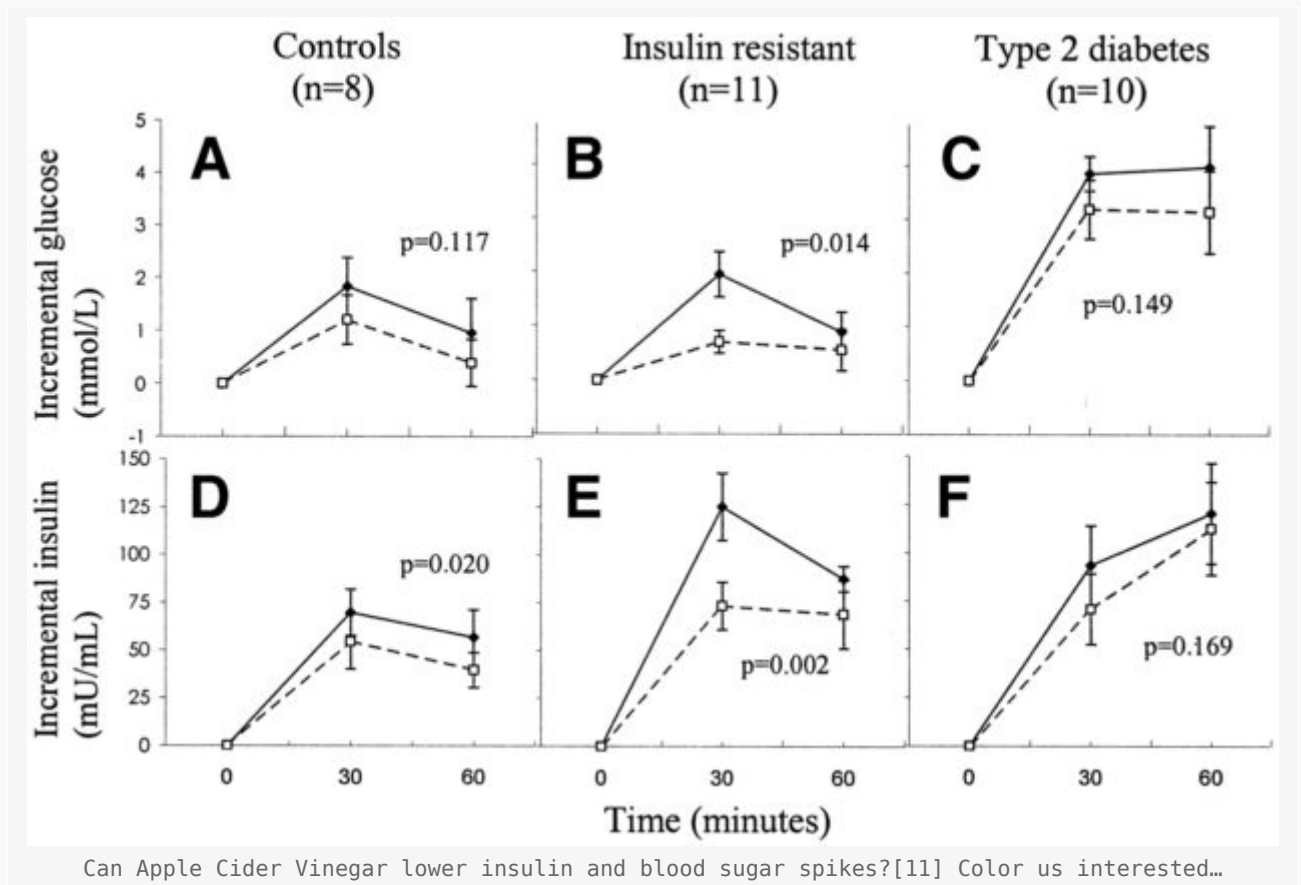
ACV Antioxidants

As we alluded to above, ACV is a source of potent antioxidant compounds. It contains a ton of *polyphenols*[9] which help the body function normally in a variety of ways,[10] including neutralizing free radicals, which help alleviate the burden of oxidative stress on your body.

ACV and blood sugar regulation

The precise mechanisms by which ACV regulates blood sugar and insulin sensitivity aren't yet known, but preliminary research indicates it might be useful in glucose disposal type applications.

For example, a 2004 study from Arizona State University set out to examine how ACV affected the metabolisms of people who were insulin-resistant and had diagnosed type 2 diabetes. After fasting overnight, the test groups consumed 20 grams of ACV, followed immediately by a breakfast meal containing lots of carbohydrates. Compared to the placebo control group, the ACV group showed significantly improved insulin levels.[11]



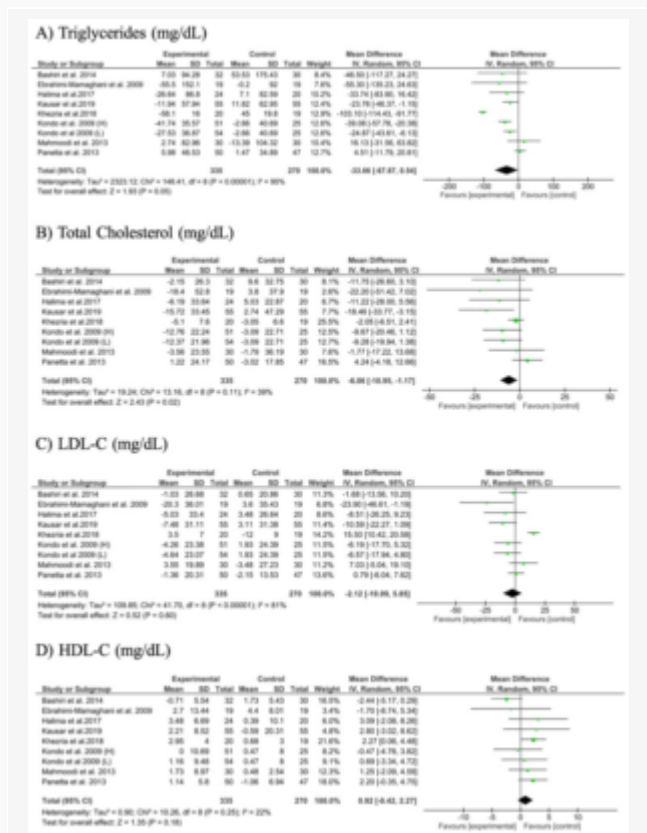
Another study showed that the combination of carbohydrate foods with vinegar could decrease the GI value of white rice by 20 to 35%.[12]

Other studies focused more specifically on the glucose side of type 2 diabetes have found that the *acetic acid* that is found in such high concentrations in ACV significantly reduces blood glucose levels[13,14] when taken *with* meals. It's theorized that it possibly works by inhibiting the full digestion of dietary carbohydrates[15] or by facilitating cellular glucose uptake.[16]

ACV and cardiovascular health

In a society where cardiovascular disease and the occurrence of low HDL

cholesterol alongside high triglyceride blood levels are very much on the rise, we would do well to look out for cheap, effective, and commonly available therapies for these conditions. It turns out that ACV might be one of them.



This apple cider vinegar meta-analysis shows an impressive simultaneous reduction in triglycerides alongside increased HDL cholesterol,[17] indicating better insulin sensitivity and overall health!

Research indicates that the polyphenols in ACV significantly reduce the serum triglyceride levels while raising HDL cholesterol (the “good cholesterol”) in both animals and humans,[17-19] which generally indicates better insulin sensitivity.[20,21]

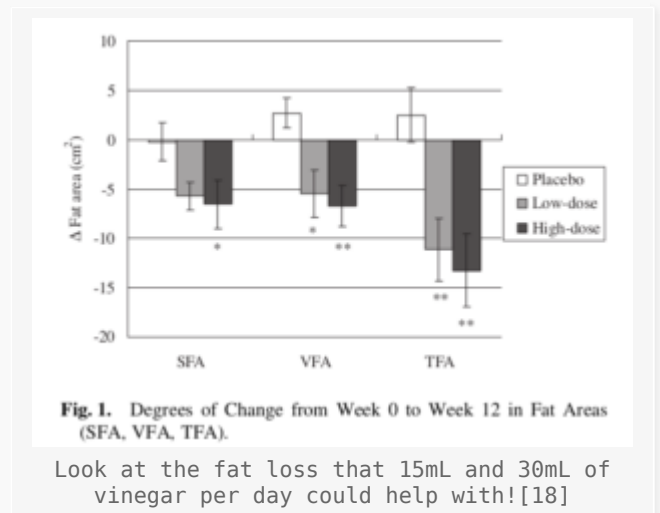
There’s one well-known study where women who ate a salad dressing containing ACV had a lower risk of heart disease compared to those who didn’t,[22] but since dressing contained alpha-lipoic acid (a known cardioprotective compound) there was at least one confounding variable in this study – and we cannot conclude that the ACV was responsible.

Overall, the research looks pretty good, and if nothing else, you should consider finding ways to include various types of vinegars with your carbohydrate-containing meals, such as rice. We’re excited to see more research come out regarding ACV’s effects in human subjects.

ACV and Obesity

The million-dollar question, and the reason you're probably reading this article, is: does ACV have anti-obesity effects?

A 2009 study conducted in Japan indicates that yes, ACV is, potentially a good weight loss aid.[18] In this study, researchers divided the subject population into three groups: the first group consumed *one liquid* tablespoon of ACV per day, the second group drank *two* tablespoons of ACV per day, and the third group got a placebo.



The group that consumed *one* daily tablespoon lost an average of 2.6 pounds, a 0.7% reduction in their average body fat percentage.[18] The *two* tablespoon group lost even more weight, 3.7 pounds—a 0.9% reduction in body fat. The placebo group *gained* an average of 0.9 pounds. In the discussion section of their study, the researchers concluded that ACV is a potential therapy for obesity.[18]

Looking beyond weight loss, the higher group receiving the higher ACV dose had a significant reduction in both triglycerides and systolic blood pressure.[18]

In an *animal study* with mice, ACV was shown to upregulate a complex of genes responsible for fatty acid oxidation, which, in theory, should help discourage weight gain.[23]

Overall, the research seems strong enough that apple cider vinegar – or vinegar consumption in general – deserves another look from the greater fitness community. The idea of using it to “tone down” the sugar is a creative one, so that we can enjoy our snack with less guilt.

- **Pomegranate Juice Powder – 80 mcg**

Pomegranate, whether in juice, powder or in extract form, is a potent

stimulator of *nitric oxide* (NO) synthesis,[24-30] which triggers *vasodilation*. As a result, it can improve blood flow[28] and reduce blood pressure, both in acute and chronic cases.[31] However, before going further, note that this is a very small dose that likely won't elicit much effect compared to the apple cider vinegar.



Interested in further improving glycemia? Consider going ultra low carb. With calories coming from 75% fat, 20% protein, and 5% carbs, *American Metabolix Keto Meal* is a real ketogenic meal replacement – and it uses keto-friendly foods like whole eggs and butter!

In animal studies, pomegranate supplementation has been shown to significantly decrease *vascular inflammation*, as well as *raise* levels of nitrate and nitrite in the animals' blood.[32] Although the precise mechanism by which pomegranate does this is not clear. Researchers believe it may be driven by pomegranate's incredibly high content of *polyphenol antioxidants*, like *oleanolic acid*, *ursolic acid*, and *gallic acid*.[26] The theory is that these polyphenols upregulate endothelial nitric oxide (eNOS) expression.[27]

Gallic acid may sound familiar because it's also in apple cider vinegar, which is referenced above. This leads us to believe that there could be some natural synergies between the ingredients in American Metabolix ACV Gummies – and pomegranate juice also has synergy with beet juice, discussed next.

Getting back to pomegranate, it also happens to tackle the NO problem from the *other* end too – by preventing existing NO from being oxidized and broken down.[33]

Human studies have shown that pomegranate *extract* is, to quote one such study performed by exercise and sport science researchers, "*ergogenic for intermittent running, eliciting beneficial effects on blood flow.*"[28] As is

typical with NO boosting compounds, pomegranate seems to reduce oxygen requirements during exercise.[29]

- **Beet Juice Powder – 80 mcg**



Beet juice powder is a great source of *nitrates*, specifically *inorganic nitrate* (NO_3^-).[34,35] Once again, we have a very small dose that likely won't elicit much effect. However, beets are worth knowing about because of their impressive effects when highly dosed.

The nitrates are the main reason why beet juice has been shown to significantly increase *nitric oxide (NO)* production:[34,35] the *nitrates* in beets get converted to *nitrites* via the *nitrate reductase* enzyme, and nitrite is used to synthesize *NO* within the stomach.

Similar to the pomegranate powder discussed above, this NO-boosting effect means that you could get better blood flow and more efficient delivery of nutrients and oxygen to your cells, especially in peripheral tissues. That's why studies have shown that supplementing with beet juice powder has an *ergogenic effect*, increasing performance in both aerobic and anaerobic activities.[34,35]

However, this is a low dose of beet juice and we don't expect very much appreciable nitrate content. It works well alongside pomegranate juice, but the real active ingredient in these gummies is of course the apple cider vinegar.

On the flavor...

In our *American Metabolix Turmeric Gummies* article, we let readers know that there's a solid hit of *ginger* flavor inside, which we personally love. There are fewer surprises with these Apple Cider Vinegar Gummies. Here, we have a more traditional fruit punch flavor, with a kick of vinegar inside that's quite addictive.

We once again have natural colors, this time coming from *purple carrot juice concentrate* and *beta-carotene*, natural add-ons we're happy to have.

Conclusion: Apple Cider Vinegar in fun form



Normally, people eat their sweet dessert *after* their meals. But in this case, with apple cider vinegar inside, it's not a bad idea to eat them *with* meals, since that's how many of the studies went. While gummies include their own sugars, we enjoy ingredients that enable the processing of those sugars – they could potentially be used as a nice little post-workout sugar snack that will help drive insulin sensitivity just a bit more.

Meanwhile, with lots of folate (a tough nutrient to get enough of, especially if

cutting calories), this ACV “pump gummies” for blood-sugar control, appetite suppression, and nitric oxide boosting ingredients, are great for sustaining weight loss via calorie restriction and increased exercise.

In general, most users are going to like American Metabolix Apple Cider Vinegar Gummies more than their Turmeric counterparts. But if you’re more into *ginger* and *zing*, check our article on those out, where we cover plenty of turmeric/curcumin science as well.

Until then, you can sign up for American Metabolix news alerts below:

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References

1. Greenberg, JA et al. “Folic Acid supplementation and pregnancy: more than just neural tube defect prevention.” *Reviews in obstetrics & gynecology* vol. 4,2 (2011): 52-9; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3218540/>
2. Revuelta, José Luis et al. “Formation of folates by microorganisms: towards the biotechnological production of this vitamin.” *Applied microbiology and biotechnology* vol. 102,20 (2018): 8613-8620. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6153639/>
3. Ganguly, Paul, and Sreyoshi Fatima Alam. “Role of homocysteine in the development of cardiovascular disease.” *Nutrition journal* vol. 14 6. 10 Jan. 2015, doi:10.1186/1475-2891-14-6; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4326479/>
4. National Institutes of Health. “Vitamin B12 – Fact Sheet For Health Professionals.” *Office of Dietary Supplements*; 2020; <https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/>
5. Ryan-Harshman, M, and Aldoori, W. “Vitamin B12 and health.” *Canadian family physician Medecin de famille canadien* vol. 54,4 (2008): 536-41; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2294088/>
6. Köbe T, Witte AV, Schnelle A, Grittner U, Tesky VA, Pantel J, Schuchardt JP, Hahn A, Bohlken J, Rujescu D, Flöel A. Vitamin B-12 concentration, memory performance, and hippocampal structure in patients with mild cognitive impairment. *Am J Clin Nutr.* 2016 Apr;103(4):1045-54. doi: 10.3945/ajcn.115.116970; <https://pubmed.ncbi.nlm.nih.gov/26912492/>
7. Budak, Nilgün H., et al; “Functional Properties of Vinegar.”; *The Canadian Journal of Chemical Engineering*; Wiley-Blackwell; 8 May 2014; <https://onlinelibrary.wiley.com/doi/full/10.1111/1750-3841.12434>
8. Cleenwerck, I, et al. “Re-Examination of the Genus *Acetobacter*, with Descriptions of

- Acetobacter Cerevisiae* Sp. Nov. And *Acetobacter Malorum* Sp. Nov." *International Journal of Systematic and Evolutionary Microbiology*, vol. 52, no. 5, 1 Sept. 2002, pp. 1551–1558, 10.1099/00207713-52-5-1551; <https://pubmed.ncbi.nlm.nih.gov/12361257/>
9. Budak, Nilgun H., et al. "Effects of Apple Cider Vinegars Produced with Different Techniques on Blood Lipids in High-Cholesterol-Fed Rats." *Journal of Agricultural and Food Chemistry*, vol. 59, no. 12, 22 June 2011, pp. 6638–6644, 10.1021/jf104912h; <https://pubmed.ncbi.nlm.nih.gov/21561165/>
 10. Budak, Nilgun H., et al; "Effects of Apple Cider Vinegars Produced with Different Techniques on Blood Lipids in High-Cholesterol-Fed Rats."; *Journal of Agricultural and Food Chemistry*; vol. 59, no. 12; 2011; pp. 6638–6644; <https://pubs.acs.org/doi/abs/10.1021/jf104912h>
 11. Johnston, Carol S., et al; "Vinegar Improves Insulin Sensitivity to a High-Carbohydrate Meal in Subjects With Insulin Resistance or Type 2 Diabetes."; *Diabetes Care*, American Diabetes Association; 1 Jan. 2004; <http://care.diabetesjournals.org/content/27/1/281.full>
 12. Sugiyama, M, et al; "Glycemic Index of Single and Mixed Meal Foods among Common Japanese Foods with White Rice as a Reference Food."; *Nature News*; Nature Publishing Group; 5 June 2003; <https://www.nature.com/articles/animal1601606>
 13. Ebihara K, Nakajima A. 1988. Effect of acetic acid and vinegar on blood glucose and insulin responses to orally administered sucrose and starch. *Agric Biol Chem* 52:311–2; <https://academic.oup.com/abb/article-abstract/52/5/1311/5967773>
 14. Leeman, M, et al; "Vinegar Dressing and Cold Storage of Potatoes Lowers Postprandial Glycaemic and Insulinaemic Responses in Healthy Subjects."; *Nature News*; Nature Publishing Group; 20 July 2005; <https://www.nature.com/articles/1602238>
 15. Ogawa, N, et al; "Acetic Acid Suppresses the Increase in Disaccharidase Activity That Occurs during Culture of Caco-2 Cells."; *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; Mar. 2000; <https://www.ncbi.nlm.nih.gov/pubmed/10702577?dopt=Abstract>
 16. Fushimi, T, and Y Sato; "Effect of Acetic Acid Feeding on the Circadian Changes in Glycogen and Metabolites of Glucose and Lipid in Liver and Skeletal Muscle of Rats."; *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; Nov. 2005; <https://www.ncbi.nlm.nih.gov/pubmed/16277773?dopt=Abstract>
 17. Hadi, Amir, et al. "The Effect of Apple Cider Vinegar on Lipid Profiles and Glycemic Parameters: A Systematic Review and Meta-Analysis of Randomized Clinical Trials." *BMC Complementary Medicine and Therapies*, vol. 21, 29 June 2021, 10.1186/s12906-021-03351-w; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8243436/>
 18. Kondo, T, et al; "Vinegar Intake Reduces Body Weight, Body Fat Mass, and Serum Triglyceride Levels in Obese Japanese Subjects."; *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; Aug. 2009; <https://www.ncbi.nlm.nih.gov/pubmed/19661687> (full-text PDF)
 19. Latifi. "Apple Cider Vinegar Attenuates Lipid Profile in Normal and Diabetic Rats." *Pakistan Journal of Biological Sciences*, vol. 11, no. 23, 1 Dec. 2008, pp. 2634–2638, 10.3923/pjbs.2008.2634.2638; <https://pubmed.ncbi.nlm.nih.gov/19630216/>
 20. Bertsch, Ruth Ann, and Maqdooda A Merchant. "Study of the Use of Lipid Panels as a Marker of Insulin Resistance to Determine Cardiovascular Risk." *The Permanente journal* vol. 19,4 (2015): 4-10. doi:10.7812/TPP/14-237; <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC4625988/>
 21. Castelli, William P. "Epidemiology of Triglycerides: A View from Framingham." *American Journal of Cardiology*, vol. 70, no. 19, 14 Dec. 1992, pp. H3–H9, 10.1016/0002-9149(92)91083-G; [https://www.ajconline.org/article/0002-9149\(92\)91083-G/fulltext](https://www.ajconline.org/article/0002-9149(92)91083-G/fulltext)
 22. Hu, F B, et al; "Dietary Intake of Alpha-Linolenic Acid and Risk of Fatal Ischemic Heart Disease among Women."; *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; May 1999; <https://www.ncbi.nlm.nih.gov/pubmed/10232627>
 23. Kondo, T, et al; "Acetic Acid Upregulates the Expression of Genes for Fatty Acid Oxidation Enzymes in Liver to Suppress Body Fat Accumulation."; *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; 8 July 2009; <https://www.ncbi.nlm.nih.gov/pubmed/19469536>
 24. Ignarro, Louis J., et al. "Pomegranate Juice Protects Nitric Oxide against Oxidative Destruction and Enhances the Biological Actions of Nitric Oxide." *Nitric Oxide*, vol. 15, no. 2, Sept. 2006, pp. 93–102, 10.1016/j.niox.2006.03.001; <https://pubmed.ncbi.nlm.nih.gov/16626982/>
 25. de Nigris, Filomena, et al. "The Influence of Pomegranate Fruit Extract in Comparison to Regular Pomegranate Juice and Seed Oil on Nitric Oxide and Arterial Function in Obese Zucker Rats." *Nitric Oxide*, vol. 17, no. 1, Aug. 2007, pp. 50–54,

- 10.1016/j.niox.2007.04.005; <https://pubmed.ncbi.nlm.nih.gov/17553710/>
26. Katz, Sarah Rachel, et al. "Punica Granatum: Heuristic Treatment for Diabetes Mellitus." *Journal of Medicinal Food*, vol. 10, no. 2, June 2007, pp. 213–217, 10.1089/jmf.2006.290; <https://pubmed.ncbi.nlm.nih.gov/17651054/>
 27. de Nigris, Filomena, et al. "Effects of a Pomegranate Fruit Extract Rich in Punicalagin on Oxidation-Sensitive Genes and ENOS Activity at Sites of Perturbed Shear Stress and Atherogenesis." *Cardiovascular Research*, vol. 73, no. 2, 15 Jan. 2007, pp. 414–423, 10.1016/j.cardiores.2006.08.021; <https://pubmed.ncbi.nlm.nih.gov/17014835/>
 28. Trexler, Eric T., et al. "Effects of Pomegranate Extract on Blood Flow and Running Time to Exhaustion." *Applied Physiology, Nutrition, and Metabolism*, vol. 39, no. 9, Sept. 2014, pp. 1038–1042, 10.1139/apnm-2014-0137; <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC4146683/>
 29. Crum, Emma M., et al. "Multiday Pomegranate Extract Supplementation Decreases Oxygen Uptake during Submaximal Cycling Exercise, but Cosupplementation with N-Acetylcysteine Negates the Effect." *International Journal of Sport Nutrition and Exercise Metabolism*, vol. 28, no. 6, 1 Nov. 2018, pp. 586–592, 10.1123/ijsnem.2017-0407; <https://pubmed.ncbi.nlm.nih.gov/29431536/>
 30. Schmitt, Christoph A., and Verena M. Dirsch. "Modulation of Endothelial Nitric Oxide by Plant-Derived Products." *Nitric Oxide*, vol. 21, no. 2, Sept. 2009, pp. 77–91, 10.1016/j.niox.2009.05.006; <https://pubmed.ncbi.nlm.nih.gov/19497380/>
 31. Asgary, Sedigheh, et al. "Pomegranate Consumption and Blood Pressure: A Review." *Current Pharmaceutical Design*, vol. 23, no. 7, 12 Apr. 2017, pp. 1042–1050, 10.2174/13816128226661610101033339; <https://pubmed.ncbi.nlm.nih.gov/27748197/>
 32. de Nigris, Filomena, et al. "The Influence of Pomegranate Fruit Extract in Comparison to Regular Pomegranate Juice and Seed Oil on Nitric Oxide and Arterial Function in Obese Zucker Rats." *Nitric Oxide*, vol. 17, no. 1, Aug. 2007, pp. 50–54, 10.1016/j.niox.2007.04.005; <https://pubmed.ncbi.nlm.nih.gov/17553710/>
 33. Ignarro, Louis J., et al. "Pomegranate Juice Protects Nitric Oxide against Oxidative Destruction and Enhances the Biological Actions of Nitric Oxide." *Nitric Oxide*, vol. 15, no. 2, Sept. 2006, pp. 93–102, 10.1016/j.niox.2006.03.001; <https://pubmed.ncbi.nlm.nih.gov/16626982/>
 34. Domínguez, Raúl et al.; "Effects of Beetroot Juice Supplementation on Cardiorespiratory Endurance in Athletes. A Systematic Review."; *Nutrients* vol. 9,1 43. 6 Jan. 2017, doi:10.3390/nu9010043; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5295087/>
 35. Domínguez, Raúl et al.; "Effects of beetroot juice supplementation on intermittent high-intensity exercise efforts."; *Journal of the International Society of Sports Nutrition* vol. 15 2. 5 Jan. 2018, doi:10.1186/s12970-017-0204-9; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5756374/>