



All About Glycerin

Glycerol (or **glycerine**, **glycerin**) is a simple polyol (sugar alcohol) compound. It is a neutral, sweet-tasting, colorless, thick liquid which has a low freezing point (36 °F / -37.8 °C) forming a gummy paste and which has a high boiling point as well. It can be dissolved into water or alcohol, but not oils. On the other hand, glycerin facilitates solution of compounds better than water or alcohol, making it a good solvent.

Glycerin is formed through the processing of fats and oils using hydrolysis. Common sources are vegetables, particularly corn, so it is important to find an organic, non-GMO source if you are using it for internal use. [Azure Standard](#) has a pure source, and it can be purchased inexpensively in 1-5 gallon quantities. A 16 ounce bottle of glycerin from the health food store runs about \$9-10, and the source is not necessarily food-grade nor organic, but through Azure Standard, you pay around \$17 for a 1-gallon jug, and \$78 for a 5-gallon bucket.

Glycerin is also a natural by-product of the soapmaking process (which involves the use of fats as well) and is regrettably removed by some commercial manufacturers to be used in their more profitable lotions and creams. On the contrary, handcrafted soaps retain glycerin in each and every bar.

Glycerin is a humectant, meaning it attracts moisture to your skin. Have you ever noticed how a glycerin soap bar forms beads of moisture on the surface? This is because the glycerin is extracting water from the air. So effective it is in attracting moisture that 100% undiluted glycerin can raise a blister on your skin or tongue through dehydration. However, if diluted with water, it is moisturizing to the skin.

Here are a few uses for glycerin cited by [Wikipedia](#):

- Glycerol and water are used to preserve certain types of leaves (as in alcohol-free herbal tinctures). See ***“How to Make an Herbal Extract”*** on [my website](#) under Resources> Healthy Recipes.
- It does not feed the bacteria that form plaques and cause dental cavities.
- It is added to icing (frosting) to prevent it setting too hard.
- Glycerol was historically used as an anti-freeze for automotive applications before being replaced by [ethylene glycol](#), which has a lower freezing point. The minimum freezing point temperature is at about -36 °F / -37.8 °C corresponding to 70% glycerol in water.
- As a food additive, glycerol is labeled as [E number](#) E422.

As a food additive, including in some nutritive bars, glycerin possesses several unique characteristics including:

- Stability
- Taste
- Hydration potential (used in cosmetics for this purpose as well)
- Satiety/texture
- Slower potential degradation to blood glucose, as compared to an equal dose of carbohydrate

While glycerin is metabolized on the order of a carbohydrate, it does not act completely in the body, physiologically, like a simple carbohydrate or a sugar. It does not elicit the same glycemic response, or have the same effect on insulin secretion or activity as carbohydrates.



High glycemic carbohydrates and sugars trigger the release of insulin and activate the negative effects insulin has on muscle growth, endurance, performance and fat storage. Immediately following a high carbohydrate meal, the glucose that is absorbed into the blood stream causes a rapid secretion of insulin (an insulin spike). This in turn causes a rapid uptake, storage and use of glucose by the muscles, adipose tissue (fat) and the liver, as well as other tissues of the body.

After a meal, glucose is:

1. Shuttled into muscle fiber for use as energy
2. Stored in the liver in the form of glycogen
3. Stored as fat when there is an excess in muscle fibers and/ or liver

Controlling insulin spikes is important to:

- Muscle building
- Fat burning
- Reducing body-fat storage

Nutrition Facts	
Serving Size 1 tsp (5 mL)	
Servings Per Container: 48	
Amount Per Serving	
Calories 22	
% of Daily Value*	
Total Fat 0g	0%
Total Carbohydrate 5mg	2%
Sodium 0mg	0%
Protein 0g	
Not a significant source of Calories from Fat, Saturated Fat, Cholesterol, Dietary Fiber, Sugars, Vitamin A, Vitamin C, Calcium or Iron.	
*Percentage of Daily Value based on a 2,000 calorie diet.	

Ingredient:
Glycerin (USP Vegetable).

Insulin is a fat-storage hormone, so fat breakdown and the use of fat as an energy source are enhanced in the absence of excessive insulin. In the absence of excess insulin, the enzyme lipase in the fat cells causes **stored triglycerides** and glycerol to be released into the blood. The free fatty acids then become the main source of fuel to be burned as energy. A fatty liver and elevated triglycerides are indicators of excess insulin secretion. The solution for both is controlling blood sugar spikes and hence insulin spikes by consuming a low-glycemic diet.

Conversely, if the free fatty acid levels are too low, glycogenolysis or muscle breakdown is increased. This is especially crucial during exercise. Thus high insulin can cause muscle to be catabolized, which manifests as muscle wasting.

The key is balance:

- Insulin increases the use of glucose by most of the body's tissues.
- Insulin also promotes fatty acid synthesis.
- Carbohydrates ingested in excess of the amount that can be utilized for immediate energy become used for fat synthesis
- Proper amounts of carbohydrates promote the building of lean muscle mass

Glycerin elicits a Low Glycemic Response. Foods with a Low Glycemic Index support and stabilize blood sugar levels and minimize insulin secretion (spikes).

Summary:

1. Low Glycemic Index (LGI) foods may confer an advantage when eaten before prolonged strenuous exercise by providing a slow-release source of glucose to the blood without the accompanying insulin surge.
2. LGI foods may prolong endurance during strenuous exercise after being eaten, helping to avoid high sugar and insulin. LGI foods yield lower levels of plasma lactate before and during exercise, and maintain plasma glucose and free fatty acids at higher levels during critical periods of exercise.
3. LGI foods may positively affect maximal performance following sustained exercise by maintaining a higher plasma glucose level (measured at the end of 2 hours of strenuous exercise) as compared to high glycemic foods.

4. LGI foods support higher plasma FFA concentrations and more stable glycemic and insulin response. This is good because lower plasma FFA concentrations increase or enhance muscle breakdown. Additionally, having a more stable glycemic response and insulin response leads to less carbohydrate oxidation. Stable blood glucose levels reduce insulin spikes so muscle growth will continue and fat will not be stored!

Ideas For How to Use Glycerin

1. **Hot fudge/ chocolate sauce:**
 - 2 T. glycerin
 - 1 square of unsweetened chocolate of cacao, melted
 - 1/4 tsp. vanilla extract
 - 1 tsp. coconut oil (for a Magic Shell type of topping-- will harden when poured on ice cream)
 - Variations:
 - Mint extract
 - PB2 powder
 - Nut butter (peanut, almond, etc.)
2. **Use as a zero-glycemic index sweetener for tea, coffee, etc.-- use in place of honey, agave, etc.**
3. **Use in pies instead of agave or corn syrup--** See my [December 15, 2013 Blog](#) for healthy pumpkin and pecan pie alternatives. Also, check out my [Sinfully Decadent Raw Chocolate Pie](#) recipe using glycerin! Can also be found under Resources> FREE eResources.
4. **Make your own healthy soft drinks:**
 - 1 glass of sparkling water (flavored or plain)
 - 1 tsp. glycerin, or to taste
 - Optional: lemon or lime juice
5. **Make an All-Natural Anti-Aging Serum:**
 - Dissolve 1 tsp. ascorbic acid in 2 tsp. glycerin by gently heating in a pan while stirring constantly until dissolved and non-gritty. You can also try dissolving ascorbic acid in a few drops of water before mixing with glycerin-- I did not find that this adequately eliminated the grittiness
 - [delightedmama.com](#) claims this serum took 5 years off the biological age of her skin!
 - Optional: Combine ascorbic with an oil blend such as [Naked Organix](#) Kukui, Sea Buckthorn, Tamanu or Argan Body Butters and gently heat, stirring constantly until dissolved and non-gritty. I tend toward dry skin, so I LOVE how this makes my face feel! These are available at Natural Grocers.
6. **Make an All-Natural, Sugar-Free Pancake Syrup:**
 - Add enough maple extract to glycerin to suit your taste. I use [this brand](#), available at [The Crunchy Grocer](#) or Natural Grocers.
 - I thin my syrup with water to tone down the sweetness!

Interested in learning more about healthful alternatives for your favorite foods?

Contact me for a free 15-minute phone consultation!



L'chaim-- To Life!

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