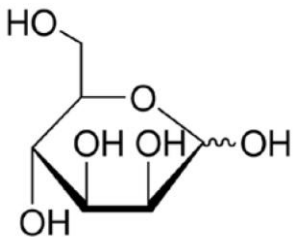


## D-Mannose Powder – 3 oz. (85 g)

### TECHNICAL SUMMARY

D-mannose is a simple sugar that is taken up in the GI tract and rapidly excreted in the urine without affecting blood sugar regulation.\* D-mannose helps to support a normal environment within the bladder by maintaining a healthy mucosal lining and promoting proper elimination.\* Clinical studies indicate that D-mannose can help to maintain normal urinary tract health when used regularly.\*

#### Structure formula:



**Chemical name:** D-Mannose or D-mannoseis, D-mannopyranose, seminose, or carubinose. Chemical formula is C<sub>5</sub>H<sub>11</sub>O<sub>5</sub>CHO. D-mannose is a C-2 epimer of D-glucose.

**Allergen and Additive Disclosure:** Not manufactured with yeast, wheat, gluten, soy, milk, egg, fish, shellfish, or tree nut ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

**Delivery Form:** Pure Powder.

### ROLE AS NUTRIENT/FUNCTION

**Dietary sources:** D-mannose can be found in small amounts in cranberries, black currants, peaches, apples, mangoes, green beans, tomatoes, and aloe vera. D-mannose, a constituent of hemicellulose, mannans, and glycoproteins, can be found in these complex molecules in soy, baker's yeast, and eggs.

**Structural and functional role:** Mannose is an important structural and functional element of some proteins and phospholipids present in multiple tissues, including connective tissues.\* Laboratory experiments have demonstrated that it can stick to undesirable particles in the urine, inhibiting their attachment to uro-epithelial cells, and thus can help maintain a healthy bladder lining.\*

### NATUROKINETICS®

**Liberation:** D-mannose is easily soluble in water, at 17 °C, 248 g of D-mannose can be dissolved in 100 g water to give a 71 wt% solution.

**Absorption:** D-mannose is absorbed in the small intestine. Following oral administration in healthy volunteers, blood D-mannose levels increase in a dose-dependent manner with peak concentrations achieved at T<sub>max</sub> of 1 to 2 hours (Figure 1).

**Distribution:** Absorbed D-mannose is predominantly incorporated into glycoproteins, particularly in the liver (70%), intestine (11%), and serum

## Supplement Facts

Serving Size 1 Level Teaspoon (approx. 2 g)  
 Servings Per Container about 43

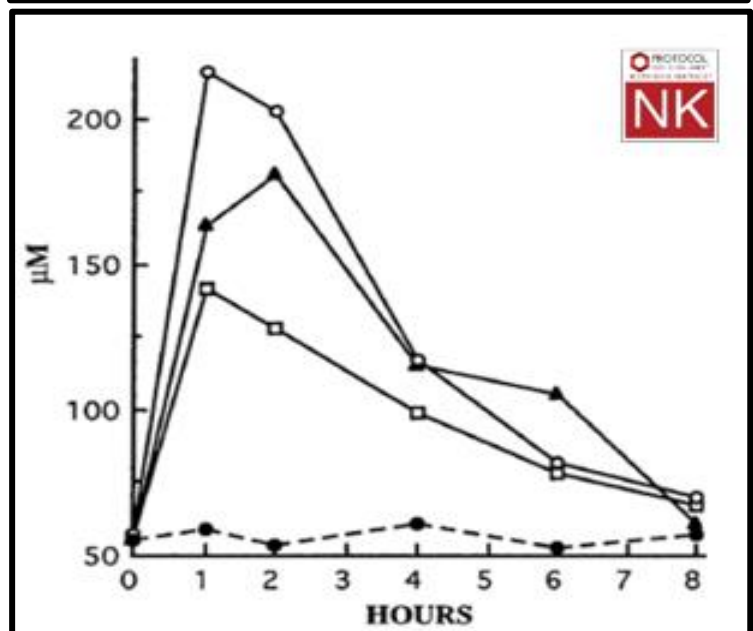
	Amount Per Serving	% Daily Value
Calories	10	
Total Carbohydrate	2 g	< 1%*
Total Sugars	2 g	†
D-Mannose	2 g (2,000 mg)	†

\* Percent Daily Values are based on a 2,000 calorie diet.  
 † Daily Value not established.

Other ingredients: None.

- **Cleanses the Bladder\***
- **Supports a Healthy Urinary Tract\***

**SUGGESTED USAGE:** Take 1 level teaspoon 1 to 2 times daily with water or unsweetened juice, or as directed by your healthcare practitioner.



**Fig. 1.** Blood mannose concentrations after a single dose of mannose in 3 subjects. Doses of (0.07, □), (0.14, ▲), and (0.21, ○) g of mannose/kg body weight or placebo (●).

(15%) within the first hour of supplementation, with less than 10% appearing in the kidneys.

**Metabolism:** D-mannose is phosphorylated by hexokinase into mannose-6-phosphate (M-6-P), and is also transformed to fucose, followed by integration into glycoproteins.

**Elimination:** D-mannose is excreted in urine with a half-life of approximately 4 hours.

### CLINICAL VALIDATION

- In a randomized, comparator-controlled clinical trial with 308 women, supplementation with D-mannose for six months (2 g mannose powder in 200 ml of water daily) resulted in significantly healthier urinary tract.\*
- In a pilot, open label clinical trial with 43 women followed for 12 months, supplementation with a solution of 1.5 g D-mannose twice daily (sodium bicarbonate, sorbitol, and silicon dioxide were also part of the product) for three days followed by 1.5 g D-mannose per day for ten days resulted in an improved quality of life score.\* One month after the beginning of D-mannose supplementation, half of the women were randomized to receive additional D-mannose supplementation for one week per month every other month. This group reported a healthier urinary tract when compared to the women who did not received the second round of D-mannose.\*

### SAFETY INFORMATION

**Tolerability:** D-mannose is generally well tolerated when used as recommended. Gastrointestinal complaints associated with D-mannose supplementation exceeding 2 g/day may include loose stool and bloating.

**Contraindications:** Theoretically, D-mannose could increase levels of glycosylated hemoglobin A1c. Monitoring of patients with diabetes mellitus is recommended.

### INTERACTIONS

**Drug Interactions:** No known interactions.

**Supplement Interactions:** No known interactions.

**Interaction with Lab Tests:** D-mannose may affect the level of glycosylated hemoglobin A1c.

### STORAGE

Store in a cool, dry environment in a tightly sealed container.