

**Vitamin C Intake and the Risk of Gout in Men
A Prospective Study**

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FROM ABSTRACT

Background: Several metabolic studies and a recent double-blind, placebo controlled, randomized trial have shown that higher vitamin C intake significantly reduces serum uric acid levels.

Methods: We prospectively examined the relation between vitamin C intake and risk of incident gout in 46,994 male participants with no history of gout at baseline. We used a supplementary questionnaire to ascertain the American College of Rheumatology criteria for gout. Vitamin C intake was assessed every 4 years through validated questionnaires.

Results: During the 20 years of follow-up, we documented 1,317 confirmed incident cases of gout.

Relative Risk Reductions

| Daily Vitamin C Intake | <250 mg | 500-999 mg | 1000-1499 mg | >1500 mg |
|-------------------------------|----------|-------------|--------------|-------------|
| Incidence of Gout | Baseline | 17% reduced | 34% reduced | 45% reduced |

Conclusions: Higher vitamin C intake is independently associated with a lower risk of gout. Supplemental vitamin C intake may be beneficial in the prevention of gout.

THESE AUTHORS ALSO NOTE:

“Gout is the most common type of inflammatory arthritis in men.”

Studies have suggested that vitamin C supplementation lowers serum uric acid levels.

“The incidence of gout decreased with increasing total vitamin C intake.”

“The incidence of gout also decreased with increasing supplemental vitamin C intake.”

COMMENT FROM AUTHORS:

"We found that the risk of gout decreased with increasing vitamin C intake, resulting in up to a 45% lower risk at the top vitamin C intake category of 1500 mg or more. These associations were independent of dietary and other risk factors for gout, such as BMI, age, hypertension, diuretic use, alcohol use, and chronic renal failure."

"The present study, to our knowledge, provides the first prospective evidence about the inverse association between vitamin C intake and risk of gout."

"Ingestion of a single dose of 4 g of vitamin C doubled the fractional excretion of uric acid, and daily ingestion of 8 g of vitamin C for 3 to 7 days reduced serum uric acid levels by 2.0 to 3.1 mg/dL."

Supplementation with vitamin C as low as 500 mg/d for 2 months reduced serum uric acid levels by 0.5 mg/dL compared with no change in the placebo group.

500 mg/d of vitamin C supplements significantly increases kidney glomerular filtration rate, which may be a mechanism for the lowering of uric acid levels.

The antioxidant action of vitamin C may have a protective effect against gouty inflammation.

The present data suggest that total vitamin C intake of 500 mg/d or more is associated with reduced risk of gout.

A 2004 study published in the American Journal of Clinical Nutrition compared individuals who did not take supplemental vitamin C with those who took more than 700 mg/d: supplementation lowered the risk of coronary heart disease by 25%.

Because vitamin C supplementation is considered safe at levels up to 2000 mg/d in adults, "vitamin C intake may provide a useful option in the prevention of gout."

"In conclusion, these prospective data indicate that vitamin C intake is strongly associated with a lower risk of gout."

"Increasing vitamin C intake may be beneficial in the prevention of gout."

KEY POINTS FROM DAN MURPHY

- 1) "Gout is the most common type of inflammatory arthritis in men."
- 2) Several metabolic studies and a recent double-blind, placebo controlled, randomized trial have shown that higher vitamin C intake significantly reduces serum uric acid levels.
- 3) This study prospectively looked at 46,994 men and followed them for 20 years. They concluded: "Higher vitamin C intake is independently associated with a lower risk of gout. Supplemental vitamin C intake may be beneficial in the prevention of gout."

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- 4) "The incidence of gout decreased with increasing total vitamin C intake."
- 5) "The incidence of gout also decreased with increasing supplemental vitamin C intake."
- 6) "We found that the risk of gout decreased with increasing vitamin C intake, resulting in up to a 45% lower risk at the top vitamin C intake category of 1500 mg or more. These associations were independent of dietary and other risk factors for gout, such as BMI, age, hypertension, diuretic use, alcohol use, and chronic renal failure."
- 7) "The present study, to our knowledge, provides the first prospective evidence about the inverse association between vitamin C intake and risk of gout."
- 8) "Ingestion of a single dose of 4 g of vitamin C doubled the fractional excretion of uric acid, and daily ingestion of 8 g of vitamin C for 3 to 7 days reduced serum uric acid levels by 2.0 to 3.1 mg/dL."
- 9) A 2004 study published in the American Journal of Clinical Nutrition compared individuals who did not take supplemental vitamin C with those who took more than 700 mg/d: supplementation lowered the risk of coronary heart disease by 25%.
- 10) Because vitamin C supplementation is considered safe at levels up to 2000 mg/d in adults, "vitamin C intake may provide a useful option in the prevention of gout."
- 11) "In conclusion, these prospective data indicate that vitamin C intake is strongly associated with a lower risk of gout."