

Gout & Soyfoods

SoyConnection
By U.S. Soy



Prevalance

Gout is the most common form of inflammatory arthritis worldwide. Globally, ~41.2 million people have gout with 7.4 million incident cases per year adding up to almost 1.3 million years of years lived with disability.¹

The prevalence of gout varies markedly among geographical regions (Table 1). Estimates are that 3.9% (9.2 million) Americans have gout. US men are more likely (5.2%, 5.9 million) to report having gout than women (2.7%, 3.3 million).²

Etiology

Symptoms of gout often appear suddenly, and consist of severe attacks of pain, swelling, redness and tenderness in one or more joints, most often in the big toe. Gout is caused by the deposition of monosodium urate crystals in joints and various other tissues and appears in relation to chronic hyperuricemia (elevated uric acid levels).³

Uric acid is the final enzymatic product in the degradation of purine nucleosides and free bases in humans. It is produced by the conversion of the purine derivative hypoxanthine to xanthine and xanthine to uric acid by xanthine oxidase.

Dietary Recommendations

Traditionally, dietary recommendations related to gout have focused on limiting purine intake.⁴ However, there is debate about the value of restricting purine intake.

Nielsen et al.⁵ concluded in 2018 that evidence in support of most of the dietary guidelines related to gout issued by health organizations/ authorities are considered to be “moderate or low” or “very low” quality.

Table 1

Age-adjusted Incidence Rates of Gout per 100,000 Persons

Region	Rate
Global	91.8
High income North America	145.3
Western Europe	100.0
Central Asia	86.4
South Asia	90.4
Southeast Asia	88.5
East Asia	84.9
Oceania	98.9
North Africa and Middle East	96.4
Australasia	166.4



Soy & Gout

Misperceptions

There is a common belief among health professionals in Asia that soyfoods increase risk of gout⁶ despite standardized incidence rates of gout in South Asia, Southeast Asia, and East Asia being lower than in Western Europe and North America (Table 1).

This belief conflicts with the position of the British Society for Rheumatology, which recommends the consumption of soybeans be encouraged in overweight patients with gout.⁷

Observational Data

In a cross-sectional study from Shanghai involving 3,978 men aged 40-74, an inverse association between soyfood consumption and hyperuricemia was observed after adjustment for 14 potential confounders.⁸

In a prospective cohort study from Singapore involving 63,257 adults between the ages of 45 and 74 at the time of recruitment, when comparing the fourth soyfood intake quartile with the first, after adjustment for potential confounders, risk was significantly reduced by 14 percent.⁹

Clinical Studies

Seven intervention trials evaluating the effects of soy or a diet containing soy on uric acid levels have been published.¹⁰⁻¹⁵ All but one of these trials measured changes in serum uric acid levels over a 1-4 hour period following soy ingestion, whereas one study measured

changes 9-12 days after the consumption of a soy-containing diet. The different intervention products and study designs make briefly summarizing the clinical data difficult.

However, a reasonable interpretation of the data is that in response to soy protein intakes consistent with that of native Japanese (≤ 25 g/d), there is no increase serum uric acid levels whereas in response to large amounts (≥ 40 g) of soy protein, small increases (5-10%) are noted.

Conclusion

The short-term clinical research and limited observational data indicate that soyfoods do not increase risk of gout or appreciably elevate serum uric acid levels.

Intake Recommendations

Elevated serum uric acid levels are not only involved in the etiology of gout but may be a risk factor for cardiovascular disease and diabetes.^{16,17}

Given that the consumption of soyfoods does not increase risk of gout and to varying degrees evidence suggests that soy protein may help to reduce risk of cardiovascular disease¹⁸⁻²¹ and diabetes,^{22,23} it is reasonable to suggest that patients with gout consider adding soyfoods to their diet.



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