



# THE LANCET

## Long-term Effects of Glucosamine Sulphate on Osteoarthritis Progression: A Randomised, Placebo-controlled Clinical Trial

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### BACKGROUND

Treatment of osteoarthritis is usually limited to short-term symptom control. We assessed the effects of the specific drug glucosamine sulphate on the long-term progression of osteoarthritis joint structure changes and symptoms.

### METHODS

We did a randomised, double-blind placebo controlled trial, in which 212 patients with knee osteoarthritis were randomly assigned 1500 mg sulphate oral glucosamine or placebo once daily for 3 years. Weightbearing, anteroposterior radiographs of each knee in full extension were taken at enrolment and after 1 and 3 years. Mean joint-space width of the medial compartment of the tibiofemoral joint was assessed by digital image analysis, whereas minimum joint-space width—ie, at the narrowest point—was measured by visual inspection with a magnifying lens. Symptoms were scored by the Western Ontario and McMaster Universities (WOMAC) osteoarthritis index.

### FINDINGS

The 106 patients on placebo had a progressive joint-space narrowing, with a mean joint-space loss after 3 years of -0.31 mm (95% CI -0.48 to -0.13). There was no significant joint-space loss in the 106 patients on glucosamine sulphate: -0.06 mm (-0.22 to 0.09). Similar results were reported with minimum joint-space narrowing. As assessed by WOMAC scores, symptoms worsened slightly in patients on placebo compared with the improvement observed after treatment with glucosamine sulphate. There were no differences in safety or reasons for early withdrawal between the treatment and placebo groups.

### INTERPRETATION

The long-term combined structure-modifying and symptom-modifying effects of glucosamine sulphate suggest that it could be a disease modifying agent in osteoarthritis.

*Lancet 2001; 357: 251-56*

Patients assessed for 3 years				
	Placebo (n=71)	Glucosamine sulphate (n=68)	Difference (95% CI)	p
Mean joint-space narrowing (mm)	-0.31 (-0.57 to -0.04)	0.07 (-0.17 to 0.32)	0.38 (0.02 to 0.73)	0.038
Minimum joint-space narrowing (mm)	-0.40 (-0.64 to -0.17)	0.11 (-0.10 to 0.33)	0.51 (0.20 to 0.83)	0.002

**Average (95% CI) joint-space narrowing after 3 years**

Patients assessed for 3 years				
	Placebo (n=71)	Glucosamine sulphate (n=68)	Difference (95% CI)	p
Total WOMAC % change	9.8% (-14.6 to 34.3%)	-24.3% (-3.0 to -11.6%)	34.1% (6.4 to 61.8%)	0.016

**Average (95% CI) total WOMAC percent change after 3 years**

