



The effect of prunes on stool output, whole gut transit time and gastrointestinal symptoms: a randomised controlled trial

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Prunes (dried plums) are perceived to help maintain healthy bowel function⁽¹⁾ and preliminary research suggests they improve stool frequency and consistency in mild constipation⁽²⁾. The high fibre and sorbitol content may aid in laxation⁽³⁾, however the effects of prunes on gastrointestinal (GI) health are not well researched and mechanisms of action are unclear.

We conducted a three-arm, parallel group, randomised controlled trial to investigate the dose dependent effect of prunes on GI outcomes. 120 healthy people with 3–6 stools/wk (mean age 35 years, 60% female) were randomised to high-dose prunes (120 g/d + 300 ml water/d), low-dose prunes (80 g/d + 300 ml water/d) or control (300 ml water/d) for 4 weeks. The primary outcome was stool weight, assessed by 7-day total stool collection. Other outcomes included stool frequency and consistency (stool diary), whole gut transit time (WGTT, radio-opaque markers) and GI symptoms (GI symptom rating scale). Outcome assessors were blinded to group assignment. Intervention effects were compared using analysis of covariance with baseline measurements as covariates, or Kruskal–Wallis test for non-parametric variables.

In the per-protocol analysis ($n = 104$), compared with control, 120 g prunes increased stool weight and 80 g prunes increased the number of bowel movements (BMs). 80 g prunes also increased spontaneous BMs, but prunes had no effect on complete BMs, complete spontaneous BMs, WGTT, stool consistency, stool water and stool pH.

	Control ($n = 35$)				80 g/d prunes ($n = 37$)				120 g/d prunes ($n = 32$)			
	Baseline		Intervention		Baseline		Intervention		Baseline		Intervention	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Stool weight (g/d)	110	43.0	109	61.4	90	45.1	114	70.5	99	51.6	135*	71.4
BMs (wk)	5.5	1.4	5.5	2.2	5.2	2.1	7.0**	3.9	5.0	1.7	5.7	1.6
SBMs (wk)	5.4	1.4	5.5	2.2	5.1	2.0	7.0***	3.9	5.0	1.7	5.5	1.5
WGTT (hrs)	43.4	27.4	36.3	28.9	41.0	29.1	32.8	27.3	46.5	30.5	39.5	29.4
BSC mean score	4.0	1.2	3.9	1.1	3.5	1.1	3.8	1.2	3.3	1.9	3.6	1.0
Stool water (%)	73.2	7.2	73.7	7.1	72.0	6.4	73.9	7.2	71.0	5.2	73.2	7.2
Stool pH	6.8	0.5	6.7	0.5	6.7	0.6	6.6	0.5	6.9	0.4	6.6	0.6

WGTT, whole gut transit time; BMs, bowel movements; BSC, Bristol Stool chart (1–7)

Means are significantly different from control (ANCOVA with baseline as covariate): * $P < 0.05$ ** $P < 0.027$ *** $P < 0.032$

Of 14 GI symptoms recorded, incidence of flatulence was higher in the 120 g group (4.9 (SD 2.2) d/wk) and 80 g group (4.8 (SD 2.6) d/wk), compared to control (0.5 (SD 0.6) d/wk, $P < 0.009$) and severity of flatulence was higher in the 120 g group (1.1 (SD 0.7)) and 80 g group (1.0 (SD 0.7)) compared with control (0.5 (SD 0.6), $P < 0.001$) although actual severity was relatively low (0 = absent, 1 = mild, 2 = moderate, 3 = severe). Incidence of acid reflux was higher in the 120 g group, compared to control (0.7 (SD 1.4) d/wk vs 0.1 (SD 0.2) d/wk, $P < 0.02$) as was its severity (0.1 (SD 0.2) vs 0.0 (SD 0.0), $P < 0.02$).

In healthy individuals, prunes seem well tolerated and significantly increase stool weight and bowel movements, but do not decrease WGTT. Stool weight is inversely related to colon cancer risk⁽⁴⁾. Therefore prunes have potential health benefits in the UK where average stool weight is low⁽⁴⁾. These findings support the existing health claim for prunes in the maintenance of normal bowel function.

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