

## MILK INTAKE AND MUCUS PRODUCTION

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In the first of three studies investigating the widely held belief that "milk produces mucus", 60 volunteers were inoculated with rhinovirus and respiratory symptoms, milk and dairy product intake records kept over a 10 day period. Mucus weights were obtained by weighing tissues sealed immediately after use. Respiratory records were part of a study on viral shedding under four different analgesic treatment regimes. A questionnaire on food beliefs was completed at the beginning of the study.

Information was obtained on 59 subjects yielding 590 person days of observation. Symptoms of congestion (nasal discharge, blocked nose, loose cough, post nasal drip) occurred on 290 person days and mucus weights ranged from 0 - 30.4g (mean 1.1 se 0.1). Subjects consumed 0 - 11 glasses of milk per day (mean 2.7 se 0.08), while number of serves of other dairy products ranged from 0 - 20 (mean 3.0 se 0.1). Butter, considered separately, ranged from 0-9 serves/day. When asked if they changed their diet with a cold, 18% reported reducing intake of milk or dairy products. When invited to name foods good or bad for colds, 22% nominated milk or dairy products as bad and of this group, 86% stated the reason as "producing more mucus/phlegm".

Analysis was divided into two steps. In the first stage the overall association between milk and dairy product intake and mucus weights and mucus related symptoms were considered (Table).

Milk Intake Glasses	N	Mucus Weight g (se)	Loose Cough (%)	Total Cough (%)	'Phlegm Index' Loose cough/ Total cough (%)	Runny/ Blocked Nose (%)	Congested (1 or more symptoms) (%)
0-1.9	212	1.25 (0.2)	16.2	26.4	60.7 (34/56)	35.9	44.3
2-3.9	239	0.81 (0.2)	18.8	29.7	63.4 (45/71)	39.0	52.7
>=4	139	1.24 (0.3)	12.2	18.00	68.0 (17/25)	41.0	46.0
Significance		ns	ns	P<0.05	ns	ns	ns

No significant trends in mucus weight, loose cough (an index of phlegm production; Hall and Gandevia 1971), runny/blocked nose or congestion were seen. Significantly fewer days of total cough were recorded on observation days with milk intake higher than four, suggesting that these observations were on less symptomatic individuals. The effect of sickness on milk intake was accounted for by considering loose cough as a proportion of total cough ('phlegm index'). The phlegm index showed a tendency to increase with increasing milk or milk and dairy product intake, however the trends were not significant (Chi squared Test for Homogeneity). Mucus weight showed no tendency to increase with milk intake when only symptomatic individuals were considered.

We conclude that no statistically significant overall association can be detected between milk and dairy product intake and symptoms of mucus production in healthy adults, either asymptomatic, or symptomatic with rhinovirus infection.

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