Comparison of the impact of camel milk and cow milk on blood glucose in healthy individuals.

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Background
Interest is rising in the use of traditional food as potential treatments for diabetes. In some arid regions of the world camel milk is believed to have special health promoting properties. Some studies have linked the consumption of camel milk to prevention of diabetes in addition to describing hypoglycaemic effects in those with diabetes. The potential mechanism is incompletely understood.

Aims
To investigate the impact on glucose metabolism after a mixed meal of a camel milk preload compared to an isocaloric cow's milk preload.

Methods
In a randomised, double-blinded crossover design, eight healthy volunteers were allocated to receive 300kcal pre-load of cow milk or camel milk ten minutes prior to ingestion of a 500kcal protein and glucose mixed meal. Samples for glucose, insulin and GLP-1 were taken at intervals over 3 hours.

Results
Peak mean glucose was 6.24 (+/-0.28) mmol/l at 25 minutes for camel milk and 6.92 (+/-0.47) mmol/l at 20 minutes for cow milk. Peak mean insulin concentration was 577.4 (+/-64.6) pmol/l in the camel milk group at 30 minutes and 771.9 (+/-124.6) pmol/l at 35 minutes in the cow milk group. The area under the curve (AUC) of the time courses of glucose and insulin did not differ between the two groups (p=0.48 and p=0.32 respectively). GLP-1 activity peaked at 25 minutes in both camel and cow milk (59.06 (+/-4.8) pmol/L and 51.07 (+/-6.8) pmol/L) with no significant difference in AUC (p=0.16).

Conclusions
In this single meal study, although a camel milk preload produced a flattening of the post prandial glucose and insulin curve compared to cow milk this is not shown to be statistically significant. However, the degree of variability in response to the two milks suggests there may be individual factors which predict a beneficial response to dietary supplementation with camel milk.