

Plenary 3: Dairy Foods and Health

Sponsored by Dairy Australia

Dairy consumption and cardiometabolic health

KJ Murphy

Nutritional Physiology Research Centre, University of South Australia, Adelaide SA 5001

Background – Dairy products such as milk, yoghurt and cheese are nutritious sources of protein, vitamins and minerals including calcium, vitamin D, potassium and peptides. The Australian Dietary Guidelines recommend two to three daily servings of dairy as part of a balanced diet to deliver these nutrients. However concern remains about the saturated fat content of dairy and its potential to raise blood cholesterol and risk of cardiovascular (CV) disease which has impacted adversely on consumption.

Review – To date there is no conclusive evidence from epidemiological data that dairy consumption is linked with increased risk of CV disease. In fact a number of epidemiological studies, observational studies and intervention studies have independently shown that dairy intake can improve several CV risk factors including insulin resistance, dyslipidemia, obesity and high blood pressure (1,2). The Dietary Approaches to stop Hypertension (DASH) Study which included low fat dairy consumption led to reductions in blood pressure in both normotensive and hypertensive volunteers and improvements in insulin sensitivity (3). These risk factors commonly cluster as Metabolic Syndrome (MetS) which carries an almost three-fold increase in the risk of CV morbidity and mortality. It is estimated that 25-30% of Australian adults have MetS and the prevalence of this condition continues to increase in conjunction with the obesity epidemic. The Coronary Artery Risk Development in Young Adults (CARDIA) study showed that dairy consumption was inversely associated with the incidence of MetS among individuals who were overweight at baseline but not among leaner individuals (4). A number of observational studies have revealed an inverse association between dairy consumption and body weight. The CARDIA study demonstrated that a high dairy diet protects individuals from weight gain while a recent cross-sectional study conducted by our Centre demonstrated a negative association between dairy protein, as a proportion of total protein intake, and body composition in females. Interestingly, when dairy was separated into specific products, consumption of those containing whey proteins (milk, yoghurt, ice-cream) was associated with improved body composition in terms of lower BMI and hip circumference in females and percentage body fat in males. Evidence from animal studies and *in vitro* studies suggests that the link between dairy and obesity is partly controlled by calcium through regulation of lipogenesis and lipolysis. Other studies have demonstrated a satiating effect following consumption of dairy, particularly dairy protein.

Conclusion – Given the global rise of obesity these are important findings for the Dairy industry. Further studies should aim to identify particular components of dairy that are responsible for improvements in health. Data from a number of studies demonstrate that the consumption of dairy may reduce, rather than increase, the risk of CV disease and improve metabolic health.

References

1. Pfeuffer M., Schrezenmeier J. Milk and the metabolic syndrome. *Obesity Reviews*. 2007;8:109-18.
2. Sjogren, P., M. Rosell, et al. Milk-derived fatty acids are associated with a more favorable LDL particle size distribution in healthy men. *J Nutr*. 2004;134:1729-35.
3. Ard, J.D., Coffman, C.J., Lin, P.H., Svetkey, L.P. One-year follow-up study of blood pressure and dietary patterns in dietary approaches to stop hypertension (DASH)-sodium participants. *Am J Hypertens*. 2004;17:1156-62.
4. Pereira, M. A., D. R. Jacobs, Jr., et al. Dairy consumption, obesity, and the insulin resistance syndrome in young adults: the CARDIA Study. *JAMA*. 2002;287:2081-9.