

## Plenary 2: Functional Food

### Pork as a functional food

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**Background** – The notion of eating foods that have beneficial effects on consumer health above that of adequate nutritional effects is one that sits well with today's consumers. Consequently the development of 'functional foods' and their impact on our health has received much attention over the last decade from scientists, health professionals, health policy makers, agricultural and food producers. Farm animals and their products have a longstanding and successful history of contributing to human nutrition and improving life expectancy and human health. The pork industries worldwide have ensured that the pork produced today meets the needs of consumers in leanness and quality. This review will highlight some of the benefits of consuming pork for human health, growth and development. Also, the demand for functional foods has seen pork emerge as an excellent protein in the fight against obesity, and as a vehicle for delivering essential micronutrients such as selenium, iron, folate and essential fatty acids that in many instances are absent or inadequate in some modern diets.

**Objective** – The objectives are to briefly review the claims and evidence regarding the role of animal products, specifically pork, in human health and well being, to discuss how pork provides an excellent biological matrix to deliver essential nutrients and to address some largely historical concerns regarding over consumption of pork and pork fat.

**Outcomes** – Meat consumption, including pork, has previously been linked with an increased incidence of obesity, Type 2 diabetes, and cardiovascular disease. However, dietary fat intake rather than protein has been shown to play the primary role in the increase of obesity, Type 2 diabetes, and cardiovascular disease and indeed there can be protective benefits of protein consumption (1). Since the late 1970's Australian pork producers have undertaken significant steps to ensure leaner pork in keeping with consumer demands and consequently the fat content of pork has been reduced by around 65%. Indeed among cooked meats, pork is lower in fat than lean beef, lamb and skinless chicken breast. Pork is also a good source of iron and zinc. There is now scientific evidence and public acceptance of the role that dietary protein plays in regulation of satiety, feed intake and obesity-related disorders. Dietary protein appears to suppress food intake and delay the return of hunger more than fats or carbohydrates in a manner not due to energy content alone. Also, high-protein diets support the maintenance of muscle mass when subjects reduce their energy intake, ensuring primarily adipose tissue loss. The low fat and high protein content of pork make it an excellent source of protein in a diet designed to increase satiety and reduce energy intake. The pig is a monogastric omnivore and so the adage "you are what you eat" applies well to the pig thereby offering the potential for nutritional enhancement of pork products. Consequently, there are some functional food products that have been produced through manipulation of the fatty acid (eg.  $\omega$ 3 fatty acids), vitamin (eg. folate) or mineral (eg. selenium) contents of pig diets and many more opportunities exist. For example, current research is focusing on increasing the selenium content of pork through feeding selenised yeast to pigs and producing pork products that may be included in the diet of humans to reduce their risk of colon cancer and other diseases.

**Conclusion** – The pork industries worldwide have ensured that the pork produced today meets the needs of consumers in leanness and quality. High protein diets increase satiety signals and the feeling of fullness to a greater extent than other macronutrients. Pork, with its low fat and high protein content, is an excellent protein source in a diet designed to reduce risk factors for major disease of the modern lifestyle. Pork also offers itself to dietary manipulation to enhance health active compounds and nutrients and provide a range of functional foods.

#### Reference

1. Dunshea, F.R., Ostrowska, E., Ferrari, J.M. and Gill, H.S. (2007). Dairy proteins and the control of satiety and obesity. *Australian Journal of Experimental Agriculture* 47, 1051-1058.