P59  
**Ad libitum feeding; is it metabolically efficient?**

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**Background** – Studies in both humans and rodents have shown an endogenous entrainment of 24 h rhythms in plasma glucose and insulin metabolism (1). These rhythms are regulated by the suprachiasmatic nucleus and are independent of the influence of feeding activity (1). Little is known of these metabolic rhythms in the domestic pig despite the fact that pigs housed in commercial environments are maintained at ambient photoperiod.

**Objectives** – To determine 24 h profiles in insulin, glucose and feeding behaviour in pigs fed *ad libitum* and entrained to a 12 h (0600 to 1800 h) light regimen.

**Design** – Ten entire male pigs were allocated randomly to individual pens in the same room maintained at 22.0 ± 0.7°C. Jugular cannulae were introduced into each pig via the ear vein 24 h prior to the onset of sampling. Blood samples (3mL) were taken at intervals of one hour for 24 h and the plasma stored at -20°C until assayed. Circulating insulin concentrations were determined by radioimmunoassay and plasma glucose concentrations by enzymic analysis. Feeding behaviour was monitored by video analysis over the sampling period.

**Outcomes** – Feeding behaviour was characterized by a distinct photoperiod entrainment with activity greater during the period of light compared to the period of darkness. Both glucose and insulin concentrations displayed an ultradian rhythm although plasma insulin secretion was correlated to neither feeding behaviour nor glucose status.

**Conclusions** – The data suggest that pigs consume food at regular intervals throughout the daylight hours. Feeding animals *ad libitum* may not be metabolically efficient as insulin secretion is not correlated with feeding behaviour.

**Reference**


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P60  
**Effects of processing on folate retention in food**

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**Background** – Folates are sensitive to temperature, pressure and exposure to light and thus can be affected during food processing.

**Objective** – To review some of the common practices of processing foods and their impact on folate stability.

**Review** – A number of studies in the literature have reported thermal destruction of folate in model systems when temperatures were up to 100°C and under UHT conditions, and in food systems. In particular, the concentration of folic acid and 5-methyl tetrahydro folate (THF) were followed. Given the different extraction methods used for folate analysis using the microbiological assay, data vary largely. The traditional technique using single enzyme method on cereals, in particular, gave one third to almost one half of the amount of folate detected by the tri-enzyme method. Common processing methods in such as boiling, fermentation, roasting and baking, where heating may be dry or moist, caused considerable losses of folic acid in foods. Several studies on effects of the baking process on wheat products (eg. bread) have been done on pilot scale and it is generally agreed that despite the increase in folate during fermentation, total folate is lost due to the high baking temperatures employed. Other studies reveal a loss of 40% of total folate during commercial soy milk processing compared to the total folate concentration in the raw beans (1). This paper will analyse existing data on the effects of processing keeping in mind the differences in extraction methods used for folate analysis in foods.

**Reference**