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The evidence base behind modern fasting guidelines

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Fasting before general anaesthesia aims to reduce the volume and acidity of stomach contents, thus decreasing the risk of regurgitation/aspiration. The objectives of the Cochrane report which are summarised in this paper, were to systematically review the effect of different preoperative fasting regimes (duration, type and volume of intake) on perioperative complications and patient wellbeing. Few trials reported the incidence of aspiration/regurgitation or related morbidity but relied on indirect measures of patient safety ie. intraoperative gastric volume and pH. There was no evidence to suggest intake of fluids up to 2 hr preoperatively has an impact on patients gastric volumes or pH. Intake of fluids up to 90 min preoperatively had no impact on gastric contents but this was based on small numbers. In addition, permitting patients to drink water preoperatively resulted in significantly lower gastric volumes. Clinicians should evaluate this evidence for themselves and when necessary, adjust existing fasting policies.

Key words: general anaesthesia; drinking; fasting; gastro-oesophageal reflux; intraoperative complications; randomised controlled trials.

WHY DO PATIENTS NEED TO FAST BEFORE GENERAL ANAESTHESIA?

Fasting before general anaesthesia is considered essential to patient safety in order to reduce the risk of regurgitation of gastric contents. As there is a reduction in the reflexes that function to protect the lungs on induction of anaesthesia, if regurgitation occurs with reflexes absent, then aspiration is likely to occur with the risk of the subsequent development of pulmonary complications. The values of gastric volume and pH at which patients become at increased risk of aspiration is unclear.

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Critical values

In 1974, Roberts[1] arbitrarily set critical values of gastric contents for an adult human female as a pH value of < 2.5 and volume > 0.4 ml/kg. This was based on an unpublished study on rhesus monkeys. The accuracy of these values in humans has been questioned.[2,3] Ethically, it is impossible to establish precisely the values of gastric volume and pH that increase the risk of aspiration related complications. However, intraoperative gastric content parameters are often used as surrogate outcome measures, in the evaluation of different preoperative fasting regimes.

Nil by mouth

In the 19th century, patients were permitted a cup of beef tea a few hours before surgery. However, this has evolved to become the accepted nil by mouth from midnight for those on a morning surgical list and an early light breakfast for those on an afternoon list. This is an easy policy to carry out, allows for late alteration to the operating list without loss of theatre time and is frequently expected by both patients and staff. Often the fasting period has been found to be longer than the nulla per os or NPO from midnight recommendation[4–6] although there are recent suggestions of a change in clinical practice.[7,8]

Nowadays, clinicians recognise that this may not be the best approach to fasting for all patients. In fact several practice guidelines, Table 1, have been produced by various professional groups over the last 10 years recommending changes to the nil by mouth from midnight fasting policy.[9–13] Practice however has been slow to change. Amongst other reasons, both clinicians and patients believe that fasting from midnight ensured patient safety and in addition, allowed greater flexibility of planning for the theatre list.

The evidence for fasting

The evidence in relation to preoperative fasting is hard to find as it is scattered across a range of journals. It is both published and unpublished, is printed in a variety of languages, and the number of possible fasting regimens and outcome measures

Table 1. Guidelines for adults fasting.

	Duration (hours)	
Organisation/Review Body	Clear Fluids	Solid Food
ASA 1999	2	6
AAGBI 2001	2	6
Cochrane 2004	2	6
CAS 2005	2	6
NNCG 2005	2	6
RCN 2005	2	6
ASA	American Society of Anaesthesiologists	
AAGBI	Association of Anaesthetists of Great Britain and Ireland	
Cochrane	Cochrane Database of Systematic Reviews	
CAS	Canadian Anaesthetists' Society	
NNCG	Norwegian National Consensus Guideline	
RCN	Royal College of Nursing	