

Abstracts

Effect of dietary protein content on weight gain, energy expenditure, and body composition during overeating

The role of diet composition in response to overeating and energy dissipation in humans is unclear. The authors of this paper evaluated the effects of overconsumption of low-, normal-, and high-protein diets on weight gain, energy expenditure, and body composition.

Researchers used a single-blind, randomised controlled trial of 25 American healthy, weight-stable male and female volunteers, aged 18 - 35 years, with a body mass index between 19 and 30. The first participant was admitted to the inpatient metabolic unit in June 2005 and the last in October 2007.

After consuming a weight-stabilising diet for 13 - 25 days, participants were randomised to diets containing 5% of energy from protein (low protein), 15% (normal protein), or 25% (high protein), which they were overfed during the last 8 weeks of their 10 - 12-week stay in the inpatient metabolic unit. Compared with energy intake during the weight stabilisation period, the protein diets provided approximately 40% more energy intake, which corresponds to 954 kcal/d (95% CI, 884 - 1 022 kcal/d).

Body composition was measured by dual-energy X-ray absorptiometry bi-weekly, resting energy expenditure was measured weekly by ventilated hood, and total energy expenditure by doubly labelled water prior to the overeating and weight stabilisation periods and at weeks 7 - 8.

Overeating produced significantly less weight gain in the low-protein diet group (3.16 kg; 95% CI, 1.88 - 4.44 kg) compared with the normal-protein diet group (6.05 kg; 95% CI, 4.84 - 7.26 kg) or the high-protein diet group (6.51 kg; 95% CI, 5.23 - 7.79 kg) ($p=0.002$). Body fat increased similarly in all 3 protein diet groups and represented 50% to more than 90% of the excess stored calories. Resting energy expenditure, total energy expenditure, and body protein did not increase during overfeeding with the

low-protein diet. In contrast, resting energy expenditure (normal-protein diet: 160 kcal/d (95% CI, 102 - 218 kcal/d); high-protein diet: 227 kcal/d (95% CI, 165 - 289 kcal/d)) and body protein (lean body mass) (normal protein diet: 2.87 kg (95% CI, 2.11 - 3.62 kg); high-protein diet: 3.18 kg (95% CI, 2.37 - 3.98 kg)) increased significantly with the normal- and high-protein diets.

Among persons living in a controlled setting, calories alone account for the increase in fat; protein affected energy expenditure and storage of lean body mass, but not body fat storage.

Bray GA, et al. JAMA 2012;307(1):47-55. doi: 10.1001/jama.2011.1918.

Effectiveness of strategies incorporating training and support of traditional birth attendants on perinatal and maternal mortality: meta-analysis

Amie Wilson and her colleagues assessed the effectiveness of strategies incorporating training and support of traditional birth attendants on the outcomes of perinatal, neonatal, and maternal death in developing countries using a systematic review with meta-analysis.

The authors selected randomised and non-randomised controlled studies with outcomes of perinatal, neonatal, and maternal mortality. Two independent reviewers undertook data extraction. Relative risks were pooled separately for the randomised and non-randomised controlled studies, using a random effects model.

The authors identified 6 cluster randomised controlled trials ($N=138\,549$) and 7 non-randomised controlled studies ($N=72\,225$) that investigated strategies incorporating training and support of traditional birth attendants. All 6 randomised controlled trials found a reduction in adverse perinatal outcomes; our meta-analysis showed significant reductions in perinatal death (relative risk 0.76, 95% confidence interval

0.64 - 0.88, $p<0.001$; number needed to treat 35, 24 - 70) and neonatal death (0.79, 0.69 - 0.88, $p<0.001$; 98, 66 - 170). Meta-analysis of the non-randomised studies also showed a significant reduction in perinatal mortality (0.70, 0.57 - 0.84, $p<0.001$; 48, 32 - 96) and neonatal mortality (0.61, 0.48 - 0.75, $p<0.001$; 96, 65 - 168). Six studies reported on maternal mortality and our meta-analysis showed a non-significant reduction (three randomised trials, relative risk 0.79, 0.53 - 1.05, $p=0.12$; three non-randomised studies, 0.80, 0.44 - 1.15, $p=0.26$).

The conclusion was that perinatal and neonatal deaths are significantly reduced with strategies incorporating training and support of traditional birth attendants.

Wilson A, et al. BMJ 2011;343:d7102.

Hormonal contraceptives for nuns?

Two cancer researchers from Australia have urged the Catholic church to make oral contraceptive pills freely available to nuns to help to protect them against reproductive cancers. Doctors first noticed a link between

Abstracts

convent life and breast cancer in 1713, and by 1950 it was clear that nuns and other celibate women also had a high risk of ovarian and uterine cancers.

Catholic nuns have no children and no need to breastfeed. They have more menstrual cycles between menarche and menopause than women who have children, write the researchers. We now know that menstrual cycles contribute to risk of breast cancer, uterine cancer, and ovarian cancer. We also know that women who use oral contraceptives have significantly fewer uterine and ovarian cancers than non-users, a protection that lasts for around two decades. The world's 94790 nuns should be encouraged to take advantage of this protection, say the experts. Oral contraceptive pills do not help to prevent breast cancer, but are associated with significant reductions in overall mortality in epidemiological studies. Pills can save lives. Although the Catholic church explicitly bans all forms of contraception except abstinence, it does allow followers to take therapeutic agents to 'cure organic diseases, even though they also have a contraceptive effect.'

Hormonal contraceptives taken by celibate nuns would surely fall into this category, say the researchers. Nuns pay an unnecessarily high price for their childlessness, a fact that deserves wider recognition.

Britt K, Short R. *Lancet* 2011. doi:10.1016/S0140-6736(11)61746-7.

Do-it-yourself anticoagulation can be safe and effective

A new meta-analysis has confirmed that many adults can safely monitor their own oral anticoagulation. In pooled analyses, self-monitoring reduced the risk of thrombo-embolism by nearly 50% (hazard ratio 0.51, 95% CI 0.31 - 0.85) when compared with monitoring by doctors in primary care or anticoagulation clinics. Adults who monitored their own international normalised ratio had no more major haemorrhages than controls (0.88, 0.74 - 1.06) and comparable mortality (0.82, 0.62 - 1.09).

In smaller but more detailed analyses, self-monitoring seemed to work best for adults under 55 years (0.33, 0.17 - 0.66) and those

with mechanical heart valves. A linked comment says these patients should be given the chance to take their own tests and make the required dose adjustments, because self-testing alone looked less effective than full self-management.

Benefits were less clear-cut for older adults taking warfarin for atrial fibrillation, although the authors found no evidence of serious harm associated with self-monitoring in this group of patients.

They analysed individual patient data from 11 trials but were unable to access data from 10 more. Participants were carefully selected, so self-monitoring won't be an option for everyone, say the authors. Exclusions included adults with poor cognition and those without the manual dexterity to cope with a finger stick procedure.

Heneghan C, et al. *The Lancet*. doi:10.1016/S0140-6736(11)61294-4.