

Obesity

DIABETES CARE



High prevalence of sleep-disordered breathing in diabetes

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓✓

1 This study tested the hypothesis that diabetes is independently associated with sleep-disordered breathing (SDB), particularly sleep abnormalities of a central nature.

2 Data from the Sleep Heart Health Study were used to relate diabetes to the respiratory disturbance index, obstructive apnoea index, percentage of sleep time, central apnoea index, periodic breathing and sleep stages.

3 A total of 5874 participants took part in the study: 692 had diabetes and 1002 had cardiovascular disease (CVD). Of the 4872 participants without CVD, 470 had diabetes.

4 People with diabetes were more obese and had worse CVD risk factor profiles than people with no diabetes.

5 Respiratory disturbances in sleep were significantly more common among people with diabetes, but the majority of these were explained by obesity.

6 In people with diabetes, the only abnormalities not explained by obesity were slightly reduced rapid eye movement, sleep time and increased prevalence of periodic breathing.

7 It is not clear whether central sleep disturbances are caused by diabetes or whether they relate specifically to effects of autonomic neuropathy or other diabetes complications on control of respiration.

8 The high prevalence of SDB in diabetes affects not only quality of life, but represents a potentially reversible risk factor for CVD.

Resnick HE, Redline S, Shahar E et al (2003) Diabetes and sleep disturbances. *Diabetes Care* **26**: 702-9

Sleep-disordered breathing and diabetes



Jonathan Pinkney, Senior Lecturer/Honorary Consultant Physician, University of Liverpool/University Hospital Aintree

Sleep-disordered breathing (SDB) is common among obese subjects, and is attracting increasing attention. In this study, Resnick and colleagues report the findings from 470 people with diabetes enrolled in the Sleep Heart Health Study.

The main finding was that SDB is common among people with diabetes. For example, 23.8% of people with diabetes had more than 15 respiratory disturbance events per hour, compared with 15.6% of people without diabetes. Most of the abnormalities are explained by obesity, especially central obesity. Importantly, there were no differences in the prevalence of obstructive sleep apnoea (OSA) after adjustment for obesity. The abnormalities not explained by obesity in the people with diabetes were increased periodic breathing and perhaps the central apnoea index, leading the authors to postulate that the latter may be a manifestation of autonomic dysfunction caused by diabetes. This study adds to our understanding of SDB in people with diabetes in several ways. Obesity

is the principal cause of SDB and type 2 diabetes, which probably explains why SDB is common in people with diabetes. Autonomic dysfunction could also explain the increased frequency of periodic breathing in patients with diabetes. OSA is the main type of SDB associated with obesity. OSA responds favourably to treatment with nasal continuous positive airways pressure (CPAP), with improvements in quality of life, sleepiness and hypertension (Pepperell, 2002), so it is an important diagnosis to make. Currently, the data on CPAP and insulin sensitivity are limited, although a beneficial effect in type 2 diabetes patients with OSA has been reported (Brooks et al, 1994). SDB is a significant risk factor for hypertension, cardiovascular disease and diabetes, and the OSA form of SDB looks increasingly to be a worthwhile disorder to recognise and treat in the diabetes clinic.

Brooks B, Cistulli PA, Borkman M et al (1994) Obstructive sleep apnoea in obese non-insulin dependent diabetic patients: effects of continuous positive airway pressure treatment on insulin responsiveness. *Journal of Clinical Endocrinology and Metabolism* **79**: 1681-85

Pepperell JCT, Ramdasingsh-Dow S, Crosthwaite N et al (2002) Ambulatory blood pressure after therapeutic and subtherapeutic nasal continuous positive airway pressure for obstructive sleep apnoea: a randomised parallel trial. *Lancet* **359**: 204-10

ARCHIVES OF INTERNAL MEDICINE



Raised BMI increases stroke risk in men

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Data on the overall association of obesity and stroke are limited and inconclusive.

2 Stroke is the leading cause of long-term disability and morbidity in the US; identifying and managing potential risk factors such as elevated BMI is therefore important.

3 This large-scale prospective study examined 21 414 US male physicians for incidence of

total, ischaemic and haemorrhagic stroke.

4 During the follow-up period of 12.5 years, 747 strokes occurred.

5 Increasing BMI was associated with an increase in the risks of total, ischaemic and haemorrhagic stroke.

6 Risk of ischaemic stroke was highest among smokers and people with hypertension, but these factors did not substantially modify the relationship between BMI and stroke.

7 As raised BMI is a modifiable risk factor, the prevention of stroke could be another benefit associated with decreasing levels of obesity.

Kurth T, Gaziano JM, Berger K et al (2002) Body mass index and the risk of stroke in men. *Archives of Internal Medicine* **162**: 2557-62

‘Short-term orlistat treatment improves insulin sensitivity and cardiovascular risk profiles in severely obese Chinese people with or without type 2 diabetes.’

JOURNAL OF BIOSOCIAL SCIENCE

Increasing obesity heightens risk of dying from diabetes

Readability	✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

- High body mass contributes to increased morbidity and mortality due to circulatory diseases and diabetes.
- This US study used nationally representative survey data linked to follow-up mortality data to estimate the association between obesity and circulatory disease-specific and diabetes-specific mortality.
- As rates of obesity increase, so too do levels of overall and circulatory disease mortality.
- Compared with people of normal weight, obese class I individuals are 2.8 times as likely to die of diabetes, and obese class III individuals are 9.0 times more likely to die of diabetes.
- These findings lend urgency to public health programmes aimed at reducing obesity and its consequences.

Rogers RG, Hummer RA, Krueger PM (2003) The effect of obesity on overall, circulatory disease - and diabetes-specific mortality. *Journal of Biosocial Science* **35**: 107–29

CURRENT OPINION IN OBSTETRICS AND GYNECOLOGY

Complications associated with maternal obesity

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

- Pregnancy complications associated with maternal obesity are reviewed in this article.
- Maternal obesity contributes to the development of chronic hypertension, pre-eclampsia, pregestational and gestational

‘Maternal obesity adversely impacts pregnancy outcome primarily through increased rates of hypertensive disease, diabetes, caesarean section and infections.’

PUBLIC HEALTH REPORTS

Type 2 diabetes increasing in young people in Florida

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

- This study aimed to determine whether type 2 diabetes was increasing in Florida children and adolescents diagnosed with diabetes, and to assess associated risk factors.
- Medical records of children and adolescents newly diagnosed with diabetes between 1994 and 1998 were reviewed.
- A total of 569 participants were classified with type 1 diabetes and 92 with type 2 diabetes.
- The proportion diagnosed with type 2 diabetes increased from 9.4% in 1994 to 20% in 1998.
- Factors associated with diagnosis of type 2 diabetes relative to type 1 diabetes include: BMI \geq 85th percentile; Hispanic ethnicity; black race; female gender; and older age.

Macaluso CJ, Bauer UE, Deeb LC (2002) Type 2 diabetes mellitus among Florida children and adolescents, 1994–1998. *Public Health Reports* **117**: 373–79

diabetes, and is an important factor in rising rates of caesarean section, shoulder dystocia, thromboembolic disease and maternal infectious morbidity.

- Maternal obesity increases the risk of delivering a large for gestational age or macrosomic neonate, who in turn is at risk of subsequently developing childhood obesity.
- There is a need for broad changes in society to be considered both culturally and politically, in order to improve nutrition, increase physical activity and reduce obesity in all age groups.

Castro LC, Avina RL (2002) Maternal obesity and pregnancy outcomes. *Current Opinion in Obstetrics and Gynecology* **14**: 601–6

ARCHIVES OF INTERNAL MEDICINE

Orlistat and insulin sensitivity in obese Chinese people

Readability	✓✓✓
Applicability to practice	✓✓
WOW! factor	✓✓✓✓

- There is a lack of data on the efficacy of orlistat in Asian populations.
- This study compares the efficacy of 6 months of orlistat treatment on weight loss, cardiovascular risk factors and insulin sensitivity between young obese Chinese people with and without type 2 diabetes.
- A total of 33 obese patients with diabetes and 27 obese patients without diabetes were given orlistat 3 times a day for 6 months with no hypocaloric diet.
- Orlistat reduced body weight, waist and hip circumferences, percentage of total body fat, blood pressure, fasting plasma glucose and lipid levels, albuminuria and insulin sensitivity in both groups.
- Patients with diabetes had less weight reduction but greater reductions in fasting plasma glucose and HbA_{1c} levels and systolic blood pressure than those with no diabetes.
- Obese patients without diabetes had greater improvements in triglyceride levels, albuminuria and insulin sensitivity.
- Short-term orlistat treatment without a hypocaloric diet improves insulin sensitivity and cardiovascular risk profiles in severely obese Chinese people with or without type 2 diabetes.

Tong PC, Lee ZS, Sea MM et al (2002) The effect of orlistat-induced weight loss, without concomitant hypocaloric diet, on cardiovascular risk factors and insulin sensitivity in young obese Chinese subjects with or without type 2 diabetes. *Archives of Internal Medicine* **162**: 2428–35