Table 2

How to measure waist circumference

- The patient should be relaxed with arms crossed on the chest and feet shoulder-width apart
- Measure at the height of the uppermost border of the iliac crest
- Ensure the tape is horizontal to the floor, is snug without indenting the individual's skin, and is not twisted or caught on clothing
- Measure the waist at the end of a normal expiration to the nearest 0.1 cm

Cutoff values [1,3]

- 94 cm men (90 cm for Asian men)
- 80 cm women

SPECIAL REPORT
OBESITY

key points

SELECTED BY
Dr Peter Saul
GP, Wrexham and associate GP Dean for North Wales

Obesity is a growing problem. In England in 2008, 66% of men and 57% of women had a BMI >25 kg/m^2; within this 24% of men and 25% of women were obese with a BMI >30 kg/m^2. BMI, which is calculated by dividing the weight (kg) by the square of the height (m), has been criticised for misclassifying people who are very muscular as overweight as it does not take account of fat mass, particularly abdominal fat which carries the highest risk for metabolic disease. Waist circumference has emerged as an alternative, or addition, to BMI for risk prediction. When checking BMI, particularly in younger men, consider whether they are very muscular (the so-called rugby player physique) and apply commonsense.

Obesity is often a major contributing cause of disease, particularly diabetes and heart disease. The relative risk (RR) of diabetes in overweight men is 2.40 and in obese men 6.74 compared with men with a BMI in the normal range. The respective RR values in women are 3.92 and 12.41. There is a 40% increased risk of death from cardiovascular disease for every 5 kg/m^2 increase in BMI above 25 kg/m^2. Obesity is also associated with a raised risk of: fertility problems, fatty liver, cirrhosis, osteoarthritis and mobility problems, pregnancy complications, obstructive sleep apnoea and asthma. Certain ethnic groups e.g. South Asians, Chinese and Japanese are at higher risk of adverse effects, such as diabetes, for a given BMI. For this reason lower BMI cutoffs have been proposed.

The best evidence suggests that patients should be offered a combination of advice on dietary change and increasing physical activity which includes behavioural components. Encouragement to make small changes in a sustained way can make significant differences to energy balance. Physical activity should be of moderate intensity (increased heart rate and breathing but still able to converse).

Drug treatment is a useful addition when lifestyle measures alone are not effective; it should always be given along with, not instead of, lifestyle advice. Evidence is increasing for the effectiveness of bariatric surgery in treating obesity-related disease, particularly diabetes. There are two main procedures, gastric banding and gastric bypass. Both procedures are now thought to produce at least part of their effect through changes in gut hormone control of appetite. Most bariatric surgical centres only take referrals from NHS weight management clinics and have strict criteria around attendance at appointments and attempts at pre-operative weight loss. The focus of specialist weight management services is usually on patients with severe and/or complicated obesity.

There can be a mismatch between those patients who seek treatment and those with the greatest need. Men, individuals from deprived backgrounds and those with chronic disease should not be overlooked for weight management just because they are not seeking it.

through changes in gut hormone control of appetite. Gastric banding requires follow up to ensure that the band is correctly inflated to control appetite and deal with any complications of band slippage or erosion. Gastric bypass patients require lifelong nutritional monitoring.

Both NICE[18] and SIGN[16] have published evidence-based guidelines on the management of obesity.

The guidance recommends bariatric surgery for patients with obesity-related disease and a BMI >35 kg/m^2, athough NICE also states that it should be available to those with a BMI >40 kg/m^2 and no obesity-related comorbidities. However guidance and practice are very different. Routes of access for, and availability of, bariatric surgery vary across the country. Most bariatric surgical centres only take referrals from NHS weight management clinics and programmes and have strict criteria around attendance at appointments and attempts at preoperative weight loss. Only a very small proportion of the eligible population are being treated.

WEIGHT MANAGEMENT SERVICES

Obviously not every overweight and obese patient can be seen in a specialist weight management service. Local protocols apply as to which patients should be referred, but usually the focus is on those with severe and/or complicated obesity, such as patients with sleep apnoea, diabetes, mobility problems or a BMI >35 kg/m^2.

There can be a mismatch between those patients who seek treatment and those with the greatest need and most to gain from treatment. Men, individuals from deprived backgrounds and those with chronic disease should not be overlooked for weight management just because they are not seeking it; efforts should be made to engage these groups whenever possible and raise the issue of obesity treatment.

REFERENCES

1 Health Survey for England 2008. Physical Activity and Fitness – Volume 1. The NHS Information Centre, 2009.www.ic.nhs.uk/pubs/hse08physicalactivity
2 Guh DP, Zhang W, Bansback N et al. The incidence of co-morbidities related to obesity and overweight: a systematic review and meta-analysis. *BMC Public Health* 2009;9:88
3 Whitlock G, Lewington S, Sherliker P et al. Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. *Lancet* 2009;373(9669):1083-96
4 World Health Organization (WHO). Obesity: Preventing and Managing the Global Epidemic. Report on a WHO Consultation (WHO technical report series 894). WHO. Geneva. 2000
5 Taylor AE, Ebrahim S, Ben-Shlomo Y et al. Comparison of the associations of body mass index and measures of central adiposity and fat mass with coronary heart disease, diabetes, and all-cause mortality: a study using data from 4 UK cohorts. *Am J Clin Nutr* 2010; 91(3):547-556
6 Grundy SM, Cleeman JI, Daniels SR et al. Diagnosis and management of the metabolic syndrome: an American Heart Association/National Heart, Lung, and Blood Institute Scientific Statement. *Circulation* 2005; 112(17):2735-2752
7 WHO expert consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet* 2004; 363(9403):157-163
8 Vazquez G, Duval S, Jacobs DR Jr et al. Comparison of body mass index, waist circumference, and waist/hip ratio in predicting incident diabetes: a meta-analysis. *Epidemiol Rev* 2007; 29:115-128
9 Kannel WB. Effect of weight on cardiovascular disease. *Nutrition* 1997; 13(2):157-158
10 Metwally M, Ong KJ, Ledger WL et al. Does high body mass index increase the risk of miscarriage after spontaneous and assisted conception? A meta-analysis of the evidence. *Fertil Steril* 2008; 90(3):714-726
11 Machado M, Marques-Vidal P, Cortez-Pinto H. Hepatic histology in obese patients undergoing bariatric surgery. *J Hepatol* 2006; 45(4):600-606
12 Lievense AM, Bierma-Zeinstra SM, Verhagen AP et al. Influence of obesity on the development of osteoarthritis of the hip: a systematic review. *Rheumatology* 2002; 41(10): 1155-1162
13 Heslehurst N, Simpson H, Ells LJ et al. The impact of maternal BMI status on pregnancy outcomes with immediate short-term obstetric resource implications: a meta-analysis. *Obes Rev* 2008; 9(6):635-683
14 Young T, Peppard PE, Taheri S. Excess weight and sleep-disordered breathing. *J Appl Physiol* 2005; 99(4):1592-1599
15 Beuther DA, Sutherland ER. Overweight, obesity, and incident asthma: a meta-analysis of prospective epidemiologic studies. *Am J Respir Crit Care Med* 2007; 175(7):661-666
16 Scottish Intercollegiate Guidelines Network. SIGN 115. Management of Obesity. NHS Quality Improvement Scotland. Edinburgh. 2010
17 Dixon JB, O'Brien PE, Playfair J et al. Adjustable gastric banding and conventional therapy for type 2 diabetes: a randomized controlled trial. *JAMA* 2008; 299(3):316-323
18 National Institute for Health and Clinical Evidence. CG 43. The prevention, identification, assessment and management of overweight and obesity in adults and children. NICE. London. 2007

Useful information

For GPs
The National Obesity Forum
www.nationalobesityforum.org.uk

The readiness ruler to assess willingness to change is available at:
www.healthscotland.com/uploads/documents/2976-Healthy_Living_Readiness_Ruler_2_pages.pdf

For patients
Helpful details on small dietary changes and recipes can be found at:
www.nhs.uk/change4life/Pages/Default.aspx

We welcome your feedback

If you would like to comment on this article or have a question for the authors, write to:
editor@thepractitioner.co.uk