

HEALTH RISKS OF EXCESS FAT IN CHILDREN

obesity = excess fat → disease

Children

Lungs

3-fold increased chance of asthma in obese girls

Wickens K *et al* (2005) Obesity and asthma in 11-12 year old New Zealand children in 1989 and 2000. *Thorax*; 60: 7-12.

Heart

3-fold increased risk of hypertension

Sorof J & Daniels S (2002) Obesity hypertension in children: a problem of epidemic proportions. *Hypertension*; 40: 441-7.

Liver

77% of obese children have fatty liver disease 24% of these progress to non-alcoholic steatohepatitis

Chan DF *et al* (2004) Hepatic steatosis in obese Chinese children. *Int J Obes*; 28: 1257-63.

Reproductive organs

Increased risk of polycystic ovary syndrome (PCOS) in girls

Silfen ME *et al* (2003) Early endocrine, metabolic, and sonographic characteristics of polycystic ovary syndrome (PCOS): comparison between non-obese and obese adolescents. *J Clin Endocrinol Metab*; 88: 4682-8.

Legs

Reduced exercise tolerance

Marinov B *et al* (2002) Ventilatory efficiency and rate of perceived exertion in obese and non-obese children performing standardized exercise. *Clin Physiol Funct Imaging*; 22: 254-60.

Head

12 point reduction in quality-of-life (QoL) scores

5-fold more likely to report impaired health-related QoL
Schwimmer JB *et al* (2003) Health-related quality of life of severely obese children and adolescents. *J Am Med Assoc*; 289: 1813-9.

Throat

20% increased risk of sleep-related breathing disorders

Wing YK *et al* (2003) A controlled study of sleep related disordered breathing in obese children. *Arch Dis Child*; 88: 1043-7.

General body

30% moderately obese and 50% severely obese children suffer from the metabolic syndrome

Weiss RN *et al* (2004) Obesity and the metabolic syndrome in children and adolescents. *New Engl J Med*; 350: 2362-74.

Pancreas

Type-2 diabetes rapidly becoming more common than type-1

Pontiroli AE (2004) Type 2 diabetes mellitus is becoming the most common type of diabetes in school children. *Acta Diabetol*; 41: 85-90.

Bones (arm)

70% increased risk of fracture

Davidson P *et al* (2003) Biomechanical analysis of arm fracture in obese boys. *J Paediatr Child Health*; 39: 657-664.

Kidney

Increased risk of impaired renal function

Csernus K *et al* (2005) Effect of childhood obesity and obesity-related cardiovascular risk factors on glomerular and tubular protein excretion. *Eur J Pediatr*; 164: 44-9.

Children to Adults

Childhood obesity predicts adult health risks

Raitakari OT *et al* (2003) Cardiovascular risk factors in childhood and carotid artery intima-media thickness in adulthood: the Cardiovascular Risk in Young Finns Study. *J Am Med Assoc*; 290: 2277-83.

Obese children more likely to become obese adults

Freedman DS *et al* (2005) The relation of childhood BMI to adult adiposity: the Bogalusa Heart Study. *Pediatrics*; 115: 22-7.

Adults

Lungs

85% increased risk of asthma

Nystad W *et al* (2004) Body mass index in relation to adult asthma among 135,000 Norwegian men and women. *Am J Epidemiol*; 160: 969-76.

Heart

6-fold increased risk of hypertension

Mokdad AH *et al* (2003) Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *J Am Med Assoc*; 289: 76-9.

Liver

76% of obese adults have non-alcoholic fatty liver disease

Increased risk of cirrhosis and 4.4-fold increased risk of liver cancer

Festi D *et al* (2004) Hepatic steatosis in obese patients: clinical aspects and prognostic significance. *Obes Rev*; 5: 27-42.

Uterus

Weight loss in infertile obese women caused 90% resumption of ovulation and 78% pregnancy rate

Clark AM *et al* (1998) Weight loss in obese infertile women results in improvement in reproductive outcome for all forms of fertility treatment. *Hum Reprod*; 13: 1502-5.

Ovaries

50% of women with polycystic ovary syndrome (PCOS) are overweight or obese

Gambineri A *et al* (2002) Obesity and the polycystic ovary syndrome. *Int J Obes*; 26: 883-96.

Legs

4.4-fold increase in arthritis

Mokdad AH *et al* (2003) Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *J Am Med Assoc*; 289: 76-9.

Head

4.6-fold risk of major depression

Onyike CU *et al* (2003) Is obesity associated with major depression? Results from the Third National Health and Nutrition Examination Survey. *Am J Epidemiol*; 158: 1139-47.

Throat

Most morbidly obese develop obstructive sleep apnea

Aloia MS *et al* (2005) Examining the construct of depression in obstructive sleep apnea syndrome. *Sleep Med*; 6: 115-21.

Breasts

2-fold increase in breast cancer

Calle EE *et al* (2003) Overweight, obesity, and mortality from cancer in a prospectively studied cohort of US adults. *New Eng J Med*; 348: 1625-38.

Pancreas

7-fold increased risk of diabetes in severely obese

Mokdad AH *et al* (2003) Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *J Am Med Assoc*; 289: 76-9.

Kidney

1.5 to 2.0-fold increased risk of kidney stones

Taylor EN *et al* (2005) Obesity, weight gain, and the risk of kidney stones. *J Am Med Assoc*; 293: 455-62.

Bowels

93% increased risk of colon cancer + 65% increased risk of rectal cancer

Pan SY *et al* (2004) Association of obesity and cancer risk in Canada. *J Epidemiol*; 159: 259-68.

Testes

Reduced sperm count

Jensen TK *et al* (2004) Body mass index in relation to semen quality and reproductive hormones among 1,558 Danish men. *Fertil Steril*; 82: 863-70.

General body

Increased risk of all cancers except lung, brain, bladder and stomach

Calle EE *et al* (2003) Overweight, obesity, and mortality from cancer in a prospectively studied cohort of US adults. *New Eng J Med*; 348: 1625-38.

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Monitoring Your Health

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