

Metabolic syndrome diagnostic components

Elevated waist circumference* or elevated waist-to-hip ratio** *defined as abdominal obesity*

WC: European/ North American M: >102 cm; F: >88 cm Asian/ Central & South America M: >90 cm; F: >80cm Middle East/ Med./ Africa M: >94 cm; F: >80 cm

WHR: M: >0.9; F: >0.85

Elevated triglycerides
or treatment for this lipid abnormality

≥150 mg/dL (1.7 mmol/L)

Reduced HDL-cholesterol
or treatment for this lipid abnormality

M: <40 mg/dL (1.0 mmol/L)
F: <50 mg/dL (1.3 mmol/L)

Elevated blood pressure
or treatment for hypertension

Systolic ≥130 and/or diastolic ≥85 mm Hg

Elevated fasting glucose or diagnosed T2DM *or treatment for elevated glucose*

≥100 mg/dL (5.5 mmol/L)

Adapted from Alberti et al.,^(1, 2) *WHO,⁽³⁾ and **WHO.⁽⁴⁾ T2DM, type 2 diabetes mellitus; Med., Mediterranean.

Type 2 diabetes mellitus diagnostic criteria

Diabetes symptoms plus:

- random venous plasma glucose concentration ≥11.1 mmol/L or
- fasting plasma glucose concentration ≥7 mmol/L or
- two-hour plasma glucose concentration ≥11.1 mmol/L two hours after 75g anhydrous glucose in oral glucose tolerance test (OGTT) or
- HbA1C ≥6.5%*

Adapted from WHO,^(4, 5) and WHO*.⁽⁶⁾

Obesity diagnostic criteria

Elevated waist circumference or elevated waist-to-hip ratio *defined as abdominal obesity*

and

Body-mass index (BMI) ≥ 23 kg/m²

WC: European/ North American M: >102 cm; F: >88 cm Asian/ Central & South America M: >90 cm; F: >80cm Middle East/ Med./ Africa M: >94 cm; F: >80 cm

WHR: M: >0.9; F: >0.85

East Asians may be at higher risk of poor cardiometabolic outcomes at a lower BMI than Caucasians.⁽⁷⁾ This is reflected in our decision to include overweight/ obese participant studies with a BMI cut off of ≥ 23 kg/m², and metabolic syndrome waist circumference cut off for East Asians as per the WHO ⁽³⁾ obesity guidelines.

1. Alberti K, Eckel RH, Grundy SM et al. (2009) Harmonizing the metabolic syndrome. *Circulation* **120**, 1640–1645.
2. Alberti KGMM, Zimmet P & Shaw J (2006) Metabolic syndrome—a new world-wide definition. A Consensus Statement from the International Diabetes Federation. *Diabet Med* **23**, 469–480.
3. WHO Consultation on Obesity (1999: Geneva S & Organization WH (2000) *Obesity : preventing and managing the global epidemic : report of a WHO consultation*. World Health Organization.
4. World Health Organization (1999) *Definition, diagnosis and classification of diabetes mellitus and its complications : report of a WHO consultation. Part 1, Diagnosis and classification of diabetes mellitus* (No. WHO/NCD/NCS/99.2). World Health Organization.
5. World Health Organisation (2006) Definition and diagnosis of diabetes mellitus and intermediate hyperglycaemia. , <https://www.who.int/publications-detail-redirect/definition-and-diagnosis-of-diabetes-mellitus-and-intermediate-hyperglycaemia>.
6. World Health Organization (2011) Use of glycated haemoglobin (HbA1c) in diagnosis of diabetes mellitus. , [https://www.who.int/publications-detail-redirect/use-of-glycated-haemoglobin-\(-hba1c\)-in-diagnosis-of-diabetes-mellitus](https://www.who.int/publications-detail-redirect/use-of-glycated-haemoglobin-(-hba1c)-in-diagnosis-of-diabetes-mellitus).
7. WHO Expert Consultation (2004) Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *The Lancet* **363**, 157–163.