



# TYPE 2 DIABETES AND METABOLIC SYNDROME

---

**Recommendations for Healthcare Providers**

# THE DIABETES AND METABOLIC SYNDROME CONNECTION

Metabolic syndrome is a complex of interrelated risk factors for diabetes and cardiovascular disease (CVD), which include<sup>1,2</sup>:

- elevated fasting glucose
- elevated blood pressure
- elevated triglyceride levels
- low levels of high-density lipoprotein cholesterol (HDL-C)
- abdominal obesity

Three abnormal findings out of 5 would indicate a person has metabolic syndrome.<sup>1</sup>

Since metabolic syndrome does not include factors that determine absolute risk (eg, age, sex, cigarette smoking, and low-density lipoprotein cholesterol levels), it is not considered an absolute risk indicator. However, people with metabolic syndrome have a 5 times greater risk of developing type 2 diabetes.<sup>1</sup>

## Metabolic syndrome is both a public health and a clinical problem<sup>1</sup>

Due to the risk factors, the syndrome is increasingly common, which relates to increased obesity and sedentary lifestyles<sup>1</sup>:

- In the public health arena, more attention must be given to lifestyle modifications to reduce obesity and to increase physical activity.
- At a clinical level, patients with metabolic syndrome need to be identified so that their multiple risk factors, including lifestyle risk factors, can be reduced.



.....  
*In 2010, approximately 23% of adults 20 years of age and older in the United States had metabolic syndrome.<sup>3</sup>*  
.....

# CRITERIA FOR METABOLIC SYNDROME DIAGNOSIS

## The International Diabetes Federation (IDF) and the American Heart Association/National Heart, Lung, and Blood Institute (AHA/NHLBI) Diagnostic Criteria for Determining Metabolic Syndrome<sup>1</sup>

|                                  |   |
|----------------------------------|---|
| <b>Waist circumference:</b>      | ≥102 cm in men; ≥88 cm in women   |
| <b>Raised triglycerides:</b>     | ≥150 mg/dL or drug treatment for raised triglycerides   |
| <b>Reduced HDL-C:</b>            | <40 mg/dL in men; <50 mg/dL in women or drug treatment for reduced HDL-C                        |
| <b>Raised blood pressure:</b>    | ≥130 mm Hg systolic; ≥85 mm Hg diastolic or drug treatment of previously diagnosed hypertension |
| <b>Elevated fasting glucose:</b> | ≥100 mg/dL or drug treatment for elevated glucose   |

### Treating Patients With Metabolic Syndrome

With metabolic syndrome driving growing epidemics of type 2 diabetes and CVD, there is an overwhelming consensus to identify patients early. By doing so, lifestyle modifications and treatment may prevent diabetes and/or cardiovascular disease.<sup>2</sup>

- Once a diagnosis of metabolic syndrome is made, managing the condition should be aggressive in its aim to reduce the risk of CVD and type 2 diabetes.<sup>2</sup>
- Patients should undergo a full cardiovascular risk assessment (including smoking status) in conjunction with the following healthy lifestyle changes<sup>2</sup>:
  - Increased calorie restriction to lose 5% to 10% of body weight in the first year
  - Increased physical activity
  - Change in diet

Moderate weight loss and regular activity may provide clinical benefits in individuals with type 2 diabetes. Regular exercise may also help prevent type 2 diabetes in high-risk individuals.<sup>4</sup>

### For patients who require more than lifestyle modifications

Patients at high risk for CVD also may require drug therapy to treat metabolic syndrome.<sup>2</sup> However, since there are not yet specific pharmacological agents available to treat metabolic syndrome, treatment must instead focus on the individual components of the syndrome.<sup>2</sup> By lowering the risk of each component, the overall risks of CVD and diabetes may be reduced.<sup>2</sup>

**References:** **1.** Alberti KG, Eckel RH, Grundy SM, et al. Harmonizing the metabolic syndrome: a joint interim statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity. *Circulation*. 2009;120(16):1640-1645. **2.** International Diabetes Federation. *The IDF Consensus Worldwide Definition of Metabolic Syndrome*. Brussels, Belgium: International Diabetes Federation; 2006. **3.** Beltrán-Sánchez H, Harhay MO, Harhay MM, McElligot S. Prevalence and trends of metabolic syndrome in the adult U.S. population, 1999-2010. *J Am Coll Cardiol*. 2013;62(8):697-703. **4.** American Diabetes Association. Standards of medical care in diabetes – 2014. *Diabetes Care*. 2014;37(S1):S14-S80.



This information has been developed by Janssen Pharmaceuticals, Inc., and made widely available to support patient and provider education.

© Janssen Pharmaceuticals, Inc. 2014

December 2014

025668-141201