



2019 Clinical Practice Guideline

Metabolic Syndrome Guidelines

Metabolic Syndrome is a condition that represents a cluster of risk factors. People with Metabolic Syndrome are much more likely to develop chronic health conditions, including cardiovascular disease and diabetes. A diagnosis of Metabolic Syndrome is appropriate when any three of the following risk factors are present:¹

- Waist measurement > 35 inches in women and > 40 inches in men
- Elevated blood pressure or receiving treatment for hypertension
- Fasting blood glucose > 100 mg/dl or receiving treatment for diabetes
- Elevated triglycerides or receiving treatment for elevated triglycerides
- Low HDL-cholesterol or receiving treatment for low HDL-cholesterol

Obesity greatly increases the potential to develop Metabolic Syndrome.^{1, 2} Between 2013 and 2014, prevalence of obesity (BMI 30.0 kg/m² – 39.9 kg/m²) in people 20 years of age and older was 37.9 %.³ That same year, the incidence of morbid obesity (BMI ≥ 40 kg/m²) was 7.7 % in the same age category.³ In 2012 the United States Preventive Services Task Force (USPSTF) stated that two leading causes of preventable death were from ischemic heart disease and diabetes secondary to obesity.⁴ See also Clinical Practice Guidelines for Weight Management.⁵

Lifestyle Changes to Prevent the Development of Risk Factors for Metabolic Syndrome

Diet	Source Guideline
<p>These dietary recommendations can improve some dyslipidemias in adults:</p> <ul style="list-style-type: none"> • Eat vegetables, specifically those that are green and leafy • Choose whole grain cereal, bread, and rice • Reduce dairy fat intake • Select lean proteins, such as fish, boneless, skinless chicken or turkey, reduced-fat ground beef, eggs, legumes, and nuts • Use monounsaturated and polyunsaturated oils for cooking • Opt for unsweetened or whole fruits and no added-sugar alternatives instead of food w/added-sugar, such as colas, fruit juice, cakes, cookies, pies, candy and other snacks and sweets. • Personalize your caloric intake, adapted for cultural preferences and/or health conditions, as appropriate • Consider the DASH diet, the USDA Food Pattern, or the AHA diet • Limit alcohol consumption 	<p>6/Page 12 Table 5 7</p>
<p>These dietary recommendations can help achieve and maintain an optimal blood pressure in adults:</p> <ul style="list-style-type: none"> • Follow the dietary recommendations for improvement of some dyslipidemias (above) • Reduce dietary sodium consumption to 2,400 mg/d or less <ul style="list-style-type: none"> ○ Consider greater restraints for lower blood pressure targets ○ Note that reducing sodium consumption by 1,000 mg/d has been proven to improve blood pressure readings ○ Observe the nutritional facts panel when shopping and make selections based on those items w/the lower sodium content. 	<p>6/Page 12 Table 5 7</p>

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<ul style="list-style-type: none"> ○ Choose items labeled as low or reduced sodium or no-salt added ○ Opt for fresh or frozen vegetables over alternative packaging ○ At-home meal preparation is optimal for control and awareness of ingredients ● Consider a sodium restricted DASH diet ● Limit alcohol consumption 	
Physical Activity	
<p>These physical activity recommendations can help improve some dyslipidemias and blood pressure in adults:</p> <ul style="list-style-type: none"> ● Reduce periods of inactivity throughout the day <ul style="list-style-type: none"> ○ Engage in aerobic activity, which should be carried out in no less than ten-minute sessions w/multiple sessions carried out every day/week. <ul style="list-style-type: none"> ▪ Moderate intensity: <ul style="list-style-type: none"> ● Should consist of no less than 150 minutes of activity/week ● May be increased to 300 minutes of activity (or more)/week as tolerated ▪ Vigorous intensity: <ul style="list-style-type: none"> ● Should consist of no less than 75 minutes of activity/week ● May be increased to 150 minutes of activity (or more)/week as tolerated ▪ Intensity levels may be combined and should span over recommended time periods ○ Incorporate strength training as tolerated for added health benefits ○ Increasing physical activity beyond recommendations is appropriate (as tolerated) and can lead to achievement of added health benefits 	<p>6/Page 12 Table 5 8/Pages 21 - 34</p>
<p>Consider these additional points when starting a physical activity program:</p> <ul style="list-style-type: none"> ● Develop an individualized exercise plan, considering the presence of chronic or debilitating physical illness, current fitness level and physical abilities ● Introduce physical activity gradually and increase in frequency and intensity as tolerated ● Considering a diverse array of physical activities tailored to individual tastes and preferences to increase the chance for successful implementation and maintenance ● Observe appropriate safety precautions to avoid injury, discouragement, and delay in achieving an exercise plan goals 	<p>8/Pages 29 - 38</p>

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<http://www.nhlbi.nih.gov/health/health-topics/topics/ms>
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<http://www.nhlbi.nih.gov/health/health-topics/topics/heart-healthy-lifestyle-changes/heart-healthy-eating>
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