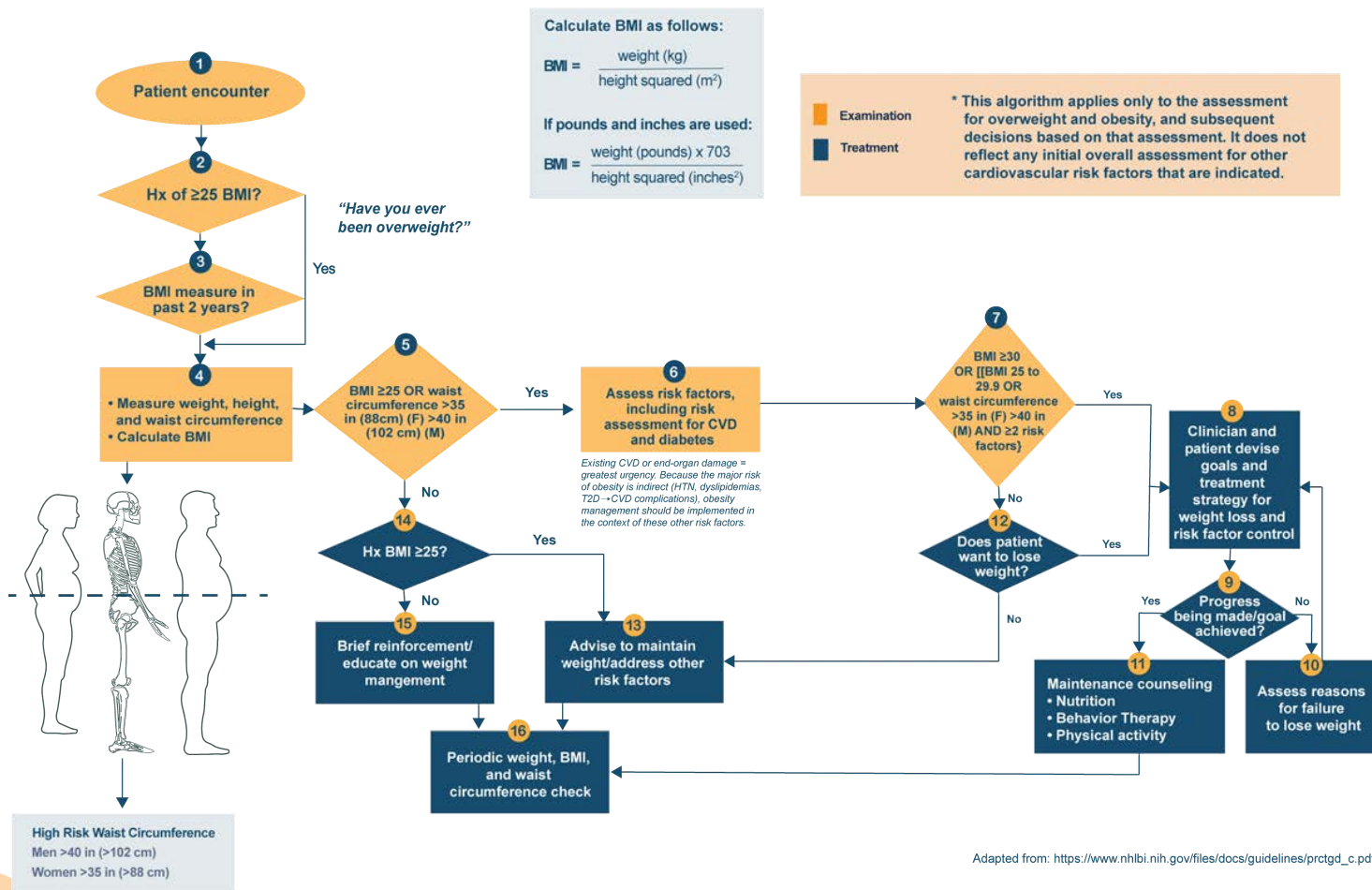# Measuring Waist Circumference
Clinician Pocket Guide

Treatment Algorithm*

Each step (designated by a box) in this process is reviewed in the section and expanded upon in subsequent sections.

Calculate BMI as follows:

$$BMI = \frac{weight\ (kg)}{height\ squared\ (m^2)}$$

If pounds and inches are used:

$$BMI = \frac{weight\ (pounds) \times 703}{height\ squared\ (inches^2)}$$

■ Examination
■ Treatment

* This algorithm applies only to the assessment for overweight and obesity, and subsequent decisions based on that assessment. It does not reflect any initial overall assessment for other cardiovascular risk factors that are indicated.

1 Patient encounter

2 Hx of ≥25 BMI?

"Have you ever been overweight?"

3 BMI measure in past 2 years? — Yes

4 • Measure weight, height, and waist circumference • Calculate BMI

5 BMI ≥25 OR waist circumference >35 in (88cm) (F) >40 in (102 cm) (M) — Yes →

6 Assess risk factors, including risk assessment for CVD and diabetes

Existing CVD or end-organ damage = greatest urgency. Because the major risk of obesity is indirect (HTN, dyslipidemias, T2D→CVD complications), obesity management should be implemented in the context of these other risk factors.

7 BMI ≥30 OR [[BMI 25 to 29.9 OR waist circumference >35 in (F) >40 in (M) AND ≥2 risk factors} — Yes

12 Does patient want to lose weight? — Yes / No

8 Clinician and patient devise goals and treatment strategy for weight loss and risk factor control

9 Progress being made/goal achieved? — Yes / No

10 Assess reasons for failure to lose weight

11 Maintenance counseling • Nutrition • Behavior Therapy • Physical activity

14 Hx BMI ≥25? — Yes / No

15 Brief reinforcement/ educate on weight mangement

13 Advise to maintain weight/address other risk factors

16 Periodic weight, BMI, and waist circumference check

High Risk Waist Circumference
Men >40 in (>102 cm)
Women >35 in (>88 cm)

Adapted from: https://www.nhlbi.nih.gov/files/docs/guidelines/prctgd_c.pdf

Classification of overweight and obesity by BMI, Waist Circumference and Associated Disease Risk.*

	BMI (kg/m²)	Obesity Class	Disease risk* (Relative to Normal Weight and Waist Circumference)	
			Men ≤40 in (≤102 cm) Women ≤35 in (≤88 cm)	>40 in (>102 cm) >35 in (>88 cm)
Underweight	<18.5		-	-
Normal†	18.5-24.9		-	-
Overweight	25.0-29.9		Increased	High
Obesity	30.0-34.9	I	High	Very High
	35.0-39.9	II	Very High	Very High
Extreme Obesity	≥40	III	Extremely High	Extremely High

* Disease risk for a type, two diabetes, hypertension, and cbd. What happened?
† Increased waist circumference, can also be a marker for increased risk even in persons of normal weight
Adopted from "Preventing and Managing the Global Epidemic of Obesity. Report of the World Health Organization Consultation of Obesity." WHO, Geneva, June 1997.²⁶

Waist Circumference Measurement

To measure waist, circumference, locate the upper hip bone, an d the top of the rigt lung iliac crest. Place a measuring tape in a horizontal plane around the abdomen at the level of the iliac crest. Before reading the tape measure, ensure that the tape is snug, but does not compress the skin and is parallel to the floor. The measurement is made at the end of a normal expiration.
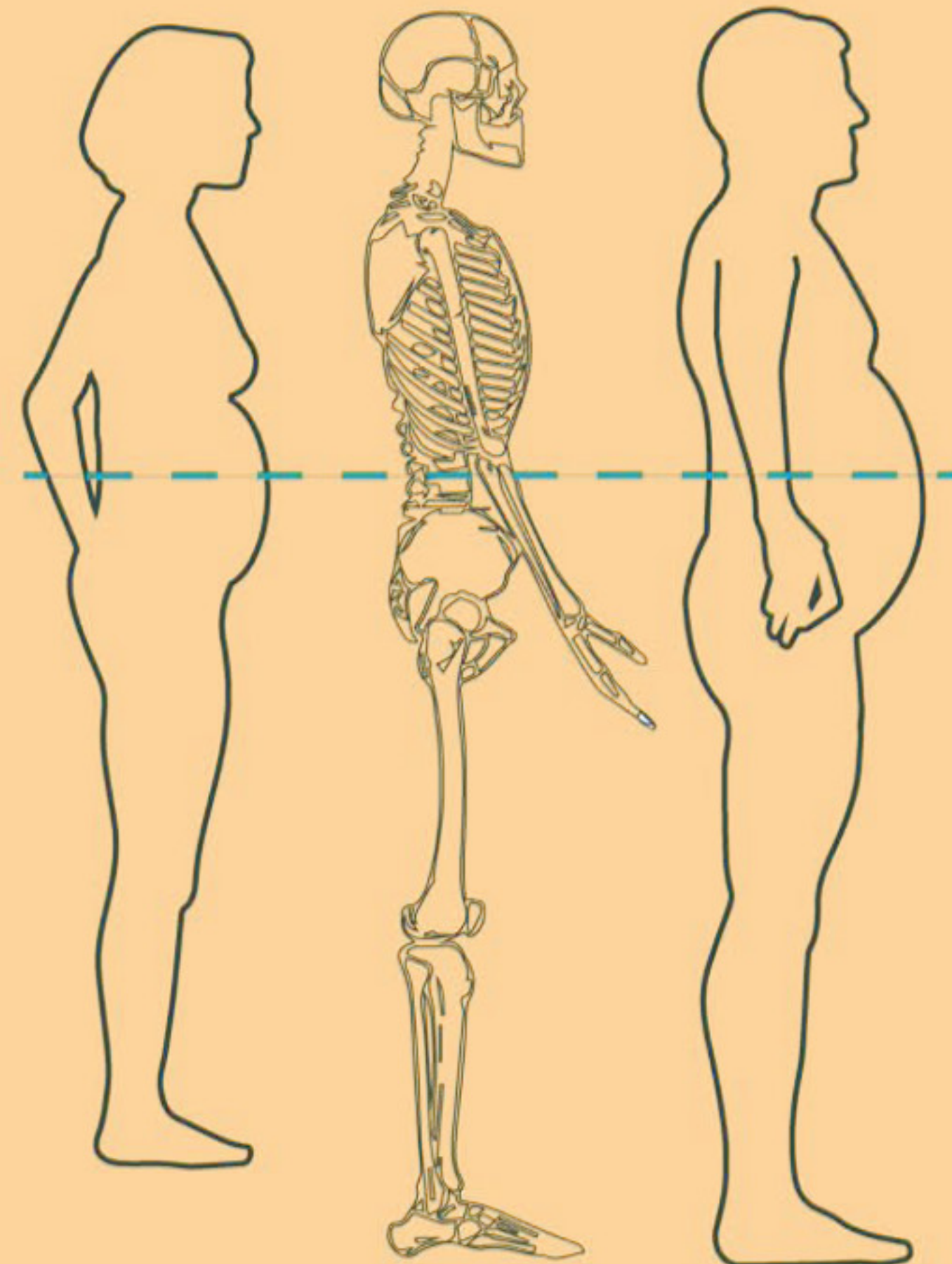
Measuring-Top Position for Waist (Abdominal) Circumference in Adults

	Weight Loss % Needed for Benefit	Additional Information
Diabetes prevention	3–10%	Maximum benefit at 10%
Hypertension	5 to >15%	BP still decreasing at >15%
Dyslipidemia	3 to >15%	TG still decreasing at >15%
Hyperglycemia	3 to >15%	A1c still decreasing at >15%
NAFLD	10%	Improves steatosis, inflammation, mild fibrosis
Sleep apnea	10%	Little benefit at 15%
Osteoarthitis	10%	Improves symptoms and joint stress mechanics
Stress incontinence	5-10%	
GERD (males)	10%	
GERD (females)	5-10%	
PCOS	5-15%	> 10% is optimal; lowers androgens, improves ovulation, increases insulin sensitivity

Cefalu WT, et al. Diabetes Care. 2015.

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