

# WEIGHT MANAGEMENT

**Zinc** Deficiency of zinc reduces leptin, a beneficial hormone that regulates appetite, which is reversed by zinc repletion.<sup>10,37</sup>

**Asparagine** This amino acid increases insulin sensitivity which helps the body store energy in muscle instead of storing it as body fat.<sup>1,2</sup>

**Biotin** Boosts metabolism by improving glycemic control (stabilizes blood sugar) and lowering insulin, a hormone that promotes fat formation.<sup>3,4,5</sup>

**Carnitine** Carries fatty acids into the cell so they can be burned for fuel; Helps reduce visceral adiposity (belly fat).<sup>6,7</sup>

**Calcium** Inhibits the formation of fat cells; Also helps oxidize (burn) fat cells.<sup>8,9,10</sup>

**Lipoic Acid** Improves glucose uptake into cells, which helps a person burn carbohydrates more efficiently.<sup>11,12,13</sup>

**Chromium** Makes the body more sensitive to insulin, helping to reduce body fat and increase lean muscle.<sup>14,15,16,27,28,4</sup>

**Vitamin B5** Taking B5 lowers body weight by activating lipoprotein lipase, an enzyme that burns fat cells. One study linked B5 supplementation to less hunger when dieting.<sup>17,18</sup>

**Magnesium** Low magnesium in cells impairs a person's ability to use glucose for fuel, instead storing it as fat; Correcting a magnesium deficiency stimulates metabolism by increasing insulin sensitivity. Magnesium may also inhibit fat absorption.<sup>19,20,21</sup>

**Glutamine** Reduces fat mass by improving glucose uptake into muscle.<sup>22,23</sup>

**Cysteine** Supplementation with this antioxidant reduced body fat in obese patients.<sup>24</sup>

**Inositol** Supplementation may increase adiponectin levels.<sup>25</sup>

**Vitamin B3 (Niacin)** Treatment with B3 increases adiponectin, a weight-loss hormone secreted by fat cells; Niacin-bound chromium supplements helped reduced body weight in clinical trials.<sup>26,27,28</sup>

**Vitamin A** Enhances expression of genes that reduce a person's tendency to store food as fat; Reduces the size of fat cells.<sup>10,29,30</sup>

**Vitamin E** Inhibits pre-fat cells from changing into mature fat cells, thus reducing body fat.<sup>10,31,32</sup>

**Vitamin D** Deficiency strongly linked to poor metabolism of carbohydrates; Genes that are regulated by vitamin D may alter the way fat cells form in some people.<sup>8,33,34</sup>

**Vitamin K** Poor vitamin K status linked to excess fat tissue; Vitamin K helps metabolize sugars.<sup>35,36</sup>

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