#### **Glutathione**

Hypothyroidism decreases efficacy of some antioxidants, such as glutathione peroxidase and superoxide dismutase.<sup>1,2</sup>

### **Choline**

Hypothyroidism negatively affects choline function in the brain, which can affect mood and cognition.<sup>29,30</sup>

### **Lipoic Acid**

Improves endothelial function in people with subclinical hypothyroidism; Protects thyroid cells from oxidative stress;
May interfere with T4 therapy.<sup>27,28</sup>

### **B** Vitamins

A deficiency in B6, B12 or B9 (folate) can cause elevated homocysteine, which is linked with hypothyroidism. Folic acid levels have been linked to levels of thyroid stimulating hormone (TSH).<sup>3,4,5,6,7</sup>

### Vitamin Cand E

Partially restores thyroid function when liver detoxification ability is compromised.<sup>2,8,9,10,11</sup>

### **Vitamin A**

Zinc

Activates gene that regulates TSH (thyroid stimulating hormone). 12,13,14

## **HYPOTHYROIDISM**

#### **Carnitine**

Decreased tissue levels of carnitine in both hypo- and hyperthyroidism contribute to muscle fatigue. <sup>24,25,26</sup>

### Asparagine

This amino acid is part of the structure of thyroid stimulating hormone which regulates communication with other hormones.<sup>22,23</sup>

### **Selenium**

Converts thyroid hormones T4 (thyroxine) into T3 (triiodothyronine); Deficiency reduces T3 levels causing classic hypothyroidism symptoms such as fatigue, depression and/or weight gain.<sup>18,19,20,21</sup>

# hormone T3 in deficient subjects. 15,16,17,20,21

Increases thyroid

**Copper** Low levels seen in experimentally induced hypothyroidism; Indirectly affects thyroid status by its antioxidant role via superoxide dismutase.<sup>17</sup>

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