

## Coenzyme Q10

Clinical trials consistently show that CoQ10 reduces fibromyalgia symptoms such as pain and fatigue.<sup>1,2,3,4</sup>

## Carnitine

Deficiency causes muscle pain due to inefficient cellular energy metabolism (mitochondrial myopathy) which presents as fibromyalgia.<sup>4,5</sup>

## Selenium

Deficiency is linked to fibromyalgia; In one trial, symptoms improved in 95% of patients supplemented with selenium for at least 4 weeks.<sup>25,26,27</sup>

## Choline & Inositol

Altered levels of both nutrients seen in fibromyalgia; Choline & inositol are involved in pain perception.<sup>6,7,8,9</sup>

## Magnesium

Involved in pain perception pathways and muscle contraction; Treatment with magnesium can improve tenderness and pain.<sup>23,24,25</sup>

## Serine

Blood levels of this amino acid are much lower in fibromyalgia patients.<sup>10,11</sup>

# FIBROMYALGIA

**Zinc** Blood levels of zinc are associated with a number of tender points in fibromyalgic patients.<sup>22</sup>

## Vitamin D

Low levels impair neuromuscular function and cause muscle pain; Deficiency is common in fibromyalgia patients.<sup>12,13,14,15,16</sup>

## Antioxidants

Low antioxidant status increases pain in fibromyalgia, which is often considered an oxidative stress disorder.<sup>19,20,21</sup>

## Vitamin B1

Thiamin (B1) deficiency mimics fibromyalgia symptoms including serotonin depletion (decreased pain threshold), a decrease in repair enzymes (muscle soreness) and poor energy production (muscle fatigue.)<sup>17,18</sup>

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- Additional references at <http://www.spectracell.com/online-library-mnt-fibromyalgia-abstract/>