

However, to date there has not been evidence from RCT that vitamin D supplementation either prevents SAMS or reduces the severity of muscle symptoms. Although it may be reasonable to check vitamin D levels in patients with SAMS and initiate supplementation if deficiency is identified, a well-designed RCT is still needed before any recommendations can be made about either routine measurement of vitamin D levels in those with SAMS as well as any treatment recommendation in those with SAMS and low vitamin D levels.

Another controversial supplement for the treatment of SAMS is Coenzyme Q₁₀ (CoQ₁₀), a naturally occurring byproduct of the mevalonate pathway, and integral to mitochondrial function and cellular energy production.⁷⁰ Its use seems plausible from a physiological role in patients with SAMS as its endogenous production, and resultant plasma and tissue concentrations, are reduced with statin treatment, but steady-state mitochondrial levels may not be substantially reduced during long-term statin treatment. Additionally, oral administration with CoQ₁₀ has been demonstrated to dose-dependently increase plasma CoQ₁₀ levels, reaching peak effects after 2 weeks, but this may not alter mitochondrial function.⁷¹ RCTs and meta-analyses evaluating CoQ₁₀ in doses ranging from 100 to 600 mg daily, have produced discordant results regarding improvement in pain scores and results did not seem to vary by CoQ₁₀ dose.^{72, 73} One analysis failed to show an increase in statin adherence with CoQ₁₀ supplementation, which is perhaps a more important outcome measure than pain score improvement.⁷³ Use of CoQ₁₀ is not supported by most guideline recommendations for mitigation of SAMS.^{9, 13, 63} However, others have suggested that given the hypothetical possibility of a clinical benefit, coupled with anecdotal reports of effectiveness from some clinicians and patients, a trial of CoQ₁₀ might seem reasonable as a last line strategy in certain patients with SAMS. However, until a well-designed RCT is completed in those with SAMS and low levels of CoQ₁₀, such a strategy cannot be currently recommended.