



CRN ANALYSIS

“DHEA in Elderly Women and DHEA or Testosterone in Elderly Men”

Nair et al., October 19, 2006, vol. 355 no. 16, New England Journal of Medicine

Study design and parameters

- Placebo-controlled, randomized, double-blind study involving elderly men (n = 87) and elderly women (n = 57).
- Subjects received either oral DHEA (75 mg/day, men; 50 mg/day, women), testosterone (5 mg/day, men, delivered by patch) or placebo over a 2-year period.
- Outcome measures included physical performance, body composition, bone mineral density (BMD), glucose tolerance, serum lipid and hormone levels, adverse effects and quality of life.

Relevant findings

- Both men and women receiving oral DHEA experienced a significant increase in serum levels of sulfated DHEA.
- Women receiving DHEA experienced a significant increase in testosterone levels.
- Men receiving low-dose testosterone therapy experienced a significant increase in testosterone levels.
- There were no significant effects of DHEA in either men or women on body-composition measurements, peak volume of oxygen consumed per minute, muscle strength, or insulin sensitivity.
- Men in both treatment groups experienced a significant increase in bone mineral density (BMD) at the femoral neck.
- Women who received DHEA experienced a significant increase in BMD at the ultradistal radius.
- Neither treatment improved the quality of life or had major adverse effects.

Comments

This is the longest duration human supplementation trial confirming the safety of relatively high-dose DHEA in both men and women. There were no drastic changes in potentially carcinogenic hormones (testosterone and estradiol), no changes in prostate-specific antigen (PSA) or prostate volume (indicating no increased prostate cancer in men, and no increase in breast cancer in women). An “adverse effect” often attributed to DHEA supplementation is decreased HDL levels. In this study, there was a small and statistically significant but not clinically relevant reduction in HDL levels, a finding given almost no attention by the study authors. This finding of safety is the most important outcome of this study, and should not be discounted.

Small but significant increases were observed in BMD for both men and women, a finding that is consistent with past studies using DHEA. However, the lack of significant effects on other relevant outcome measures is inconsistent with the body of evidence for DHEA in an elderly population. There are more than 60 published clinical trials on DHEA supplements and the elderly.

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Study limitations

- The study authors (and the accompanying editorial by Paul Stewart) downplay the effects observed on BMD in comparison to those achieved by prescription drugs, despite the desperate need for safe bone builders in this age group.
- The researchers failed to report the reduction in fracture rates that would be associated with the observed BMD improvement—over time, this would likely translate into a substantial decrease in fracture risk.
- Regarding quality of life (QOL), the baseline scores are considered relatively high (i.e. the subjects already felt good), suggesting that there may have been little or no room for improvement, i.e. a “ceiling effect”.
- Researchers did not look at other clinically relevant outcomes where DHEA has been shown to provide benefit, such as libido and sexual performance.
- Also, DHEA levels have been shown to be inversely related to mortality risk in the elderly and this study did not examine mortality or morbidity risk as an outcome measure (however, the 2-year duration may have been too short to detect any differences anyway).