The secretion and the blood levels of the adrenal steroid dehydroepiandrosterone (DHEA) and its sulfate ester (DHEAS) decrease profoundly with age, and the question is posed whether administration of the steroid to compensate for the decline counteracts defects associated with aging. The commercial availability of DHEA outside the regular pharmaceutical-medical network in the United States creates a real public health problem that may be resolved only by appropriate long-term clinical trials in elderly men and women. Two hundred and eighty healthy individuals (women and men 60-79 years old) were given DHEA, 50 mg, or placebo, orally, daily for a year in a double-blind, placebo-controlled study. No potentially harmful accumulation of DHEAS and active steroids was recorded. Besides the reestablishment of a "young" concentration of DHEAS, a small increase of testosterone and estradiol was noted, particularly in women, and may be involved in the significantly demonstrated physiological-clinical manifestations here reported. Bone turnover improved selectively in women >70 years old, as assessed by the dual-energy x-ray absorptiometry (DEXA) technique and the decrease of osteoclastic activity. A significant increase in most libido parameters was also found in these older women. Improvement of the skin status was observed, particularly in women, in terms of hydration, epidermal thickness, sebum production, and pigmentation. A number
of biological indices confirmed the lack of harmful consequences of this 50 mg/day DHEA administration over one year, also indicating that this kind of replacement therapy normalized some effects of aging, but does not create "supermen/women" (doping).