Antidepressants that selectively block serotonin uptake may cause unwanted effects on cognitive functions such as impairment of vigilance and memory. A double-blind, randomized, placebo-controlled cross-over trial was performed to examine the effects of venlafaxine, a selective serotonin and noradrenaline reuptake inhibitor (SSNRI), on cognitive functions and quantitative EEG (qEEG) in humans. 12 healthy male subjects aged 23 – 32 years (26 ± 3 years mean ± sd) orally received 37.5 mg venlafaxine b.i.d. for 7 days and subsequently 75 mg b.i.d. for another 7 days. After a 14-day wash-out phase, placebo was administered to the subjects for 14 days under randomized double-blind cross-over conditions. Venlafaxine did not influence cognitive functions such as choice reaction, memory, psychomotor performance and subjective mood. Placebo resulted in an increase in slow alpha power (p < 0.05) whereas venlafaxine had no effect on qEEG. In conclusion, multiple dosing with venlafaxine did not influence cognitive functions in healthy humans.