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# Effects of Sildenafil on Nocturnal Penile Tumescence and Rigidity in Normal Men: Randomized, Placebo-Controlled, Crossover Study

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We studied the effects of sildenafil on sleep-related erections in 44 adult healthy men not affected by erectile dysfunction (mean age  $\pm$  SD: 39.3  $\pm$  10.5 years). No subjects were administered any medication the first night, but all were randomly administered sildenafil 50 mg or placebo the second night and vice versa the third night. Sildenafil and placebo were administered 1 hour before bedtime. The following parameters of *sleep-related erections*, after taking sildenafil or placebo, were analyzed: total number of valid erections, total duration of rigidity more than or equal to 70% of a tightening force of 2.8 N applied by the recording device, total duration of increase in penile circumference more than or equal to 30 mm, maximum rigidity, mean of maximum rigidity, and maximum increase of tumescence. Apart from the maximum increase of tumescence, all the parameters analyzed were significantly higher after sildenafil than after placebo administration during the first 4 hours of monitoring in all subjects (n = 44) (study 1). All the parameters were significantly higher after sildenafil than after placebo administration during the whole 8 hours of monitoring in 25 of 44 subjects (study 2A) who slept at least 8 hours. Comparing both the first and the second 4 hours in the 25 of 44 subjects who slept at least 8 hours (study 2B), all the parameters were significantly higher after sildenafil than after placebo administration, apart from maximum rigidity and mean of maximum rigidity during the first 4 hours. Our data suggest that sildenafil, administered at bedtime, is efficacious in improving *sleep-related erections* in normal men, indirectly confirming that the nitric oxide pathway is crucial in the physiology of erections during sleep. The effect of sildenafil is prolonged up to 8-9 hours after its administration.

Key words: Sleep-related erections, healthy men

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