



# Meta-Analysis on the Next-Morning Effects of Hypnotic Drugs on Psychomotor Speed and Motor Control in Healthy Subjects

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## Background

Mixed results have been reported on the effects of hypnotic drugs taken at bedtime on next-morning psychomotor functioning. The purpose of the current meta-analyses was to examine the effect of hypnotic drugs on next-day psychomotor speed and motor control.

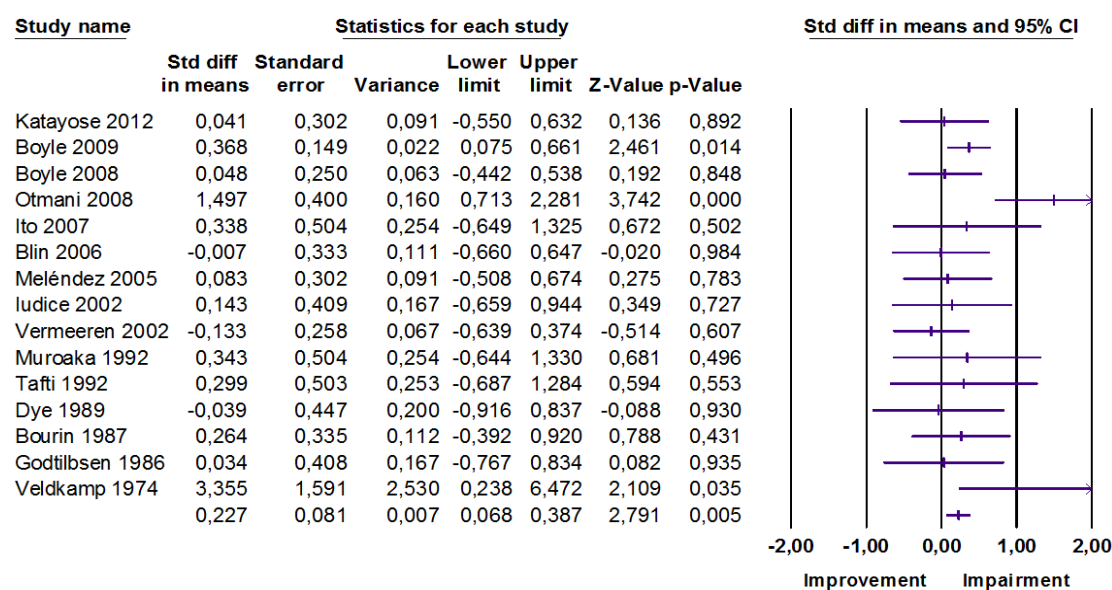
## Methods

N=33.969 potentially relevant articles were identified by searching Pubmed, Embase, PsycInfo, Scopus, Web of Science, and Cochrane. Studies were included if they assessed next-morning effects on psychomotor speed or motor control after bedtime administration of recommended dosages of hypnotic drugs. Studies had to be double-blind, placebo-controlled, conducted in healthy subjects, and provide sufficient data. Separate analyses were conducted for adults (18-65 years old) and elderly (≥ 65 years old).

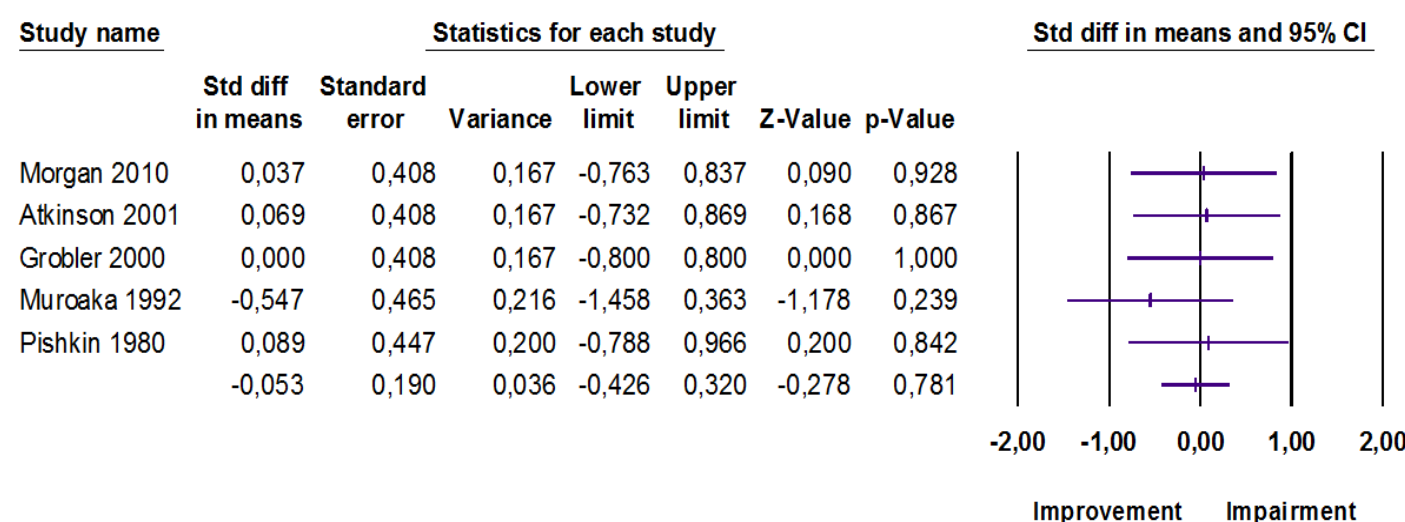
## Results

In adults, fifteen studies assessing next-morning psychomotor speed and five studies assessing next-morning motor control were included in the meta-analyses. The analyses revealed that next-morning psychomotor speed was significantly impaired (ES = 0.227, p=0.005; 95%CI: 0.068 to 0.387), whereas next-morning motor control was not significantly impaired (ES = -0.053, p=0.781; 95%CI: -0.426 to 0.320).

In elderly, six studies assessing next-morning psychomotor speed, and three studies assessing next-morning motor control were included in the meta-analyses. The analyses revealed that in elderly both next-morning psychomotor speed (ES = -0.082, p=0.546; 95%CI: -0.347 to 0.184) and motor control (ES = -0.161, p=0.356; 95%CI: -0.501 to 0.180) were not significantly impaired.



Psychomotor speed - hypnotics in healthy subjects



Motor control/performance - hypnotics in healthy subjects

## Conclusion

**Next-morning psychomotor speed was significantly impaired in healthy adults, but not in elderly. Motor control was not significantly impaired in both adults and elderly. Additional analyses should examine to what extent these findings translate to more complex behavior such as driving a car.**