Background
The prevalence of illness and deficiencies increase with age which affects inter alia the cognitive function. The ageing process also causes changes in the absorption capacity of for example vitamin B12 and approximately 5-20% of the elderly have low serum concentrations.

Objective
This systematic review aimed to study the scientific evidence for if oral supplementation with vitamin B12 affects cognitive function in the elderly compared to placebo.

Search strategy
Systematic literature searches were made in the databases PubMed and Scopus using the search terms “Vitamin B12”, “Cyanocobalamin”, “Cobalamin”, “Dietary supplements”, “Cognition”, “Cognitive”, “Aged” “Elderly”, “Aged, 80 and over”.

Selection criteria
Persons ≥65 years, placebo controlled, oral dose ≥650 µg, RCT, vitamin B12 as the only intervention. Studies where the whole population had a specific disease were excluded.

Data collection and analysis
The selected studies were reviewed using the “Template for quality of randomized trials” by SBU. The strength of the evidence was assessed using the GRADE template from the programme of dietetics at University of Gothenburg.

Main results
Two studies from two countries were included with a population of 330 people. The supplementation was given orally as 1000 µg cyanocobalamin for 24 weeks or twelve months. The results from two similar word memory tests were analysed. One of the studies showed a significant improvement in the placebo group but there was no other significant improvement in the two studies.

Conclusions
There is moderate (+++ ) evidence that high dose supplementation with vitamin B12 doesn’t affect memory function measured with word memory tests in the elderly with mild or moderate deficiency. Although the studies didn’t establish any effect on memory, there could still be reasons for supplementation as deficiencies are common in the elderly.

Keywords: Vitamin B12, cognitive function, memory, elderly, oral supplementation