Integrated care for older people (ICOPE)
Guidelines on community-level interventions to manage declines in intrinsic capacity

Evidence profile: cognitive impairment

Scoping question:
Does cognitive stimulation, cognitive training or rehabilitation produce any benefit for older people with cognitive decline impairment or early stage of dementia?

The full ICOPE guidelines and complete set of evidence profiles are available at: who.int/publications/i/item/9789241550109

Painting: “Wet in Wet” by Gusta van der Meer. At 75 years of age, Gusta has an artistic style that is fresh, distinctive and vibrant. A long-time lover of art, she finds that dementia is no barrier to her artistic expression. Appreciated not just for her art but also for the support and encouragement she gives to other artists with dementia, Gusta participates in a weekly art class. Copyright by Gusta van der Meer. All rights reserved.
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Background

Cognitive impairment is a strong predictor of functional ability and the need for care in older people. Mild cognitive impairment (MCI) is diagnosed by the presence of impairment in one or more cognitive domains without fulfilling the diagnostic criteria for dementia (1). Nearly, 16% of older people experience MCI without progression to dementia, and the condition is more frequent in older men than women (2). The annual conversion rate from MCI to Alzheimer’s disease or non-specific dementia ranges between 12% and 15%, compared with 1–2% in healthy adults (3). There is substantial cross-sectional and longitudinal evidence suggesting that older people with MCI are at risk of experiencing reduced functional ability.

The effectiveness of cognitive-based interventions for improving cognitive ability of older people is currently unclear, because the reported findings from trials have been inconsistent and the efficacy of different types of interventions is hard to distinguish (4). In this context, Clare and Woods (5) provided clear definitions describing “cognitive stimulation therapy” as participation in a range of activities aimed at improving cognitive and social functioning. Conversely, “cognitive training” implies a guided practice of specific standardized tasks designed to enhance particular cognitive functions. These interventions can be administered in groups or to individuals, requiring only limited resources – completing tasks, for example, using pencil and paper or a computer, according to the needs of older people. Further, “cognitive rehabilitation” consists of an individualized approach in which personal goals are identified with an older person and their family members, and individual or family strategies are then developed for improving the individual’s day-to-day functioning.

This review was undertaken to synthesize the evidence for different types of cognitive-based intervention for addressing MCI in older people.
Part 1: Evidence review

Scoping question in PICO format (population, intervention, comparison, outcome)

Populations
• Older people (both male and female) aged 60 years and over with cognitive impairment or mild cognitive impairment
• Older people (both male and female) aged 60 years and over with early-stage Alzheimer’s disease and vascular dementia

Interventions
• Cognitive stimulation
• Cognitive training
• Cognitive rehabilitation

Comparisons
• No treatment/usual care/standard treatment
• Waiting list control
• Active control condition

Outcomes
• Critical: Cognitive functions assessment by Mini Mental State Examination (MMSE) and Alzheimer’s Disease Assessment Scale – Cognitive subscale (ADAS-Cog), immediate and delayed memory recall
Search strategy

Searches of the Cochrane Library included:

- \[(cognition interventions OR cognitive stimulation) AND (dementia OR cognitive impairment OR MCI)\]
- \[(cognitive rehabilitation) AND (mild cognitive impairment OR MCI)\]
- \[(cognitive training) AND (dementia OR mild cognitive impairment OR MCI)\].

Similar searches were conducted in the PubMed electronic database.

List of systematic reviews identified by the search process

Included in GRADE\(^1\) tables


\(^1\) GRADE: Grading of Recommendations Assessment, Development and Evaluation. More information: http://gradeworkinggroup.org
### PICO table

<table>
<thead>
<tr>
<th></th>
<th>Intervention/ comparison</th>
<th>Outcomes</th>
<th>Systematic reviews used for GRADE</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cognitive training versus: • active alternative treatments • no-contact control</td>
<td>Cognitive function, including immediate and delayed memory</td>
<td>Martin M, Clare L, Altgassen AM, Cameron MH, Zehnder F. Cognition-based interventions for healthy older people and people with mild cognitive impairment. Cochrane Database Syst Rev. 2011;(1):CD006220</td>
<td>Systematic review relevant to the area. Includes participants with mild cognitive impairment</td>
</tr>
<tr>
<td>2</td>
<td>Cognitive stimulation therapy and cognitive training or cognitive rehabilitation versus: • active alternative treatments • no-contact control</td>
<td>Cognitive function assessed by Mini Mental State Examination (MMSE) and Alzheimer's Disease Assessment Scale – Cognitive subscale (ADAS-Cog)</td>
<td>Kurz AF, Leucht S, Lautenschlager NT. The clinical significance of cognition-focused interventions for cognitively impaired older adults: a systematic review of randomized controlled trials. Int Psychogeriatr. 2011;23(9):1364–75. doi:10.1017/S1041610211001001</td>
<td>Systematic review relevant to the area. Includes participants with mild cognitive impairment</td>
</tr>
</tbody>
</table>
Narrative description of the studies that went into analysis

GRADE tables 1 and 2: cognitive stimulation versus cognitive training and/or rehabilitation

Kurz et al. (4) conducted a systematic review and meta-analysis to evaluate the effects of cognitive-based interventions in older people with mild cognitive stimulation and dementia. Both the extensive literature search and the study appraisal were conducted independently by two authors (Alexander Kurz and Nicola Lautenschlager). A total of 33 randomized controlled trials (RCTs) were included in the meta-analysis. The interventions explored were classified under two categories: (i) cognitive stimulation therapy and (ii) cognitive training or cognitive rehabilitation; the control groups included active interventions (pharmacological therapy, physiotherapy, relaxation techniques, social support, etc.) or passive interventions (usual care, waiting list, etc.). The most frequently investigated outcomes included cognition (measured by Mini Mental State Examination [MMSE] and Alzheimer's Disease Assessment Scale – Cognitive subscale [ADAS-Cog]), behavioural and psychological symptoms of dementia (BPSD), mood, activities of daily living (ADLs), quality of life and carer burden. Cognitive stimulation interventions were typically studied in day-care or long-term settings, and predominantly involved participants with dementia. The number of participants in the study samples ranged between 12 and 201 with a mean intervention duration of 15 weeks, while group and individual interventions were equally frequent. Conversely, cognitive training or cognitive rehabilitation interventions mainly included older adults with mild cognitive impairment at memory clinics and research centre settings, involving a smaller sample (range: 13–76 participants), a shorter duration (mean: 8 weeks) and fewer sessions (mean: 15).

The authors found that cognitive stimulation had small but consistent beneficial effects on cognition (MMSE: standardized mean difference [SMD] 0.21, 95% CI: 0.03 to 0.39, n = 12; and ADAS-cog: SMD -0.3, 95% CI: -0.48 to -0.13, n = 5). Conversely, no difference between intervention groups was observed for cognitive training or cognitive rehabilitation versus control (MMSE: SMD -0.0, 95% CI: -0.64 to 0.63, n = 5; and ADAS-cog: SMD -1.08, 95% CI: -2.17 to 0.02, n = 1) suggesting that these treatment modalities are not consistently beneficial, as gains in specific cognitive domains do not tend to generalize to other functions. However, data from studies of cognitive training or cognitive rehabilitation showed high heterogeneity ($I^2 = 78\%$) and there was no clear association between the diagnostic category (dementia or mild cognitive impairment) and the outcome. Effects on the other outcomes were identified in only a minority of trials for cognitive stimulation. Moreover, although no impact on BPSD, quality of life or mood was evidenced in any study of cognitive training or cognitive rehabilitation, ADLs were found to improve significantly with this type of intervention in individual trials.

Regarding the duration of the effects, three trials explored long-term effects (six months or more after completion of treatment) of cognitive-based interventions and showed persistence of cognitive ability and BPSD (6), memory (7) and global rating (8). Furthermore, two trials (6, 9) reported significant advantages of combining cognitive stimulation and pharmacological monotherapy (cholinesterase inhibitor), compared with medication alone.

Several methodological inconsistencies were, however, identified in the included clinical trials. The authors note that the limitations in

(continued next page)
trials of cognitive training or cognitive rehabilitation might have obscured the results, such as short trial durations or uncertainties about the executive function of participants in order to perform the techniques offered by these interventions. The authors also remark on the substantial heterogeneity in terms of sample size, intervention duration, format and content, assessment instruments, outcomes and control conditions. Noticeably, only three of the 20 RCTs within the cognitive stimulation group and six of the 13 studies in the cognitive training or cognitive rehabilitation group involved older people with mild cognitive impairment, and no subgroup analyses were conducted.

GRADE tables 3 and 4: cognitive training

A Cochrane review (10) evaluated the effectiveness of cognitive training in healthy older people and those with mild cognitive impairment. Intervention groups focused mainly on mnemonics and multifactorial training (i.e. a combination of various methods), which were compared with no-contact controls and active alternative treatments (including physical activity, pharmacotherapy or group discussions). A total of 24 RCTs (2229 participants) were pooled and the authors grouped interventions into cognitive domains. Due to a lack of correspondence with the inclusion criteria, however, studies providing data on training in executive functioning, processing speed and attention were excluded. Only data on memory training could be pooled for analysis, and within this domain the only data pooling that was possible was for immediate and delayed verbal recall abilities for older people with mild cognitive impairment (three RCTs, n = 72). For the mild cognitive impairment group, conversion to dementia, side-effects and institutionalization rates were considered, but none of the included studies provided this information. Moreover, outcome variables such as well-being, quality of life and everyday functioning were not included. The follow-up periods of trials involving mild cognitive impairment ranged from six weeks (11) to one year (6).

The authors found that for older adults with mild cognitive impairment, memory training, compared with the no-contact control, produced significant improvements in immediate recall (SMD: 0.50, 95% CI: 0.02 to 0.98, \( P = 0.04 \)) and delayed recall (SMD: 0.69, 95% CI: 0.00 to 1.39, \( P = 0.05 \)). These results were not seen when comparing memory training with other active alternative treatments, however. No significant benefits were observed for executive function for people with mild cognitive impairment (SMD: -0.09, 95% CI: -0.75 to 0.57), although this was measured in only one, small trial. Analysis revealed similar results for healthy older adults. It remains uncertain whether the heterogeneity of the tested population or the quality of the interventions might have influenced the results. Variations in type and intensity of existing training interventions are needed to evaluate the efficacy of cognitive interventions in older people with mild cognitive impairment – to determine whether longer and more intensive training may be needed to achieve larger effects. The authors found evidence that cognitive-based interventions targeting immediate and delayed verbal recall in older people with or without mild cognitive impairment were beneficial. These results were not specific, however, since the cognitive improvements for any of the training domains were not significant when compared with active control groups.
GRADE table 1: Cognitive stimulation therapy compared with control for older people with mild cognitive impairment and dementia

Author: WHO systematic review team
Date: November 2015
Question: What is the effectiveness of cognitive stimulation therapy compared with control for older people with mild cognitive impairment and dementia?
Setting: Long-term care or community

<table>
<thead>
<tr>
<th>Number of studies</th>
<th>Study design</th>
<th>Risk of bias</th>
<th>Inconsistency</th>
<th>Indirectness</th>
<th>Imprecision</th>
<th>Other considerations</th>
<th>Cognitive stimulation</th>
<th>Control</th>
<th>Relative (95% CI)</th>
<th>Absolute (95% CI)</th>
<th>Quality</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive function (follow-up 4–56 weeks; assessed with MMSE; higher score = better performance)</td>
<td></td>
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</tr>
<tr>
<td>12</td>
<td>randomized trials</td>
<td>serious a</td>
<td>not serious</td>
<td>serious c</td>
<td>not serious</td>
<td>none</td>
<td>See the footnote d</td>
<td>See the footnote d</td>
<td>-</td>
<td>SMD 0.21 higher (0.03 higher to 0.39 higher)</td>
<td>● ● ● LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>Cognitive function (follow-up 4–56 weeks; assessed with ADAS-cog; lower score = better performance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>5</td>
<td>randomized trials</td>
<td>serious b</td>
<td>not serious</td>
<td>serious c</td>
<td>not serious</td>
<td>none</td>
<td>See the footnote e</td>
<td>See the footnote e</td>
<td>-</td>
<td>SMD 0.3 lower (0.48 lower to 0.13 lower)</td>
<td>● ● ● LOW</td>
<td>CRITICAL</td>
</tr>
</tbody>
</table>

ADAS-cog, Alzheimer’s Disease Assessment Scale cognitive subscale; CI, confidence interval; MMSE, Mini Mental State Examination; SMD, standardized mean difference
a. Risk of bias: Downgraded once as allocation concealment and procedure for masking outcomes assessor was unclear in six trials.
b. Risk of bias: Downgraded once as allocation concealment was concealed in one trial and unclear in other trials.
c. Indirectness: Downgraded once as trial participants with and without dementia were included in the analysis. No subgroup analysis was performed.
d. Number of trial participants in intervention and control group was not reported separately in the review, however total (n = 810) participants from five trials were included in the meta-analysis.
e. Number of trial participants in intervention and control group was not reported separately in the review, however total (n = 541) participants from five trials were included in the meta-analysis.
GRADE table 2: Cognitive training and/or cognitive rehabilitation compared with control for older people with mild cognitive impairment and dementia

**Author:** WHO systematic review team  
**Date:** November 2015  
**Question:** What is the effectiveness of cognitive training and/or cognitive rehabilitation compared with control for older people with mild cognitive impairment and dementia?  
**Setting:** Hospital  
**Bibliography:** (4) Kurz AF, Leucht S, Lautenschlager NT. The clinical significance of cognition-focused interventions for cognitively impaired older adults: a systematic review of randomized controlled trials. Int Psychogeriatr. 2011;23(9):1364–75. doi:10.1017/S1041610211001001

<table>
<thead>
<tr>
<th>Quality assessment</th>
<th>Number of patients</th>
<th>Effect</th>
<th>Quality</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of studies</strong></td>
<td>Study design</td>
<td>Risk of bias</td>
<td>Inconsistency</td>
<td>Indirectness</td>
</tr>
<tr>
<td>Cognitive function (follow-up 3–24 weeks; assessed with MMSE; higher score = better performance)</td>
<td>5</td>
<td>randomized trials</td>
<td>serious</td>
<td>serious</td>
</tr>
<tr>
<td>Cognitive function (follow-up 4–24 weeks; assessed with ADAS-cog; lower score = better performance)</td>
<td>1</td>
<td>randomized trials</td>
<td>not not serious serious</td>
<td>very serious</td>
</tr>
</tbody>
</table>

ADAS-cog, Alzheimer's Disease Assessment Scale cognitive subscale; CI, confidence interval; MMSE, Mini Mental State Examination; SMD, standardized mean difference

- a. Risk of bias: Downgraded once as allocation concealment was unclear in two of the five included trials.
- b. Inconsistency: Downgraded once as substantial heterogeneity was observed in the meta-analysis ($I^2 = 78\%$). No further subgroup analysis was conducted to explore heterogeneity, and we were not able to explain the heterogeneity.
- c. Indirectness: Downgraded once as no subgroup analysis was performed (analysis include participants with and without dementia).
- d. Imprecision: Downgraded twice as total sample size was very small ($n = 13$).
- e. Number of participants in the intervention and control group was not reported in the review, however total ($n = 1361$) participants from five trials were included in the meta-analysis.
- f. Number of participants in the intervention and control group was not reported in the review, however total ($n = 13$) participants from five trials were included in the meta-analysis.
GRADE table 3: Cognitive training compared with no-contact control for older people with mild cognitive impairment

Author: WHO systematic review team  
Date: November 2015  
Question: What is the effectiveness of cognitive training compared with no-contact control for older people with mild cognitive impairment?  
Setting: Various  

<table>
<thead>
<tr>
<th>Quality assessment</th>
<th>Number of patients</th>
<th>Effect</th>
<th>Quality</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of studies</td>
<td>Study design</td>
<td>Risk of bias</td>
<td>Inconsistency</td>
<td>Indirectness</td>
</tr>
<tr>
<td>Memory: immediate recall (follow-up 6 weeks to 12 months; higher score = better performance)</td>
<td>3 randomized trials</td>
<td>serious *</td>
<td>not serious</td>
<td>serious †</td>
</tr>
<tr>
<td>Memory: delayed recall (follow-up 6 weeks to 3 months; higher score = better performance)</td>
<td>2 randomized trials</td>
<td>serious ‡</td>
<td>not serious</td>
<td>not serious</td>
</tr>
</tbody>
</table>

CI, confidence interval; SMD, standardized mean difference  
a. Risk of bias: Downgraded once as allocation concealment and procedure for masking outcome assessor were unclear in all three included trials.  
b. Risk of bias: Downgraded once as allocation concealment and procedure for masking outcome assessor were unclear in two trials.  
c. Indirectness: Downgraded once as participants in the intervention group in one trial were administered cognitive training plus drug therapy. Therefore, treatment effect may be difficult to estimate.  
d. Imprecision: Downgraded twice as sample size was very small.
**GRADE table 4: Cognitive training compared with alternative treatments for older people with mild cognitive impairment**

**Authors:** WHO systematic review team  
**Date:** November 2015  
**Question:** What is the effectiveness of cognitive training compared with active alternative treatments for older people with mild cognitive impairment?  
**Setting:** Various  

<table>
<thead>
<tr>
<th>Number of studies</th>
<th>Study design</th>
<th>Risk of bias</th>
<th>Inconsistency</th>
<th>Indirectness</th>
<th>Imprecision</th>
<th>Other considerations</th>
<th>Cognitive training</th>
<th>Active alternative treatments</th>
<th>Number of patients</th>
<th>Effect</th>
<th>Quality</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>randomized trials</td>
<td>serious a</td>
<td>not serious</td>
<td>serious b</td>
<td>very serious c</td>
<td>none</td>
<td>24</td>
<td>29</td>
<td>SMD 1.03 higher (0.14 lower to 2.19 higher)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CI: confidence interval; SMD: standardized mean difference  

a. Risk of bias: Downgraded once as allocation concealment and procedure for masking outcome assessor were unclear in two trials.  

b. Indirectness: Downgraded once as participants in the intervention group in one trial received cognitive training plus drug therapy. Therefore, treatment effect is difficult to differentiate.  

c. Imprecision: Downgraded twice as sample size very small.
Additional evidence not mentioned in GRADE tables

Cognitive training and rehabilitation for mild to moderate Alzheimer’s disease or vascular dementia

A more recent Cochrane review (12) included randomized controlled trials (RCTs) examining the effectiveness of cognitive training (11 RCTs) and cognitive rehabilitation (1 RCT) for people with mild to moderate Alzheimer’s disease or vascular dementia. Authors found no evidence for the efficacy of cognitive training in improving cognitive performance, mood or activities of daily living (ADLs) in people with mild to moderate Alzheimer’s disease or vascular dementia. However, the overall quality of the studies was generally not high considering that at least half of the studies presented unclear or high risk of bias due to uncertainties related to blinding, incomplete outcome data and selective reporting.

Only one trial of cognitive rehabilitation (13) suggested the potential benefits of individual cognitive rehabilitation in improving ADLs in people with mild Alzheimer’s disease. Nevertheless, higher quality studies are needed to determine their efficacy for individuals with early-stage dementia.

Cognitive stimulation therapy for mild to moderate Alzheimer’s disease or vascular dementia

Cognitive stimulation therapy has been shown to improve cognition and quality of life for people with dementia (14). Woods et al. (15) have provided evidence that cognitive stimulation has a consistent and sustained beneficial effect on cognitive function in people with dementia (SMD: 0.41, 95% CI: 0.25 to 0.57). Moreover, while smaller sample sizes have shown improvements in patients’ quality of life, well-being, communication and social interaction, no differences were observed in relation to ADLs, caregiver outcomes or mood. However, further research should investigate the potential benefits of cognitive stimulation in people with mild cognitive impairment.
## Part 2: From evidence to recommendations

### Summary of evidence

<table>
<thead>
<tr>
<th>GRADE table 1</th>
<th>Outcome</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurz et al. (4)</td>
<td>Cognitive function (Mini Mental State Examination)</td>
<td>SMD 0.21 higher (0.03 higher to 0.39 higher) LOW QUALITY</td>
</tr>
<tr>
<td>Cognitive stimulation</td>
<td>Cognitive function (Alzheimer's Disease Assessment Scale – Cognitive subscale)</td>
<td>SMD 0.3 lower (0.48 lower to 0.13 lower) LOW QUALITY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE table 2</th>
<th>Outcome</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurz et al. (4)</td>
<td>Cognitive function (Mini Mental State Examination)</td>
<td>SMD 0.01 lower (0.64 lower to 0.63 higher) VERY LOW QUALITY</td>
</tr>
<tr>
<td>Cognitive training or cognitive rehabilitation</td>
<td>Cognitive function (Alzheimer's Disease Assessment Scale – Cognitive subscale)</td>
<td>SMD 1.08 lower (2.17 lower to 0.02 higher) VERY LOW QUALITY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE table 3</th>
<th>Outcome</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin et al. (10)</td>
<td>Memory: immediate recall in older adults with mild cognitive impairment compared with no-contact control</td>
<td>SMD 0.5 higher (0.02 higher to 0.98 higher) VERY LOW QUALITY</td>
</tr>
<tr>
<td>Cognitive training</td>
<td>Memory: delayed recall in older adults with mild cognitive impairment compared with no-contact control</td>
<td>SMD 0.69 higher (0 to 1.39 higher) VERY LOW QUALITY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE table 4</th>
<th>Outcome</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin et al. (10)</td>
<td>Memory: immediate recall in older adults with mild cognitive impairment compared with active alternative treatments</td>
<td>SMD 1.03 higher (0.14 lower to 2.19 higher) VERY LOW QUALITY</td>
</tr>
</tbody>
</table>

SMD: standardized mean difference
### Evidence profile: cognitive impairment

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#### ICOPE guidelines – World Health Organization

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**Evidence-to-recommendation table**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the problem a priority?</td>
<td>Cognitive impairment is a strong predictor of functional ability and the need for care in older people. Nearly 16% of older people experience mild cognitive impairment without progression to dementia, and the annual conversion rate from mild cognitive impairment to Alzheimer’s disease or non-specific dementia ranges between 12% and 15%, compared with 1–2% in healthy older adults.</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td><strong>Validated</strong>**</td>
</tr>
<tr>
<td>Uncertain</td>
<td><strong>Validated</strong>**</td>
</tr>
</tbody>
</table>

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#### Benefits and harms

<table>
<thead>
<tr>
<th>Benefits and harms</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| Do the desirable effects outweigh the undesirable effects? | There is adequate, low-quality evidence for the effectiveness of cognitive stimulation techniques on cognitive function in older people with any form of cognitive impairment. Twelve trials that recruited older people with mild cognitive impairment or dementia found significant benefit from cognitive stimulation interventions in improving cognitive function (SMD 0.21, 95% CI: 0.03 to 0.39). Although this therapeutic intervention has also been reported to improve quality of life for people with dementia (14), providing evidence of consistent and sustained beneficial effects (15), further evidence is needed to understand the direct benefit of this technique for older people with mild cognitive impairment.
| Yes               | **Validated****|**                  |
| No               | **Validated****|**                  |
| Uncertain        | **Validated****|**                  |

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There is limited, very-low-quality evidence to suggest that cognitive training may improve cognitive functions. The effect was significant only for the immediate recall outcome, however. Effect sizes were consistent for cognitive training between trials when measuring cognitive function – immediate and delayed recall specifically – compared with no-contact controls. We found no evidence for the benefit of cognitive training or cognitive rehabilitation for older people with mild cognitive impairment and dementia. No harms were identified.

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IAM: standardized mean difference

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**Evidence profile: cognitive impairment**

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ICOPE guidelines – World Health Organization
**Values and preferences/acceptability**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Is there important uncertainty or variability about how much people value the options?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major variability</td>
<td>Minor variability</td>
<td>Uncertain variability</td>
</tr>
<tr>
<td>✓</td>
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</table>

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<tr>
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<tbody>
<tr>
<td><strong>Is the option acceptable to key stakeholders?</strong></td>
<td></td>
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</tr>
<tr>
<td>Major variability</td>
<td>Minor variability</td>
<td>Uncertain variability</td>
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<td>✓</td>
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</tbody>
</table>

**Explanation**

Cognitive impairment, particularly mild cognitive impairment, increases the risk of developing dementia (16). Evidence suggests that an average five-year postponement in the age of onset of dementia would reduce its prevalence by half (17).

For the older person with cognitive impairment, memory and other cognitive difficulties can have a major impact on self-confidence and can lead to anxiety, depression and withdrawal from activities, which in turn can result in the difficulties seeming worse. Help with aspects of cognitive functioning, such as memory problems, is thus important for maintaining functional ability. Patients and caregivers are more likely to value the recommendations.

The presence of mobility restrictions, comorbidities or problems with executive function may impact directly on the individual’s ability to access health care, participate in interventions or therapy sessions and perform the skills gained after an intervention. Access to, and participation in, these therapies for older people with more severe health conditions is therefore uncertain.

*(continued next page)*
<table>
<thead>
<tr>
<th>Feasibility/resource use</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>How large are the resource requirements?</td>
<td>The cognitive stimulation interventions evaluated in the included trials were resource-intensive. The interventions need to be delivered as 45-minute sessions for a minimum of seven weeks. They are usually administered by psychotherapists working in high-income countries. Some features of the interventions, however, such as duration or frequency, could be adapted to particular settings, and could be administered by suitably trained and supported non-specialists.</td>
</tr>
<tr>
<td>Major</td>
<td>Minor</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
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<table>
<thead>
<tr>
<th>Equity</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the option improve equity in health?</td>
<td>The guideline development group strongly believes that the recommendation will increase equity in health.</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
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<td>✔</td>
<td></td>
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</tbody>
</table>
Guideline development group recommendation and remarks

Recommendation

Cognitive stimulation can be offered to older people with cognitive impairment, with or without a formal diagnosis of dementia.

Quality of the evidence: Low

Strength of the recommendation: Conditional

(No recommendation: For cognitive training interventions, no recommendation can be made due to limited low-quality evidence for the effectiveness in older people with mild cognitive impairment or not diagnosed with dementia. For cognitive rehabilitation, no recommendation can be made due to limited, low-quality evidence for the effectiveness in older people with mild cognitive impairment or not diagnosed with dementia.)

Remarks

- None of the primary studies available was carried out in a low- or middle-income country.
- Few available trials focused specifically on older people with mild cognitive impairment without a diagnosis of dementia.
- Moreover, the evidence does not show significant differences between the healthy and mild cognitive impairment subgroups.
- The duration of the follow-up periods ranged from 4 to 56 weeks in the included trials. A minimum of 45 minutes per session (two or three times a week) should be encouraged.
- New randomized controlled trials are required to test the efficacy of the different types of cognitive-based interventions that exclusively target older adults with cognitive impairment.
- Cognitive-based interventions delivered by non-specialists in low-resource settings, if feasible and effective, represent promising alternatives to enhance health systems’ dementia-prevention strategies around the world. However, further evidence is required to understand the feasibility and acceptability of such interventions, particularly in low- and middle-income countries.
References


Annex: PRISMA² flow diagram for systematic review of the reviews – cognitive impairment non-dementia interventions

2 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). For more information: http://www.prisma-statement.org

WHO/MCA/17.06.02

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