Evidence-to-Decision Table

Problem Is the problem a priority?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know	Worldwide ageing of populations is strongly associated with dementia, causing major health, economic and social burdens. In 2015, it has been estimated that there were 50 million people with dementia in the world, and the number is predicted to double every 20 years, reaching 82 million in 2030 and 152 million in 2050.[1] Since no cure is available for Alzheimer's disease, the main cause of dementia, prevention could be crucial in halting the rapid increase in the prevalence of this condition and international experts have called upon world-wide governments to make prevention of dementia one of their key health priorities..	
Desirable Effects How substantial are the desirable anticipated effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Trivial ○ Small ○ Moderate ○ Large ● Varies ○ Don't know	Physical activity has rather consistently reported small but beneficial effects on cognition. There is enough low to moderate quality evidence supporting these effects. It is important to consider that in order to achieve maximum benefit, it is crucial to start such interventions in at-risk people[21]. Earlier, the better. Even in MCI populations, low evidence suggests cognitive benefits of physical exercise. The effect of these interventions seems to be mostly due to aerobic exercise.	- effect size larger for aerobic training versus resistance training -less interventions for resistance/multicomponent training -stronger evidence for persons with normal cognition (especially aerobic training) -no clinical trials for MCI or incidence of dementia, but this evidence is available from observational studies - A Cochrane review was published in 2015[35] (not included because the systematic search started form 2016) on effect of aerobic exercise on cognitive function in older people with normal cognition. Although the trend of the results was always towards a minimal beneficial effect of the intervention, for none of the outcomes the results were significant. The review overall included a smaller sample size than the one presented in GRADE table 1, therefore it is plausible to conclude that no

		important evidence was missed by not including this review.
Undesirable Effects How substantial are the undesirable anticipated effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large ○ Moderate ○ Small ○ Trivial ○ Varies ● Don't know	Most of the clinical trials do not report any adverse events after exercise.[36] It is difficult to know whether adverse events did not occur or whether they were not reported. Higher risk of any adverse event may occur in some older people after intense exercise who already have pre-existing health problems, limited functional capacity or those who are sedentary.	The Cochrane review by Young et al.[35] on the effect of aerobic exercise on cognitive function in older people with normal cognition assessed dropout rates as indicator of adverse events. When aerobic exercise interventions were compared with no intervention a higher odd ratio (OR) for drop-out was reported (1.84, CL 0.79-4.29).
Certainty of evidence What is the overall certainty of the evidence of effects?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
In adults with normal cognition ○ Very low ○ Low ● Moderate ○ High ○ No included studies ***In adults with MCI*** ○ Very low ● Low ○ Moderate ○ High ○ No included studies	Moderate quality evidence indicates beneficial effects of physical activity interventions on cognition in healthy individuals. Moderate quality evidence suggests that physical activity does not seem to affect risk of MCI and dementia. Low quality evidence indicates beneficial effects of physical activity interventions on cognition in adults with MCI. However, these benefits are not consistent across all cognitive domains.	-moderate for aerobic training, less evidence for resistance training - no sufficient evidence for mci/dementia (or low quality)

Values Is there important uncertainty about or variability in how much people value the main outcomes?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ● No important uncertainty or variability	Cognitive impairment and dementia can have a major impact in the life not only of the person affected but also of the close network of family and friends, as well as caregivers and health professional in general.[37,38] Decreasing functional ability and dependency are the major components of this effect. Furthermore, dementia is the main cause of disability and institutionalization among older adults[1]. Hence, reducing or delaying the risk/onset of dementia could results in lower costs for public healthcare services. Patients, caregivers, and policy makers are likely to be the people who will value these recommendations.	
Balance of effects Does the balance between desirable and undesirable effects favour the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favours the comparison ○ Probably favours the comparison ○ Does not favour either the intervention or the comparison ○ Probably favours the intervention ● Favours the intervention ○ Varies ○ Don't know	Evidence suggests that the desirable effects of the physical activity interventions are more that the undesirable effects. Common barriers to exercise are costs, lack of motivation, lack of time, and physical limitations. Low to moderate quality evidence suggests benefits to physical activity compared to the controls.	-systematic reviews did not report undesirable effects. -physical activity has benefits for other outcomes
Resources required How large are the resource requirements (costs)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ● Varies ○ Don't know	The physical activity interventions evaluated in the included trials were resource-intensive since such interventions are usually supervised and are conducted in a facility. However, some aspects of these interventions, could be adapted to particular settings, and could be conducted by suitably trained and supported non-specialists. Resources strictly depends on the intervention design. Potentially lower costs for aerobic training compared to resistance.	For more information: 'Best buys' and other recommended interventions to address non-communicable diseases (NCDs) http://apps.who.int/iris/bitstream/handle/10665/259232/WHO-NMH-NVI-17.9-eng.pdf?sequence=1

		-trials setting versus possibilities to implement in wider community -aerobic exercise easily available in all settings
Certainty of evidence of required resources What is the certainty of the evidence of resource requirements (costs)?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Very low ○ Low ○ Moderate ● High ○ No included studies	No evidence for the present review is available.	See citation above
Cost effectiveness Does the cost-effectiveness of the intervention favour the intervention or the comparison?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Favours the comparison ○ Probably favours the comparison ○ Does not favour either the intervention or the comparison ○ Probably favours the intervention ○ Favours the intervention ○ Varies ● No included studies	Worldwide costs for health care systems attributable to physical inactivity were estimated to be 54 billion (INT$) in 2013 and it has been stated that a 20% reduction of inactivity rates on the population level would already yield important cost savings.[39]	
Equity What would be the impact on health equity?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ Reduced ○ Probably reduced	Lower socioeconomic groups are more likely to have earlier onset of dementia than higher socioeconomic groups. Older people from lower socioeconomic backgrounds are also more likely to	- can be advertised via mass media

○ Probably no impact ● Probably increased ○ Increased ○ Varies ○ Don't know	experience cognitive dysfunction at earlier stages of cognitive decline and cognitive impairment, and will have fewer resources to cope with the symptoms than their counterparts from higher socioeconomic groups People from lower socioeconomic groups are more likely to live, work and age in physical and economic environments that do not support social connectedness, physical activity or mental stimulation. this can increase the risk of cognitive impairment and dementia in later life.[40] Based on this it is believed that interventions to reduce risk of cognitive decline and dementia will increase equity in health. Furthermore, women are disproportionally affected with AD. The larger proportion of older women who have AD and other dementias is explained primarily by the fact that women live longer, on average, than men.[41]	
Acceptability Is the intervention acceptable to key stakeholders?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	Physical activity interventions have consistent benefits on cognition and other health parameters.[36]	Acceptability may vary depending upon lifestyle patterns -adaptations to different cultures/settings -cultural acceptability
Feasibility Is the intervention feasible to implement?		
JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	Varies. The most common barriers to exercise are costs, lack of motivation, lack of time, and physical limitations.[36]	