

Table 4: Description of studies on the association between physical activity and Alzheimer's disease and dementia.

Author Year	Study	Baseline – measuring points	Follow up time	Baseline sample; Age at Baseline	Drop out	Sample in Survey	Variables – PA; Outcome	Results	Limitations
Laurin et al. 2001	Canadian Study of Health and Aging	Baseline: 1991/1992 – 1996/1997	5 years	9 008 men and women – 6 434 cognitive normal persons; 65 years and older	4 393 men and women	4 615 men and women	PA: Older Americans Research Scale <i>Outcome:</i> Modified Mini-Mental State Examination; Neuropsychological test batteries	High levels of physical activity are associated with reduced risk - Relative Risks [with 95% Confidence Interval] for cognitive impairment, Alzheimer's disease and dementia cognitive impairment = 0.58 [0.41-0.83] Dementia = 0.63 [0.40-0.98] Alzheimer's Disease = 0.50 [0.28-0.90]	- Characterisation of physical activity

PA = physical activity; Ref. = Reference group

Abbott et al. 2004	Honolulu Heart Program	1965 / 1968 - still continuing as Honolulu - Asia Aging Study - 1994/1996 - 1997/1999	29 - 34 years	3 734 men of Japanese ancestry-survivors of the original Honolulu Heart Program cohort; 71-93 years	1 477 men	2 257 men	PA: Average amount of distance walked per day; Physical Activity Index <i>Outcome:</i> Cognitive Abilities Screening Instrument; Informant Questionnaire on Cognitive Decline in the Elderly	<p>Estimated relative risk of developing of dementia are associated with the distance walked per day</p> <table border="1" data-bbox="1234 284 1805 475"> <thead> <tr> <th></th> <th>Total dementia</th> <th>Alzheimer's disease</th> </tr> </thead> <tbody> <tr> <td>>2m/d</td> <td>Ref.</td> <td>Ref.</td> </tr> <tr> <td><0.25 m/d</td> <td>2.12</td> <td>2.24</td> </tr> <tr> <td>0.25-1 m/d</td> <td>2.06</td> <td>2.21</td> </tr> <tr> <td>1-2 m/d</td> <td>1.5</td> <td>1.33</td> </tr> </tbody> </table>		Total dementia	Alzheimer's disease	>2m/d	Ref.	Ref.	<0.25 m/d	2.12	2.24	0.25-1 m/d	2.06	2.21	1-2 m/d	1.5	1.33	<p>- Results just for men - High age participants</p>
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Rovio et al 2005	CADIE - Cardiovascular risk factors Aging and Incidence of Dementia	Baseline: 1972/1977/1982 or 1987 - 1998	11-26 years	2000 men and women; 65-79 years	551 men and women	900 women, 549 men - 1449 participants	PA: Questions about the physical activity: "How often do you participate in leisure-time physical activity that lasts at least 20-30 min and causes breathlessness and sweating?" <i>Outcome:</i> Incidence of dementia and Alzheimer's	<p>Regular physical activity may reduce the risk or delay the onset of dementia and Alzheimer's disease</p> <p>- Odds Ratios [with 95% Confident Interval] for developing dementia and Alzheimer's disease for active people</p> <table data-bbox="1285 906 1760 999"> <tr> <td>sedentary</td> <td>=</td> <td>Ref.</td> </tr> <tr> <td>Dementia</td> <td>=</td> <td>0.55 [0.30-1.01]</td> </tr> <tr> <td>Alzheimer's Disease</td> <td>=</td> <td>0.45 [0.22-0.93]</td> </tr> </table>	sedentary	=	Ref.	Dementia	=	0.55 [0.30-1.01]	Alzheimer's Disease	=	0.45 [0.22-0.93]	<p>Categorical ranking of physical activity - no accurate quantify No changes of physical activity during the follow-up time No intensity or frequencies of physical activity Different follow up times</p>						
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Podewils et al. 2005	Cardiovascular Health Cognition Study	Baseline: 1992 - 2000	8 years	5 888 men and women; 65 years and older	2 228 men and women	3 660 men and women	PA: Modified Minnesota Leisure Time Physical Activity questionnaire <i>Outcome:</i> Cognitive Status Test, Cognitive Decline in the Elderly Test	Inverse association between physical activity level and incidence of dementia in later life. Hazard Ratios [95%CI] of incident dementia by level of leisure-time energy expenditure	- High dropout rate - Measurement of physical activity (Reliability of Minnesota Leisure Time Physical Activity Questionnaire)															
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Larson et al 2006	Adults Changes in Thought	Baseline: 1994/1996 – 2000/2002	6 years	6 782 men and women in study – Subgroup of 2 581 men and women; 65 years and older	841 men and women	1 740 men and women	PA: Number of days a week the participants did each of presented exercises for at least 15 minutes at a time during the past year <i>Outcome:</i> Cognitive Ability Screening Instrument	Regular exercise reduces the risk of dementia - Hazard Ratio [with 95% Confidence Interval] for developing dementia regular activity: 0.62 [0.44-0.86] - Incident rate for 1,000 person years 13.0 for >3 times active per week 19.0 for less than 3 times per week	- measurement of physical activity															
Chang et al. 2010	AGES – Reykjavik	Baseline: 1967 - 2002	26 - 35 years	5 764 men and	819 men and	2 093 men, 2	PA: Questions	Inverse association between midlife physical activity and cognitive function in later life.	- Measurement of physical activity															

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	Study – Age, Gene / Environment Susceptibility Reykjavik Study			women; Born between 1907 - 1935	women	852 women – overall 4 945	about the biography of physical activity during adult life and how many hours per week physical activity during winter and summer <i>Outcome:</i> Digit symbol substitution test, figure comparison, modified Stroop Test California Verbal Learning Test, Digits Backward, CANTAB Spaital Working Memory test	Odds Ratios of having dementia mong physically active groups compared with none physical active group [95% CI] No physical activity: 1.00 (Ref.) <5 h/wk: 0.59 [0.40 – 0.87] >5 h/wk: 0.74 [0.34 – 1.62]	-No information about changes in physical activity
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