

**Table G3.A9. Prospective Cohort Studies of the Relationship of Physical Activity Level to Cardiovascular Event or Mortality Risk in Type 2 Diabetes**

Author, Year	Subjects	Follow-Up (Years)	Physical Activity Assessment	Major Findings																																																								
Wei et al., 2000 (1) (Aerobics Center Longitudinal Study)	1,263 T2D Mean age, 50 years	12	Questionnaire Active=walking, jogging, or any aerobic exercise program last 3 months	1.7-fold increase in all-cause mortality in inactive group Breakdown to CVD mortality only presented for fitness groups																																																								
Hu et al., 2001 (2) (Nurses' Health Study)	5,125 T2D Women only Mean age, about 50 years	14	Questionnaire (recreational activity only for some years, total for other years)	<p><b>Hours/week moderate to vigorous activity:</b></p> <p><b>RR* CVD</b></p> <table> <tr><td>&lt;1</td><td>1.0</td></tr> <tr><td>1-1.9</td><td>1.02</td></tr> <tr><td>2-3.9</td><td>0.87</td></tr> <tr><td>4-6.9</td><td>0.61</td></tr> <tr><td>≥7</td><td>0.55</td></tr> <tr><td>P</td><td>0.001</td></tr> </table> <p><b>RR* CHD</b></p> <table> <tr><td>&lt;1</td><td>1.0</td></tr> <tr><td>1-1.9</td><td>1.07</td></tr> <tr><td>2-3.9</td><td>0.86</td></tr> <tr><td>4-6.9</td><td>0.61</td></tr> <tr><td>≥7</td><td>0.49</td></tr> <tr><td>P</td><td>0.003</td></tr> </table> <p><b>Quartile MET– hours/week activity:</b></p> <p><b>Total activity</b></p> <p><b>MET–hours/week</b></p> <table> <tr><td>1(lowest)</td><td>0.2-2.6</td></tr> <tr><td>2</td><td>2.7-6.8</td></tr> <tr><td>3</td><td>6.9-16.0</td></tr> <tr><td>4</td><td>&gt;16</td></tr> </table> <p><b>RR* CVD</b></p> <table> <tr><td>1(lowest)</td><td>1.0</td></tr> <tr><td>2</td><td>0.82</td></tr> <tr><td>3</td><td>0.76</td></tr> <tr><td>4</td><td>0.69</td></tr> </table> <p><b>Walking</b></p> <p><b>MET–hours/week</b></p> <table> <tr><td>1 (lowest)</td><td>0-0.5</td></tr> <tr><td>2</td><td>0.6-2.7</td></tr> <tr><td>3</td><td>2.8-7.5</td></tr> <tr><td>4</td><td>&gt;7.5</td></tr> </table> <p><b>RR* CVD</b></p> <table> <tr><td>1 (lowest)</td><td>1.0</td></tr> <tr><td>2</td><td>0.94</td></tr> <tr><td>3</td><td>0.74</td></tr> <tr><td>4</td><td>0.66</td></tr> </table> <p>*Multivariate adjustment for traditional CVD risk factors plus BMI, menopausal status, and aspirin, vitamin E, and alcohol use</p>	<1	1.0	1-1.9	1.02	2-3.9	0.87	4-6.9	0.61	≥7	0.55	P	0.001	<1	1.0	1-1.9	1.07	2-3.9	0.86	4-6.9	0.61	≥7	0.49	P	0.003	1(lowest)	0.2-2.6	2	2.7-6.8	3	6.9-16.0	4	>16	1(lowest)	1.0	2	0.82	3	0.76	4	0.69	1 (lowest)	0-0.5	2	0.6-2.7	3	2.8-7.5	4	>7.5	1 (lowest)	1.0	2	0.94	3	0.74	4	0.66
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Author, Year	Subjects	Follow-Up (Years)	Physical Activity Assessment	Major Findings
Batty et al., 2002 (3) (Whitehall Study)	6,408 men: 352 T2D or IGT 6,056 normoglycemic (NG)	25	2 questions: Walk slower, same, or faster than other men same age? Hobbies/sports? Note: No duration/frequency assessment; categories by +/- and type of activity	Fully adjusted CHD mortality rates: see Figure Relative risk of CHD or total CVD mortality: <b>Walking pace:</b> <b>Slower</b> CHD NG 1.7 CHD IGT 4.25 CVD NG 1.66 CVD IGT 1.62 <b>Same</b> CHD NG 1.38 CHD IGT 2.18 CVD NG 1.27 CVD IGT 0.83 <b>Faster</b> CHD NG 1.0 CHD IGT 1.0 CVD NG 1.0 CVD IGT 1.0 <b>Leisure activity:</b> <b>Inactive</b> CHD NG 1.08 CHD IGT 4.18 CVD NG 1.32 CVD IGT 1.53 <b>Moderately Active</b> CHD NG 0.94 CHD IGT 2.87 CVD NG 1.17 CVD IGT 1.44 <b>Active</b> CHD NG 1.0 CHD IGT 1.0 CVD NG 1.0 CVD IGT 1.0
Gregg et al., 2003 (4) (National Health Interview Survey)	2,896 persons with DM mean age, 58.7 years	8	Questionnaire	Hazard ratio for CVD mortality in non-disabled subgroup (n=2,449): <b>Hours/week</b> <b>Walking</b> 0 1.00 >0-1.9 0.92 >2 0.59 P-value 0.03 <b>Total activity</b> 0 1.00 >0-1.9 0.81 >2 0.70 P-value 0.05

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Author, Year	Subjects	Follow-Up (Years)	Physical Activity Assessment	Major Findings
Tanasescu et al., 2003 (5) (Health Professionals Follow-up Study)	2,803 men with DM Age 40-75 years	14	Questionnaire every 2 years	<p><b>Activity quintile 1</b></p> <p>Med MET-hours/week 0-5.1 HR total events 1.0 HR fatal events 1.0</p> <p><b>Activity quintile 2</b></p> <p>Med MET-hours/week 5.1-12 HR total events 0.91 HR fatal events 0.71</p> <p><b>Activity quintile 3</b></p> <p>Med MET-hours/week 12.1-21.7 HR total events 0.68 HR fatal events 0.29</p> <p><b>Activity quintile 4</b></p> <p>Med MET-hours/week 21.8-37.1 HR total events 0.76 HR fatal events 0.53</p> <p><b>Activity quintile 5</b></p> <p>Med MET-hours/week &gt;37.1 HR total events 0.72 HR fatal events 0.62</p> <p><b>Walking pace</b></p> <p>Med MET-hours/week 2-2.9 mph HR total events 3-3.9 mph HR fatal events &gt;4 mph</p> <p><b>CVD RR</b></p> <p>Med MET-hours/week 0.82 HR total events 0.58 HR fatal events 0.17</p>
Hu et al., 2004 (6)	3,316 T2D	18.4	Questionnaire: Compared leisure, commuting, and work activity	<p>Any physical activity improves CVD mortality with occupational (HR 0.60) &gt;leisure (HR 0.67) &gt;commuting (HR 0.84)</p> <p>Combining two or more types is better than one type</p>
Hu et al., 2005 (7)	3,708 T2D	18.7	Self-administered questionnaire	<p>HR for CVD mortality in model 3 (multiply adjusted and excluded 770 with prior CVD) by total activity level (leisure, occupational, and commuting):</p> <p>Low activity (essentially inactive): RR=1.00</p> <p>Moderate (moderate intensity activity &gt;4hours/week): RR=0.57</p> <p>High (vigorous activity &gt;3hours/week): RR=0.54</p>

**Table G3.A9. Prospective Cohort Studies of the Relationship of Physical Activity Level to Cardiovascular Event or Mortality Risk in Type 2 Diabetes (continued)**

Author, Year	Subjects	Follow-Up (Years)	Physical Activity Assessment	Major Findings
Smith et al., 2007 (8)	347 T2D Mean age, 74 years 1,317 nonDM Mean age, 69 years	10	Single question: How many city block equivalents do you walk each day?	Nonwalkers vs. light walkers (<1 mile/day), moderate walkers (≥ 1 mile/day). HR for: <b>DM Nonwalker</b> All cause 1.00 CHD 1.00 Other CVD 1.00 <b>DM Light walker</b> All cause 1.02 CHD 1.07 Other CVD 1.08 <b>DM Moderate walker</b> All cause 0.54* CHD 1.05 Other CVD 0.19* <b>NonDM Nonwalker</b> All cause 1.00 CHD 1.00 Other CVD 1.00 <b>NonDM Light walker</b> All cause 0.98 CHD 1.14 Other CVD 0.77 <b>NonDM Moderate walker</b> All cause 0.89 CHD 1.29 Other CVD 0.55*

BMI, body mass index; CHD, coronary heart disease; CVD, cardiovascular disease; DM, diabetes mellitus; HR, hazard ratio; IGT, impaired glucose tolerance; Med, median; MET, metabolic equivalent task; Mod., moderately; NG, nonmoglycemic; RR, relative risk; T2D, type 2 diabetes.

Note: All data shown are results after multivariate adjustment (usually for all traditional and some nontraditional CVD risk factors).

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