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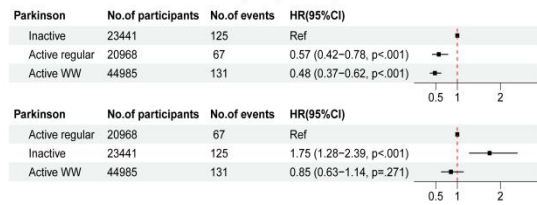
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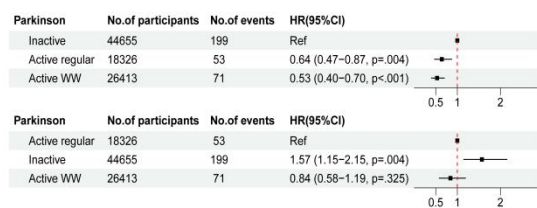
Supplementary Table 2. Parkinson's risk between exercise modes after threshold cancellation

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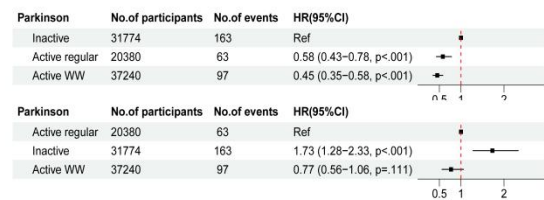
a. WW defined as ≥ 101 min of MVPA/wk(25th percentile)with $\geq 50\%$ over 1-2d



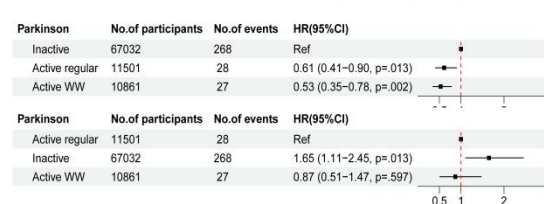
c. WW defined as ≥ 230 min of MVPA/wk(median)with $\geq 50\%$ over 1-2d



b. WW defined as ≥ 150 min of MVPA/wk(guideline based)with $\geq 50\%$ over 1-2d



d. WW defined as ≥ 403 min of MVPA/wk(75th percentile)with $\geq 50\%$ over 1-2d



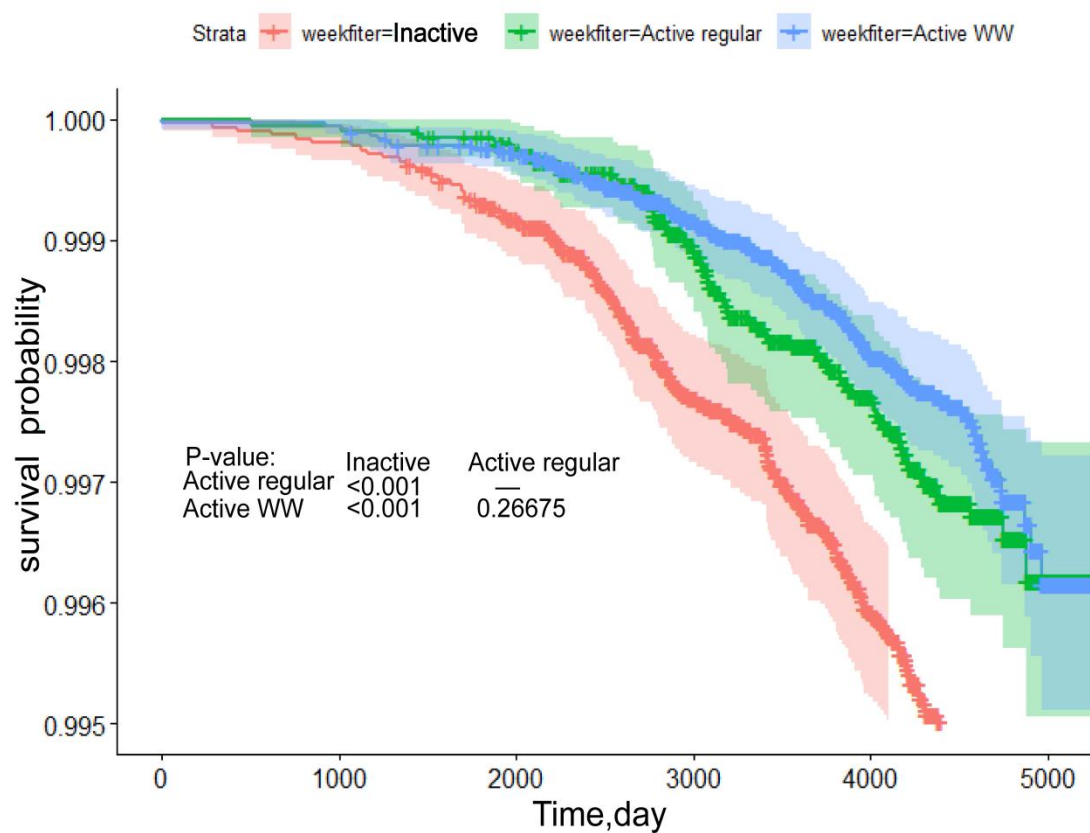
Supplementary Figure 1. Association of Physical Activity Patterns with Parkinson's Disease (Removal of Parkinson's Patients with Less Than 2 Years of Disease)

a. WW defined as ≥ 101 min of MVPA/wk(25th percentile)with $\geq 50\%$ over 1-2d, b.

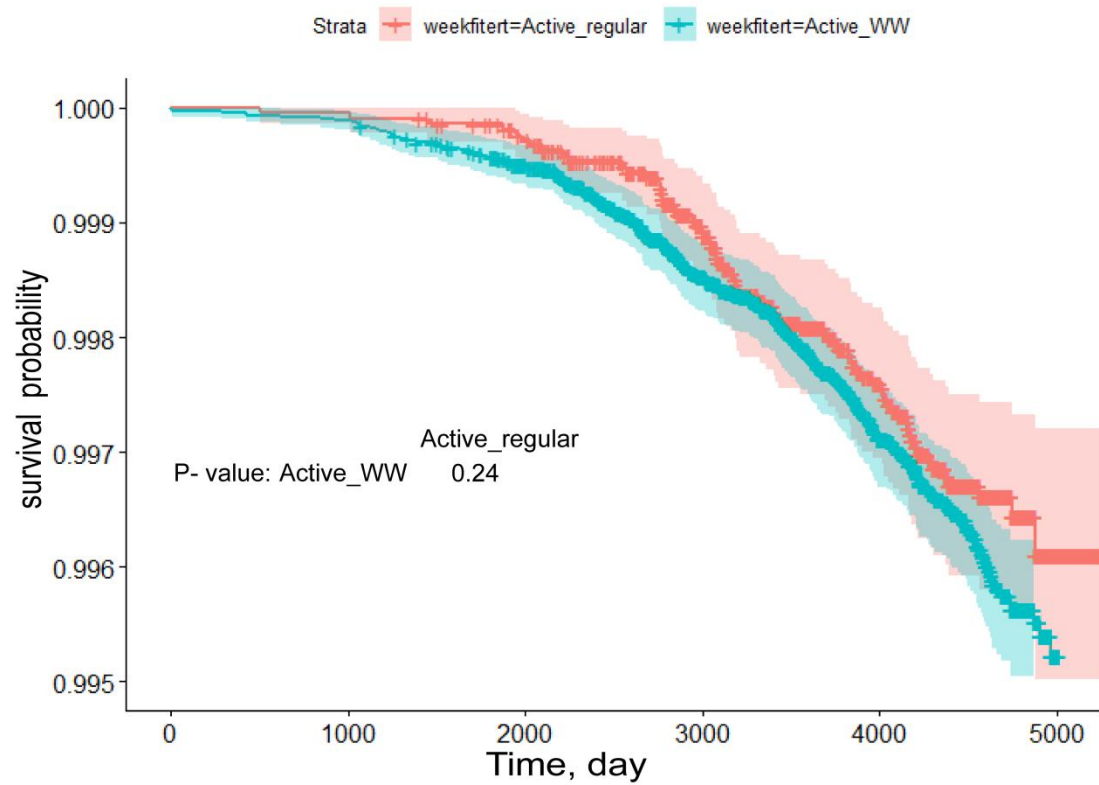
WW defined as ≥ 150 min of MVPA/wk(guideline based)with $\geq 50\%$ over 1-2d,

c. WW defined as ≥ 230 min of MVPA/wk(median)with $\geq 50\%$ over 1-2d and d. WW

defined as ≥ 403 min of MVPA/wk(75th percentile)with $\geq 50\%$ over 1-2d.

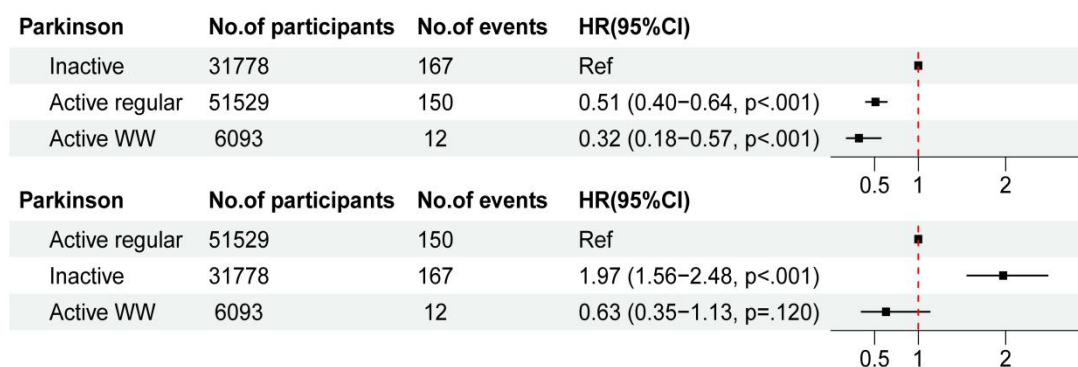


Supplementary Figure 2. Parkinson's Survival Curves for Three Groups After Thresholding at the Guideline-Recommended 150 Minutes of MVPA Duration Per Week

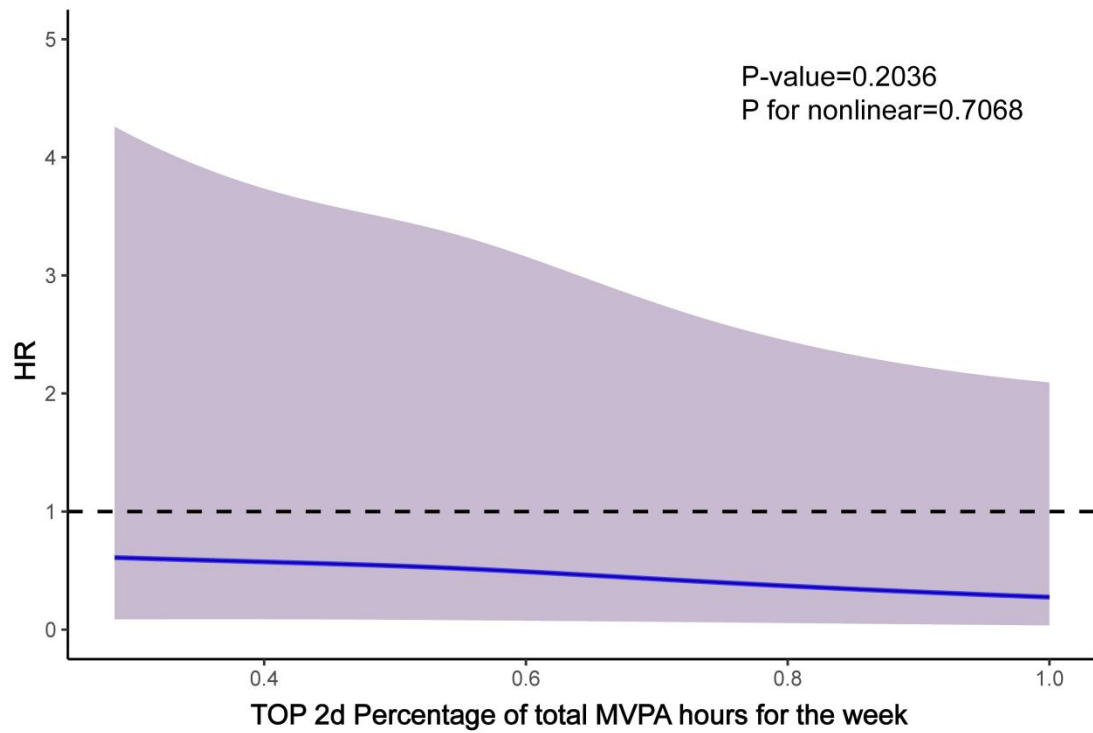


Supplementary Figure 3. Parkinson's survival curves for both groups after cancellation of thresholds

WW defined as ≥ 150 min of MVPA/wk(guideline based)with $\geq 75\%$ over 1-2d



Supplementary Figure 4. Association between physical activity patterns and Parkinson's disease



Supplementary Figure 5. Restricted cubic spline for testing the hypothesis of nonlinear correlation between TOP 2d Percentage of total MVPA hours for the week and the risk of PD.

The solid lines are fitted based on Cox-proportional hazard models. The shaded areas show 95% confidential intervals (CIs).

Variable	HR (95%CI, P-value)	P for interaction
Sex		0.1145
Female		
Inactive	Ref	
Active regular	0.32 (0.16-0.63, p=.001)	
Active WW	0.43 (0.27-0.68, p<.001)	
Male		
Inactive		
Active regular	0.69 (0.49-0.98, p=.038)	
Active WW	0.46 (0.33-0.62, p<.001)	
alcohol		0.4532
Current		
Inactive		
Active regular	0.57 (0.42-0.78, p<.001)	
Active WW	0.44 (0.34-0.58, p<.001)	
Previous		
Inactive		
Active regular	0.32 (0.04-2.56, p=.285)	
Active WW	0.16 (0.02-1.24, p=.080)	
Never		
Inactive		
Active regular	0.87 (0.17-4.44, p=.865)	
Active WW	0.55 (0.12-2.55, p=.445)	
hypertension group		0.3475
Elevated		
Inactive		
Active regular	0.42 (0.18-1.01, p=.053)	
Active WW	0.30 (0.14-0.64, p=.002)	
Normal		
Inactive		
Active regular	0.99 (0.42-2.33, p=.976)	
Active WW	0.79 (0.36-1.71, p=.546)	
stage1		
Inactive		
Active regular	0.81 (0.46-1.42, p=.464)	
Active WW	0.49 (0.29-0.83, p=.008)	
stage2		
Inactive		
Active regular	0.46 (0.29-0.71, p=.001)	
Active WW	0.42 (0.29-0.60, p<.001)	
Diabetes		0.06578
No		

Inactive			
Active regular		0.57 (0.42-0.78, p<.001)	
Active WW		0.46 (0.35-0.60, p<.001)	
	Yes		
Inactive			
Active regular		0.72 (0.24-2.18, p=.559)	
Active WW		0.09 (0.01-0.68, p=.020)	
Family history of Parkinson's disease			0.5407
	No		
Inactive			
Active regular		0.61 (0.44-0.83, p=.002)	
Active WW		0.44 (0.33-0.58, p<.001)	
	Yes		
Inactive			
Active regular		0.29 (0.10-0.91, p=.034)	
Active WW		0.46 (0.21-1.04, p=.061)	

Supplementary Table 1. Subgroup analysis of the association between participant movement patterns and Parkinson's disease

moderate to vigorous physical activity(MVPA) ¹		HR (95%CI, P-value)
	Q1	
Active_regular		Ref
Active_WW		1.75 (0.43-7.08, p=.435)
	Q2	
Active_regular		Ref
Active_WW		0.63 (0.36-1.10, p=.113)
	Q3	
Active_regular		Ref
Active_WW		0.71 (0.43-1.19, p=.205)
	Q4	
Active_regular		Ref
Active_WW		0.86 (0.51-1.47, p=.580)

Supplementary Table 2. Parkinson's risk between exercise modes after threshold cancellation

¹Quartiles of moderate to vigorous physical activity. The cutoff points of the quartiles are 101,230,403

TOP 2d Percentage of total MVPA hours for the week ¹	HR (95%CI, P-value)
Q1	Ref
Q2	1.05 (0.69-1.61, p=.816)
Q3	0.84 (0.54-1.30, p=.438)
Q4	0.80 (0.51-1.25, p=.321)
continue	0.34 (0.11-1.11, p=.075)

Supplementary Table 3. The effect of distribution of exercise intensity on

Parkinson's risk

¹Quartiles of TOP 2d Percentage of total MVPA hours for the week. The cutoff points of the quartiles are 0.456 , 0.538 , 0.643.