

## **Parkrun as self-managed cardiac rehabilitation: secondary analysis of a cross-sectional survey of parkrun in the UK**

HAAKE, Steve <<http://orcid.org/0000-0002-4449-6680>>, JOHNSON, Thomas W., BOURNE, Jessica, QUIRK, Helen <<http://orcid.org/0000-0003-2716-4681>> and BULLAS, Alice <<http://orcid.org/0000-0003-2857-4236>>

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Supplementary File S1: Additional analysis of those with CVD-related conditions compared to those with no conditions

Table 1. Prevalence of CVD-related conditions lasting 12 months or more with 445 conditions across 404 people participating as runners or walkers and runners or walkers who volunteer.

	Coronary Artery Disease (including angina peripheral vascular disease)	Heart condition (inc. Arrhythmia (abnormal heart rate) or Atrial Fibrillation (irregular heart rate)	Heart Failure	Stroke (TIA CVA; Cerebrovascular Accident)	Venous Thromboembolism (DVT; Deep Venous Thrombosis & Pulmonary Embolism)
Coronary Artery Disease (including angina peripheral vascular disease)	96	10	9	8	1
Heart condition (inc. Arrhythmia (abnormal heart rate) or Atrial Fibrillation (irregular heart rate)		151	6	7	0
Heart failure			80	5	0
Stroke (TIA CVA; Cerebrovascular Accident)				93	0
Venous Thromboembolism (DVT; Deep Venous Thrombosis & Pulmonary Embolism)					25
TOTAL			445		

Table 2. Cross tabulation of activity levels at the survey compared to activity at registration for those with no health conditions compared to those with CVD-related conditions.

			Activity at the survey					Total		
			<1	≈1	≈2	≈3	≥4			
No health conditions	Activity at registration	<1	189	402	491	475	320	1,877	Proportion <3 days per week increasing to ≥	
		≈1	232	719	1,346	1,331	758	4,386	3 days per week	
		≈2	217	692	2,333	3,345	2,238	8,825	56.1%	
		≈3	213	484	1,820	5,255	5,310	13,082		
		≥4	76	147	465	1,865	7,847	10,400		
	Total		927	2,444	6,455	12,271	16,473	38,570		
CVD-related conditions	Activity at registration	<1	5	3	2	3	3	16	Proportion <3 days per week increasing to ≥	
		≈1	2	4	11	7	2	26	3 days per week	
		≈2	4	4	17	21	11	57	47.5%	
		≈3	2	10	8	28	40	88		
		≥4	2	1	8	19	66	96		
	Total		15	22	46	78	122	283		
Total	Activity at registration	<1	194	405	493	478	323	1,893	Proportion <3 days per week increasing to ≥	
		≈1	234	723	1,357	1,338	760	4,412	3 days per week	
		≈2	221	696	2,350	3,366	2,249	8,882	56.1%	
		≈3	215	494	1,828	5,283	5,350	13,170		
		≥4	78	148	473	1,884	7,913	10,496		
	Total		942	2,466	6,501	12,349	16,595	38,853		

Table 3. Prevalence of CVD-related conditions for males and females by 5 km time from front runners (<20 minutes) to walkers (≥50 minutes).

	Time range (minutes)	Median time (minutes)	Median age (years)	Male n	Female n	Total n	Proportion male	Proportion female	Proportion of males limited by a health condition	Proportion of females limited by a health condition	Proportion of males limited by a CVD- related health condition	Proportion of females limited by a CVD-related health condition
Front runners	t<20	19:18	37.7	712	30	742	96.0%	4.0%	3.0%	3.2%	0.1%	0.0%
	20≤t<22.5	21:30	43.2	2,465	281	2,746	89.8%	10.2%	4.7%	4.4%	0.5%	0.4%
	22.5≤t<25	23:54	47.7	4,330	986	5,316	81.5%	18.5%	5.4%	4.6%	0.2%	0.1%
	25≤t<27.5	26:18	48.8	4,669	2,407	7,076	66.0%	34.0%	7.2%	4.9%	0.9%	0.1%
Median runners	27.5≤t<30	28:42	49.3	3,706	3,859	7,565	49.0%	51.0%	9.0%	6.2%	1.1%	0.2%
	30≤t<32.5	31:12	49.6	2,105	4,397	6,502	32.4%	67.6%	12.3%	6.8%	1.9%	0.1%
	32.5≤t<35	33:36	49.9	1,129	3,497	4,626	24.4%	75.6%	13.7%	9.2%	1.9%	0.3%
	35≤t<37.5	36:06	50.6	536	2,331	2,867	18.7%	81.3%	18.4%	12.1%	4.7%	0.5%
	37.5≤t<40	38:36	51.8	308	1,417	1,725	17.9%	82.1%	20.2%	14.3%	5.2%	0.5%
	40≤t<42.5	41:06	52.9	172	822	994	17.3%	82.7%	18.9%	15.5%	5.2%	0.7%
	42.5≤t<45	43:30	53.7	88	472	560	15.7%	84.3%	35.2%	22.8%	8.0%	1.1%
Runner/ walkers	45≤t<50	47:06	55.5	92	476	568	16.2%	83.8%	35.4%	26.7%	8.7%	2.5%
Walkers	t≥50	52:42	56.7	50	219	269	18.6%	81.4%	57.3%	42.2%	24.0%	5.0%
All		29:06	49.1	20,362	21,194	41,556	49.0%	51.0%	8.8%	9.7%	1.2%	0.4%
									All	9.3%	All	0.8%

Table 4. Motives for first participating in parkrun for those with CVD-related conditions compared to those no health conditions. Respondents could only choose three motives.

	No health conditions	All CVD-related conditions	Coronary Artery Disease (including angina peripheral vascular disease)	Heart condition (inc. Arrhythmia (abnormal heart rate) or Atrial Fibrillation (irregular heart rate))	Heart Failure	Stroke (TIA CVA; Cerebrovascular Accident)	Venous Thromboembolism (DVT; Deep Venous Thrombosis & Pulmonary Embolism)
“What motivated you <b>to first</b> participate at parkrun as a runner or walker?”	n=53,304	n=397	n=95	n=148	n=77	n=92	n=25
To contribute to my fitness	57.3%	49.1% (0.001)	49.5% (0.125)	52.7% (0.263)	49.4% (0.161)	43.5% (0.008)	48.0% (0.350)
To improve my physical health	36.6%	44.3% (0.001)	49.5% (0.009)	42.6% (0.134)	49.4% (0.020)	45.7% (0.072)	24.0% (0.190)
To gain a sense of personal achievement	27.1%	22.2% (0.027)	28.4% (0.775)	21.6% (0.133)	14.3% (0.011)	27.1% (0.490)	20.0% (0.424)
To get a recorded time for a 5k	22.2%	11.8% (<0.001)	12.6% (0.025)	16.9% (0.123)	9.1% (0.006)	5.4% (<0.001)	16.0% (0.458)
To manage my weight	19.5%	15.9% (0.068)	16.8% (0.511)	13.5% (0.066)	18.2% (0.768)	9.8% (0.019)	32.0% (0.115)
To improve or manage my health conditions, disability or illness*	1.9%%	25.9% (<0.001)	28.4% (<0.001)^	20.3% (<0.001)^	24.7% (<0.001)^	35.9% (<0.001)^	24.0% (<0.001)^

My friends, family or colleagues encouraged me to	15.4%	8.3% (<0.001)	9.5% (0.109)	8.1% (0.014)	3.9% (0.005)	7.6% (0.038)	12.0% (0.637)^
To train for another sporting event	14.6%	11.8% (0.124)	6.3% (0.023)	14.2% (0.894)	13.0% (0.693)	10.9% (0.314)	4.0% (0.134)^
To improve my mental health	12.0%	9.8% (0.177)	8.4% (0.279)	9.5% (0.336)	6.5% (0.135)	15.2% (0.349)	8.0% (0.535)^
To feel part of a community	11.0%	11.1% (0.977)	11.6% (0.867)	10.8% (0.930)	10.4% (0.856)	4.3% (0.041)	20.0% (0.153)^
To spend time outdoors	10.4%	8.1% (0.127)	7.4% (0.332)	12.8% (0.333)	3.9% (0.061)	8.7% (0.591)	0.0% (0.088)^
To compete with others	10.1%	11.3% (0.434)	8.4% (0.578)	15.5% (0.030)	7.8% (0.494)	9.8% (0.908)	12.0% (0.759)
To spend time with friends	7.9%	7.1% (0.514)	3.2% (0.085)	7.4% (0.819)	9.1% (0.709)	8.7% (0.789)	0.0% (0.142)^
To spend time with family	7.4%	5.0% (0.069)	8.4% (0.714)	7.4% (0.117)	0.0% (0.13)	3.3% (0.127)	12.0% (0.384)^
To improve my happiness	6.6%	6.0% (0.662)	7.4% (0.761)	4.1% (0.214)	3.9% (0.341)	8.7% (0.417)	8.0% (0.777)^
Couch to 5k	5.2%	4.5% (0.532)	5.3% (0.990)^	2.0% (0.080)^	5.2% (0.988)^	5.4% (0.931)^	8.0% (0.535)^
To meet new people	4.1%	2.5% (0.108)	0.0% (0.043)^	3.4% (0.647)	1.3% (0.212)^	3.3% (0.676)^	4.0% (0.974)^
To be active in a safe environment	3.9%	7.6% (<0.001)	3.2% (0.704)^	6.8% (0.075)	10.4% (0.003)^	10.9% (0.001)^	8.0% (0.292)^
To raise money for charity	0.5%	0.8% (0.491)	0.0% ((0.486)^	1.4% (0.151)^	1.3% (0.330)^	0.0% (0.493)^	0.0% (0.721)^

A health professional advised me to	0.2%	1.5% (<0.001)	0.0% (0.631)^	1.4% (0.006)^	3.9% (<0.001)^	2.2% (<0.001)^	4.0% (<0.001)^
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\* All participants were able to answer this question regardless of whether they had a long-term condition or not. ^ 25% cells have expected count less than 5.

Table 5. Proportion reporting better or much better as a measure of perceived impact of participating in parkrun as a runner/walker for those with CVD-related conditions compared to those no health conditions.

	No health conditions	All CVD-related conditions	Coronary Artery Disease (including angina peripheral vascular disease)	Heart condition (inc. Arrhythmia (abnormal heart rate) or Atrial Fibrillation (irregular heart rate))	Heart Failure	Stroke (TIA CVA; Cerebrovascular Accident)	Venous Thromboembolism (DVT; Deep Venous Thrombosis & Pulmonary Embolism)
Impact							
“Thinking about the impact of parkrun on your health and wellbeing, to what extent has running or walking at parkrun changed...”	n≥50,709	n≥368	n≥85	n≥137	n≥66	n≥85	n≥23
Your fitness	89.7%	81.1% (<0.001)	81.8% (0.015)	77.7% (<0.001)	81.7% (0.026)	77.9% (<0.001)	87.0% (0.663)
Your physical health	85.0%	80.1% (0.009)	83.1% (0.632)	76.4% (0.005)	78.6% (0.135)	75.9% (0.018)	82.6% (0.752)
Your sense of personal achievement	91.1%	77.9% (<0.001)	77.0% (<0.001)	74.3% (<0.001)	77.5% (<0.001)	78.2% (<0.001)	78.3% (0.031)
Your ability to control your weight	52.5%	50.4% (0.432)	46.6% (0.271)	41.4% (0.009)	54.3% (0.759)	51.7% (0.892)	65.2% (0.220)
Your ability to manage health conditions, disability or illness*		65.9%	60.0%	61.7%	61.6%	77.3%	69.6%



Your mental health	69.0%	58.6% (<0.001)	48.9% (<0.001)	57.6% (0.004)	58.6% (0.059)	69.8% (0.881)	65.2% (0.693)
How much you feel part of a community	70.0%	64.4% (0.020)	57.5% (0.011)	68.1% (0.633)	63.8% (0.260)	58.8% (0.025)	69.6% (0.965)
The amount of time you spend outdoors	74.2%	67.5% (0.003)	68.2% (0.197)	60.4% (<0.001)	66.2% (0.124)	69.0% (0.265)	78.3% (0.656)
Your enjoyment of competition	73.6%	61.4% (<0.001)	67.0% (0.161)	62.6% (0.003)	62.1% (0.034)	53.5% (<0.001)	52.2% (0.020)
The amount of time you spend with friends	41.2%	36.8% (0.082)	27.6% (0.010)	34.3% (0.101)	37.7% (0.551)	46.0% (0.368)	30.4% (0.293)
The amount of time you spend with family	27.9%	21.8% (0.010)	25.3% (0.589)	18.1% (0.011)	18.6% (0.082)	23.3% (0.339)	26.1% (0.847)
Your happiness	78.9%	70.6% (<0.001)	70.5% (0.052)	71.4% (0.030)	70.0% (0.067)	65.5% (0.002)	73.9% (0.556)
The number of new people you meet	57.2%	61.8% (0.077)	55.3% (0.721)	58.3% (0.801)	64.8% (0.197)	59.8% (0.630)	73.9% (0.106)
Your ability to be active in a safe environment	59.5%	56.9% (0.298)	55.2% (0.407)	48.2% (0.007)	55.7% (0.515)	70.1% (0.045)	65.2% (0.579)
Your confidence	61.2%	52.8% (0.001)	47.7% (0.010)	46.8% (<0.001)	57.4% (0.514)	57.0% (0.421)	65.2% (0.693)
Your overall lifestyle choices (e.g. diet and smoking)	51.7%	49.9% (0.482)	41.6% (0.056)	44.6% (0.095)	52.9% (0.846)	55.2% (0.517)	65.2% (0.194)

\*Only those who answered yes to a health condition were able to answer this question; a comparison with those without a health condition was not possible.

Table 6. Binary logistic regression coefficients for each motive. All coefficients significant at  $p<0.001$  except where shown and missing coefficients indicate non-significance. Coefficients  $<1$  indicate a motive is less likely to be chosen;  $>1$  indicates it is more likely to be chosen.

Motive	b <sub>0</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	b <sub>5</sub>
“What motivated you <b>to first</b> participate at parkrun as a runner or walker?”	Constant	Age in years $\geq 16$	Gender (male=0, female=1)	IMD per quartile (Q1, Q2, Q3, Q4 coded as 2,3,4,5)	Activity per category  (Activity categories $<1$ , $\approx 1$ , $\approx 2$ , $\approx 3$ , $\geq 4$ coded as 0,1, 2, 3, 4)	CVD  (No condition=0, CVD-related condition=1)
To contribute to my fitness	-0.266	0.0075	-0.160	0.058	0.027 (p=0.004)	-0.542
To improve my physical health		0.0085	-0.291	-0.041	-0.241	0.288 (p=0.02)
To gain a sense of personal achievement	-1.827	0.0122	0.592	0.025 (p=0.039)	-0.049	
To get a recorded time for a 5k	-0.947	-0.0212	-0.254	0.031 (p=0.015)	0.240	-0.617 (p=0.002)
To manage my weight	-0.750			-0.037 (p=0.005)	-0.190	
To improve or manage my health conditions, disability or illness*	-4.797	0.0352	-0.550		-0.158	2.563
My friends, family or colleagues encouraged me to	-1.235	-0.0038 (p=0.001)	0.233	0.040 (p=0.006)	-0.199	-0.513 (p=0.015)
To train for another sporting event	-1.655	-0.0174	-0.370		0.308	
To improve my mental health	-0.661	-0.0170	0.214	-0.091	-0.106	

To feel part of a community	-2.818	0.0048	0.203	0.188		
To spend time outdoors	-1.985	-0.0083	0.272	0.044 (p=0.004)		
To compete with others	-2.923	-0.0084	-1.080	0.042 (p=0.023)	0.458	
To spend time with friends	-2.310	-0.0148	0.191	0.134		
To spend time with family	-2.643	-0.0079	-0.105 (p=0.008)	0.173	-0.059 (p=0.001)	
To improve my happiness	-1.335	-0.0190	-0.253	-0.058 (p=0.006)		
Couch to 5k	-4.474	0.0187	1.043	0.046 (p=0.022)		
To meet new people	-3.571	0.0084		-0.112	0.156	
To be active in a safe environment	-4.087	0.0180	1.131	-0.098	-0.131	0.871
To raise money for charity	-5.783	0.0205 (p=0.001)		0.565	0.191 (p=0.008)	
A health professional advised me to	-7.148	0.0400	0.894	-0.232 (p=0.004)		1.276 (p=0.007)

Table 6. Binary logistic regression coefficients for each impact. All coefficients significant at  $p<0.001$  except where shown and missing coefficients indicate non-significance. Coefficients  $<1$  indicate improvement in the impact is less likely;  $>1$  indicates improvement more likely.

Impact	b <sub>0</sub> Constant	b <sub>1</sub> Age in years $\geq 16$	b <sub>2</sub> Gender (male=0, female=1)	b <sub>3</sub> IMD per quartile (Q1, Q2, Q3, Q4 coded as 2,3,4,5)	b <sub>4</sub> Activity per category (Activity categories $<1$ , $\approx 1$ , $\approx 2$ , $\approx 3$ , $\geq 4$ coded as 0,1, 2, 3, 4)	b <sub>5</sub> CVD (No condition=0, CVD-related condition=1)
“Thinking about the impact of parkrun on your health and wellbeing, to what extent has running or walking at parkrun changed...”						
Your fitness	3.745	-0.094	0.126 (p=0.001)	-0.043 (p=0.043)	-0.320	-0.601
Your physical health	3.315	-0.134		-0.032 (p=0.040)	-0.258	
Your sense of personal achievement	3.175	-0.081	0.654		-0.228	-0.780
Your ability to control your weight	0.533			-0.044	-0.101	
Your mental health	2.007	-0.193	0.425	-0.060	-0.082	
How much you feel part of a community	0.721		0.360			
The amount of time you spend outdoors	2.896	-0.227	0.237	-0.040 (p=0.002)	-0.233	
Your enjoyment of competition	1.594	-0.114	-0.196		0.033 (p=0.002)	-0.492
The amount of time you spend with friends	0.177 (p=0.005)	-0.047	0.230	-0.030 (p=0.006)		
The amount of time you spend with family	-0.659	-0.083	0.126	0.042 (p=0.001)	-0.050	

Your happiness	2.378	-0.162	0.125		-0.074	
The number of new people you meet	-0.678	0.200	0.152	-0.041	0.054	
Your ability to be active in a safe environment	1.181	-0.121	0.755	-0.054	-0.128	0.487
Your confidence	1.166	-0.139	0.645	-0.056	-0.038	
Your overall lifestyle choices (e.g. diet and smoking)	0.966	-0.076		-0.070	-0.093	