

Table S1: Government mandated COVID-19 restrictions to human movement imposed during the survey period.

COVID-19 restrictions	UK	NZ	IRE	AUS
	03/04/20 to 12/05/20	09/04/20 to 26/04/20	24/4/20 to 17/5/20	01/05/20 to 17/05/20
Physical distancing (> 2 m)	X	X	X	X
Self-isolation for people > 70 y & people with pre-existing health conditions, or COVID-19 symptoms or diagnosis	X	X	X	X
Exercise (e.g., walk, jog, cycle)	Only one form of exercise/day		X	
		Two or more forms of exercise/day		X
Only shopping for basic necessities (e.g., food/medicine)	X	X	X	
Travel for specific medical needs	X	X	X	X
Essential travel for key workers, everyone else works from home	X	X	X	X
Pubs/gyms/playgrounds/cinemas/restaurants/places of worship closed	X	X	X	X

Note: Key workers: primary health care; supermarkets; pharmacies; food production; delivery; emergency services; businesses that support essential services

Table S2: Physical Activity Compendium used to classify free-text physical activity and exercise responses pre- and during COVID-19 restrictions

Activity group	Detailed activity categories	Examples of activities in category
Walking	Walking	Walking, hiking
Running	Running	Running, jogging
Bicycling	Bicycling	Road cycling, general bicycling, mountain biking
Conditioning	Resistance	Weights, bodyweight exercise, Crossfit
	Stationary cycling	Spin, exercycle, indoor trainer
	Circuit	Gym session
	Classes	Zumba, pump, step, group fitness, bootcamp
	Online Classes	As per Classes, but performed under “Online” criteria below
	HIIT	HIIT training
	Online HIIT	As per HIIT, but performed under “Online” criteria below
	Yoga and Pilates	Yoga, Pilates, Bodybalance – class and self-directed
	Online Yoga and Pilates	As per Yoga/Pilates, but performed under “Online” criteria below
	Other	Rowing, elliptical trainer, stretching, aqua exercise (jogging, aerobics etc)
	Online Other	As per Other, but performed under “Online” criteria below
Home	DIY	Home renovations, painting, chopping firewood
	Garden	Gardening, lawn mowing
	Housework	Home cleaning
Swimming	Swimming	Lap, casual, pool, open water
Dance	Dance	Ballet, jazz, cultural, ballroom
Water activities	Water activities	Surfing, water skiing, kayaking
Snow activities	Snow activities	Skiing, snowboarding
Climbing	Climbing	Indoor and outdoor walls, rock climbing
Martial Arts	Martial arts	Judo, karate, jui jitsu
Other	Other	Horseriding, scooting

This table pertains to the article “Physical activity, mental health and well-being of adults during initial COVID-19 containment strategies: A multi-country cross-sectional analysis” by Faulkner et al. Accepted version available at <https://winchester.elsevierpure.com/en/publications/physical-activity-mental-health-and-well-being-of-adults-during-i>.

Sports	Field based	Football, hockey, rugby
	Small sided	5-a-side football, futsal, touch, 7s rugby
	Court based	Netball, basketball, volleyball
	Racquet	Tennis, squash, badminton
	Bat and ball	Cricket, softball
	Golf	Golf, driving range
	Acrobatics	Circus training, parkour, gymnastics, trampolining
	Other	Ultimate frisbee, roller derby, triathlon, athletics, non-specific "sports"
Online		TV, YouTube, Zoom, online

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Table S3: Population characteristics by country and in total

	UK	NZ	IRE	AUS	Total
Sample (n)	3,121	4,007	903	394	8,425
Sex n (%)					
Male	1,024 (32.8%)	1,087 (27.1%)	232 (25.7%)	89 (22.6%)	2,432 (28.9%)
Female	2,094 (67.1%)	2,886 (72.0%)	668 (74.0%)	304 (77.2%)	5,952 (70.7%)
Prefer not to say	3 (0.1%)	24 (0.9%)	3 (0.3%)	1 (0.3%)	31(0.5%)
Mean age (y)	43.9 (14.9)	46.5 (14.7)	38.7 (13.3)	41.1 (14.0)	44.5 (14.8)
Age Groups n (%)					
18-29 y	627 (20.2%)	619 (15.5%)	252 (27.9%)	103 (26.1%)	1,601 (19.0%)
30-39 y	722 (23.2%)	775 (19.3 %)	248 (27.5%)	103 (26.1 %)	1,848 (22.0%)
40-49 y	650 (20.9%)	910 (22.7%)	205 (22.7%)	86 (21.8%)	1,851 (22.0%)
50-59 y	559 (18.0%)	853 (21.3%)	132 (14.6%)	55 (14.0%)	1,599 (19.0%)
60-69 y	392 (12.6%)	578 (14.4%)	50 (5.5%)	36 (9.1%)	1,056 (12.6%)
70-79 y	141 (4.5%)	250 (6.2%)	16 (1.8%)	8 (2.0%)	415 (4.9%)
80+ y	15 (0.5%)	22 (0.5%)	0 (0.0%)	3 (0.8%)	40 (0.5%)
Ethnicity n (%)					
White	3,010 (96.4%)	3,630 (90.6%)	894 (99.0%)	361 (93.7%)	7,895 (93.8%)
Polynesian	0 (0.0%)	156 (3.9%)	0 (0.0%)	0 (0.0%)	156 (1.9%)
Indian	37 (1.2%)	48 (1.2%)	4 (0.4%)	8 (2.0%)	97 (1.2%)
Asian	0 (0.0%)	95 (2.4%)	0 (0.0%)	2 (0.5%)	97 (1.1%)
Black	14 (0.5%)	8 (0.2%)	2 (0.2%)	2 (0.5%)	26 (0.3%)
Mixed groups	37 (1.2%)	18 (0.5%)	2 (0.2%)	1 (0.3%)	58 (0.7%)
Other	23 (0.7%)	52 (1.3%)	1 (0.1%)	12 (3.1%)	88 (0.9%)

Household (pre- COVID-19) n (%)

Live alone	-	515 (12.9%)	84 (9.3%)	45 (11.4%)	644 (12.1%)
Couple	-	1,379 (34.4%)	184 (20.4%)	146 (37.1%)	1,709 (32.2%)
Two parent family	-	1,162 (29.0%)	355 (39.3%)	112 (28.4%)	1,629 (30.7%)
Single parent family	-	121 (3.0%)	22 (2.4%)	14 (3.6%)	157 (3.0%)
Extended family	-	328 (8.2%)	146 (16.2%)	33 (8.4%)	507 (9.6%)
Shared occupancy	-	501 (12.5%)	112 (12.4%)	32 (8.1%)	645 (12.2%)
Residential care	-	1 (0.02%)	0 (0.0%)	0 (0.0%)	1 (0.02%)

Household (during COVID-19) n (%)

Live alone	-	459 (11.5%)	-	72 (8.0%)	531 (10.8%)
Couple	-	1,287 (32.1%)	-	184 (20.4%)	1,471 (30.0%)
Two parent family	-	164 (29.1%)	-	366 (40.5%)	1,530 (31.2%)
Single parent family	-	114 (2.9%)	-	28 (3.1%)	142 (2.9%)
Extended family	-	588 (14.7%)	-	206 (22.8%)	794 (16.2%)
Shared occupancy	-	395 (9.9%)	-	46 (5.1%)	441 (9.0%)
Residential care	-	0 (0.0%)	-	1 (0.1%)	1 (0.02%)

Comorbidity n (%)	-	873 (21.8%)	173 (19.2%)	15 (3.8%)	1061 (20.0%)
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Note: Black includes African, Caribbean, African-American; Indian includes East Indian, Pakistani, Bangladeshi; Asian includes Chinese, Japanese and all South-East Asian; Polynesian includes Māori, Pacific Islanders

Table S4: Exercise behaviour change (positive, negative, no change) between pre- and during COVID-19 restrictions. Data presented as n (%)

Exercise behaviour	UK	NZ	IRE	AUS	Total
Positive change	466 (14.9%)	609 (15.2%)	153 (16.9%)	52 (13.2%)	1,280 (15.2%)
Negative change	666 (21.3%)*	505 (12.6%)	160 (17.7%)	89 (22.6%)*	1,420 (16.8%)
No change	1,989 (63.7%)	2,893 (72.2%)	590 (65.3%)	253 (64.2%)	5,725 (67.9%)

*Significantly greater negative change in exercise behaviour than NZ or IRE ($p < 0001$)

Table S5: Changes in exercise behaviours (positive, negative, no change) by sex, age groups and ethnicity.

	Negative change (n=1420)	Relative risk compared to no change	No change (n=5725)	Positive change (n=1280)	Relative risk compared to no change
Sex					
Male	397 (16.3%)	REF	1,741 (71.6%)	294 (12.1%)	REF
Female	1,008 (16.9%)	1.11 (0.98, 1.27)	3,967 (66.7%)	977 (16.4%)*	1.46 (1.27, 1.68)
Age group					
18-29	418 (26.1%)*	REF	946 (59.1%)	237 (14.8%)	REF
30-39	353 (19.1%)	0.69 (0.58, 0.81)	1,160 (62.8%)	335 (18.1%)	1.15 (0.96, 1.39)
40-49	290 (15.7%)	0.52 (0.44, 0.62)	1,260 (68.1%)	301 (16.3%)	0.95 (0.79, 1.15)
50-59	187 (11.7%)	0.34 (0.29, 0.43)	1,186 (74.2%)	226 (14.1%)	0.76 (0.62, 0.93)
60-69	117 (11.1%)	0.33 (0.26, 0.42)	796 (75.4%)	143 (13.5%)	0.72 (0.57, 0.90)
70-79	46 (11.1%)	0.31 (0.22, 0.43)	338 (81.5%)	31 (7.5%)	0.37 (0.25, 0.54)
80+	5 (12.5%)	0.35 (0.14, 0.91)	32 (80.0%)	3 (7.5%)	0.37 (0.11, 1.23)
Ethnicity					
White	1,314 (16.6%)	REF	5,406 (68.4%)	1,183 (14.9%)	REF
Polynesian	21 (13.5%)	0.89 (0.55, 1.43)	97 (62.2%)	38 (24.4%)	1.79 (1.22, 2.61)
Indian	26 (26.8%)	2.02 (1.26, 3.24)	53 (54.6%)	18 (18.6%)	1.55 (0.91, 2.67)
Asian	15 (15.5%)	0.91 (0.52, 1.59)	68 (70.1%)	14 (14.4%)	0.94 (0.52, 1.68)
Black	8 (30.8%)	2.35 (0.98, 5.62)	14 (53.9%)	4 (15.4%)	1.31 (0.43, 3.97)
Mixed	17 (29.3%)	2.33 (1.28, 4.24)	30 (51.7%)	11 (18.6%)	1.68 (0.84, 3.35)

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Other	19 (21.6%)	1.37 (0.81, 2.31)	57 (64.8%)	12 (13.6%)	0.96 (0.51, 1.80)
Comorbidity					
Yes	183 (17.3%)	REF	689 (64.9%)	189 (17.8%)	REF
No	456 (12.6%)*	0.66 (0.54, 0.79)	2,260 (72.6%)	535 (14.8%)*	0.74 (0.62, 0.90)

*Significantly difference between items ($p < 0.001$). **Note:** REF, Reference value

Table S6: Number of individuals (n [%]) who met PA guidelines if reporting either a positive-, negative- or no-change in exercise behaviour

Behaviour Change	Met PA Guidelines	
	Yes	No
Positive Change	332 (25.9%)	948 (74.1%)
Negative Change	1,157 (81.5%)	263 (18.5%)
No Change	4,854 (84.8%)	871 (15.2%)

Table S7: Physical activity by sex (males, females, prefer not to say) for aerobic (S7a), conditioning (S7b), online (S7c), home (S7d) and other (S7e) activities pre- and during COVID-19 restrictions. Data is presented as total numbers (n) and percentage of study population (%)

S7a: Aerobic activities

Sex	Walk				Run				Cycle				Swim			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
M	961	39.5	1226	50.4	713	29.3	823	33.8	676	25.8	628	27.8	219	9.0	5	0.2
F	3334	56.0	3913	65.7	1,532	25.7	1801	30.3	724	15.1	899	12.2	719	12.1	30	0.5
P	21	67.7	21	67.7	7	22.6	7	22.6	4	19.4	6	12.9	5	16.1	0	0.0

S7b: Conditioning activities

Sex	Resistance				Stationary cycle				Circuit				Class				HIIT				Yoga/Pilates				Other			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
M	595	24.5	428	17.6	75	3.1	149	6.1	165	6.8	130	5.3	80	3.3	62	2.5	46	1.9	65	2.7	77	3.2	150	6.2	79	3.2	105	4.3
F	1,256	21.1	720	12.1	212	3.6	264	4.4	540	9.1	269	4.5	672	11.3	199	3.3	225	3.8	264	4.4	889	14.9	835	14.0	238	4.0	253	4.3
P	5	16.1	4	12.9	0	0.0	0	0.0	2	6.5	4	12.9	5	16.1	2	6.5	0	0.0	0	0.0	6	19.4	7	22.6	0	0.0	2	6.5

S7c: Online activities

Sex	Class				HIIT				Yoga/Pilates				Other			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
M	3	0.1	157	6.5	0	0.0	29	1.2	1	0.0	37	1.5	3	0.1	30	1.2
F	23	0.4	1,263	21.2	7	0.1	199	3.3	5	0.1	490	8.2	8	0.1	141	2.4
P	0	0.0	1	3.2	0	0.0	0	0.0	1	3.2	1	3.2	0	0.0	0	0.0

S7d: Home activities

Sex	DIY				Garden				Housework			
	Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%
M	13	0.5	47	1.9	161	6.6	333	13.7	8	0.3	33	1.4
F	17	0.3	67	1.1	498	8.4	1,003	16.9	70	1.2	223	3.7
P	0	0.0	0	0.0	5	16.1	6	19.4	0	0.0	0	0.0

S7e: Other activities

Sex	Sports				Dance				Water				Snow				Climbing				Martial Arts			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
M	344	14.1	42	1.7	12	0.5	4	0.2	48	2.0	2	0.1	7	0.3	0	0.0	35	1.4	2	0.1	48	1.97	18	0.7
F	580	9.7	102	1.7	166	2.8	77	1.3	81	1.4	4	0.1	11	0.2	1	0.0	49	0.8	6	0.1	82	1.38	28	0.5
P	1	3.2	1	3.2	1	3.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.23	1	3.2

Note: DIY, Do-it-Yourself; Dur, During; F, Females; HIIT, High Intensity Interval Training; M, Males; P, Prefer not to say

Table S8: Physical activity by age categories for aerobic (S8a), conditioning (S8b), online (S8c), home (S8d) and other (S8e) activities pre- and during COVID-19 restrictions. Data is presented as total numbers (n) and percentage of study population (%)

S8a: Aerobic activities

Age (y)	Walk				Run				Cycle				Swim			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
18-29	577	36.0	831	51.9	486	30.4	682	42.6	184	11.5	193	12.1	151	9.4	7	0.4
30-39	854	46.2	1068	57.8	610	33.0	724	39.2	263	14.2	281	15.2	190	10.3	3	0.2
40-49	914	49.4	1118	60.4	631	34.1	672	36.3	342	18.5	405	21.9	220	11.9	11	0.6
50-59	947	59.2	1049	65.6	360	22.5	393	24.6	329	20.6	356	22.3	185	11.6	4	0.3
60-69	690	65.3	762	72.2	133	12.6	135	12.8	212	20.1	225	21.3	131	12.4	8	0.8
70-79	298	71.8	297	71.6	28	6.7	22	5.3	73	17.6	69	16.6	64	15.4	2	0.5
80+	25	62.5	23	57.5	1	2.5	0	0.0	1	2.5	2	5.0	1	2.5	0	0.0

S78: Conditioning activities

Age (y)	Resistance				Stationary cycle				Circuit				Class				HIIT				Yoga/Pilates				Other			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
18-29	564	35.2	311	19.4	31	1.9	46	2.9	169	10.6	145	9.1	140	8.7	64	4.0	66	4.1	121	7.6	116	7.2	204	12.7	59	3.7	57	3.6
30-39	467	25.3	271	14.7	66	3.6	77	4.2	152	8.2	93	5.0	187	10.1	61	3.3	88	4.8	94	5.1	215	11.6	252	13.6	63	3.4	60	3.2
40-49	352	19.0	206	11.1	84	4.5	111	6.0	136	7.3	73	3.9	183	9.9	46	2.5	69	3.7	69	3.7	238	12.9	201	10.9	52	2.8	88	4.8
50-59	261	16.3	176	11.0	69	4.3	100	6.3	134	8.4	58	3.6	137	8.6	49	3.1	26	1.6	33	2.1	209	13.1	185	11.6	65	4.1	78	4.9
60-69	158	15.0	93	8.8	28	2.7	53	5.0	74	7.0	18	1.7	70	6.6	29	2.7	18	1.7	11	1.0	139	13.2	105	9.9	45	4.3	53	5.0
70-79	45	10.8	26	6.3	9	2.2	24	5.8	37	8.9	12	2.9	33	8.0	10	2.4	4	1.0	2	0.5	52	12.5	42	10.1	32	7.7	23	5.5
80+	3	7.5	2	5.0	0	0.0	2	5.0	5	12.5	4	10.0	5	12.5	3	7.5	0	0.0	0	0.0	1	2.5	2	5.0	1	2.5	1	2.5

S8c: Online activities

Age (y)	Class				HIIT				Yoga/Pilates				Other			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
18-29	6	0.4	307	19.2	2	0.1	60	3.7	2	0.1	80	5.0	4	0.2	33	2.1
30-39	13	0.7	381	20.6	2	0.1	79	4.3	0	0.0	139	7.5	2	0.1	50	2.7
40-49	5	0.3	350	18.9	3	0.2	47	2.5	1	0.1	120	6.5	2	0.1	43	2.3
50-59	1	0.1	208	13.0	0	0.0	29	1.8	4	0.3	112	7.0	0	0.0	27	1.7
60-69	0	0.0	115	10.9	0	0.0	11	1.0	0	0.0	65	6.2	0	0.0	12	1.1
70-79	1	0.2	49	11.8	0	0.0	2	0.5	0	0.0	12	2.9	2	0.5	6	1.4
80+	0	0.0	6	15.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.5	0	0.0

S8d: Home activities

Age (y)	DIY				Garden				Housework			
	Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%
18-29	4	0.2	11	0.7	23	1.4	76	4.7	4	0.2	76	4.7
30-39	2	0.1	19	1.0	59	3.2	162	8.8	11	0.6	162	8.8
40-49	3	0.2	22	1.2	90	4.9	238	12.9	9	0.5	238	12.9
50-59	10	0.6	26	1.6	150	9.4	344	21.5	16	1.0	344	21.5
60-69	7	0.7	22	2.1	213	20.2	341	32.3	23	2.2	341	32.3
70-79	3	0.7	13	3.1	114	27.5	162	39.0	11	2.7	162	39.0
80+	1	2.5	1	2.5	13	32.5	14	35.0	3	7.5	14	35.0

S8e: Other activities

Age (y)	Sports				Dance				Water				Snow				Climbing				Martial Arts			
	Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur		Pre		Dur	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
18-29	381	23.8	57	3.6	43	2.7	15	0.9	28	1.7	2	0.1	4	0.2	1	0.1	28	1.7	1	0.1	34	2.1	14	0.9
30-39	204	11.0	14	0.8	29	1.6	24	1.3	22	1.2	1	0.1	2	0.1	0	0.0	31	1.7	2	0.1	36	1.9	9	0.5
40-49	142	7.7	40	2.2	29	1.6	17	0.9	35	1.9	1	0.1	3	0.2	0	0.0	14	0.8	4	0.2	30	1.6	6	0.3
50-59	85	5.3	19	1.2	33	2.1	15	0.9	17	1.1	2	0.1	4	0.3	0	0.0	7	0.4	1	0.1	10	0.6	6	0.4
60-69	67	6.3	8	0.8	29	2.7	7	0.7	21	2.0	0	0.0	3	0.3	0	0.0	3	0.3	0	0.0	14	1.3	10	0.9
70-79	37	8.9	5	1.2	13	3.1	5	1.2	6	1.4	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	6	1.4	3	0.7
80+	8	20.0	1	2.5	2	5.0	0	0.0	0	0.0	0	0.0	1	2.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Note: DIY, Do-it-Yourself; Dur, During; HIIT, High Intensity Interval Training