

Supplemental Digital Content 1. Metabolic data by activities for indirect calorimetry

Activity	n	kcal/min	Min - Max	L/min	Min -		ml/kg/min	Min - Max	METs	Min - Max
					Max	Max				
<i>REE</i>										
5-12y	56	1.19 ± 0.24	0.81 - 2.15	0.24 ± 0.05	0.17 - 0.42		7.89 ± 1.80	3.59 - 12.09	-	-
5-9y	31	1.06 ± 0.13	0.81 - 1.31	0.22 ± 0.03	0.17 - 0.27		8.57 ± 1.71	5.78 - 12.09	-	-
10-12y	25	1.35 ± 0.26	0.91 - 2.15	0.28 ± 0.05	0.19 - 0.42		7.05 ± 1.57	3.59 - 10.18	-	-
<i>TV viewing</i>										
5-12y	56	1.24 ± 0.25	0.83 - 2.08	0.26 ± 0.05	0.17 - 0.43		8.29 ± 1.73	5.68 - 12.98	1.09 ± 0.16	0.84 - 1.81
5-9y	31	1.12 ± 0.16	0.83 - 1.50	0.23 ± 0.03	0.17 - 0.31		9.10 ± 1.61	5.95 - 12.98	1.10 ± 0.14	0.84 - 1.56
10-12y	25	1.39 ± 0.27	0.92 - 2.08	0.29 ± 0.06	0.19 - 0.43		7.28 ± 1.31	5.68 - 10.87	1.08 ± 0.18	0.90 - 1.81
<i>Computer game</i>										
5-12y	56	1.28 ± 0.25	0.67 - 1.78	0.27 ± 0.05	0.14 - 0.38		8.55 ± 1.80	5.39 - 12.10	1.13 ± 0.18	0.75 - 1.83
5-9y	31	1.17 ± 0.19	0.67 - 1.50	0.24 ± 0.04	0.14 - 0.31		9.50 ± 1.64	5.70 - 12.10	1.15 ± 0.17	0.75 - 1.54
10-12y	25	1.41 ± 0.26	0.96 - 1.78	0.29 ± 0.06	0.19 - 0.38		7.38 ± 1.23	5.39 - 9.56	1.10 ± 0.20	0.75 - 1.83
<i>Handheld e-game</i>										
5-12y	55	1.36 ± 0.25	0.85 - 2.24	0.28 ± 0.05	0.18 - 0.46		9.12 ± 2.18	5.93 - 14.17	1.19 ± 0.18	0.93 - 1.90

5-9y	30	1.25 ± 0.17	0.85 - 1.70	0.26 ± 0.04	0.18 - 0.35	10.27 ± 2.10	5.99 - 14.17	1.22 ± 0.16	0.94 - 1.50
10-12y	25	1.49 ± 0.28	0.94 - 2.24	0.31 ± 0.06	0.19 - 0.46	7.79 ± 1.37	5.93 - 11.07	1.16 ± 0.20	0.93 - 1.90
<i>Writing/Coloring</i>									
5-12y	55	1.44 ± 0.28	0.91 - 2.18	0.30 ± 0.06	0.19 - 0.45	9.71 ± 2.25	5.41 - 15.99	1.27 ± 0.22	0.94 - 2.26
5-9y	30	1.33 ± 0.20	0.91 - 1.82	0.28 ± 0.04	0.19 - 0.38	10.86 ± 2.11	7.12 - 15.99	1.30 ± 0.17	1.01 - 1.78
10-12y	25	1.58 ± 0.30	1.08 - 2.18	0.33 ± 0.06	0.22 - 0.45	8.28 ± 1.47	5.41 - 12.07	1.24 ± 0.26	0.94 - 2.26
<i>Standing activity</i>									
5-12y	56	1.70 ± 0.34	1.15 - 2.77	0.35 ± 0.07	0.24 - 0.57	11.34 ± 2.25	7.66 - 16.45	1.50 ± 0.23	1.11 - 2.58
5-9y	31	1.53 ± 0.24	1.15 - 2.06	0.32 ± 0.05	0.24 - 0.43	12.41 ± 2.07	8.85 - 16.45	1.50 ± 0.19	1.20 - 1.85
10-12y	25	1.90 ± 0.34	1.32 - 2.77	0.40 ± 0.07	0.28 - 0.57	10.02 ± 1.71	7.66 - 13.03	1.49 ± 0.27	1.11 - 2.58
<i>Getting ready</i>									
5-12y	56	2.81 ± 0.63	1.64 - 4.32	0.59 ± 0.13	0.33 - 0.92	18.64 ± 3.07	13.06 - 24.90	2.49 ± 0.45	1.67 - 4.01
5-9y	31	2.52 ± 0.48	1.64 - 3.42	0.53 ± 0.10	0.33 - 0.71	20.17 ± 2.04	15.09 - 24.35	2.48 ± 0.44	1.67 - 3.23
10-12y	25	3.18 ± 0.59	1.98 - 4.32	0.66 ± 0.13	0.42 - 0.92	16.75 ± 3.11	13.06 - 24.90	2.50 ± 0.48	1.73 - 4.01
<i>Slow Walk</i>									
5-12y	56	3.26 ± 0.66	2.28 - 4.93	0.68 ± 0.14	0.46 - 1.04	21.80 ± 3.86	15.05 - 33.44	2.90 ± 0.50	1.92 - 4.45
5-9y	31	2.97 ± 0.47	2.28 - 4.61	0.62 ± 0.10	0.46 - 0.97	24.04 ± 3.24	16.40 - 33.44	2.92 ± 0.42	2.31 - 3.95
10-12y	25	3.62 ± 0.70	2.43 - 4.93	0.76 ± 0.15	0.51 - 1.04	19.02 ± 2.55	15.05 - 25.17	2.87 ± 0.60	1.92 - 4.45

<i>Dancing</i>									
5-12y	55	3.53 ± 1.22	1.85 - 6.78	0.73 ± 0.25	0.39 - 1.39	22.77 ± 3.85	15.22 - 32.12	3.09 ± 0.85	1.70 - 5.26
5-9y	31	2.98 ± 0.93	1.85 - 5.78	0.62 ± 0.19	0.39 - 1.22	23.45 ± 3.94	15.22 - 31.45	2.91 ± 0.82	1.70 - 5.15
10-12y	24	4.24 ± 1.21	2.43 - 6.78	0.88 ± 0.25	0.50 - 1.39	21.90 ± 3.62	16.27 - 32.12	3.32 ± 0.86	2.12 - 5.26
<i>Brisk Walk</i>									
5-12y	56	3.88 ± 0.95	2.51 - 6.45	0.80 ± 0.19	0.51 - 1.30	25.34 ± 4.05	17.62 - 37.96	3.38 ± 0.63	2.26 - 5.83
5-9y	31	3.41 ± 0.61	2.51 - 5.12	0.70 ± 0.12	0.51 - 1.05	27.13 ± 3.66	21.12 - 37.96	3.29 ± 0.44	2.63 - 4.42
10-12y	25	4.47 ± 0.99	2.99 - 6.45	0.92 ± 0.20	0.63 - 1.30	23.12 ± 3.41	17.62 - 29.10	3.49 ± 0.81	2.26 - 5.83
<i>Tidy up</i>									
5-12y	55	4.07 ± 1.16	2.21 - 7.05	0.85 ± 0.24	0.45 - 1.49	26.31 ± 3.84	19.72 - 36.75	3.57 ± 0.84	2.14 - 7.42
5-9y	30	3.52 ± 0.85	2.21 - 6.01	0.73 ± 0.18	0.45 - 1.26	27.72 ± 3.84	20.73 - 36.75	3.42 ± 0.65	2.14 - 4.71
10-12y	25	4.74 ± 1.15	2.73 - 7.05	0.99 ± 0.24	0.58 - 1.49	24.63 ± 3.16	19.72 - 30.61	3.75 ± 1.02	2.79 - 7.42
<i>Running</i>									
5-12y	56	6.66 ± 2.12	2.76 - 11.61	1.36 ± 0.44	0.57 - 2.46	42.18 ± 6.99	21.05 - 59.34	5.68 ± 1.34	2.85 - 10.41
5-9y	31	5.28 ± 1.21	2.76 - 7.18	1.08 ± 0.25	0.57 - 1.46	41.59 ± 8.07	21.05 - 59.34	5.05 ± 1.01	2.85 - 6.96
10-12y	25	8.37 ± 1.73	5.18 - 11.61	1.72 ± 0.36	1.06 - 2.46	42.92 ± 5.43	33.05 - 52.75	6.47 ± 1.30	4.09 - 10.41
<i>Locomotor course</i>									
5-12y	54	7.14 ± 2.28	2.68 - 12.17	1.47 ± 0.47	0.56 - 2.54	45.16 ± 7.63	10.08 - 62.81	6.05 ± 1.20	2.81 - 8.22

5-9y	29	5.87 ± 1.34	3.88 - 9.62	1.20 ± 0.27	0.78 - 1.94	45.43 ± 5.68	37.06 - 60.59	5.58 ± 0.91	3.82 - 7.26
10-12y	25	8.62 ± 2.26	2.68 - 12.17	1.78 ± 0.47	0.56 - 2.54	44.85 ± 9.52	10.08 - 62.81	6.59 ± 1.28	2.81 - 8.22
<i>Soccer</i>									
5-12y	55	7.21 ± 2.08	3.53 - 12.76	1.47 ± 0.44	0.73 - 2.73	46.23 ± 7.06	35.19 - 70.82	6.22 ± 1.42	3.48 - 12.28
5-9y	31	6.05 ± 1.41	3.53 - 10.13	1.23 ± 0.29	0.73 - 2.04	47.03 ± 6.27	36.63 - 64.26	5.78 ± 1.18	3.48 - 7.67
10-12y	24	8.70 ± 1.87	5.99 - 12.76	1.79 ± 0.40	1.20 - 2.73	45.19 ± 7.99	35.19 - 70.82	6.77 ± 1.53	4.29 - 12.28
<i>Basketball</i>									
5-12y	54	6.64 ± 2.15	3.27 - 11.65	1.36 ± 0.44	0.66 - 2.33	41.44 ± 5.99	28.83 - 54.42	5.65 ± 1.41	2.97 - 11.44
5-9y	29	5.29 ± 1.36	3.27 - 7.90	1.08 ± 0.27	0.66 - 1.59	40.89 ± 6.10	28.83 - 54.42	5.06 ± 1.15	2.97 - 7.04
10-12y	25	8.19 ± 1.81	5.24 - 11.65	1.69 ± 0.37	1.10 - 2.33	42.07 ± 5.93	30.68 - 52.00	6.33 ± 1.39	4.27 - 11.44

Notes: Mean volume of oxygen consumption and carbon dioxide production were converted into units of energy expenditure

(kcal/min) using the Weir equation (42). METs, metabolic equivalents; REE, resting energy expenditure.

Supplemental Digital Content 2. Supplementary analyses for the raw wrist acceleration cut-points using a ≥ 4 -MET MVPA definition.

Supplemental Digital Content 2.1: Contingency tables for classification accuracy of raw wrist acceleration cut-points using a ≥ 4 -MET MVPA definition

Actual Intensity	Cut-points classification of intensity		
	1	2	3
ENMO ₁₉₂₊			
1. non-MVPA	14032 (93.1)	904 (6.0)	137 (0.9)
2. MPA	2181 (46.0)	2213 (46.6)	352 (7.4)
3. VPA	560 (9.9)	2039 (36.2)	3034 (53.9)
GENEA ₂₅₀₊			
1. non-MVPA	13887 (92.1)	1035 (6.9)	161 (1.1)
2. MPA	1936 (40.8)	2363 (49.8)	447 (9.4)
3. VPA	217 (3.9)	1707 (30.3)	3709 (65.8)
BFEN ₃₁₄₊			
1. non-MVPA	12322 (81.7)	2493 (16.5)	258 (1.7)
2. MPA	672 (14.2)	3421 (72.1)	653 (13.8)
3. VPA	42 (0.7)	918 (16.3)	4673 (83.0)

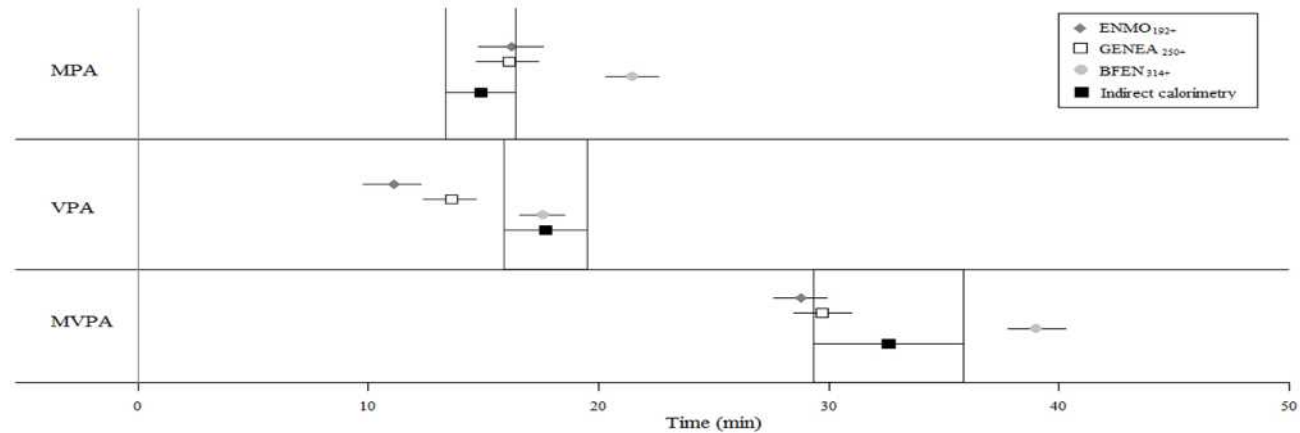
The presented values indicate the proportion of epochs classified for each intensity, with percentages presented between brackets. The values in boldface indicate the proportion of epochs correctly classified for the physical activity intensity. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENEActiv: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Supplemental Digital Content 2.2: Agreement analysis of raw wrist acceleration-based estimations of physical activity intensities compared to indirect calorimetry using a ≥ 4 -MET MVPA definition.

Intensity	Mean bias (%)	Limits of agreement	p-value slope
ENMO₁₉₂₊			
<i>MPA</i>	-2.6	-78.7 - 73.6	0.00
<i>VPA</i>	53.7	-44.6 - 152.1	0.00
<i>MVPA</i>	12.6	-18.3 - 43.5	0.85
GENEA₂₅₀₊			
<i>MPA</i>	-1.5	-80.0 - 76.9%	0.01
<i>VPA</i>	28.6	-39.4 - 96.6	0.00
<i>MVPA</i>	9.3	-23.0 - 41.6	0.03
BFEN₃₁₄₊			
<i>MPA</i>	-34.4	-89.1 - 20.4	0.01
<i>VPA</i>	-0.5*	-40.6 - 39.7	0.04
<i>MVPA</i>	-18.3	-50.2 - 13.5	0.11

MPA: moderate physical activity; *VPA*: vigorous physical activity; *MVPA*: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm. Mean bias was calculated as: measured intensity time – estimated intensity time; a positive value indicates underestimation; a negative value indicates overestimation. *Significantly equivalent to indirect calorimetry ($p < 0.05$).

Supplemental Digital Content 2.3: 95% equivalence test for raw wrist acceleration-based estimated time spent in physical activity intensities using a ≥ 4 -MET MVPA definition.



Times estimated by wrist-worn cut-points are equivalent to indirect calorimetry if 90% confidence intervals lie entirely within the equivalence region of indirect calorimetry. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Supplemental Digital Content 2.4: Confusion matrices for the raw wrist acceleration cut-points using a ≥ 4 -MET MVPA definition.

Table 1. Confusion matrix for sedentary and light physical activity intensity activities.

Actual Intensity	Lying Down			TV viewing			Computer Game			Handheld e-game			Writing/ Colouring			Standing activity			Getting ready			Slow walk		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
	ENMO₁₉₂₊																							
1. non-MVPA	100.0	0.0	-	100.0	0.0	-	99.9	0.1	-	100.0	0.0	-	99.9	0.1	-	99.1	0.9	-	97.3	2.0	0.8	80.9	18.5	0.6
2. MPA	100.0	0.0	-	-	-	-	-	-	-	100.0	0.0	-	-	-	-	100.0	0.0	-	92.3	7.4	0.3	55.5	44.5	0.0
3. VPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.0	75.0	0.0
4. MVPA		0.0			-			-			0.0			-			0.0			7.7			44.7	
	GENEA₂₅₀₊																							
1. non-MVPA	100.0	0.0	-	100.0	-	-	100.0	0.0	-	100.0	0.0	-	99.4	0.6	-	98.8	1.2	-	96.8	2.4	0.8	69.8	29.5	0.7
2. MPA	100.0	0.0	-	-	-	-	-	-	-	100.0	0.0	-	-	-	-	100.0	0.0	-	91.4	8.3	0.3	47.0	53.0	0.0

3. VPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.	75.	0.0	
																					0	0		
4. MVPA		0.0		-		-		0.0		-		16.7		12.3		48.5								
	BFEN₃₁₄₊																							
1. non-MVPA	99.8	0.	-	100.	0.	-	98.7	1.	-	99.9	0.	-	98.	1.	-	87.3	12.	-	33.	66.	0.	63.	35.	1.1
		2		0	1			3			1		4	6			7		3	0	8	7	3	
2. MPA	100.	0.	-	-	-	-	-	-	-	100.	0.	-	-	-	-	100.	0.0	-	18.	80.	0.	38.	61.	0.1
	0	0								0	0				0			5	9	6	5	4		
3. VPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.	25.	50.
																					0	0	0	
4. MVPA		0.0		-		-		0.0		-		0.0		81.5		61.6								

Note Table 1: Values in boldface indicate the percentage of epochs correctly classified. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Table 2. Confusion matrix for moderate physical activity intensity activities.

Actual Intensity	Dancing			Brisk walk			Tidy up		
	1	2	3	1	2	3	1	2	3
	ENMO₁₉₂₊								
1. non-MVPA	40.6	54.2	5.2	48.4	51.6	0.0	91.6	8.4	0.0
2. MPA	19.2	61.8	19.1	23.2	76.4	0.4	85.8	14.2	0.0
3. VPA	12.0	56.4	31.6	3.4	96.6	0.0	64.2	35.8	0.0
4. MVPA		87.5			79.6			17.7	
	GENEA₂₅₀₊								
1. non-MVPA	38.2	55.0	6.8	43.2	56.8	0.0	86.1	13.9	0.0
2. MPA	12.1	61.2	26.7	20.3	78.9	0.8	79.6	20.4	0.0
3. VPA	3.4	46.2	50.4	8.6	90.5	0.9	59.7	40.3	0.0
4. MVPA		89.9			78.2			28.4	
	BFEN₃₁₄₊								
1. non-MVPA	14.3	70.8	14.9	34.4	65.6	0.0	28.6	71.4	0.0
2. MPA	0.7	59.0	40.3	14.2	84.8	1.0	6.6	93.4	0.0
3. VPA	0.0	35.9	64.1	0.9	90.5	8.6	6.5	93.5	0.0
4. MVPA		99.4			86.9			93.4	

Note Table 2: Values in boldface indicate the percentage of epochs correctly classified. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Table 3: Confusion matrix for vigorous physical activity intensity activities.

Actual Intensity	Basketball			Running			Locomotor course			Soccer		
	1	2	3	1	2	3	1	2	3	1	2	3
	ENMO₁₉₂₊											
1. non-MVPA	30.0	68.3	1.7	21.5	23.4	55.1	20.7	39.1	40.2	45.6	38.2	16.2
2. MPA	17.0	78.1	4.9	6.1	22.1	71.8	13.8	39.4	46.8	15.7	35.2	49.1
3. VPA	7.5	71.6	21.0	9.4	19.2	71.4	7.7	28.5	63.8	7.2	19.2	73.6
4. MVPA		96.4			98.5			98.2			98.8	
	GENEA₂₅₀₊											
1. non-MVPA	38.3	58.3	3.3	21.5	22.4	56.1	29.3	34.5	36.2	48.5	32.4	19.1
2. MPA	15.2	77.7	7.1	4.6	20.6	74.8	6.5	29.0	64.5	9.3	36.1	54.6
3. VPA	3.0	63.8	33.2	1.1	15.0	83.9	1.7	17.6	80.7	0.6	17.2	82.2
4. MVPA		95.8			98.5			98.1			98.6	
	BFEN₃₁₄₊											
1. non-MVPA	13.	75.	11.	13.	19.	67.	11.5	21.8	66.7	39.	26.	33.

	3	0	7	1	6	3				7	5	8
2. MPA	3.1	71.	25.	3.8	3.1	93.	5.3	13.8	80.9	8.3	19.	72.
		9	0			1					4	2
3. VPA	0.2	31.	68.	0.9	2.4	96.	0.7	5.6	93.8	0.3	5.7	94.
		7	1			7						1
4. MVPA		99.3			98.8			99.0			99.1	

Note Table 3: Values in boldface indicate the percentage of epochs correctly classified. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Supplemental Digital Content 3. Confusion matrices for the raw wrist acceleration cut-points using a ≥ 3 -MET MVPA definition.

Table 1. Confusion matrix for sedentary and light physical activity intensity activities.

Actual Intensity	Lying Down			TV viewing			Computer Game			Handheld e-game			Writing/ Colouring			Standing activity			Getting ready			Slow walk		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
	ENMO₁₉₂₊																							
1. non-MVPA	100.0	0.0	-	100.0	0.0	-	99.9	0.1	-	100.0	0.0	-	99.9	0.1	-	99.1	0.9	-	97.6	2.0	0.4	75.1	24.7	0.2
2. MPA	-	-	-	-	-	-	-	-	-	100.0	0.0	-	-	-	-	100.0	0.0	-	89.5	8.6	1.9	57.7	41.8	0.5
3. VPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. MVPA		-			-			-			0.0			-			0.0			10.5			42.5	
	GENEA₂₅₀₊																							
1. non-MVPA	100.0	0.0	-	100.0	0.0	-	100.0	0.0	-	100.0	0.0	-	99.4	0.6	-	98.8	1.2	-	96.9	2.6	0.4	66.4	33.4	0.2
2. MPA	-	-	-	-	-	-	-	-	-	100.0	0.0	-	-	-	-	100.0	0.0	-	89.5	8.6	1.9	46.2	53.1	0.6
3. VPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. MVPA		-			-			-			0.0			-			0.0			12.7			51.7	
	BFEN₃₁₄₊																							
1. non-MVPA	99.8	0.2	-	99.9	0.1	-	98.7	1.3	-	99.9	0.1	-	98.4	1.6	-	87.9	12.1	-	33.1	66.4	0.4	59.3	40.3	0.4
2. MPA	-	-	-	-	-	-	-	-	-	100.0	0.0	-	-	-	-	100.0	0.0	-	16.1	81.6	2.2	38.7	60.1	1.3
3. VPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. MVPA		-			-			-			0.0			-			0.0			83.9			61.3	

Note Table 1: Values in boldface indicate the percentage of epochs correctly classified. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Table 2. Confusion matrix for moderate physical activity intensity activities.

Actual Intensity	Dancing			Brisk walk			Tidy up		
	1	2	3	1	2	3	1	2	3
	ENMO₁₉₂₊								
1. non-MVPA	38.1	55.1	6.8	38.9	61.1	0.0	89.5	10.5	0.0
2. MPA	17.0	61.3	21.7	20.4	79.2	0.5	82.3	17.7	0.0
3. VPA	0.0	50.0	50.0	0.0	100.0	0.0	64.2	35.8	0.0
4. MVPA		89.7			80.7			17.9	
	GENEA₂₅₀₊								
1. non-MVPA	35.3	55.8	8.9	30.0	69.7	0.0	82.4	17.6	0.0
2. MPA	9.2	59.2	31.6	20.3	78.5	1.0	77.1	22.9	0.0
3. VPA	0.0	50.0	50.0	0.0	100.0	0.0	33.3	66.7	0.0
4. MVPA		90.7			77.2			28.7	
	BFEN₃₁₄₊								
1. non-MVPA	12.4	70.1	17.5	21.7	78.0	0.4	21.6	78.4	0.0
2. MPA	0.3	54.0	45.7	14.8	83.4	1.8	7.2	92.8	0.0
3. VPA	0.0	0.0	100.0	0.0	100.0	0.0	0.0	100.0	0.0
4. MVPA		99.7			85.2			92.8	

Note Table 2: Values in boldface indicate the percentage of epochs correctly classified. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.

Table 3: Confusion matrix for vigorous physical activity intensity activities.

Actual Intensity	Basketball			Running			Locomotor course			Soccer		
	1	2	3	1	2	3	1	2	3	1	2	3
	ENMO₁₉₂₊											
1. non-MVPA	28.3	69.7	2.0	16.7	18.9	64.4	23.5	48.5	27.9	41.6	36.0	22.5
2. MPA	9.2	78.6	12.2	13.2	28.8	58.0	10.9	39.8	49.3	13.0	29.2	57.8
3. VPA	7.4	63.6	29.1	3.6	6.7	89.6	5.6	20.5	73.9	3.5	13.7	82.8
4. MVPA		97.0			98.4			98.2			99.2	
	GENEA₂₅₀₊											
1. non-MVPA	32.3	65.7	2.0	16.7	18.9	64.4	23.5	35.3	41.2	43.8	31.5	24.7
2. MPA	7.1	72.2	20.7	1.9	24.3	73.8	3.2	27.6	69.2	1.5	26.9	71.6
3. VPA	0.2	55.9	43.9	1.1	3.1	95.8	1.0	10.3	88.7	0.4	12.3	87.3
4. MVPA		96.6			98.4			98.0			99.0	
	BFEN₃₁₄₊											
1. non-MVPA	8.1	80.8	11.1	9.8	15.9	74.2	13.2	30.9	55.9	37.1	23.6	39.3
2. MPA	1.2	48.9	49.9	1.6	3.6	94.8	1.7	10.0	88.3	1.2	10.2	88.6
3. VPA	0.0	17.6	82.4	0.9	0.7	98.4	0.5	2.6	96.9	0.0	3.9	96.1
4. MVPA		99.3			98.7			98.4			99.5	

Note Table 3: Values in boldface indicate the percentage of epochs correctly classified. MPA: moderate physical activity; VPA: vigorous physical activity; MVPA: moderate-to-vigorous physical activity; ENMO: cut-points developed using Euclidian norm minus one; GENE: cut-points developed using the GENEActiv post processing software; BFEN: cut-points developed using Bandpass Filtered followed by Euclidian Norm.