**Supplement Table 1**. Descriptive data of moderate (MPA) and vigorous (VPA) physical activity of adults. Displayed are the number of participants (n), means and standard deviations (SD) at two measurements three weeks apart (T0 and T1) for the parameters accelerometry with 10 seconds epoch length (Acc 10) and 60 seconds epoch length (Acc 60), physical activity diary (diary), the International Physical Activity Questionnaire (IPAQ), and Spearman´s rho (*rs*) with corresponding *p*-value (\* for p < .05) and 95% confidence interval via bootstrapping (CI) for differences between T0 and T1 for each measurement tool. Additionally, non-wear time of the accelerometer in minutes per week (min/wk) is displayed.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **n** | | **T0**  **Mean (SD)** | **T1**  **Mean (SD)** | ***rs* (*p*-value)**  **[CI]** |
| **MPA (min/wk)** | | | | | |
| Acc 10 | 28 | 646.42 (271.37) | | 609.73 (317.54) | .792 (<.001\*)  [.507-.926] |
| Acc 60 | 28 | 439.96 (221.47) | | 428.33 (274.48) | .797 (<.001\*)  [.532-.917] |
| Diary | 27 | 282.33 (524.86) | | 215.52 (336.09) | .278 (.161)  [-.134-.624] |
| IPAQ | 27 | 810.93 (832.75) | | 695.00 (799.19) | .502 (.008\*)  [.105-.766] |
| **VPA (min/wk)** | | | | |  |
| Acc 10 | 28 | 48.97 (61.18) | | 52.00 (62.94) | .572 (.001\*)  [.186-.871] |
| Acc 60 | 28 | 33.59 (61.70) | | 28.64 (50.31) | .668 (<.001\*)  [.288-.871] |
| Diary | 27 | 28.11 (59.35) | | 19.52 (42.22) | .292 (.140)  [-.149-.684] |
| IPAQ | 28 | 122.32 (277.63) | | 154.29 (281.89) | .153 (.437)  [-.295-.548] |
| Non-wear time (min/wk) | 28 | 3965.54 (422.55) | | 4179.80 (582.05) | - |

**Supplement Table 2.** Descriptive data of moderate (MPA) and vigorous (VPA) physical activity of children. Displayed are the number of participants (n), means and standard deviations (SD) at two measurements three weeks apart (T0 and T1) for the parameters accelerometry with 60 seconds epoch length (Acc 60) and 10 seconds epoch length (Acc 10), physical activity diary (diary), and Spearman´s rho (*rs*) with corresponding *p*-value (\* for p < .05) and 95% confidence interval via bootstrapping (CI) for differences between T0 and T1 for each measurement tool. Additionally, non-wear time of the accelerometer in minutes per week (min/wk) is displayed.

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| --- | --- | --- | --- | --- | --- |
|  | **n** | | **T0**  **Mean (SD)** | **T1**  **Mean (SD)** | ***rs* (*p*-value)**  **[CI]** |
| **MPA (min/wk)** | | | | |  |
| Acc 10 | 24 | 652.98 (246.81) | | 588.00 (239.68) | .608 (.002\*)  [.160-.865] |
| Acc 60 | 24 | 574.21 (267.41) | | 496.90 (250.95) | .664 (<.001\*)  [.300-.899] |
| Diary | 30 | 260.23 (258.54) | | 182.00 (180.63) | .379 (.039\*)  [.001-.669] |
| **VPA (min/wk)** | | | | |  |
| Acc 10 | 24 | 87.89 (79.19) | | 71.61 (48.45) | .759 (<.001\*)  [.536-.890] |
| Acc 60 | 24 | 58.46 (73.38) | | 46.04 (39.40) | .604 (.002\*)  [.261-.824] |
| Diary | 30 | 102.53 (144.59) | | 81.00 (148.28) | .485 (.007\*)  [.163-.752] |
| Non-wear time (min/wk) | 24 | 4559.10 (848.50) | | 4929.41 (695.22) | - |

**Supplement Table 3**. Criterion Validity between all measurement methods for moderate (MPA) and vigorous (VPA) physical activity of adults and children at T0. Displayed are the parameters accelerometry with 10 seconds epoch length (Acc 10) and 60 seconds epoch length (Acc 60), physical activity diary (diary), the International Physical Activity Questionnaire (IPAQ), and Spearman´s rho (*r*) with corresponding *p*-value (\* for p < .05) and confidence interval via bootstrapping (CI) for differences between each measurement tool.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **T0 *r* (*p*-value)**  **[CI]** | | | | | | | |
|  | **Adults** | | | | **Children** | | |
| **MPA (min/wk)** | | | | | | | |
|  | | Acc 10 | Acc 60 | Diary | | Acc 10 | Acc 60 |
| Acc 60 | | .974 (<.001\*)  [.901 - .990] | - | - | | .981 (<.001\*)  [.928-.994] | - |
| Diary | | .209 (.259)  [-.107 - .557] | .213 (.250)  [-.189 - .551] | - | | .232 (.234)  [-.192-.603] | .258 (.184)  [-.148-.601] |
| IPAQ | | .277 (.259)  [-.134 - .629] | .247 (.180)  [-.158 - .599] | .265 (.157)  [-.102 - .564] | | - | - |
| **VPA (min/wk)** | | | | | | | |
| Acc 60 | | .904 (<.001\*)  [.756 - .969] | - | - | | .972 (<.001\*)  [.905-.992] | - |
| Diary | | .146 (.432)  [-.050 - .529] | .062 (.739)  [-.354 - .520] | - | | .173 (.379)  [-.224-.550] | .222 (.255)  [-.215-.567] |
| IPAQ | | .379 (.039\*)  [-.010 - .691] | .313 (.092)  [-.081 - .639] | .413 (.026\*)  [.025 - .715] | | - | - |

**Supplement Table 4**. Criterion Validity between all measurement methods for moderate (MPA) and vigorous (VPA) physical activity of adults and children at T1. Displayed are the parameters accelerometry with 10 seconds epoch length (Acc 10) and 60 seconds epoch length (Acc 60), physical activity diary (diary), the International Physical Activity Questionnaire (IPAQ), and Spearman´s rho (*r*) with corresponding *p*-value for differences between each measurement tool.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **T1 *r* (*p*-value)**  **[95% CI]** | | | | | |
|  | **Adults** | | | **Children** | |
| **MPA (min/wk)** | | | | | |
|  | Acc 10 | Acc 60 | Diary | Acc 10 | Acc 60 |
| Acc 60 | .955 (<.001\*)  [.868 - .990] | - | - | .967 (<.001\*)  [.887-.990] | - |
| Diary | -.237 (.244)  [-.602 - .177] | -.304 (.131)  [-.648 - .131] | - | -.100 (.625)  [-.501-.361] | -.056 (.786)  [-.437-.377] |
| IPAQ | .306 (.129)  [-.120 - .658] | .236 (.246)  [-.222 - .580] | .283 (.246)  [-.171 - .660] | - | - |
| **VPA (min/wk)** | | | | | |
| Acc 60 | .925 (<.001\*)  [.827 - .966] | - | - | .916 (<.001\*)  [.732-.982] | - |
| Diary | .255 (.209)  [-.147 - .578] | .322 (.108)  [-.106 - .639] | - | .204 (.317)  [-.225-.543] | .181 (.376)  [-.222-.566] |
| IPAQ | .275 (.165)  [-.145 - .666] | .178 (.374)  [-.272 - .529] | .349 (.074)  [.030 - .659] | - | - |