

Exploring activity levels in physical education lessons in the UK: A cross-sectional examination of activity types and fitness levels

SUPPLEMENTARY FILE 2: Measures and data cleaning

Physical activity measurements were collected during PE lessons using the wrist-worn AX3 tri-axial accelerometer[1] designed by Open Lab, Newcastle University. The devices were worn on the non-dominant wrist and programmed to sample movement at a frequency of 100Hz. The dynamic range was set at +/- 8g. The raw accelerometry data was downloaded via the manufacturer's software (version AX-GUI-28), after which it was processed into physical activity 'counts' using a one second epoch[2-6] and based on established 'cut-points'[7], via a bespoke LabView programme (National Instruments, Ireland).

The classification of activities is an adaptation of the structure previously set out in the GCSE National Curriculum for Physical Education[8].

- Invasion Games (football, hockey, netball, basketball and rugby)
- Net/wall/racket games (tennis, badminton, table tennis, volleyball)
- Fielding/striking games (cricket, rounders, baseball and softball)
- Athletics (track, field)
- Fitness (circuits, fitness suite, gymnastics, trampolining, dance)
- Adventure (orienteeing, other outdoor pursuits)
- Various (unknown or where there is a mix of activities within a lesson)

Data cleaning

Fitness

Baseline dataset (16,017 pupils) -> selected all pupils with a fitness test result (10,697 pupils). Given the large sample size, no outlier analysis was conducted. For fitness model 3, a girls-only dataset was used (6,078 pupils).

PE Enjoyment

Baseline dataset (16,017 pupils) -> selected all pupils with a fitness test result (10,697 pupils) -> selected all pupils with a questionnaire response, excluding outliers that were already tagged in the dataset (7,485 pupils).

Pupil PA during PE lessons

Baseline dataset (16,017 pupils) -> selected all pupils present in PE lessons visited, excluding those who had opted out of the study (9,693 pupils) -> excluded lessons where lesson type was unknown (9,483 pupils). For PE model 4, a location specific dataset (excluding lessons with a mix of location) was used (7,980 pupils).

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