



ACTION 3:30 – study description

Data are from the Action 3:30 feasibility randomised controlled trial (RCT), an after-school PA programme taught by TAs within the school in which children in the intervention arm participated in a structured 20 week (40 session) after-school club that aimed to increase overall levels of physical activity measured by minutes of moderate and vigorous physical activity (MVPA).¹ Pupils from years five and six were recruited from primary schools within Bristol, Bath and North-East Somerset (BANES), and South Gloucester. All 189 main stream state-funded primary schools with the exception of 51 that were participating in concurrent studies were invited to take part. Twenty schools were selected on a first-come-first-served basis, with each school providing a maximum of 30 pupils. Schools with fewer than 30 pupils in year 5 and year 6 combined were excluded. Where more than 30 pupils volunteered to participate, 30 were randomly selected using a simple random selection procedure. After the initial baseline measures had been taken, schools were randomised to either receive the intervention or to act as a control school. The study received ethical approval from the School for Policy Studies ethics and research committee at the University of Bristol (ref: Action 3:30 Project) and written parental consent was obtained for all participants.

Measurements were taken at three time points: T0 (pre-randomisation); T1 (T0+20 weeks for the control group, and the final week of the programme for the intervention group); T2 (T1 + four months). The main child measures at each time point were:

1. Child height and weight:

Child height was measured to the nearest 0.1cm using a SECA Leicester stadiometer (HAB International, Northampton).

Children's height and weight was assessed with their shoes, coats and jumpers removed.

Height was measured to the nearest 0.1 cm using a portable SECA stadiometer. Weight was recorded to the nearest 0.1 kg using a SECA 899 digital scale (HAB International, Northampton). Body mass index ($\text{BMI} = \text{kg}/\text{m}^2$) was calculated and converted to an age and gender specific standard deviation score (BMI z-score) based on 1990 UK child growth reference curvesⁱⁱ using the Stata 'zanthro' command.

2. Indication of social deprivation

Participants were asked to provide their address and home postcode (deleted from dataset).

Where the postcode was not provided, it was identified from the given address by the research team using either Google maps or the UK Royal Mail's Postcode finder. The postcode was used to calculate the index of multiple deprivation (IMD) score, using the English Indices of Deprivation (<http://data.gov.uk/dataset/index-of-multiple-deprivation>) for the home address. A higher score indicates a greater level of deprivation.

3. Accelerometer-determined PA

Accelerometers provide accurate and reliable assessments of PA among young people [20].

Participants were asked to wear accelerometers for five days (including two weekend days).

The accelerometers were set to record at 10 second epochs. Periods greater than an hour with zero values were considered non-wear time and will be removed from the data. Mean minutes of MVPA were established for weekdays and weekend days using cut-points developed for

childrenⁱⁱⁱ. Accelerometer counts per minute (CPM), an indication of the volume of activity in which the children engage, were also be derived. As the intervention is specifically focussed on the after-school period, we also assessed both MVPA and CPM during the after-school period (3:30pm to 8:30pm). All accelerometry variables were continuous.

Pupil questionnaire:

- School travel mode
- Autonomous and controlled motivation for PA: This was measured using items from the Behavioural Regulations for Exercise Questionnaire^{iv} adapted for this age group along with some newly developed items. Adaptations were made to simplify the language of some items while retaining the meaningful item content and to refer to PA rather than exercise.
- Perceived level of satisfaction of PA-based autonomy, competence & relatedness needs^{v,vi}
- Global self-esteem, measured using the “general” sub-scale of the Self-description Questionnaire-I^{vii}
- Child self-reported screen-viewing
- Maternal and paternal PA support (logistic, modelling & sedentary restriction), measured using the Activity Support Scale^{viii, ix}
- The questionnaire given to the intervention group at T1 also included sections about Action 3:30 leaders, Action 3:30 leaflets that were distributed for use at home, and any attendance at a SATS club,

TA questionnaire

The TAs who delivered the intervention were asked to report age, gender and education level at baseline. TAs were also asked to self report teaching efficacy^x [29] and provision of

autonomy support^{xi} at four time points: 1) on recruitment – prior to training; 2) post-training; 3) at the mid-point of the intervention; and 4) at the end of the intervention period.

Process evaluation

The number of sessions per week and number of children attending each session were recorded by the TAs in each of the 10 intervention schools. All children in the intervention schools were asked to complete perceived exertion^{xii} and perceived enjoyment of the Action 3:30 session^{xiii} on 10 occasions during the 20-week period, (i.e., once every two weeks). Children will also report their perceived autonomy support provided by the TAs on four occasions (i.e., every five weeks) using an adapted version of the Health Care Climate Questionnaire^{xiv}.

Process evaluation measures (Intervention schools only):

- Attendance
- Self-reported enjoyment (1 to 5 scale) of the session (once per week)
- Self-reported exertion (1 to 10 scale) following the session (once per week)
- Perceived autonomy support

A. Economic assessment:

Time-sheet and expense data was collected for all resources used to deliver the Action 3:30 intervention at each stage of planning and delivery, from a public sector perspective.

B. Post-study qualitative work:

Qualitative research was conducted with intervention participants, TAs and school administrators (key contacts) were contacted at the end of the intervention to inform any

necessary revisions to elements of the intervention training and delivery. Details of the qualitative work that were conducted with each group is summarised:

Intervention participants (children)

Focus groups were conducted with three groups of children in all 10 intervention schools. The three groups represented high, moderate and low attending pupils, respectively. Six children (one boy and one girl from each attendance-based group) were randomly selected and invited to participate in the focus group. The focus groups examined aspects of the programme that the children enjoyed, elements they did not enjoy, factors that either positively or negatively affected recruitment and any suggestions on how to improve the intervention. To determine the acceptability of the research to children in the control schools, conduct focus groups were conducted with children in five randomly selected schools.

Teaching Assistants

Both TAs from each intervention school were invited to take part in a semi-structured interview focussing on their experiences of the Action 3:30 project, including their opinions of the training and intervention resources, session delivery, areas of success and challenge, and recommendations for refinement of the intervention. The TAs were also asked to qualitatively comment on how the training programme affected their perceived ability to lead PA sessions and their thoughts on what would need to be done to maintain this provision once the intervention ends.

Key contacts

The member of staff at all intervention and control schools (not the TAs), who was the main project liaison/administrator was invited to be interviewed. The interviews examined

perspectives on the operation of the Action 3:30 trial in their school including the perceived value of training TAs, why the school signed up to the trial, aspects that did and did not work, and suggested refinements to the intervention. Intervention school administrators were also asked to comment on what resources, training and funding would be necessary to continue the provision of the activity sessions once the trial funding has ended.

Archived quantitative data (SPSS and csv. unless specified otherwise)

Main dataset (Action 330 data.sav) containing:

- accelerometer data collected at three time points
- responses from pupil questionnaire collected at three time points
- responses from Parent Demographic Questionnaire

Variable names and variable labels used in the main dataset are provided in an accompanying Excel sheet. The questionnaires used at each time are also provided.

Club Attendance: Pupil attendance was recorded as 1 (attending) and 0 (absent). Missing data indicates a failure by the school to return the session register, or that the session did not take place.

Perceived enjoyment: This was measured every two weeks using a scale numbered from 1 (Not at all) through 3 (A little) to 5 (A lot) in response to:

How much did you enjoy today's session?

Please circle the number that shows how much you enjoyed Action 3:30 today?

Exertion: This was measured every two weeks using a pictorial scale; an example of the scale given to the children is provided in response to:

How tired did today's session make you feel?

Please look at the pictures below and circle the number that shows how tired you felt **during TODAY's** Action 3:30 session.

After school activities: Children were asked on five occasions (week 0, week 5, week 10, week 15 and week 20) what they do on each day after school but before tea-time. They were also asked what they would be doing on days that Action 3: 30 took place if they were not part of the club. Text responses for each day at each time of data collection were subsequently coded:

- Organised team sports
- Unstructured activities
- Structured PA classes
- Structured youth clubs
- Structured sedentary activities
- Sedentary Independent activities

From this information variables were derived to show: the total number of active events, club activities, and sedentary activities at each of the five times.

Pupil autonomy support: This was asked on four occasions (week 5, week 10, week 15, and week 20). Responses to each of the six questions are coded from 1 (Strongly disagree) to 7 (Strongly agree).

Reasons for not attending: This was asked at the end of the programme. Pupils were asked to respond to as many of the 13 reasons as were applicable. Responses are coded from 1 (Not true for me) to 5 (Very true for me).

TA questionnaire: TAs were asked about:

a) Their relationship with children in the club on four occasions. Responses are coded 1 (Not at all true) to 4 (Very true). From these variables, three subscales were derived for each time point (Involvement with pupils; Structure; Autonomy Support)

b) Their confidence in providing large amounts of physical activity within Action 3:30 sessions under various conditions. Responses are coded from 0 (Not at all confident) to 100 (Very confident). Responses to these variables formed the basis of four sub-scales on each occasion: Student element; Space element; Time element; Institution element.

Parent Demographic Questionnaire: This was sent to parents of all participating children as they were recruited to the study. Data were merged into the main dataset (D1 Action 330 data.sav) using the unique ID.

Archived qualitative data (all files archived as docx. and pdf formats)

Each folder, listed below, contains an introductory document summarising how the interviews were conducted and the guide used to conduct each of the three interview types.

Post Intervention Child Focus Group Interviews: Transcribed audio recordings of focus group interviews conducted on six children from each intervention school.

Post Intervention Teaching Assistant Interviews: Transcribed audio recordings of intervention school teaching assistant interviews.

Post Intervention Key contact Interviews: Transcribed audio recordings of school key contact interviews.

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