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2 evaluation of a school-and-community based intervention in East London, UK

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26 **ABSTRACT**

27 **Background:** The NECaSP intervention aspires to increase sport and physical activity (PA)
28 participation amongst young people in the UK. The aims of this paper are to report on a
29 summative process evaluation of the NECaSP and make recommendations for future
30 interventions. **Methods:** Seventeen schools provided data by students aged 11-13 (n=1,226),
31 parents (n=192) and teachers (n= 14) via direct observation and questionnaires. Means,
32 standard deviations and percentages were calculated for socio-demographic data. Qualitative
33 data was analysed via directed content analysis and main themes identified. **Results:** Findings
34 indicate further administrative, educational and financial support will help facilitate the
35 success of the programme in improving PA outcomes for young people, and of other similar
36 intervention programmes globally. Data highlighted the need to engage parents to increase
37 likelihood of intervention success. **Conclusions:** One main strength of this study is the
38 mixed-methods nature of the process evaluation. Changes in the school curriculum can be
39 successful once all parties are involved (community, school, families). Finally it is
40 recommended that future school based interventions that bridge sports clubs and formal
41 curriculum provision, should consider a more broad approach to the delivery of programmes
42 throughout the academic year, school week and school day.

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51 INTRODUCTION

52 Research overwhelmingly indicates that regular physical activity (PA) can lead to
53 reduction of overweight and obesity, and reduce the risk for type 2 diabetes, and mental
54 health problems such as depression and anxiety among young people¹. Additionally,
55 sedentary time (ST), defined as time spent in sedentary behaviours such as sitting or laying, is
56 also now considered to be an important independent contributor to overweight and obesity².
57 Current guidelines for PA in childhood are to accumulate 60 minutes per day of moderate to
58 vigorous intensity PA³. There are no specific guidelines for healthy levels of ST among
59 children and adolescents, though it is generally recommended that long periods of ST be
60 broken up throughout the day³. It is also now recognised that one can be physically active,
61 but still be highly sedentary, therefore still incurring risks associated with sedentariness
62 (CITE).

63 Worldwide it is reported that the majority of young people are not engaging in the
64 recommended levels of PA. Hallal et al. (2012) report that 80.3% of adolescents 13-15 do not
65 achieve 60 minutes of moderate to vigorous intensity PA per day (CITE). In the UK, the
66 Health Survey for England reported that 14% of boys and 8% of girls aged 13-15 met PA
67 recommendations⁴. Additionally, 16% of boys and 25% of girls aged 5-15 in London were
68 categorised as having a low level of PA⁴. The School Sport Survey (2008-2009), a survey of
69 students aged 5-16 years old that evaluates time spent in physical education (PE) and out of
70 school sport each week, reported that in Newham Borough of East London only 36% met the
71 target of 3 or more hours of PA per week compared to 46% in London and 50% nationally⁵.
72 Additionally, evidence suggests that young people's PA drops off dramatically from age 11,
73 highlighting the need for interventions targeting this age group⁶.

74 In response to low levels of PA among young people in East London a focus on
75 increasing PA and sport among children and young people was declared a major goal of the

76 legacy of the London 2012 Olympics and Paralympics⁷. Revised physical education (PE)
77 curriculum and PA interventions in schools and in the community have since been funded
78 and implemented following the London 2012 Olympic Games. These initiatives have focused
79 on enabling students to be more physically active for sustained periods of time, developing
80 competence and confidence in a range of PA, and providing opportunities to engage in
81 sports⁸. One such intervention is Newham's Every Child a Sports Person (NECaSP)
82 programme. This intervention uses a multi-component approach (school, family and
83 community-based intervention components) to engage Year 7 (11-13 year old) young people
84 in PA and sport while reducing time spent being sedentary⁹.

85 As the number of successful and unsuccessful interventions targeting young people's
86 PA and ST has risen, it has become increasingly important to understand why a program was
87 or was not successful at eliciting these behaviour changes alongside the outcomes or impacts
88 of an intervention¹⁰. A recent systematic review examined school-based and multi-component
89 PA interventions and found the overall impact of intervention was small (Russ). The authors
90 suggest that school-based and multi-component PA interventions are more likely to be
91 successful with 5 essential components: quality PE, PA during school, PA before or after
92 school, staff wellness and family/community engagement (Russ). Limited research on the
93 implementation of school and multi-component PA interventions indicates the need to better
94 understand how these 5 components can be combined to produce the most effective results
95 (Naylor).

96 Process evaluation provides a comprehensive view of program implementation and
97 explores how that could impact the outcomes of an intervention¹⁰. A summative process
98 evaluation examines intervention data at follow-up and evaluates whether it was implemented
99 as planned and provides recommendations or future intervention¹¹. The aim of this paper is to
100 report on a mixed-methods summative process evaluation (including quality, quantity and

101 fidelity) of the NECaSP programme. Secondary aims include identification of barriers and
102 facilitators to the delivery of the intervention and to contribute to the development of future
103 intervention programmes aiming at increasing PA and reducing ST among diverse
104 adolescents.

105 **METHODS**

106 **Intervention Background**

107 The NECaSP programme is a case series intervention targeting all Year 7 students
108 from 17 secondary schools in the Newham borough of East London. In this case series
109 intervention observations were made on participants receiving the same intervention without
110 a control group ([http://childhoodcancer.cochrane.org/non-randomised-controlled-study-nrs-](http://childhoodcancer.cochrane.org/non-randomised-controlled-study-nrs-designs)
111 [designs](http://childhoodcancer.cochrane.org/non-randomised-controlled-study-nrs-designs)). Data for this study can be found published elsewhere¹². The intervention included
112 3 phases: 1) an introductory day in schools for students to sample a range of sport and PA
113 with coaches from local sports clubs (4 hours in length), 2) a session at the host institution
114 sports centre where students were coached on 5 sports (5 hours in length), and 3) alteration of
115 PE curriculum with the opportunity for students to engage in a 6-week after school
116 programme (1 hour in length x 1 day per week) on a sport of their choosing delivered by
117 coaches from local sports clubs¹². The primary outcome of the intervention was to increase
118 participation in PA and sport among Year 7 students. Secondary outcomes included reducing
119 ST and joining local sports clubs in the community. Briefly outcome data showed: sample
120 size at baseline was n=557 and n=356 at follow-up. No increase in students meeting PA
121 recommendations was found at follow-up but PA on weekends was significantly higher at
122 weekends at follow-up ($p<.05$) and participation in 5 sports (badminton, basketball,
123 volleyball, cricket and rowing) was higher at follow-up ($p<.05$). Over 66% of participants at
124 follow-up indicated that they would maintain participation in a sports club as a result of the
125 NECaSP intervention¹².

126 **Process Evaluation Methods**

127 As the importance of process evaluations is becoming more prevalent, researchers are
128 increasingly reporting on the implementation of their interventions, though there is no
129 consensus on what elements should be included¹³. Therefore elements of commonly used
130 frameworks have been incorporated in this process evaluation based upon the works of
131 Griffin et al, and Saunders, et al.^{10, 13}. A systematic framework was used to evaluate the
132 intervention's delivery quantity, quality and provide an overall evaluation of the
133 intervention by participants, parents and teachers^{10, 13}. Although fidelity, whether intervention
134 implementation adhered to the original plan, was not specifically measured via validated
135 fidelity indices; quantity, quality and overall evaluation were used as indicators of
136 intervention fidelity¹³. Table 1 provides a summary of all process evaluation components.

137 Quantity is defined as an assessment of how many students, schools, and coaches
138 participated in the programme, and number of sessions/sports delivered. Quality was assessed
139 by examining participation by students and schools, communication between schools,
140 parents, teachers, programme staff and researchers, and organisational effectiveness to
141 include how the programme was delivered. Finally, the programme was evaluated by
142 examining the expectations, awareness of the programme and recommendations for
143 improvements by students, parents, and teachers. Additionally, socio-demographic data (age,
144 sex, Index of Multiple Deprivation (IMD), self-reported ethnicity) was collected. All
145 participants provided informed consent and the Research Ethics Committee of the host
146 institution approved this study.

147 *Data Collection Instruments*

148 Intervention records kept by programme administrators were used for evaluation
149 components regarding quantity. Additionally, attendance records kept by schools were used
150 to assess pupil participation numbers (Table 1).

151 Direct observation was used to assess quality of the intervention. Quality of
152 organisation and communication was observed by the research team to provide a description
153 of this evaluation component. Direct observation was undertaken on intervention staff,
154 teachers, coaches and students quarterly during the intervention. A member of the research
155 team was present at 50% of intervention activities to conduct direct observation. Data was
156 recorded via notes by the research team member. Email communications between
157 intervention staff, teachers, coaches and the research team members were also used as a
158 means of data collection (Table 1).

159 Students from all participating schools completed a pre-intervention (baseline)
160 questionnaire that included questions on their expectations of the NECaSP programme and a
161 post-intervention (regardless of fully completing all stages of the intervention) (follow-up
162 within 1 week of completion) questionnaire on their perceived gains from the programme.
163 Parents of participating Year 7 students completed a questionnaire on their awareness of the
164 programme, perception of the effectiveness of the programme, and improvements to future
165 implementation. PE teachers from participating schools were asked to complete a
166 questionnaire giving their opinions on the quality of service from the intervention staff,
167 effectiveness of the programme, and improvements for future implementation (Table 1).

168 ANALYSIS

169 Means, standard deviations and percentages were calculated for socio-demographic
170 data. Counts and percentages were computed for quantity and quality variables. For quality
171 variables data was analysed via directed content analysis and main themes identified¹⁴. T-
172 tests and ANOVAs were conducted to determine significant differences between baseline and
173 follow-up data. McNemar Chi-square tests were used to determine if there were any
174 significant differences between baseline and follow-up responses to expectations and
175 perceived gains questions. Parent and teacher questionnaires were analysed via directed

176 content analysis¹⁵ and main themes identified. All statistical analyses were conducted in
177 PASW v21 (Quarry Bay, Hong Kong).

178 **RESULTS**

179 **Quantity**

180 *Participating Schools and Students*

181 Sixteen of 17 eligible secondary schools from Newham, London agreed to take part
182 totally n=1,226 students. Three participated schools in Phase 1, 5 participated in Phases 1 and
183 2, and 6 completed all three phases of the programme. Four schools kept records of
184 attendance for participation in the programme. Three schools (referred to schools A, B and C)
185 have complete attendance data for Phases 1-3. School C had the highest percentage of
186 students completing all phases of the programme (79.8%).

187 Of the six school completing Phases 1-3, Three (37.5%) (schools A,B and C)
188 completed baseline and follow-up questionnaires. Table 2 summarises socio-demographic
189 data for students of these three schools. The baseline sample was n=557 students and n=356
190 at follow-up, with an overall response rate of 63.9%. Mean age of students at baseline was
191 11.44±.50 and 11.44±.53 at follow-up. Sex at baseline and follow-up was 52.8% and 56.2%
192 male and 43.3% and 47.2% female. Sixteen ethnicities were self-identified with Asian
193 Bangladeshi (22.8%, 26.1%), Black African (15.6%, 13.2%) and White Other (12.2%,
194 10.4%) most commonly reported. The majority of the sample were in the most deprived IMD
195 group (83.7%, 85.1%) (Data.gov.uk, 2015). T-tests and ANOVAs revealed no significant
196 differences in the baseline and follow-up samples for socio-demographic variables.

197 *Number of Sessions Delivered*

198 Intervention records indicate that for schools who participated, the desired number of
199 sessions in each phase was reached. In Phase 1, an average of 5 sports sessions were
200 delivered in each of the 16 participating schools (goal was 4-6). In Phase 2, 5 sports sessions

201 were delivered to each of the 13 participating schools (goal was 5). In Phase 3, 1 sports
202 session was delivered over a 6-week period in 8 participating schools (goal was 1 session).
203 Although eight schools participated in Phase 3, only six schools completed all 3 phases.

204 *Sports and Coaches*

205 The NEaSP programme offered 20 sports for schools and students to choose from.
206 Records indicate that students themselves selected all 20 sports delivered in schools.
207 The most common sports chosen were: archery (n=6), BMX (n=5), fencing
208 (n=4), taekwondo (n=3), capoeira (n=3), boxing (n=3), futsal (n=2), and basketball (n=2).
209 Coaches from local sports clubs in East London were invited to conduct coaching sessions.
210 Sixty sports clubs were included in the programme. Twenty-five coaches from these clubs
211 participated in sessions throughout the programme.

212 **Quality**

213 *Were students able to participate?*

214 Records and email correspondence from schools and NECaSP administrators were
215 analysed for data on non-participation by schools. Data indicate that the key barriers to
216 participation by schools were: 1) inability to fit the programme into their regular curriculum
217 and 2) inability to afford the costs and staffing associated with traveling from school to the
218 host institution facilities. Schools frequently referenced their demanding schedules and the
219 need to meet deadlines that had priority above delivery and participation in the NECaSP
220 programme. While they indicated a strong interest in engaging with the programme, they
221 were unable to facilitate the programme within these constraints. Furthermore, while the
222 majority of costs associated with participation in the programme were covered by the
223 programme, costs of travel for Phase 2 was designated as the responsibility of schools. Non-
224 participant schools indicated they could not accommodate this extra cost. One teacher from
225 School B reported:

226 'Buses to get to UEL are really expensive so we might not be able to bring everyone.'

227 Additionally, many schools indicated difficulties with having enough staff to
228 accompany students to the venue, or enough staff remaining at the school while others
229 travelled with students to the venue.

230 Analyses indicate that in participating schools there were few barriers to students'
231 participation in the NECaSP programme. Students were able to vote on the sport they
232 preferred in the 6-week after school curriculum. The main barrier to participation was
233 identified for Phase 3. Schools and NECaSP administrators indicated the main barrier was
234 lack of spaces in the 6-week after school programme to accommodate all students who
235 wanted to participate. As a result of limited space, teachers explained that they had to choose
236 which students to refer into the programme. Criteria for selection included, showing an
237 interest in the specific sport that the programme would focus on, currently active, and
238 showing good behaviour.

239 *Was communication effective?*

240 Analyses of direct observation and email communications of programme
241 administrators, schools, programme staff, and research team indicate that overall, the
242 communication among and between all parties needed improvement. Data indicate that
243 expectations for schools, teachers, students and parents may not have been sufficiently
244 expressed to each party. Many schools seemed unaware of the programme's aims and
245 objectives and were therefore unable or unwilling to engage in some phases of the
246 programme. This limited the ability of students to participate in some or all components of
247 the programme.

248 A secondary outcome of the NECaSP programme was to encourage students to join
249 local sports clubs. Analyses indicate that very little was communicated to them on how to
250 join a sports club. Many teachers and coaches made no mention of how to join clubs. This

251 was especially apparent at taster days during Phase 2. Little time was dedicated to expressing
252 why students were attending the event or how to join a new club. In fact, direct observations
253 indicated there were at least 2 students in each taster session who asked what the programme
254 was for. The taster day consisted of staff bringing all participants together to hand out an
255 informational pamphlet and discuss the day's events. Of the 8 sessions observed, 2 provided
256 information on how students could join a local sports club.

257 *Was organisation effective?*

258 Organisations responsibilities for the NECaSP programme were divided and
259 allocated amongst programme's administrators, schools and sports clubs. Administrators
260 were responsible for recruiting sports clubs and coaches into the programme, supplying
261 sports equipment, and supplying the venue for Phase 2.

262 Schools were responsible for scheduling students throughout the programme.
263 Guidelines for timing of the delivery of each phase were provided by the administrators.
264 Phase 1 was to be delivered within the first term of the school year. Schools were able to
265 choose from a selection of pre-set dates for Phase 2 sessions. Phase 3 was to be delivered
266 before schools closed for summer term. Two participating schools were unable to deliver
267 Phase 1 during the first term of the school year, and instead delivered this phase after half-
268 term. These 2 schools did not complete subsequent phases of the programme. All other
269 participating schools were able to deliver Phase 1 in the designated timeframe. Four schools
270 (of n=13) re-scheduled sessions for Phase 2 due to scheduling conflicts. This re-scheduling
271 pushed the timing of delivery for Phase 3 to later in the school year. Therefore 2 schools were
272 unable to deliver the 6-week curriculum for Phase 3 before the end of the school year. A
273 further 3 schools were unable to meet the deadline for Phase 3. Schools attributed this to a
274 lack of time and staff in the final term of the school year. All 13 schools that participated in

275 Phase 2 were able to meet the responsibility of providing transportation for students from
276 school to the sports facilities.

277 **Evaluation of Intervention**

278 *Expectations & Awareness*

279 The baseline student questionnaire included questions on what students hoped to gain
280 from participation in the NECaSP programme. They were able to select from the following
281 choices: Be more physically active, Learn about health and sport, Learn to play a sport, Be
282 more sporty, Be more healthy, and Spend time with friends. In the follow-up questionnaire
283 student selected from the same list to indicate if they achieved any of these. McNemar Chi-
284 square tests were used to determine significant differences between baseline and follow-up
285 responses. Significant differences for the “be more sporty” and “be more healthy” choices
286 were seen, with baseline percentages lower than follow-up. The percentage of students
287 choosing 'being more physically active', 'learning about health and sport', and 'spending time
288 with friends' was higher at follow-up compared to baseline, not significant.

289 Parents (n=192) from 5 participating schools (of which 3 completed all phases of the
290 programme) completed a questionnaire on family well-being and parental attitudes towards
291 the NECaSP programme. Mean age of the sample was 40.38±6.50 and the majority of the
292 sample (64.9%) was female. The majority of parents were categorised as being in the most
293 deprived IMD quintile (93.3%). 76.3% were a 2-parent household and 19% were a 1-parent
294 household. 73.2% of parents in this sample reported not being made aware of the NECaSP
295 programme. Nearly 35% (n=68) of parents answered the question regarding if NECaSP had
296 changed their child’s participation in sport/PA in the last 7 days. 76.5% of these parents
297 responded that they did not think NECaSP had changed their child’s activity. 55.3% reported
298 that time was a barrier and 19.1% said money was a barrier. When asked if the NECaSP

299 programme had changed their child's participation in sport or PA in the last month, 65.6%
300 answered no. Time (56.8%) and money (21.6%) were the most common barriers reported.

301 Heads of PE from 14 schools completed questionnaires on their thoughts on the
302 NECaSP programme. Two main questions were included to examine their views on the
303 effectiveness of the programme: 1) did the NECaSP live up to your expectations? and 2)
304 Please rate your overall NECaSP experience. Heads of PE were able to rate these on a scale
305 of 1(disappointing)-5 (exceptional). Overall, heads of PE reacted positively to the NECaSP
306 programme. 28.6% (n=4) rated meeting their expectations as a 5 (exceptional) and 71.4%
307 (n=10) of respondents rated meeting their expectations of the programme as a 4. For overall
308 experience, 57.1% (n=8) respondents rated the experience as a 5 and 42.9% (n= 6) rated it as
309 a 4.

310 Heads of PE were also asked about the quality of service from the administrators and
311 sports clubs, and the quality of sports equipment and information on sports clubs that was
312 provided. Quality of service was rated highly, with 42.9% (n=6) of respondents rating the
313 programme as exceptional (5), 42.9% (n=6) rating it just below exceptional (4), 7.1% (n=1)
314 rating it as a 3 and 7.1% (n=1) rating it as a 2.

315 Quality of service from local sports clubs was also rated relatively highly. 50% (n=7)
316 of Heads of PE rated the service quality from local sports clubs as exceptional (5),
317 28.6% (n=4) gave a rating of 4, and 21.4% (n=3) gave a rating of 3. Heads of PE who were
318 less satisfied with the quality of service from sports clubs cited a need for coaches to improve
319 teaching techniques and to begin sessions on time. 78.6% (n=11) of respondents rated the
320 quality of sports equipment provided as a 4 or 5. 71.4% (n=10) rated the quality of
321 information provided on sports clubs as a 4 or 5. Respondents who were unsatisfied with the
322 quality of information provided on sports clubs recommended that NECaSP or clubs provide

323 flyers at each session outlining how students could join clubs and have staff and coaches
324 provide more information during taster sessions.

325 *Recommendations for Improvements*

326 Students, parents and heads of PE were invited to give feedback on improvements
327 they would recommend for the NECaSP programme via questionnaire. Students were asked
328 what more could be done to help them begin or maintain participation in a sports club/PA.
329 Parents were asked what they thought would help to make NECaSP a successful programme.
330 Heads of PE were asked how they would improve the NECaSP programme.

331 At follow-up, 45.6% of students responded to the question regarding what more could
332 be done to help them begin or maintain participation in a sports club/PA. Analysis indicates 5
333 themes most commonly cited as helpful to students' beginning or maintaining this
334 participation. Continued encouragement to try out or continue to engage in sports/PA was
335 reported by 23.6% of students. 21.7% of students reported that they would begin or maintain
336 a sport if sports and activities were organised for them on a regular basis. Students (11.8%)
337 requested that schools continue to introduce them to new sports. They (8.1%) also reported
338 that they were more likely to begin or maintain a sport if a variety of sports was regularly
339 offered during PE classes in school. Interestingly, 5.1% of students responded that if teachers
340 were more compassionate toward less active students they would be more likely to engage in
341 sports/PA.

342 22.7% of parents completed the question on making the NECaSP a successful
343 programme. 29.5% of respondents indicated that having access to more sports clubs through
344 schools would make the programme successful. Offering sports and activities at convenient
345 times and locations was regarded as important to the success of the programme by 20.5% of
346 parents. Some parents indicated that weekends were the most convenient times and that

347 parents would also engage in the activities at this time. Finally, free or reduced rates for
348 sports and activities were also considered important to parents (15.9%).

349 Heads of PE made several suggestions for the improvement of the NECaSP
350 programme. One key suggestion, as mentioned previously, was to have flyers from sports
351 clubs available at each session giving information to students on how to join clubs. One head
352 of PE states:

353 “Clubs bringing flyers to hand out to the students as I feel that was a missed
354 opportunity as the uptake from the sessions could be high.”

355 The need for improvement in the sports coaches' teaching techniques was cited by
356 many heads of PE. For example, one commented:

357 “For example they could learn how to increase the pace of their sessions, engage with
358 more learners, challenge the more able and help the less able, therefore achieving
359 more learning and increasing the enjoyment for more students.”

360 The length of sessions was of concern as well. Some suggested offering fewer sports,
361 but more time in each session. Finally, heads of PE were particularly concerned with the
362 costs of continuing the programme in their schools. One head of PE comments:

363 “Excellent opportunity for the students but due to costing we cannot afford to run any of the
364 clubs in school.”

365 **DISCUSSION**

366 This study reports the findings of a summative process evaluation of the NECaSP
367 programme and highlights achievements and areas for improvement. Findings indicate that
368 while the intervention was generally well received by participants, parents and teachers, there
369 were some barriers to the success of the programme. Using records kept by schools and

370 programme administrators, direct observations, email communication, and questionnaires we
371 were able to identify problematic issues of the intervention which can be used to improve the
372 design and implementation of future PA interventions with young people.

373 **Barriers**

374 Although fidelity was not specifically measured via validated fidelity indices, the
375 elements measured in this evaluation provide an indication as to how closely the intervention
376 adhered to the original planned implementation¹³. Issues with fidelity were apparent in
377 quantity of session delivered, phases completed by schools and number of students who were
378 able to complete the 6-week curriculum. Analysis of quantity of components suggests that the
379 intervention was delivered in its entirety to 37.5% of participating schools. When outcome
380 data are examined within this context, it can be inferred that motivation to engage with the
381 intervention elements was not the main barrier to students becoming physically active, but
382 rather lack of opportunity to engage with the intervention meant that many students were
383 unlikely to gain the full benefits of the intervention.

384 Other areas of concern were identified in relation to participation in the NECaSP
385 programme. Barriers to completion of the intervention were cited as primarily time and
386 financial constraints pertaining to schools and teaching staff, rather than student lack of
387 motivation to participate. Non-participant schools and schools who did not complete all
388 phases of the programme identified lack of space in an already heavy scheduled syllabi and
389 costs for transportation and staff time as barriers to participation. Although this intervention
390 was piloted¹² and participant schools agreed to implementation plans at the outset, it is clear
391 that many schools required flexibility to implement some elements of the intervention within
392 their constraints and this flexibility needs to be considered in future intervention strategies.
393 Additionally, funding of such interventions should be examined for any ways to
394 accommodate schools with transportation to programme events. If this is not possible, the use

395 of more local community venues is recommended to reduce the amount of travel and
396 financial burden on schools.

397 Overall, the quality of the NECaSP programme was very good. Main findings indicate
398 that students were able to participate in all activities during the programme provided that their
399 school agreed to participate. One key problem identified was the manner in which students
400 were chosen participate in the 6-week after-school curriculum. Some teachers reported that
401 they chose students to participate based in their current activity levels due to restrictions in
402 the numbers of students they could accommodate. This is an important finding of this
403 evaluation and indicates that not all students were given equal access to the full intervention
404 and could indicate that students who were not already active were further marginalised by this
405 method of exclusion. Increased time and space to accommodate all students should be
406 considered in such interventions to ensure equality across all participants.

407 Communication between stakeholders, sports clubs, schools and participants was an
408 area requiring improvement. Since key outcomes of the NECaSP are to connect students with
409 local sports clubs and to increase PA levels, more information and encouragement should be
410 provided at all phases in order to facilitate an easier transition from school-based activities
411 to community-based activities. Previously mentioned outcome data on low participation by
412 students at follow-up can be explained by this dearth of information¹². Additionally,
413 improved communication with parents on the aims, goals and delivery of this and future
414 interventions is recommended. Previous research has found that parental knowledge and
415 participation in similar interventions has improved PA/sport participation of children¹⁶.

416 **Facilitators**

417 It has been documented that recruitment of a representative number of participants in
418 school-based interventions can be a problem¹⁶. With taster sessions, such as in the NECaSP, a
419 school-based intervention can address the issue of recruitment and maintain high

420 participation rates throughout the intervention. In addition, participant and staff expectations
421 and awareness of an intervention can be good indicators of positive outcomes¹⁷. This is
422 evident in outcome data that showed students perceived themselves to be sportier and
423 healthier following participation in the intervention¹². Heads of PE, ultimately responsible for
424 the delivery of the school based intervention, also believed that the NECaSP met their
425 expectations and was an overall good experience for all.

426 Students suggested further encouragement and understanding from coaches and
427 teachers as a means to help facilitate their sport/PA participation¹⁸, especially those with low
428 PA/sport participation levels. Offering a variety of sports during PE in school, at regular
429 intervals was also seen as a main factor influencing sport/PA engagement in students¹⁶. In
430 fact, the PE and Sport Survey recently reported that only 6% of primary and secondary
431 schools in England completed 3 hours of PE and sport within school time¹⁹. It is
432 recommended that future school based interventions that bridge sports clubs and formal
433 curriculum provision, should consider a more broad approach to the delivery of the
434 programme throughout the academic year, school week and school day. Heads of PE also
435 expressed the need for improved coaching techniques to facilitate the success of the
436 intervention. It has previously been shown that effective coaching techniques can reduce
437 psychological issues during sport/PA such as self-doubt, lack of motivation, and limited
438 coping skills^{20, 21}. Professional development programmes for coaches from local sports clubs
439 should provide more effective learning spaces based on the diverse needs of every student.

440 *Strengths*

441 One main strength of this study is the mixed-methods nature of the process
442 evaluation. The use of qualitative and quantitative methods allowed for a thorough
443 examination of the intervention. Quantitative data regarding the study participants and
444 participation throughout the intervention highlights the need to modify some aspects of the

445 delivery and protocols for the intervention. Moreover, qualitative data provides a richer
446 description of the attitudes and opinions of teachers and parents. Feedback from student
447 participants in their perceived gain from the intervention are crucial to contextualising the
448 barriers and facilitators to engagement in this and future interventions. Additional strengths
449 are the use of various methods of data collection for the triangulation of data and the use of
450 local resources (teachers) for translation of evaluation materials for participants with limited
451 English language abilities.

452 *Limitations*

453 One limitation of this study was reliance on data directly from the intervention
454 administrators and schools. Often missing data was a barrier to data collection processes.
455 Difficulties were seen in attaining follow-up data from students due to the low rate of
456 participants completing the programme. This brings into question whether there are any
457 contextual differences in participants who did not provide feedback. Moreover, obtaining
458 data from parents was a challenge due to their lack of knowledge of the intervention and
459 subsequent disinterest in completing questionnaires. As previously stated, fidelity was not
460 specifically measured via validated fidelity indices, but quantity, quality and overall
461 evaluation were used as indicators of intervention fidelity¹³. This can be seen as a limitation
462 as there is a limited picture as to the extent to which the intervention was received as planned.
463 In the future, such interventions should ensure that fidelity measures are in place.

464 **CONCLUSIONS**

465 One of the major goals of the NECaSP was to increase participation in sports/PA
466 amongst Year 7 students. While the achievement of this goal is important, it is critical that the
467 components of the intervention are practical and easily implemented. As a school-based
468 intervention that employed community-based strategies, the challenges identified in this
469 study are not unique to the NECaSP programme and have been identified in other PA

470 interventions^{22, 23}. The programme, however, managed to recruit successfully and retain
471 participants throughout its duration. This summative process evaluation has identified that
472 further administrative, educational and financial support will help facilitate the success of the
473 programme and its goals for adolescents in East London, and of other similar school-based
474 intervention programmes globally. This evaluation highlighted the need to engage parents
475 with the intervention at early stages to increase likelihood of success in terms of increasing
476 PA/sport participation in young people. Furthermore it has provided a clear framework for
477 future school based interventions targeting hard to reach populations and those experiencing
478 axes of disadvantage such as social class, ethnicity, race, environment¹². Finally, this
479 evaluation has highlighted that changes in the school curriculum can be successful once all
480 parties are involved (community, school, families)²⁴.

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555 **Tables**

556 **Table 1: Summary of process evaluation components**

557

Evaluation Component	Data Collection Instruments	Source	Frequency of Measurement
<i>Quantity</i>			
Number of participating schools	Intervention records	activeNewham staff	Pre & post intervention
Number of participating pupils	Attendance records	Schools	Post intervention
Number of sessions delivered			
Phase 1	Intervention records	activeNewham staff	Post intervention
Phase 2	Intervention records	activeNewham staff	Post intervention
Phase 3	Intervention records	activeNewham staff	Post intervention
Number of sports offered	Intervention records	activeNewham staff	Post intervention
Number of coaches	Intervention records	activeNewham staff	Post intervention
<i>Quality</i>			
Were target participants able to participate?	Attendance records, direct observation, content analyses of email communication	Schools, research team, activeNewham staff	Post intervention
Was communication effective?	Direct observation, content analyses of email communication	Research team, teachers, coaches, activeNewham staff	Quarterly
Was organisation effective?	Direct observation,	Research team, teachers, coaches,	Quarterly

	content analyses of email communication	activeNewham staff	
Evaluation of Intervention			
Expectations & Awareness	Questionnaires	Pupils, parents, teachers	Pre & post intervention (pupils), during intervention(p arents), post intervention (teachers)
Improvements	Questionnaires	Pupils, parents, teachers	Pre & post intervention (pupils), during intervention(p arents), post intervention (teachers)

558

559 **Table 2: Descriptive data on 3 schools who completed 3 phases**

	<u>Full Baseline Sample(n=557)</u>		<u>Sub-sample at Follow-up (n=356)</u>	
	<u>Mean (SD)</u>	<u>%(n)</u>	<u>Mean (SD)</u>	<u>%(n)</u>
Age	11.44(.50)		11.44(.53)	
Sex				
Male		52.80(294)		56.20(200)
Female		43.30(263)		47.20(155)
School				

A	32.73(182)	42.40(151)
B	46.52(259)	29.80(106)
C	20.75(113)	27.20(97)
IMD Quintile*		
1(Least deprived)	.20(1)	.30(1)
2	.40(2)	.60(2)
3	.50(3)	.80(3)
4	14.50(81)	12.70(45)
5(Most deprived)	83.70(466)	85.10(303)
Ethnicity		
White English	8.40(47)	8.10(29)
White British	.90(5)	.60(2)
White Irish	.40(2)	.60(2)
White-Other	12.20(68)	10.40(37)
Asian Indian	7.70(43)	7.90(28)
Asian Pakistani	9.70(54)	11.80(42)
Asian Bangladeshi	22.80(127)	26.10(93)
Asian Chinese	.70(4)	.30(1)
Asian- Other	4.30(24)	4.20(15)
Mixed- Black/Asian/White	3.60(20)	3.40(12)
Mixed- Other	2.20(12)	1.70(6)
Black African	15.60(87)	13.20(47)
Black Caribbean	4.10(23)	4.45(16)
Black- Other	3.90(22)	3.10(11)
Arab	1.80(10)	2.50(9)
Other	1.60(9)	1.70(6)

*Index of Multiple Deprivation²⁵.

