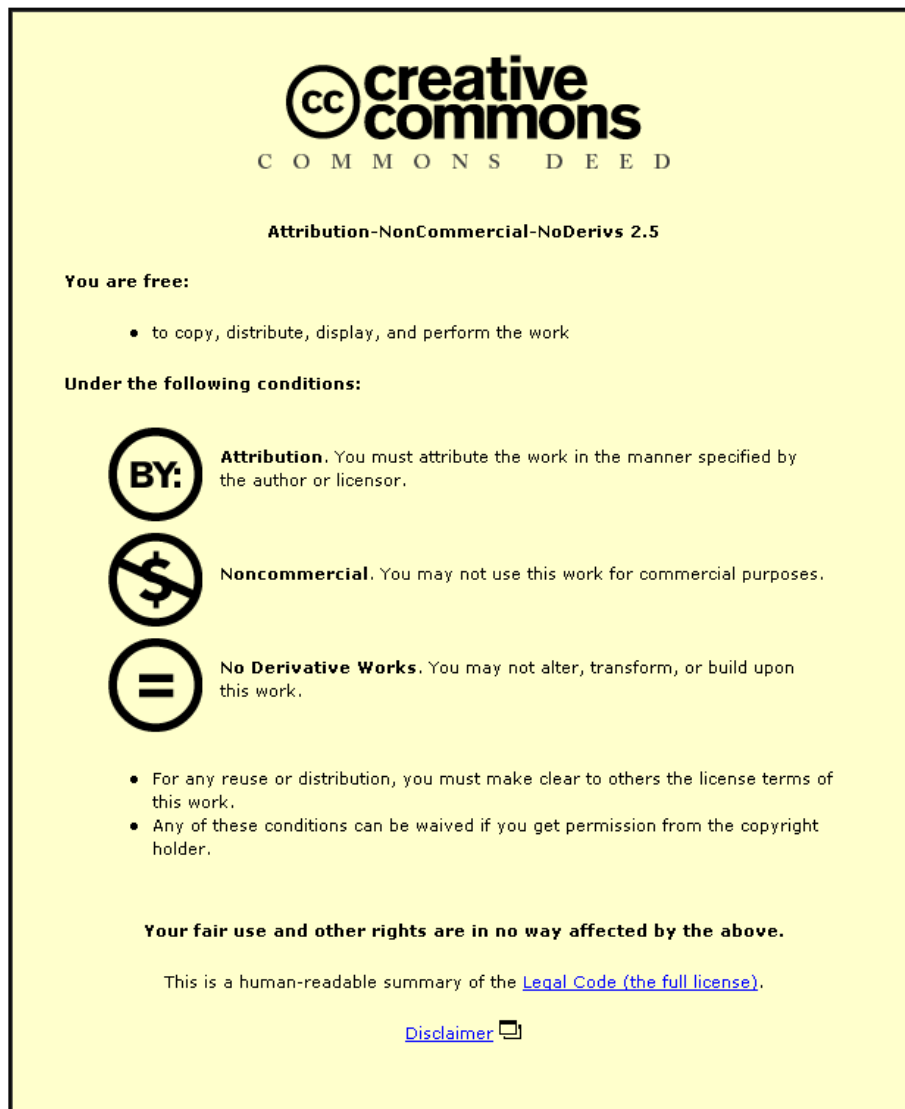


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1   **Title**

2   Fitness testing in physical education – a misdirected effort in promoting healthy  
3   lifestyles and physical activity?

4

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17

18   **Key words**

19   Fitness; fitness testing; physical activity promotion; physical activity; healthy  
20   lifestyles; children

21

22

23

24

25     **Fitness testing in physical education – a misdirected effort in promoting**  
26                     **healthy lifestyles and physical activity?**

27

28     **Abstract**

29     *Background*

30     Physical fitness testing is commonplace within schools and the Physical Education  
31     (PE) curriculum, with advocates claiming one of the key purposes of testing to be  
32     the promotion of healthy lifestyles and physical activity. Despite this, much  
33     controversy has surrounded the fitness testing of young people.

34

35     *Purpose*

36     This paper draws on selected findings of a recent ‘fitness testing children feasibility  
37     study’ to explore the key issues, concerns and debates regarding fitness testing,  
38     as they relate to encouraging a physically active lifestyle.

39

40     *Research Design*

41     The feasibility study was commissioned by the National Assembly for Wales and  
42     involved two main parts: a comprehensive review of literature (using metalib) to  
43     establish the key findings/issues, and consultation with key ‘stakeholders’ and  
44     ‘experts’ to ascertain their views, understanding and experiences of fitness testing  
45     children. The consultation was carried out via questionnaires and interviews.

46

47    *Data Analysis*

48    The key issues and themes emerging from the literature from 1985 onwards were  
49    identified and served as the evidence for the debate. The questionnaire and  
50    interview data were analysed by quantifying the questionnaire responses and  
51    identifying the common issues and themes emerging from the transcripts (and the  
52    open items within the questionnaires). These were then used to reinforce,  
53    substantiate and illustrate key points.

54

55    *Findings*

56    The findings reveal that the role fitness testing plays in PE in promoting healthy  
57    lifestyles and physical activity is questionable and cannot be taken for granted. For  
58    example, little evidence was found to support the notion that fitness tests promote  
59    healthy lifestyles and physical activity, motivate young people, and develop the  
60    knowledge and skills that are important to the sustained engagement in an active  
61    lifestyle.

62

63    *Conclusion*

64    Based on the evidence, the paper concludes that much of the fitness testing  
65    carried out in PE may well represent a misdirected effort in the promotion of  
66    healthy lifestyles and physical activity, and that PE time could therefore be better  
67    spent.

68

69

70

71 **Introduction**

72 Schools are acknowledged as the primary institution with responsibility for  
73 promoting physical activity in young people (McBride & Midford, 1999; Sallis &  
74 Owen, 1999; Cardon & Bourdeaudhuij, 2002) and school physical education (PE)  
75 in particular is recognized as having a key role to play (see for example, Cale,  
76 2000; Shephard & Trudeau, 2000; McKenzie, 2001; Cardon & Bourdeaudhuij,  
77 2002; Green 2002; 2004; Cale & Harris, 2005). Green (2002, p. 95) for example,  
78 refers to the 'taken-for-granted role of PE in health promotion', and McKenzie  
79 (2001) views PE as the most suitable vehicle for the promotion of active, healthy  
80 lifestyles among young people. Clearly though, if PE is to be successful in this  
81 regard, then the content and delivery of the curriculum is critical and it is important  
82 that young people are provided with the knowledge, understanding and skills  
83 required for lifelong participation in physical activity and with positive, meaningful  
84 and relevant physical activity experiences that will foster positive attitudes and  
85 confidence. Indeed, Green (2004) acknowledges how the popularity of sport and  
86 physical activity among young people, both now and in the future, remains  
87 contingent upon them being 'presented appropriately...' 'not least within PE' (p.  
88 74).

89

90 Physical fitness testing is commonplace within schools and the PE curriculum  
91 (Harris, 1995; ACSM, 2000), with most secondary schools including it as a  
92 compulsory component of their PE programmes (Ross et al., 1985; Harris, 1995;

93     Cale, 2000). Advocates claim that fitness testing in schools promotes healthy  
94     lifestyles and physical activity, motivates young people to maintain or enhance  
95     their physical fitness or physical activity levels, facilitates goal setting, self-  
96     monitoring and self-testing skills, promotes positive attitudes, and enhances  
97     cognitive and affective learning (Whitehead, Pemberton & Corbin, 1990; Pate,  
98     1994). Other reported purposes of testing include programme evaluation, tracking  
99     of fitness over time, identification of children at risk or in need of improvement  
100    and/or with potential, and screening and diagnosis of fitness needs for individual  
101    exercise prescription and improvement (Whitehead, Pemberton & Corbin, 1990;  
102    Pate, 1994; Freedson, Curteon & Heath, 2000).

103

104    Despite its popularity and proposed purposes, controversy has surrounded fitness  
105    testing of young people for a number of years and various issues have been  
106    debated and concerns expressed over the use of fitness tests with this group (see  
107    for example, Armstrong, 1989; ACSM, 1988; Physical Education Association  
108    (PEA), 1988; Safrit, 1990; Rowland, 1995; Cale & Harris, 1998; Freedson, Cureton  
109    & Heath, 2000; Keating, 2003; Cale & Harris, 2005). Issues debated most  
110    commonly and consistently relate to concerns with respect to the type, validity, and  
111    reliability of fitness tests and to the ethics and value or purpose of testing.

112

113    Given that so many authors and organizations have expressed concerns over the  
114    use of fitness testing with young people, this raises questions as to whether fitness  
115    tests do actually serve the purposes for which they are intended, and in particular,

116 whether they promote healthy lifestyles and physical activity, motivate young  
117 people, and develop the knowledge and skills that are important to the sustained  
118 engagement in an active lifestyle. Keating (2003) claims that unless youth fitness  
119 testing actually improves fitness and increases involvement in physical activity, the  
120 need for it is questionable. This paper draws on selected findings of a recent  
121 'fitness testing children feasibility study' to explore the key facts, issues, concerns  
122 and debates regarding fitness testing, as they relate to encouraging participation in  
123 a physically active lifestyle. Based on the evidence from the literature and  
124 supported by the views, experiences and observations of identified 'stakeholders'  
125 and 'experts' in the field, the paper considers whether fitness testing in PE  
126 represents a worthwhile or a misdirected effort in the promotion of healthy lifestyles  
127 and physical activity.

128

### 129 **Fitness testing children feasibility study**

130 The aim of the feasibility study was to determine whether there was a need and  
131 whether it would be cost effective and practical to carry out a research project  
132 investigating the fitness levels of Welsh children. The study was commissioned by  
133 the National Assembly for Wales and was carried out over a six month period. The  
134 methodology involved two main parts: a comprehensive review of relevant  
135 literature to establish the key findings and issues, and consultation with key  
136 'stakeholders' and 'experts' to ascertain their views, understanding and  
137 experiences of fitness testing children.

138

139 The specification for the study identified key stakeholders to comprise  
140 representatives from universities in Wales and England, the PE advisory/inspection  
141 service, schools (primary and secondary teachers), physical activity/health  
142 promotion, the Sports Council for Wales, and the Welsh Assembly. These were  
143 taken to be individuals with some working knowledge, experience and/or authority  
144 with regards to physical activity promotion and fitness testing policy and/or  
145 practice. Experts were taken to be individuals who, as evidenced from their  
146 biographies, were highly research active and of international recognition in the  
147 fields of pediatric exercise and/or health/physical activity promotion.

148

149 The literature search was carried out using metalib (a multi-database  
150 research tool) and focused on the following combinations of key terms: young  
151 people (and children, youth, adolescents) with physical activity, physical  
152 fitness, and health; young people (and children, youth, adolescents) with  
153 physical activity status and physical fitness status; young people (and  
154 children, youth, adolescents) with monitoring physical fitness; the role/place  
155 of fitness testing with schools; and the role/place of fitness testing with  
156 physical activity and fitness promotion. Multiple searches were conducted in  
157 which the above terms were cross referenced until 'saturation' point was  
158 reached (i.e. the point at which the searches revealed no new literature). The  
159 key findings from 1985 onwards with respect to the above areas were  
160 summarised.

161

162 Consultation with the key 'stakeholders' and 'experts' was via questionnaire and  
163 interview. A detailed questionnaire, informed by the findings of the literature  
164 review, was designed to elicit information regarding key stakeholders'/experts'  
165 knowledge, understanding, experiences, attitudes and views about the fitness  
166 testing of children. The questionnaire comprised three sections and included a mix  
167 of closed and open ended questions. The first section sought background  
168 information on the respondents' interests, experiences and involvement in fitness  
169 testing of children, as well as their awareness of studies of fitness testing on  
170 children. Section two sought the respondents' views on fitness testing of children  
171 generally, including the perceived benefits, pitfalls, and the role of fitness testing in  
172 promoting children's health, fitness and activity, whilst the final section focused on  
173 their views on the introduction of fitness testing of children in Wales and on fitness  
174 testing in the PE curriculum.

175

176 The questionnaire was sent to 35 individuals, 28 stakeholders and 7 experts,  
177 who were predominantly determined from the specification for the study. A  
178 covering letter explained the purpose of the study, requested their involvement,  
179 and for completed questionnaires to be returned by a specified date.

180

181 Following administration of the questionnaire, a semi-structured interview  
182 schedule was devised with the questions being derived from the findings of the  
183 literature review and the preliminary data. The primary purpose of the follow-up  
184 interviews was to clarify, substantiate and enhance the questionnaire data.

185

186 Due to limited availability and the time constraints of the study, only a small  
187 number of individuals were able to participate in a follow-up interview. Six  
188 individuals were selected based on a preliminary analysis of the questionnaire  
189 findings. In order to gain a representative reflection of the stakeholders'/experts'  
190 views, two individuals who were generally for, one who was generally against,  
191 and three who were undecided or neutral about fitness testing children were  
192 chosen. This selection reflected the mix of questionnaire responses that were  
193 received. The sample included two experts: a head of a university department  
194 and a senior university lecturer, and 4 stakeholders: a local authority inspector,  
195 a local authority adviser, a PE and School Sport (PESS) consultant, and a  
196 teacher. The interviews followed a semi-structured format, lasted for  
197 approximately one hour, and took place in the workplaces of the individuals  
198 concerned. Permission was obtained to record the interviews and each was  
199 transcribed verbatim as soon as possible afterwards by the interviewer. All  
200 protocols associated with the methodology were in line with the authors'  
201 institutional ethical guidelines.

202

203 Following data collection, the questionnaires were analysed by quantifying the  
204 responses to the closed question items and identifying the common issues and  
205 themes reported in the open ended questions. The interview data were analysed  
206 by the identification of the common themes and consistent issues emerging from  
207 the transcripts.

208

209 A substantial amount of literature and data were generated by the study, the full  
210 details and findings of which are presented in the final report (Harris, Cale &  
211 Bromell, 2004). However, for the purposes here, only those aspects which relate  
212 to fitness testing in schools and the role of testing in the promotion of healthy  
213 lifestyles and physical activity are incorporated to inform the debate and highlight  
214 and exemplify key points. The literature serves as the evidence for the debate  
215 whilst the findings from the stakeholders and experts are used to reinforce,  
216 substantiate and illustrate key points and examples in practice.

217

#### 218 **Faith in the tests and the data?**

219 Fitness tests are plagued by severe limitations and the appropriateness, validity,  
220 and reliability of some fitness tests and fitness test batteries for use with children  
221 have been questioned by a number of researchers (see for example, Safrit, 1990;  
222 Rowland, 1995; Freedson, Cureton & Heath, 2000; Rice & Howell, 2000).

223

224 Whilst fitness tests claim to encourage safe healthy practice and the development  
225 of and maintenance of good fitness behaviours, paradoxically the tests or batteries  
226 themselves do not always reflect this behaviour. On this issue, it is argued that  
227 some involve children performing tests or exercises which not only violate healthy  
228 behaviour (Safrit, 1990) but common sense (Cale & Harris, 2002). Examples  
229 include exercising to exhaustion as in the Multistage Fitness test (commonly  
230 referred to as the 'bleep test') or executing as many sit ups as possible in one  
231 minute. The appropriateness of some tests, such as the Multistage Fitness test is

questionable for children, the primary reason being that they have been developed for use with elite, adult populations and are often applied to young people with little consideration of the differences between children and adults' physiological and psychological responses to exercise (see Bar-Or, 1993). Further, the suitability of the test to accurately predict children's aerobic fitness has been questioned (Winsley, 2003). Winsley (2003) found that the test significantly underestimated children's peak VO<sub>2</sub> when adult equations were used. When child specific equations were adopted the degree of error was reduced. Given this, he recommends that if schools wish to employ the test it is crucial that child specific equations are used, rather than the adult specific equations supplied with the commercially available product. Risks associated with using the Multistage Fitness test with young people have been also been identified and safety advice has been given on how to reduce risks with the test (Eve & Williams, 2000).

Despite the above, the Multistage Fitness test has been found to be one of the two most commonly employed fitness tests in schools in the UK (Harris, 1995). If its popularity continues, then other and possibly more favourable options for using the test would be to use it as a sub-maximal test, using heart rate elicited at different levels of the test as the indicator of fitness, or as a 'novel' educational tool. For example, Mullineaux (2001) suggests the test could be used as a warm up or cool down, as an interval training tool, for steady paced running, and to encourage teamwork and co-operation.

255 Concerns with the test go beyond those expressed in the literature. Based on their  
256 experiences, some of the stakeholders involved in the feasibility study made some  
257 strong and at times emotive comments concerning the inappropriate or misuse of  
258 the 'bleep test'. A PESS consultant's experience of the test was described as  
259 follows during the interviews:

260 *'the bleep test is a classic of mis-use really, you know, children just running*  
261 *up and down till they fall over, what's the use of that?'*

262

263 Risk of injury was also identified as a concern by a university lecturer who had  
264 been alarmed that his son had to perform this test in bare feet which, as he  
265 explained:

266 *'...not only invalidates the test...but also puts him at risk of an injury, things*  
267 *that like concern me'.*

268

269 In addition, the relevance and appropriateness of the mile run, another commonly  
270 employed fitness test in schools (Harris, 1995), and other tests for children have  
271 been queried (Hopple & Graham, 1995). Following reports from children that they  
272 did not enjoy taking the mile run, Hopple and Graham (1995, p. 416) remind us  
273 that children are not miniature adults and claim that current tests 'which were  
274 designed by adults do not seem to mesh with children's perceptions of the world...'  
275 Such issues have led some to conclude that tests suitable for use in the school  
276 environment and which provide valid and objective measures of fitness are simply  
277 not available (Armstrong, 1989; Armstrong & Welsman, 1997).

278

279 Further, the practice of applying norm and/or criterion referenced standards in  
280 fitness testing is known to have limitations. For example, norm tables do not  
281 indicate desired levels of physical fitness, provide any diagnostic feedback about  
282 whether fitness is adequate, and they imply that 'more is better' (Cureton, 1994).  
283 Equally, Freedson, Cureton and Health (2000) identify three main limitations of  
284 criterion referenced standards. They report how the setting of the standards is  
285 somewhat subjective, youth may be misclassified, and because the standards  
286 represent desired minimum levels of fitness, they do not offer adequate incentive  
287 for maximal achievement or improvement.

288

289 The methodological limitations associated with testing were also appreciated by  
290 both stakeholders and experts in the feasibility study, with problems relating to the  
291 validity and reliability of tests being the second most commonly stated pitfall in the  
292 survey. Typical responses from the questionnaire data concerning such limitations  
293 included:

- 294 • Limited validity and reliability of tests; tests fraught with validity, reliability  
295 difficulties
- 296 • Limited reliability of data, especially with young children; inconsistency and  
297 lack of standardisation of testing procedures
- 298 • Norms lead to difficulties comparing children, and there is no scientific  
299 consensus on criterion-referenced ranges.

300

301 Example comments highlighting some of the difficulties included:

302           *'...The extrapolation of field test data is fraught with problems'. (expert)*

303

304           *'Even in a well-equipped sports science laboratory using 'scientific' tests,*  
305           *one might consider the error to be around 10%. In the field situation using*  
306           *simpler methods (e.g. sit-up tests or shuttle runs), the error is likely to be*  
307           *huge'. (university lecturer)*

308

309   Another university lecturer who was interviewed expressed particular concern over  
310   the limited validity and reliability of fitness test data collected in schools:

311           *'...there seems to be a lot of ad hoc fitness testing going on...I think that a*  
312           *lot of this...is being conducted badly, in uncontrolled environments...'*

313

314   The above limitations are perhaps better appreciated when one considers the  
315   many factors that influence fitness test performance. Factors such as the  
316   environment/test conditions, lifestyle (exercise/nutrition), motivation, intellectual  
317   and mechanical skill at taking the test, test practice, and in particular heredity or  
318   genetic potential and maturation all affect fitness performance and will be reflected  
319   in fitness test scores (Docherty & Bell, 1990; Pangrazi, 2000). The relative  
320   contribution of these factors varies from test to test, and between testing sessions,  
321   though heredity or genetic potential and maturation are considered to most  
322   strongly influence test results (Pangrazi & Corbin, 1990; Bouchard et al., 1992). In  
323   articles on the assessment of health-related fitness in schools and health-related  
324   physical activity in the National Curriculum, Armstrong, (1995) and Armstrong and

325 Biddle (1992) respectively recognize the importance of both maturation and  
326 motivation to test scores, claiming that fitness tests simply determine the obvious,  
327 at best only distinguishing the mature and/or motivated from the immature and/or  
328 unmotivated. The influence of maturation on fitness was also recognized as a  
329 limitation by some of the stakeholders in the feasibility study. Within the survey,  
330 one university lecturer reported how:

331 *'The biological changes with growth and development are of considerably*  
332 *more impact than the biological changes caused by training...'*

333

334 Similarly, during the interviews a PESS consultant aired the following concern  
335 about testing children's fitness:

336 *'...my understanding is that pre-puberty, you know, its very difficult to get*  
337 *any true measurement of children's fitness anyway...until children actually*  
338 *reach maturation I don't think, so I was led to believe from dim and distant*  
339 *reading, that they don't actually mean a lot do they?'*

340

#### 341 **Misinterpretation of the data?**

342 Despite the limitations, it is still often assumed that fitness in young people is  
343 primarily a reflection of the amount of activity performed, and that those who score  
344 high on fitness tests are active and those who do not are inactive (Pangrazi, 2000).  
345 Cale and Harris (2005) however, note how this assumption is inaccurate. The  
346 evidence suggests that the relationship between physical fitness and physical  
347 activity is low among children (Armstrong & Welsman, 1997) and a child's activity

level cannot be judged from his or her fitness level (Corbin, 2002). Armstrong and Welsman (1997) explain that the lack of relationship between physical activity and fitness probably lies in the low level of physical activity of most young people. In addition, the two are distinct in that physical activity is a behaviour (process) and fitness is a parameter (product). Physical activity is an important variable in fitness development for adults, but for children and youth, other factors are of equal or greater importance (Pangrazi, 2000). In terms of promoting physical activity to young people, Cale and Harris (2005) warn how problems can arise if fitness test scores are linked to activity levels. On the one hand, an active child who scores poorly on a test may become disappointed, disillusioned, demotivated and 'turned off' activity because he/she feels it does not 'pay off' (Corbin, 2002), whilst an inactive child who scores well may be delighted with the outcome, conclude that everything is alright when it is not, and consequently may not be motivated to change.

362

The importance, but difficulty of conveying the correct or right messages to children concerning their fitness scores was raised by several individuals in the feasibility study. On this issue, one teacher reported that testing 'could be divisive', whilst during the interviews, an adviser expressed concern about how children might respond to low fitness scores:

*'I guess you're going to get, as in all instances really, perhaps, quite a large variation in the way in which children are going to respond to that sort of information.'*

371

372 **Impact of fitness testing?**

373 As noted earlier, advocates of fitness testing in schools argue that testing  
374 motivates young people, enhances learning and promotes positive attitudes which  
375 would seem to be compelling from the viewpoint of physical activity promotion  
376 (Seefeldt & Vogel, 1989; Cale & Harris, 2002). Yet, when debating the role or  
377 value of fitness testing, researchers have expressed concern that fitness testing  
378 may, to the contrary, be repetitive and boring (Keating, 2003), de-motivating and  
379 counterproductive to the promotion of active lifestyles in young people (Corbin,  
380 Pangrazi & Welk, 1995; Rowland, 1995). Rowland (1995) argues that fitness tests  
381 are anti-ethical to the goal of promoting physical activity in so far as they can be  
382 demeaning, embarrassing and uncomfortable for children (often those about which  
383 there is most concern), and may reinforce the notion that exercise is competitive  
384 and unpleasant. Keating (2003) warns of problems relating to lack of privacy with  
385 testing and test results, whilst Corbin, Pangrazi and Welk (1995) caution that  
386 testing that is done improperly may turn many youngsters 'off' rather than 'on' to  
387 activity and should therefore be discontinued.

388

389 Whilst a good deal of research has been conducted on measurement issues and  
390 the reliability and validity of fitness tests over the years, research has largely  
391 ignored the effects of youth fitness testing in schools (Keating, 2003). Relatively  
392 little attention has been paid to the motivational effects of fitness testing (Fox &  
393 Biddle, 1988; Jackson, 2000) or fitness test awards on young people (Keating,

2003), or on young people's perspectives of, or knowledge and/or attitudes towards tests (Fox & Biddle, 1988; Jackson, 2000). The need for research of this nature is recognized by Pate (1991, p. 233) who suggests:

*'It would be desirable to know how children respond to participation in these (physical fitness) tests. Are tests viewed as fun? Do tests have differential effects on different types of children?'*

400

Studies that have been conducted on the motivational effects of testing (Luke & Sinclair, 1991; Whitehead & Corbin, 1991; Goudas, Biddle & Fox, 1994; Adams, 1996) have revealed variable results and it has been concluded that motivational enhancement from testing cannot be taken for granted (Goudas, Biddle & Fox, 1994) and that there is no empirical data to indicate that students value fitness test awards (Keating, 2003). Attitudes towards fitness tests have been found to be unfavourable (Luke & Sinclair, 1991) and some youngsters (and teachers) have been accused of not taking testing seriously (Keating, 2003). The motivation of young people towards testing has been found to be influenced by feedback following tests, perceived competence (Whitehead & Corbin, 1991) or perceived success, and achievement goal orientation and performance in the tests (Goudas, Biddle & Fox, 1994). Likewise, the PEA has also noted that there is no hard evidence that fitness tests motivate individuals and suggest that in parallel areas of education there is supportive evidence that tests only motivate those who do well (PEA, 1988).

416

417 Concerning knowledge and attitudes, Hopple and Graham (1995) investigated  
418 what children 'thought, felt and knew about' the mile run test. They revealed that  
419 children generally showed little or no understanding of why they were being asked  
420 to complete the test and many disliked taking it, viewing it as a painful, negative  
421 experience to be either actively or passively 'dodged.' It would therefore seem that  
422 from the evidence available, albeit limited, the motivational and/or educational role  
423 of fitness testing in schools is questionable, certainly for a number of youngsters.

424  
425 Despite the limited evidence from the literature, the motivational and particularly  
426 the educational role of fitness testing came through as justifications for testing in  
427 the findings of the feasibility study. Responses from the questionnaire survey data  
428 from one expert and a number of stakeholders relating to motivation included:

- 429 • Can be motivational if health-related, linked to physical activity, and  
430 used/taught in the right way
- 431 • Can motivate some children into 'beating' their previous test scores
- 432 • Can be used as a lever to stimulate interest in exercise.

433

434 With regards to the educational role of fitness testing, typical responses, this time  
435 from one expert and a few stakeholders included:

- 436 • To educate pupils with regard to the different components of fitness
- 437 • To aid learning and support children in maintaining a fit and healthy lifestyle
- 438 • Can be educational as part of understanding the various ways in which the  
439 body moves

- 440       • To inform pupils about their own relative fitness levels and enable pupils to  
441       make informed decisions
- 442       • Gives children knowledge of their strengths and limitations of their own  
443       bodies
- 444       • To help older pupils learn how to improve their personal fitness.

445

446   There was also generally agreement amongst those interviewed that fitness  
447   testing could educate children about health, activity and fitness, their own  
448   fitness, and help them to set specific targets. A university lecturer, whilst  
449   describing fitness testing in schools as 'highly unsophisticated', noted that it had  
450   a purpose in helping children to 'have a good understanding about their own  
451   body, their own fitness and the things that govern that.' In addition, a PESS  
452   consultant considered that fitness testing might 'encourage children to take  
453   more responsibility for their own actions, their own choices...'

454

455   In addition though, concerns were commonly reported by stakeholders and experts  
456   with respect to the motivational and educational role of testing. They warned how  
457   tests could de-motivate, cause discomfort, stress, label and embarrass children  
458   and make them look 'daft' in front of their peers. They also noted how some  
459   children may hate testing, perceive it as threatening (especially if results are made  
460   public and children lack confidence), fear failure and therefore be 'turned' or  
461   'switched off'.

462

463 Based on her experiences, one PESS co-ordinator had the following to say:

464 *'PE teachers who use fitness tests regularly on any and every group of children*  
465 *should be encouraged to stop! Children often hate and dread them, they don't*  
466 *tell us very much, and why should children be forced to endure them?'*

467

468 A university lecturer also expressed concern over the effects of overexposure of  
469 children to some tests explaining:

470 *'...the tests tend to be driven by the motivation of the child, and I think the*  
471 *more they do it the more de-motivated some of them are becoming...'*

472

473 Whilst acknowledging that fitness testing could possibly be used as a 'fun' activity  
474 for pupils to 'have a go', a PESS consultant commented that 'you would need to  
475 know your pupils well to determine whether it would be fun or scary'. However,  
476 she and others were of the view that other forms of activity including game-like  
477 activities and exercise experiences such as walking, dancing, aerobics, boxercise,  
478 circuits with a 'fun' element were more appropriate for promoting activity. In  
479 conclusion, it was proposed that fitness testing should only be adopted if it was  
480 meaningful, relevant and had 'a direct and positive influence on motivating  
481 teachers/pupils to develop active lifestyles'.

482

### 483 **Misdirected interest and confusion?**

484 One of the reasons why physical fitness testing may have assumed such popularity  
485 in schools in recent years relates to the widespread and growing concerns over

486 young people's physical fitness and the implications of this for their current and  
487 future health. However, efforts to advocate fitness testing on these grounds are  
488 considered misguided. According to Cale and Harris (2005), much media attention  
489 and 'hype' has been afforded to young people's fitness, with messages leading us  
490 to believe that all, or at least most of today's youth are unfit, unhealthy, and far less  
491 than fit than in previous decades. On this issue, Corbin (2002, p. 139) suggests  
492 that the media 'likes bad news' and that 'much talk about lack of fitness of our youth  
493 is hyperbole, designed to create a need for physical education in the eyes of the  
494 public.' Following a comprehensive literature review of young people and physical  
495 fitness, Cale and Harris (2005) summarise their findings as follows: 'there is no  
496 evidence to suggest that low levels of aerobic fitness are common amongst young  
497 people' and 'no convincing evidence to suggest that young people's aerobic fitness  
498 has declined over time' (p. 32).

499

500 Alarmed by reports to the contrary, PE teachers and others may feel compelled and  
501 even duty bound to respond by focusing on and measuring young people's physical  
502 fitness (Cale & Harris, 2005). A university lecturer who was surveyed held similar  
503 views reporting how:

504 *'Fitness testing is something that at first glance is appealing to the public*  
505 *and politicians and seems to be a simple step towards improving health.*  
506 *But once consideration is given to the issue...then the problems become*  
507 *clear'.*

508

509 During the interviews a PESS consultant stated:

510 *'what I would hate to happen, as will very often happen....they would think,*  
 511 *oh yes, OK then, I gotta make my children run, I gotta, you know, ....without*  
 512 *the educational component in there. That is my concern, and I think that*  
 513 *teachers will very often latch on to something that they think they are doing*  
 514 *because its right, and sometimes for the wrong reasons...'*

515

516 The implications of children's fitness and fitness test scores to their health are not  
 517 well established and conclusions are equivocal. In addition, there is no evidence  
 518 that children's health and/or fitness, or the monitoring of either, influences their  
 519 participation. With regards to the former point, studies which have been conducted  
 520 have largely focused on associations between children's cardiorespiratory fitness  
 521 and cardiovascular disease (CV) risk factors (Boreham & Riddoch, 2001). Some  
 522 claim there is only weak evidence that physical fitness is related to health in young  
 523 people (Twisk, 2000) and little or no direct evidence that physical fitness during  
 524 childhood and adolescence is related to adult health (Twisk, 2000; Thomas, Baker,  
 525 & Davies, 2003). More recently however, two large-scale studies, the European  
 526 Youth Heart Study and the Amsterdam Growth and Health Longitudinal Study, have  
 527 reported associations between physical fitness and CVD risk factors in children and  
 528 adolescents (Wedderkopp et al., 2003; Andersen et al., 2003), between physical  
 529 fitness in adolescence and adulthood respectively (Twisk, Kemper & van Mechelen,  
 530 2002), and a clustering of risk factors in children and adolescents with low fitness  
 531 (Wedderkopp et al., 2003; Andersen et al., 2003). Consequently, it seems that the

532 role of at least cardiorespiratory fitness in enhancing health should certainly not be  
533 dismissed, but further studies are required (Boreham & Riddoch, 2001).

534

535 Perhaps not surprisingly given media messages and the limited research evidence,  
536 there was confusion amongst some of the stakeholders in the feasibility study with  
537 respect to children's fitness status, as well as with the concepts of health, fitness  
538 and activity and the relationships between them. Indeed, the terms were  
539 sometimes used interchangeably as though they were synonymous.

540

541 One PE Adviser who was in favour of fitness testing children expressed concern  
542 that children usually overestimate their capabilities and are not fully 'aware of their  
543 low levels of fitness'.

544

545 Some held the view that fitness testing would impact on children's fitness, with one  
546 inspector/adviser claiming also that 'a better physical health status for children'  
547 should come out of fitness testing. Furthermore, it was suggested by another  
548 adviser that:

549 *'in terms of the health of our nation, we really do need to look at the fitness*  
550 *of our youngsters very, very seriously...'*

551

552 whilst a PE teacher considered fitness testing to be very important in order 'to gain  
553 evidence and facts about children's health'.

554

555 One adviser/inspector also suggested that it was important to:

556 *'address this critical issue of (children's) health and fitness status, otherwise*  
557 *we could have the most knowledgeable and articulate spectators in the*  
558 *world who have poor health and lack participation'.*

559

560 Some stakeholders however, demonstrated a broader understanding of the  
561 concepts and issues. One PESS co-ordinator reported:

562 *'Health isn't really about fitness',* and went onto explain:

563

564 *'and I think it would give the wrong message if we promoted health as being*  
565 *'fit'. This would put a lot of people off trying to be healthy if they thought*  
566 *they'd have to have a high fitness level to be healthy'.*

567

568 Similarly another PESS consultant did not see the connection between fitness  
569 testing and the promotion of physical activity/health and thought that instead, the  
570 latter should be promoted by giving children exercise experiences which would  
571 *'enthuse and inspire them to continue with exercise in their own time'.* She was  
572 concerned that fitness testing might turn children off health-based type physical  
573 activities.

574

#### 575 **Misdirected focus or too narrow an approach?**

576 As noted earlier, advocating fitness testing on the grounds that children are unfit  
577 and/or that their fitness (or the monitoring of their fitness) will strongly influence

578 their current or future health (fitness) or participation is misguided. Given though,  
579 that a sizeable proportion of young people have been reported to be inactive and  
580 to lead sedentary lifestyles (Armstrong & Welsman, 1997; Armstrong & Van  
581 Mechelen, 1998) there would seem to be a need to focus attention on influencing  
582 young people's physical activity behaviour (Cale & Harris, 2005). In other words,  
583 to place emphasis on the 'process' of physical activity rather than on the 'product'  
584 of fitness.

585

586 Yet, there is concern that fitness testing could lead to more attention being given to  
587 the product and product-related issues, namely 'fitness' and 'performance' within a  
588 PE programme, than to the process and process-oriented issues of 'health' and  
589 'physical activity' behaviour (Harris & Cale, 1997; Cale & Harris, 2002). Other  
590 good reasons have also been given for trying to influence physical activity rather  
591 than physical fitness (Rowland, 1995; Pangrazi, 2000; Cale & Harris, 2002; Corbin,  
592 2002). For example, Corbin (2002) argues that the idea that physical fitness is a  
593 paramount goal for children is a misconception and reminds us that an over  
594 emphasis on fitness can have as many negative consequences as positive ones.  
595 It is also claimed that the focus on raising fitness levels which was common  
596 practice for many years, has been unsuccessful (Pangrazi, 2000). In contrast  
597 increased physical activity, which is relatively free from genetic and maturational  
598 influences, is an outcome that can be accomplished by all children regardless of  
599 ability (or disability) or personal interests, and will further benefit those young  
600 people who need it most (Pangrazi, 2000). Likewise, Rowland (1995) suggests

601 that a shift to promoting physical activity is more likely to be acceptable to the  
602 general public, particularly to those who are sedentary or have low fitness levels.  
603 He views the routine field testing of children as 'archaic' (p. 125) and claims that a  
604 shift from a fitness to a physical activity promotion model would serve as the best  
605 argument for abandoning the practice.

606

607 Individuals surveyed in the feasibility study also appeared to endorse this view.

608 For example, one expert noted how:

609 *'...fitness testing will set us back years and deflect us from the key issue –*  
610 *more activity'.*

611

612 One health professional was of the view that the issue of 'healthy' lifestyles,  
613 including nutrition and physical activity was the most important priority, whilst a  
614 university lecturer who considered that fitness testing played no role in promoting  
615 activity reported:

616 *'The concepts of physical activity...and the fitness effects activities produce*  
617 *(e.g. aerobic, flexibility, strength, etc) can be better achieved by analysing*  
618 *the activity, not the change in fitness an activity might produce'.*

619

620 This individual further reinforced the point during interview:

621 *'...I think that activity data is critically important, you need to know what*  
622 *activity people are doing, of what type, and what activity they are not*  
623 *doing...'*

624

625 From a theoretical perspective, another argument against focusing on fitness and  
626 fitness testing is that it provides a narrow framework for the promotion of physical  
627 activity. Fitness testing represents an individualistic approach to physical activity  
628 promotion which targets change in the individual. The limitations with this  
629 approach are that it tends to hold individuals responsible for their health or  
630 behaviour (and consequently their fitness), assumes they have control and the  
631 capacity to make decisions, and fails to acknowledge the influence of other factors  
632 in the physical and social environment. However, as previously noted, we know  
633 that fitness is largely influenced by hereditary or genetic potential and maturational  
634 factors. Further, young people in particular often have little control over, or  
635 decision making opportunities with respect to their lifestyles and behaviours and  
636 other factors are arguably more influential.

637

638 This individualistic perspective is also illustrated within the discourse used by some  
639 of the stakeholders in the feasibility study. Comments within both the  
640 questionnaires and interviews included references to encouraging children to take  
641 'more responsibility for their own actions' or 'individual responsibility' for monitoring  
642 their progress, showing children 'how they could shape exercise habits' and  
643 allowing them to 'make sensible decisions'. An adviser/inspector surveyed  
644 reported a pitfall of fitness testing to be the need to take:

645 *'into context the sociological issues relating to healthy and active lifestyles'.*

646

647 As a result of the limitations of an individualistic approach, environmental or  
648 ecological approaches to the promotion of physical activity have attracted growing  
649 interest and support more recently (Sallis, Bauman & Pratt, 1998; Spence & Lee,  
650 2003). Such approaches have, at their core, the notion that behaviour is  
651 influenced by multiple facets of the intrapersonal (e.g. psychological and biological  
652 variables, developmental history), interpersonal (e.g. family, peers), and physical  
653 and policy and legislative environments (Gorely, 2005). In line with this, and with  
654 reference to the broad and multi-dimensional correlates of childhood physical  
655 activity, Welk (1999) proposes a conceptual model of physical activity promotion  
656 for children that adopts a social-ecological framework and which acknowledges the  
657 input and interaction of various personal, social, and environmental influences on  
658 children's physical activity.

659

660 To date, the promotion of physical activity in schools has primarily been limited to  
661 individualistic efforts made within the curriculum with little attention paid to the  
662 effects of environmental factors on youth (Richter et al., 2000; Wechsler et al.,  
663 2000). Fitness testing represents another 'curriculum effort' and, from the  
664 evidence so far presented, it seems a narrow and not especially effective one at  
665 that. It could even be argued that such efforts and an individualistic approach are  
666 being reinforced within both the National Curriculum for Physical Education  
667 (NCPE) and examination PE with their emphasis on 'fitness' and 'personalised'  
668 exercise programmes. 'Knowledge and understanding of fitness and health' is one  
669 of the four aspects of the NCPE whilst planning a personalized exercise

670 programme is a feature of the NCPE at Key Stage 4 and a common feature of  
671 examination syllabi.

672

673 Of course, a similar criticism could be leveled at a physical activity focus in the  
674 curriculum, in that typically individualistic approaches are also relied upon. For  
675 example, PE teachers encourage young people to make healthy choices regarding  
676 their physical activity behaviour by delivering persuasive arguments for and  
677 relevant information about physical activity, and possibly involving them in learning  
678 goal setting, programme planning, self-monitoring or time management skills to  
679 encourage and facilitate their participation. The key difference however, is the  
680 potential this focus affords for teachers to also work within an ecological framework  
681 and to explore with young people the range of influences on their physical activity  
682 (e.g. peers, family, home, curriculum and school environment), the barriers they  
683 face, and possible strategies or measures to overcome these within and beyond  
684 the curriculum and school. Further and arguably, a combination of approaches  
685 and skills are considered important and relevant to encouraging and facilitating an  
686 active lifestyle.

687

688 Cale and Harris (2006) note how, from an ecological perspective, many aspects of  
689 the school (and wider environment) can either promote or inhibit the adoption of an  
690 active lifestyle. To increase the likelihood of positively influencing young people's  
691 physical activity an ecological framework which would address the multiple levels  
692 of influence on physical activity and explore the potential of every aspect of the

693 school to promote physical activity would seem to be the way forward. This would  
694 involve consideration of not only the PE curriculum, but how out-of-school hours  
695 learning opportunities, the school environment (e.g. facilities, playing fields,  
696 playground, equipment), school ethos (e.g. rewards, recognition), policies (e.g.  
697 changing, kit, transport), and community links were conducive to, and could serve  
698 to promote physical activity to all pupils.

699

#### 700 **Inappropriate implementation of tests and use of test data?**

701 Concerns have also been expressed over the way in which fitness tests are often  
702 implemented and conducted within the curriculum, which are also likely to militate  
703 against efforts to promote physical activity. Corbin, Pangrazi and Welk (1995, p.  
704 348) ask, 'is it the testing itself that is 'bad' or the way in which it is done?'

705

706 Pate (1989) expresses concern that too often tests have been an almost irrelevant  
707 adjunct to the curriculum or else often dominate or even constitute the entire  
708 fitness education programme. The amount of curriculum time spent on fitness  
709 testing without necessarily positively influencing young people's activity levels or  
710 their attitudes towards physical activity has been criticized (Harris & Cale, 1997;  
711 Cale & Harris, 2002), which would seem to suggest that such PE time could be  
712 used more wisely (Cale & Harris, 2005). According to Harris (2000), the time spent  
713 on performing and scoring fitness tests may detract from promoting the process of  
714 being active and may be at the expense of time spent on more useful activity

715 promoting activities, including developing knowledge and understanding about  
716 physical fitness and what physical fitness tests measure.

717

718 Concerns over the implementation of tests were also evident within the feasibility  
719 study. It was noted how 'fitness testing lessons can be bland and not very active'  
720 and how children may come to 'associate PE lessons with testing rather than being  
721 active and appreciating the value and benefits of exercise'. An interviewee, a  
722 PESS consultant, appeared to hold similar views commenting:

723 *'I'm not against knowing where we are with regard to our children's fitness*  
724 *but I am against how it could possibly be done, and I'd hate it to be mis-*  
725 *used along the way'.*

726

727 Individuals surveyed were also critical of the time spent on testing and/or of fitness  
728 testing dominating programmes. One expert stated:

729 *'Fitness testing in schools is of little value and curricular time could and*  
730 *should be better spent...'*,

731

732 whilst a teacher acknowledged how:

733 *'we must incorporate testing within a quality scheme of work, not testing for*  
734 *testing's sake'.*

735

736 One expert speaking of his aspirations for and views concerning the future of  
737 fitness testing reported how tests should be:

738 *'...a personal, educational and development tool – no more'.*

739

740 Finally, the way in which fitness test results are used is important. Fitness test  
741 scores may be put to a number of uses, some of which may be considered  
742 inappropriate, undesirable and counterproductive to the promotion of physical  
743 activity. Examples of inappropriate uses of tests include: to grade pupils as a  
744 primary indicator of achievement in PE, to evaluate teacher competence, or to use  
745 them as a measure of the success of an institution or programme (Corbin,  
746 Pangrazi & Welk, 1995; Corbin 2002). Corbin (2002) however, challenges  
747 employing fitness tests for such purposes and is highly critical of schools that use  
748 fitness tests scores in this way, suggesting they obviously and mistakenly  
749 subscribe to the idea that fitness is the paramount goal of PE. Further, he warns  
750 that this could have the following potential negative consequences:

- 751 • loss of interest in PE and physical activity
- 752 • teaching to the test
- 753 • student and teacher cheating on fitness tests
- 754 • undermining the confidence of students who find that, even with effort, they  
755 cannot achieve the fitness goals necessary to get good grades or to meet  
756 teacher expectations (Corbin, 2002, p. 134 & 135).

757

758 Some of these consequences may seem extreme, but are nonetheless  
759 legitimate if tests scores are, as we are led to believe, commonly used for such  
760 purposes (Corbin, Pangrazi & Welk, 1995; Corbin 2002). Further, and more  
761 importantly, they will do little to support young people's engagement in healthy

762 active lifestyles. Armstrong and Welsman (1997) advise 'teachers must ask  
763 themselves why they are testing young people's fitness, and if the answer is for  
764 classification purposes, then we suggest that they would be better employed  
765 seriously addressing the problem of young people's sedentary lifestyles' (p.  
766 257). Several individuals in the feasibility study also expressed concern over  
767 the inappropriate use of fitness test results. For example, an expert reported in  
768 the survey that 'in the hands of sports coaches and many teachers, fitness  
769 testing will be badly used', whilst a PESS consultant commented 'I'm afraid that  
770 in the wrong hands, fitness testing of children is used inappropriately...'

771

#### 772 **A worthwhile or misdirected effort?**

773 Given the preceding discussion, it seems that fitness testing may not always serve  
774 the purposes for which it is intended. In particular, the role fitness testing plays in  
775 PE in promoting healthy lifestyles and physical activity is questionable and cannot  
776 be taken for granted. For example, little evidence has been found to support the  
777 notion that fitness tests promote healthy lifestyles and physical activity, motivate  
778 young people, and develop the knowledge and skills that are important to the  
779 sustained engagement in an active lifestyle. To the contrary, without careful  
780 consideration of the issues, limitations and factors influencing fitness tests and the  
781 way in which tests are administered, fitness testing can be unpleasant,  
782 embarrassing and meaningless for many young people, and scores can be  
783 inaccurate, misleading, unfair and demotivating (Cale & Harris, 2005). In this  
784 respect and, as acknowledged earlier, fitness testing is likely to be

785 counterproductive (Docherty & Bell, 1990; Corbin, Pangrazi & Welk, 1995;  
786 Rowland, 1995). Keating (2003) claims that in the United States (US) three facts  
787 cast doubt on the role of fitness testing in promoting physical activity (and improving  
788 youth fitness): a) children have failed to show improvements in fitness and have  
789 become less physically active; b) the percentage of overweight youth has increased  
790 substantially in recent years; and c) the proportion of inactive adults has also  
791 increased dramatically.

792

793 Whilst views were mixed, some individuals in the feasibility study questioned the  
794 place of fitness testing within the PE curriculum and its role in the promotion of  
795 physical activity. When asked whether they thought there was a place for fitness  
796 testing in the curriculum, a third of individuals reported they were unsure and a fifth  
797 considered it had no place. Those against fitness testing offered the following  
798 reasons:

- 799 • Misguided, backward looking step
- 800 • Fraught with validity, reliability difficulties
- 801 • Has not been effective in the past
- 802 • It serves no real purpose in terms of increasing participation or promoting  
803 interest in sport.

804

805 Further, over a third of individuals responded negatively and over 40% neutrally  
806 with regards to the question 'what are your views concerning the role of fitness  
807 testing in the promotion of children's physical activity?'

808

809 A PESS consultant and a teacher who felt fitness testing had no role to play in  
810 promoting activity argued respectively that testing wasn't necessary as 'enjoyment  
811 was more important' and that physical activity could be promoted 'without having to  
812 test the fitness of pupils'. In agreement, another teacher explained:

813 *'I feel physical activity can be promoted better through 'fun' game like*  
814 *activities and training methods such as aerobics, step, boxercise, circuits...'*

815

816 It has also been suggested that fitness and fitness testing is limited in that it  
817 represents an individualistic approach to physical activity promotion which fails to  
818 acknowledge factors in the physical and social environment which influence  
819 physical activity. Thus, based on the evidence from the literature, and taking  
820 account of the views, understanding, experiences and observations of individuals  
821 within the feasibility study as well as our own theoretical stance, we suggest that  
822 much of the fitness testing conducted within PE (though certainly not necessarily  
823 all) may well represent a misdirected effort in the promotion of healthy lifestyles  
824 and physical activity and that PE time could therefore be better spent. Further, we  
825 call for increased attention to be paid to the ecological approach to physical activity  
826 promotion within schools and PE whereby all avenues for promoting physical  
827 activity including the curriculum, out-of-school hours learning, the school  
828 environment, ethos, policies, and community links would be considered.

829

830 If appropriately employed however, and provided all relevant factors and limitations  
831 are taken into account, there is no reason why fitness testing cannot play a role in  
832 supporting healthy lifestyles and physical activity and in educating young people  
833 about physical activity and fitness. To achieve this though, clear guidance on the  
834 appropriate use of fitness testing in young people is needed. In 1994, Pate noted  
835 how, despite its popularity over a number of years, there was little scientific  
836 evidence to guide us in deciding how best to incorporate fitness testing into PE.  
837 Over ten years on, it seems little has changed. As already noted, most of the  
838 research in this area has addressed issues of measurement, validity and reliability  
839 and relatively little attention has been paid to understanding how young people  
840 respond to fitness tests or how tests can best be used to attain important  
841 educational and physical activity promotion objectives.

842

843 Recommendations concerning the implementation of fitness testing with young  
844 people have been made by a number of researchers and professional  
845 organizations (e.g., ACSM, 1988; Pate, 1994; Corbin, Pangrazi & Welk, 1995;  
846 American Alliance for Health, Physical Education, Recreation and Dance  
847 (AAHPERD), 1999a; 1999b; 1999c; Harris, 2000; Cale & Harris, 2005), but these  
848 have been based more on common sense than on scientific evidence. The latter  
849 recommendations (Cale & Harris, 2005) represent a summary and interpretation of  
850 the former and teachers intent on implementing fitness testing in PE are advised to  
851 consult these. In addition, it is recognized that teachers may need specific  
852 guidance, support and training in the implementation of fitness testing within the

853 curriculum and in particular in how to use tests and test results to achieve  
854 cognitive, affective and behavioural objectives with young people (Cale & Harris,  
855 2005).

856

857 This view was also supported by the stakeholders and experts in the feasibility  
858 study, with several highlighting the need for appropriate guidance and support  
859 materials to assist teachers, including programmes to work from. One university  
860 lecturer surveyed reported:

861 *'there is a need to convert the extensive detailed scientific knowledge about*  
862 *fitness testing into appropriate educational tools so that teachers (and*  
863 *coaches) can be provided with material that allows them to offer children a*  
864 *contemporary understanding of the facts and issues'.*

865

866 When asked about his aspirations for the future of fitness testing, one teacher  
867 reported:

868 *'I would like to see fitness development as a stand alone unit of work within*  
869 *the National Curriculum; all children following a similar scheme of work...'*

870

871 One PE adviser felt confident that in fact most of the problems associated with  
872 fitness testing in schools could be overcome by making it 'very specific, very  
873 explicit, providing support and guidance and making it simple'.

874

875 On this, there have been very positive developments in the US with the production  
876 of fitness resources for teachers such as 'Physical Best' (AAHPERD, 1999a;  
877 1999b; 1999c) and 'FITNESSGRAM/ACTIVITYGRAM (The Cooper Institute, 2003;  
878 [www.fitnessgram.net](http://www.fitnessgram.net)). The resources represent comprehensive fitness education  
879 programmes which recognize the importance of physical activity, as well as fitness,  
880 by seeking to develop the affective, cognitive and behavioural components  
881 associated with physical activity participation. The latest version of  
882 FITNESSGRAM/ACTIVITYGRAM (8.0) includes fitness and activity assessments  
883 and personalised reporting programmes, and the accompanying reference guide  
884 provides guidance on the appropriate and inappropriate use of the resource.

885 Teachers in the UK require and would welcome an equivalent resource or  
886 resources.

887

888 Finally, given the limitations of individualistic approaches outlined earlier and our  
889 call for more attention to be paid to the ecological approach to physical activity  
890 promotion, we suggest teachers also need specific guidance, support and training  
891 in how to embrace and incorporate this approach in their efforts to promote healthy  
892 lifestyles and physical activity. This will involve recognizing and helping young  
893 people to recognize the range of influences on their physical activity behaviour and  
894 implementing and/or proposing strategies within and beyond the curriculum and  
895 school which take account of these.

896

897 **Conclusion**

898 Drawing on the findings of a recent 'fitness testing children feasibility study', this  
899 paper has considered the role of fitness testing in PE in the promotion of healthy  
900 lifestyles and physical activity. The key facts, issues concerns and debates with  
901 regards to fitness testing young people have been explored, as they relate to  
902 promoting a physically active lifestyle. Based on the evidence available, it is  
903 suggested that much of the fitness testing carried out in PE may well represent a  
904 misdirected effort in the promotion of healthy lifestyles and physical activity, and  
905 that PE time could therefore be better spent. There appears to be little evidence  
906 that fitness tests promote healthy lifestyles and physical activity, motivate young  
907 people, and develop the knowledge, understanding and skills that are important to  
908 engagement in an active lifestyle. To the contrary, there is evidence to suggest  
909 that fitness testing may be counterproductive to the goal of promoting physical  
910 activity for some youngsters. Given then, the limitations of fitness testing as a  
911 model of physical activity promotion, along with the plea to focus more on young  
912 people's physical activity than on their physical fitness, we appeal for more  
913 attention to be paid to the ecological approach to physical activity promotion within  
914 schools and PE.

915

916

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