



This item was submitted to Loughborough's Institutional Repository (<https://dspace.lboro.ac.uk/>) by the author and is made available under the following Creative Commons Licence conditions.



CC creative commons
COMMONS DEED

Attribution-NonCommercial-NoDerivs 2.5

You are free:

- to copy, distribute, display, and perform the work

Under the following conditions:

BY: **Attribution.** You must attribute the work in the manner specified by the author or licensor.

Noncommercial. You may not use this work for commercial purposes.

No Derivative Works. You may not alter, transform, or build upon this work.

- For any reuse or distribution, you must make clear to others the license terms of this work.
- Any of these conditions can be waived if you get permission from the copyright holder.

Your fair use and other rights are in no way affected by the above.

This is a human-readable summary of the [Legal Code \(the full license\)](#).

[Disclaimer](#) 

For the full text of this licence, please go to:
<http://creativecommons.org/licenses/by-nc-nd/2.5/>

Children's Fitness Testing: Feasibility Study Summary

Lorraine Cale and Jo Harris

Loughborough University

Background

The following report represents a summary of a study which was commissioned by the National Assembly for Wales on the feasibility of carrying out a research project on the fitness levels of Welsh children. Although this study was conducted in 2004, it is still considered of real relevance and interest today, particularly given the recent recommendations that have been made concerning fitness testing children within the Annual Chief Medical Officers (CMO) report (Department of Health, March 2010).

The report recommends that:

- comprehensive physical fitness testing should be piloted in secondary schools
- the pilot must include both standard tests of cardiorespiratory fitness and multi-stage fitness assessments. (Department of Health, 2010, p.29).

The Association for Physical Education have formally responded to the full CMO report and a copy of the response is included in this edition of the journal. Indeed, and as you will see from this, a number of aspects of the document are welcomed. However, concerns are expressed over the fitness testing recommendations for a number of reasons. We hope that sharing this summary report with you is useful in that its findings and recommendations serve to further highlight and explain the nature of, and reasons for the concerns. Of course when reading it, do bear in mind that the report was produced a few years ago and that research in this area has and continues to develop. Nonetheless and perhaps of significance is that, in our view, the main issues and arguments remain the same. For further details about this study and the fitness testing debate see Harris & Cale (2007) plus the other references provided at the end of this report.

Feasibility Study Summary

- The feasibility study set out to determine whether there was a need and whether it would be cost effective and practical to carry out a research project investigating the fitness levels of Welsh children.
- The study aimed to :
 1. identify existing data on fitness testing in children and how they were used;

2. determine protocols that would produce reliable and valid data to meet specific uses;
 3. recommend a way forward which took account of specific issues.
- The methodology comprised a comprehensive review of the relevant literature and consultation with experts and stakeholders by means of a questionnaire survey and follow-up interviews.
 - The literature review revealed that:
 1. In contrast to adults, relatively little is known about children's fitness, activity, and the associated health benefits;
 2. Strong empirical evidence that physical fitness and physical activity during childhood have a major impact on children's current or future health is not yet available. But, positive associations do exist and the evidence for a beneficial effect is mounting;
 3. The findings concerning young people's physical activity are equivocal. Nonetheless, studies and reviews suggest that a sizeable proportion of children (half of boys and two thirds of girls respectively) are inactive and lead sedentary lifestyles;
 4. National Fitness Surveys (conducted in the US, Canada, Australia, UK) tend to report average scores on various test items, with no interpretation of their meaning and/or implications for children's health. Their value in terms of their ability to influence policy and practice is therefore questionable;
 5. Children's fitness test data provide no evidence to suggest that low levels of aerobic fitness are common amongst children, or that their fitness has declined in recent years;
 6. There are numerous methodological limitations and problems with the reliability and validity of many fitness tests with children. It is therefore questionable as to whether meaningful fitness test data can be gathered on children;
 7. Laboratory based fitness tests are generally considered to provide more accurate measures of children's fitness but cost and practicality mean that their large scale use is limited;
 8. The role of fitness testing in physical activity and fitness promotion in children has been questioned by a number of researchers. This is due to the possible negative consequences of testing on some children (particularly the least fit, active or healthy);
 9. From a public health and physical activity promotion perspective, it is argued that the goal should be to influence children's physical activity, rather than their fitness;
 10. If appropriately employed, and provided the methodological limitations are taken into account, fitness testing can play a valuable role in the promotion of physical activity and in educating children about health, activity and fitness.

- The questionnaire survey indicated that:
 1. Most stakeholders had experience of fitness testing children, but had limited knowledge of associated research and literature;
 2. There were mixed views on the fitness testing of children; potential benefits that were identified included the provision of baseline information, and potential pitfalls included negative effects on children and the limited validity and reliability of the data;
 3. Most were not convinced about the use of fitness testing to promote health, and questioned the role of fitness testing in the promotion of activity;
 4. There were diverse views about large scale fitness testing of children, and the usefulness of having fitness testing data on Welsh school children, although most considered that it would be helpful to track the fitness of Welsh children over time;
 5. There were mixed views on the place of fitness testing within the PE curriculum;
 6. Most considered it inappropriate to use fitness testing data to evaluate national programmes such as Dragon Sport¹ and the PESS² programme;
 7. Children's health, fitness and activity were viewed as important issues which required action; however, there was little consensus about the appropriate action to take to improve children's health, fitness and activity.

- The interviews suggested that:
 1. All had some concerns about fitness testing children; the concerns predominantly related to the limited validity and reliability of the data, and the potential negative effects on some children;
 2. All saw the value of some form of fitness testing, primarily because of the limited data currently available and the need for baseline data to inform policy;
 3. Some were concerned that fitness testing in the PE curriculum would 'use up' valuable PE time and detract teachers from an educational focus; however, others considered that fitness testing could be used to improve children's understanding of health, fitness and activity, and encourage them to be more responsible for health-related lifestyle decisions;
 4. Some confusion was evident about the meanings of the concepts 'health', 'fitness' and 'activity', and about the relationships between them; terms were used interchangeably suggesting they were synonymous;
 5. All were of the view that any future study of children's fitness should be on a large scale, longitudinal, and conducted by researchers, as opposed to teachers in schools; the study should have a broad focus, investigating health, fitness and

activity, in addition to other health behaviours such as eating habits.

- Recommendations from the findings were as follows:
 1. A large scale study focusing solely on Welsh Children's fitness is not considered to be necessary, meaningful or cost effective, given:
 - the methodological limitations of fitness testing children;
 - the possible negative impact of fitness testing on some children;
 - the relatively weak association between children's physical fitness and health;
 - the difficulties in interpreting and utilising children's fitness test data in a meaningful way in order to inform policy and practice;
 - the trend in other countries which have previously conducted large scale surveys to shift away from measuring fitness towards monitoring activity and health;
 - the limited evidence that previously conducted large scale surveys on children's fitness have led to a positive impact on children's health, activity and fitness.
 2. If a study on Welsh children were to be conducted, it should:
 - not focus solely on fitness;
 - go beyond the collection of fitness testing data to focus on lifestyle health-related behaviours such as physical activity and eating habits;
 - be carried out by experienced researchers (as opposed to teachers) in the area;
 - be longitudinal in nature in order to compare baseline with future data;
 - where possible, attempt to address some of the methodological limitations of previous studies which have monitored children's health, activity and/or fitness;
 - be interpreted with caution and in recognition of the severe methodological limitations in the reliability and validity of the data;
 - provide meaningful results capable of informing policy and practice.
 3. Any fitness testing conducted within the school curriculum should:
 - be educational in that it promotes pupils' knowledge and understanding of health, fitness and activity;
 - be part of a planned and progressive programme of study;

- be developmentally appropriate;
 - be meaningful;
 - be positive;
 - be relevant to pupils' lives outside of school;
 - be used as a tool to promote engagement in a healthy, active lifestyle.
4. Teachers and others involved in fitness testing children need clear guidance and recommendations to assist them in ensuring that any fitness testing in schools is appropriate, meaningful and educationally sound.
 5. Specific support and training for those involved in fitness testing children (with respect to its implementation, and in particular in how to use test procedures and results to achieve cognitive, affective, and behavioural objectives in children) would be useful.
 6. Accuracy versus practicality needs to be considered when determining fitness testing procedures. Laboratory based testing is generally considered more accurate but less practical (cost, time, ethics) than field based testing.
 7. Numerous myths abound about children's fitness and in particular concerning its association with activity and health, for example:
 - low levels of fitness are common amongst children
 - children's fitness has declined in recent years
 - children who perform well (score highest) on fitness tests are active (the most active)
 - children who perform poorly (score lowest) on fitness tests are inactive (the least active)
 - children who perform well (score highest) on fitness tests are healthy (the most healthy)
 - increased fitness is achievable by all children
 - if children increase their activity levels, they will become fitter
 - fitness testing children will increase their activity levels
 - fitness testing children will improve their health
 - fitness testing children will motivate, educate, and foster positive attitudes in children towards fitness, activity and their health.

None of the above assumptions are accurate. Such myths should therefore be dispelled, and physical and health educators should be helped to better understand the concepts of 'health', 'activity' and 'fitness', and the relationships between them.

8. It is inappropriate to use fitness testing data to monitor the success of national or local programmes that are not claiming to increase children's fitness. Programmes should be cautious about making any such claims.
- It was concluded that:
 1. There is concern amongst physical and health educators about Welsh children's health, fitness and activity, and this concern is paralleled and evidenced by studies in other countries in the UK indicating that a growing proportion of children are inactive and leading a sedentary lifestyle;
 2. Numerous myths abound about children's fitness and in particular concerning its association with activity and health, for example: children's fitness has declined in recent years; increased fitness is achievable by all children; fitness testing children will increase their activity levels. None of these assumptions are accurate. Such myths should be dispelled, and physical and health educators should be helped to better understand the concepts of 'health', 'activity' and 'fitness', and the relationships between them.
 3. The measurement of children's fitness is fraught with difficulties and, as a consequence, no study on Welsh children (whether it be conducted in schools or not) should focus solely on monitoring fitness.
 4. There is value in monitoring indicators of children's health, and the impact of physical activity and fitness on health indicators, and this is best conducted by experienced researchers specialising in this area of work;
 5. A large scale fitness testing study of Welsh children conducted by teachers in schools is not desirable nor practical. However, fitness testing can be used positively within the curriculum to increase children's knowledge and understanding of health, activity and fitness, to promote positive attitudes towards an active way of life, and to increase pupils' involvement in healthy, active lifestyles. Teachers need guidance and support to be able to achieve these objectives.
 6. A research project investigating the fitness levels of Welsh children is neither necessary, cost effective nor practical.
 7. Given concerns about Welsh children's tendency towards inactive lifestyles, the priority should be to promote and monitor physical activity levels in young people as, unlike fitness (an attribute), activity (a behaviour) is an outcome that can be achieved by all children. Monitoring procedures should make use of established physical activity recommendations for health.

References

The Association for Physical Education's Response to Recommendations within the 2009 Annual Report of the Chief Medical Officer (2010). Physical Education Matters, Summer edition.

Cale, L., & Harris, J. (2009). Fitness testing in physical education - a misdirected effort in promoting healthy lifestyles and physical activity. *Physical Education and Sports Pedagogy*, 14(1): 89-108.

Cale, L., Harris, J. & Ming Hung Chen (2007). More than 10 years after "The horse is dead...": Surely it must be time to "dismount"?! *Pediatric Exercise Science*, 19(2): 115-131.

Department of Health. (2010) Annual Report of the Chief Medical Officer. London: HMSO.

Harris, J., & Cale, L. (2006). A review of children's fitness testing. *European Physical Education Review*, 12(2), 201-225.

Harris, J., & Cale, L. (2007). Children's fitness testing: A feasibility study. *Health Education Journal*, 66(2): 153-172.

Harris, J., Cale, L., & Bromell, N. (2004). Children's Fitness Testing: Feasibility Study. A report commissioned by the National Assembly for Wales. Final Report.

Footnotes

1. Dragon Sport is a Sports Council for Wales initiative funded by the National Lottery, the focus of which is to improve sports provision for 7-11 year olds and offer fun and enjoyable sporting opportunities. The programme includes eight modified sports and introduces children to coaching, skill development and appropriate competition using versions of the adult game, modified to meet their needs and skill levels.

2. The PE and School Sport (PESS) Project was set up in 2000 and aims to raise standards in physical education in Wales. The project is managed by the Sports Council for Wales on behalf of the Welsh Assembly and is supported by a national implementation team drawn from PE specialists across the country. The specialists are supporting the development of a number of specialist projects and a team of national trainers in the delivery of a high quality training programme.