

Physical Education and Sport in Schools: A Review of Benefits and Outcomes

Richard Bailey

ABSTRACT: *This paper explores the scientific evidence that has been gathered on the contributions and benefits of physical education and sport (PES) in schools for both children and for educational systems. Research evidence is presented in terms of children's development in a number of domains: physical, lifestyle, affective, social, and cognitive. The review suggests that PES have the potential to make significant and distinctive contributions to development in each of these domains. It is suggested that PES have the potential to make distinctive contributions to the development of children's fundamental movement skills and physical competences, which are necessary precursors of participation in later lifestyle and sporting physical activities. They also, when appropriately presented, can support the development of social skills and social behaviors, self-esteem and proschool attitudes, and, in certain circumstances, academic and cognitive development. The review also stresses that many of these benefits will not necessarily result from participation, per se; the effects are likely to be mediated by the nature of the interactions between students and their teachers, parents, and coaches who work with them. Contexts that emphasize positive experiences, characterized by enjoyment, diversity, and the engagement of all, and that are managed by committed and trained teachers and coaches, and supportive and informed parents, significantly influence the character of these physical activities and increase the likelihood of realizing the potential benefits of participation. (J Sch Health. 2006;76(8):397-401)*

Advocates of physical education and sport (PES) have listed numerous benefits associated with participation in these activities. For example, Talbot claims that physical education helps children to develop respect for the body—their own and others', contributes toward the integrated development of mind and body, develops an understanding of the role of aerobic and anaerobic physical activity in health, positively enhances self-confidence and self-esteem, and enhances social and cognitive development and academic achievement.¹ Writing specifically about sport, a Council of Europe report suggests that it provides opportunities to meet and communicate with other people, to take different social roles, to learn particular social skills (such as tolerance and respect for others), and to adjust to team/collective objectives (such as cooperation and cohesion), and that it provides experience of emotions that are not available in the rest of life. This report goes on to stress the important contribution of sport to processes of personality development and psychological well-being, stating that there is, “strong evidence ... on the positive effects of physical activities on self-concept, self-esteem, anxiety, depression, tension and stress, self-confidence, energy, mood, efficiency and well-being.”²

Such claims have often been criticized for lacking empirical foundations and for confusing policy rhetoric with scientific evidence.³ This paper seeks to explore some of the scientific evidence that has been gathered on the

contributions and benefits of PES for both children and for educational systems. In doing so, it will be using a framework and some of the data derived from a recent international research project,⁴ which drew evidence from over 50 countries, including a meta-analysis of statements of aims and standards, and national curricula.⁵ Findings suggest that the outcomes of PES can be understood in terms of children's development in 5 domains:

- Physical
- Lifestyle
- Affective
- Social
- Cognitive

As its title suggests, this article is concerned with “physical education and sport.” Since the relationship between the concepts “physical education” and “sport” continues to be a cause of debate,⁶ it is worthwhile clarifying the use of the terms in this review. In many, predominantly Anglophone, countries, the term “physical education” is used to refer to that area of the school curriculum concerned with developing students' physical competence and confidence, and their ability to use these to perform in a range of activities.⁷ “Sport” is a collective noun and usually refers to a range of activities, processes, social relationships, and presumed physical, psychological, and sociological outcomes.⁸ In this presentation, there appears to be a relatively clear conceptual distinction between these 2 terms. However, cross-cultural studies have revealed significant differences in the use of terminology in this area, and many educational systems use the terms synonymously, or simply use “sport” as a generic descriptor.⁹ For this reason, and in line with international agencies like the United Nations Educational, Scientific and Cultural

Richard Bailey, PhD, Professor of Pedagogy (r.bailey@roehampton.ac.uk), School of Education, Froebel College, Roehampton University, Roehampton Lane, London SW15 5PU, UK. This paper is based on the author's Keynote Scientific Presentation prepared for the Closing Manifestation of the 2004 European Year of Education through Sport, The Netherlands, December 1, 2004. Thanks are due to the Dutch Government for the invitation to present at this event and to the International Olympic Committee for funding the original study from which this review developed.

Organization (UNESCO),¹⁰ the inclusive term “physical education and sport” will be used to refer to those structured, supervised physical activities that take place at school and during the school day.

PHYSICAL DEVELOPMENT

PES in school is the main societal institution for the development of physical skills and the provision of physical activity in children and young people.¹¹ For many children, school is the main environment for being physically active, through either PES programs or after-school activities.¹² There is evidence that for a growing number of children, school provides the main opportunity for regular, structured physical activity as a combination of economic pressures¹³ and parental concerns for safety¹⁴ means that fewer children are able to play games in nonschool settings. Moreover, school-based PES offers a regulated opportunity for usually qualified, accountable teachers to introduce physical activities and lifestyle skills and knowledge in a structured way to all children, within a safe and supportive environment.¹⁵

The physical health benefits of regular physical activity are well established.¹⁶ Regular participation in such activities is associated with a longer and better quality of life, reduced risk of a variety of diseases, and many psychological and emotional benefits.¹⁷ There is also a large body of literature showing that inactivity is one of the most significant causes of death, disability, and reduced quality of life across the developed world.¹⁸ Evidence is starting to appear suggesting a favorable relationship between physical activity and a host of factors affecting children’s physical health, including diabetes, blood pressure,¹⁹ bone health,²⁰ and obesity.²¹

Basic movement skills, like those developed in PES, form the foundation of almost all later sporting and physical activities.²² There is evidence that those who have developed a strong foundation in fundamental movement skills are more likely to be active, both during childhood and later in life.²³ There is also a frequently cited, but underresearched, hypothesis that the development of a broad range of these basic movement skills through PES programs is a necessary condition for excellence in sport.²⁴ Conversely, children who have *not* been able to acquire an adequate base of movement competences are more likely to be excluded from participation in organized sports and play experiences with their friends because of a lack of basic physical skills.²⁵ So, as one of the most highly valued aspects of many children’s and young people’s lives, such omission from the activities that make up PES is likely to have far-reaching and harmful consequences to the development and education of many children.²⁶

LIFESTYLE DEVELOPMENT

Physical inactivity has been identified as a major risk factor for coronary heart disease,²⁷ as well as being associated with premature mortality²⁸ and obesity.²⁹ It is not surprising, then, that PES programs — some of the few opportunities to promote physical activities amongst all children³⁰ — have been proposed as a cost-effective way to influence the next generation of adults to lead physically active lives.³¹

The mechanisms by which active young people become active adults are unclear. However, research suggests that

a number of factors contribute to the establishment of physical activity as part of a healthy lifestyle. There is some evidence that health-related behaviors learned in childhood are often maintained into adulthood.³² The extent to which physical activity patterns are maintained over time is less clear.³³ The Amsterdam Growth Study did not find evidence of tracking of physical activity from 13 and 27 years.³⁴ Other studies, however, *have* found that youth activity carries on into later life.¹² A review of retrospective and longitudinal studies reported that physical activity and sports participation in childhood and youth represents a significant predictor of later activity. Interestingly, studies also show how strongly *inactivity* in youth tracks to adulthood,³⁵ so exclusion from PES can be associated with a legacy of inactivity and associated ill-health in the years to come.

There have been frequent claims that school PES create important contexts in which physical activity levels are influenced.³⁶ Studies have found that school-based programs can contribute to physical activity levels, both during youth and later in life.³⁷ The potency of PES’ influence on physical activity seems to be greatest when programs combine classroom study with activity,³⁸ when they allow students’ experiences of self-determination and feelings of competence in their own abilities,³⁹ and when they emphasized enjoyment and positive experiences.⁴⁰

AFFECTIVE DEVELOPMENT

There is now fairly consistent evidence that regular activity can have a positive effect upon the psychological well-being of children and young people, although the underlying mechanisms for explaining these effects are still unclear.⁴¹ The evidence is particularly strong with regards to children’s self-esteem.^{42,43} Other associations with regular activity that have been reported include reduced stress, anxiety, and depression.⁴⁴ All of these lend support to the claim that well-planned and presented PES can contribute to the improvement of psychological health in young people.

One especially relevant set of findings, in this regard, relates to the development of perceived physical competence. It has been suggested that self-esteem is influenced by an individual’s perceptions of competence or adequacy to achieve,⁴⁵ and that it is also worth considering the growing interest in the relationship between PES and students’ general attitudes toward school.^{46,47} The evidence supporting such claims is limited and is mostly based on small-scale studies or anecdotal evidence.⁴⁸ However, some studies report generally positive outcomes in terms of pupil attendance following the introduction of PES schemes, and there is evidence from studies of pupils at risk of exclusion from school that an increase in the availability of PES programs would make the school experience more attractive.⁴⁹

On the theme of the relationship between PES and attitudes to school, it ought to be acknowledged that not all pupils enjoy such activities, at least when presented in certain ways. For example, many girls acquire a progressive disillusionment with certain aspects of PES and totally disengage from participation as they move through secondary schooling.⁵⁰ So it would be misleading to suggest that PES will *necessarily* contribute toward positive attitudes to school in all pupils as inappropriate provision

might actually increase disaffection and truancy.⁵¹ More positively, though, there is a great deal of research showing that when PES activities are presented in attractive and relevant ways to girls, they can enjoy participation as much as boys.⁵²

SOCIAL DEVELOPMENT

The idea that PES positively affect young people's social development and prosocial behavior goes back many years.⁵³ PES settings are considered an appealing context because both naturally occurring and contrived social interactions frequently emerge⁵⁴ and because the public nature of participation usually makes both socially appropriate and inappropriate behaviors evident.⁵⁵

The research literature on the relationship between PES and social development is equivocal.⁵⁶ It does not seem to be the case that prosocial behavior necessarily improves as a result of engagement,⁵⁷ and there is evidence that in some circumstances behavior actually worsens.⁵⁸ However, numerous studies have demonstrated that appropriately structured and presented activities *can* make a contribution to the development of prosocial behavior,² and can even combat antisocial and criminal behaviors in youth.⁵⁹

The most encouraging findings come from school-based studies, especially those focusing on PES curriculum programs.⁶⁰ While a wide range of physical activities seem able to offer valuable environments for social development, school-based programs have a number of advantages, such as access to nearly all children,⁶¹ fewer external pressures to emphasize outcome and competition, and the ability to integrate social education with the similar teaching across the school curriculum.⁶² Intervention studies have produced generally positive results, including improvements in moral reasoning,⁶³ fair play and sportsmanship,⁶⁴ and personal responsibility.⁶⁵ It also seems that the most promising contexts for developing social skills and values are those mediated by suitably trained teachers and coaches who focus on situations that arise naturally through activities, by asking questions of students and by modeling appropriate responses though their own behavior.⁶⁶

Of related concern is the issue of social inclusion and exclusion. Combating social exclusion, or the factors resulting in people being excluded from the normal exchanges, practices and rights of modern society,⁶⁷ has become a focus of attention for governments and nongovernment organizations in recent years.⁶⁸ Some writers have argued that PES not only reflects but can also contribute to some groups' social exclusion.⁶⁹ However, positive experiences do seem to have the potential to, at least, contribute to the process of inclusion by bringing individuals from a variety of social and economic background together in a shared interest, offering a sense of belonging to a team or a club, providing opportunities for the development of valued capabilities and competencies, and developing social networks, community cohesion, and civic pride.³

COGNITIVE DEVELOPMENT

There is a long tradition claiming that a "healthy body leads to a healthy mind," and that physical activity can support intellectual development in children.⁷⁰ However,

there is also an increasing concern by some parents that, while PES has its place, it should not interfere with the real business of schooling, which many believe to be academic achievement and examination results.⁷¹

Researchers have suggested that PES can enhance academic performance by increasing the flow of blood to the brain, enhancing mood, increasing mental alertness, and improving self-esteem.⁷² The evidence base of such claims is varied and more research is still required. However, existing studies do suggest a positive relationship between intellectual functioning and regular physical activity, both for adults and children.

The classic study of the relationship between PES and general school performance was carried out in France in the early 1950s.⁷³ Researchers reduced "academic" curriculum time by 26%, replacing it with PES; yet, academic results did not worsen, and there were fewer discipline problems, greater attentiveness, and less absenteeism. More recent studies have found improvements for many children in academic performance when time for PES is increased in their school day.⁷⁴ A review of 3 large-scale studies found that academic performance is maintained or even enhanced by an increase in a student's levels of PES, despite a reduction in the time for the study of academic material.⁷⁵

Overall, the available research evidence suggests that increased levels of physical activity in school—such as through increasing the amount of time dedicated to PES—does not interfere with pupils' achievement in other subjects (although the time available for these subjects is consequently reduced) and in many instances is associated with improved academic performance.

CONCLUDING COMMENTS

Clearly, PES have the potential to make significant contributions to the education and development of children and young people in many ways, although further research and evaluation will help us better understand the nature of these contributions. Nevertheless, in each of the domains discussed—physical, lifestyle, affective, social, and cognitive—there is evidence that PES can have a positive and profound effect. In some respects, such an effect is unique, owing to the distinctive contexts in which PES take place. Consequently, there is a duty for those who teach and acknowledge the value of PES to act as advocates for its place as a necessary feature of the general education of all children. They need to argue not just for the inclusion of PES within the curriculum, and for the provision of sufficient time, but also to stress the importance of the *quality* of the program and share information on the benefits of PES among administrators, parents, and policy makers.

A note of caution should be sounded, too. The scientific evidence does *not* support the claim that these effects will occur automatically. There is no reason to believe that simply supporting participation in PES will necessarily bring about positive changes to children or to their communities. The actions and interactions of teachers and coaches largely determine whether or not children and young people experience these positive aspects of PES and whether or not they realize its great potential. Contexts that emphasize positive PES experiences, characterized by enjoyment,

diversity, and the engagement of all, and that are managed by committed and trained teachers and coaches, and supportive and informed parents, are fundamental. ■

References

1. Talbot M. The case for physical education. In: Doll-Tepper G, Scoretz D, eds. *World Summit on Physical Education*. Berlin, Germany: ICSSPE; 2001:39-50.
2. Svoboda B. *Sport and Physical Activity as a Socialisation Environment: Scientific Review Part 1*. Strasbourg, France: Council of Europe; 1994.
3. Bailey R. Evaluating the relationship between physical education, sport and social inclusion. *Educ Rev*. 2004;56(3):71-90.
4. Bailey R, Dismore H. Sport in Education (SpinEd)—the role of physical education and sport in education. Project Report to the 4th International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport (MINSEPS IV), December 2004; Athens, Greece.
5. NASPE. *Physical Activity for Children: A Statement of Guidelines for Children Ages 5-12*. 2nd ed. Reston, Va: NASPE; 2004.
6. Bergmann Drewe S. *Why Sport? An Introduction to the Philosophy of Sport*. Toronto, Ontario: Thompson; 2003.
7. Department for Education and Employment. *Physical Education: The National Curriculum for England and Wales*. London, UK: Department for Education and Employment; 2000.
8. Council of Europe. *Recommendation No. R. (92) 13 REV of the Committee of Ministers of Member States on the Revised European Sports Charter*. Strasbourg, France: Council of Europe; 2001.
9. Bailey R, Dismore H. *Sport in Education (SpinEd)—The Role of Physical Education and Sport in Education. Final Report*. Berlin, Germany: International Council for Physical Education and Sport Science; 2004.
10. UNESCO. Declaration of Athens: Fourth International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport, MINEPS IV, December 6-8, 2004; Athens, Greece. Paris, France: UNESCO; 2004.
11. Sallis J, McKenzie T, Alcaraz J, Kolody B, Faucette N, Hovell M. The effects of a 2-year physical education (SPARK) program on physical activity and fitness of elementary school children. *Am J Public Health*. 1997;87:1328-1334.
12. Telama R, Yang X, Laakso L, Viikari J. Physical activity in childhood and adolescence as predictor of physical activity in adulthood. *Am J Prev Med*. 1997;13:317-323.
13. Kirk D, Carlson T, O'Connor T, Burke P, Davis K, Glover S. The economic impact on families on children's of children participation in junior sport. *Aust J Sci Med Sport*. 1997;29:27-33.
14. Ollendick T, King N, Frary R. Fears in children and adolescents: reliability and generalizability across gender, age and nationality. *Behav Res Ther*. 1989;27:19-26.
15. National Association for Sport and Physical Education. Is it physical education or physical activity? NASPE position statement. *Strategies*. 2005;19(2):33-34.
16. World Health Organisation/Fédération Internationale de Médecine du Sport—Committee on Physical Activity for Health. Exercise for health. *Bull World Health Organ*. 1995;73:135-136.
17. Sallis J, Owen N. *Physical Activity and Behavioral Medicine*. Thousand Oaks, Calif: Sage; 1999.
18. US Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta, Ga: Centers for Disease Control; 1996.
19. Malina R, Bouchard C. *Growth, Maturation and Physical Activity*. Champaign, Ill: Human Kinetics; 1991.
20. Bailey D, Martin A. Physical activity and skeletal health in adolescents. *Pediatr Exerc Sci*. 1994;6:348-360.
21. Gutin B, Barbeau P, Yin Z. Exercise interventions for prevention of obesity and related disorders in youth. *Quest*. 2004;56:120-141.
22. Gallahue DL, Ozmun JC. *Understanding Motor Development: Infants, Children, Adolescents, Adult*. 5th ed. Boston, Mass: McGraw-Hill; 1998.
23. Okely A, Booth M, Patterson JW. Relationship of physical activity to fundamental movement skills among adolescents. *Med Sci Sports Exerc*. 2001;33:1899-1904.
24. Abbott A, Collins D, Martindale R, Sowerby K. *Talent Identification and Development: An Academic Review*. Edinburgh, UK: Sport Scotland; 2002.
25. Ignico A. The influence of gender-role perception on activity preferences of children. *Play Culture*. 1990;3:302-310.
26. President's Council on Physical Fitness and Sport. *Physical Activity and Sport in the Lives of Girls: Physical and Mental Health Dimensions from an Interdisciplinary Approach*. Washington, DC: President's Council on Physical Fitness and Sport; 1997.
27. Freedman D, Kettel Khan L, Dietz W, Srinivasan S, Berenson G. Relationship of childhood obesity to coronary heart disease risk factors in adulthood: the Bogalusa Heart Study. *Pediatrics*. 2001;108:712-718.
28. Paffenberger R, Hyde R, Wing AL, Hsieh C. Physical activity, all-cause mortality and longevity of college alumni. *N Engl J Med*. 1986;314:605-613.
29. Sallis J, Patrick K. Physical activity guidelines for adolescents: a consensus statement. *Pediatr Exerc Sci*. 1994;6:307-330.
30. Fox K. Physical activity promotion and the active school. In: Armstrong N, ed. *New Directions in Physical Education*. London, UK: Cassell; 1996:94-109.
31. Shephard R, Trudeau F. The legacy of physical education: influences on adult lifestyle. *Pediatr Exerc Sci*. 2000;12:34-50.
32. Kelder S, Perry C, Klepp K, Lytle L. Longitudinal tracking of adolescent smoking, physical activity and food choices behavior. *Am J Public Health*. 1994;84:1121-1126.
33. Pangrazi R, Corbin C. Health foundations: toward a focus on physical activity promotion. *Int J Phys Educ*. 2000;37:40-49.
34. Van Mechelen W, Kemper H. Habitual physical activity in longitudinal perspective. In: Kemper H, ed. *The Amsterdam Growth Study: A Longitudinal Analysis of Health, Fitness and Lifestyle*. Champaign, Ill: Human Kinetics; 1995:135-158.
35. Raitakari O, Porkka K, Taimela R, Telama R, Räsänen L, Viikari J. Effects of persistent physical activity and inactivity on coronary risk factors in children and young adults. *Am J Epidemiol*. 1994;140:195-205.
36. Sallis J, McKenzie T. Physical education's role in public health. *Res Q Exerc Sport*. 1991;62:124-137.
37. Trudeau F, Laurencelle L, Tremblay J, Rajic M, Shephard RJ. Daily primary school physical education: effects on physical activity during adult life. *Med Sci Sports Exerc*. 1999;31:111-117.
38. Dale D, Corbin C, Cuddihy T. Can conceptual physical education promote physically active lifestyles? *Pediatr Exerc Sci*. 1998;10:97-109.
39. Ferrer-Caja E, Weiss M. Predictors of intrinsic motivation among adolescent students in physical education. *Res Q Exerc Sport*. 2002;71:267-279.
40. McKenzie T, Sallis J, Kolody B, Faucett F. Long-term effects of a physical education curriculum and staff development work: SPARK. *Res Q Exerc Sport*. 1997;53:326-334.
41. Dishman R. Physical activity and public health: mental health. *Quest*. 1995;47:362-385.
42. Fox K. The self-esteem complex and youth fitness. *Quest*. 1988;40:230-246.
43. Fox K. The effects of exercise on self-perceptions and self-esteem. In: Biddle S, Fox K, Boutcher S, eds. *Physical Activity and Psychological Well-being*. London, UK: Routledge; 2000:88-117.
44. Hassmen P, Koivula N, Uutela A. Physical exercise and psychological well-being: a population study in Finland. *Prev Med*. 2000;30:17-25.
45. Harter S. The determinants and mediational role of global self-worth in children. In: Eisenberg N, ed. *Contemporary Topic in Developmental Psychology*. New York, NY: Wiley; 1987:219-242.
46. Sabo D, Melnick M, Vanfossen B. *The Women's Sports Foundation Report: Minorities in Sports*. East Meadow, NY: Women's Sports Foundation; 1989.
47. Marsh H, Kleitman S. School athletic participation: mostly gain with little pain. *J Sport Exerc Psychol*. 2003;25:205-228.
48. Berger B. Psychological benefits of an active lifestyle: what we know and what we need to know. *Quest*. 1996;48:330-353.
49. Fejgin N. Participation in high school competitive sports: a subversion of school mission or contribution to academic goals? *Sociol Sport J*. 1994;11:211-230.
50. Fuchs R, Powell K, Semmer N, Dwyer J, Lippert P, Hoffmoester H. Patterns of physical activity among German adolescents: the Berlin Bremen study. *Prev Med*. 1988;17:746-763.

51. Kirk D, Fitzgerald H, Wang J, Biddle S. *Towards Girl-Friendly Physical Education: The Nike/YST Girls in Sport Partnership Project—Final Report*. Loughborough, UK: Institute for Youth Sport; 2000.
52. Sabo D, Miller K, Melnick M, Heywood L. *Her Life Depends on It: Sport, Physical Activity and the Health and Well-Being of American Girls*. East Meadow, NY: Women's Sports Foundation; 2004.
53. Weiss M, Bredemeier B. Moral development in sport. In: Pandolf K, Hollowsy J, eds. *Exercise and Sport Sciences Reviews—Volume 18*. Baltimore, Md: Williams and Wilkins; 1990:331-374.
54. Bailey RP. The value and values of sport. In: Bailey R, ed. *Teaching Values and Citizenship Across the Curriculum*. London, UK: Kogan Page; 2000:105-115.
55. Miller S, Bredemeier B, Shields D. Sociomoral education through physical education with at-risk children. *Quest*. 1997;49:114-129.
56. Kleiber D, Roberts C. The effects of sport experience in the development of social character: an exploratory investigation. *J Sport Psychol*. 1981;3:114-122.
57. Reddiford G. Morality and the games player. *Phys Educ Rev*. 1981;4:8-16.
58. Beller J, Stoll S. Moral reasoning of high school student athletes and general students: an empirical study versus personal testimony. *Pediatr Exerc Sci*. 1995;7:352-363.
59. Morris L, Sallybanks J, Willis K, Makkai T. *Sport, Physical Activity and Antisocial Behaviour in Youth. Trends and Issues in Crime and Criminal Justice—No. 249*. Canberra, Australia: Australian Institute of Criminology; 2003.
60. Wandzilak T, Carroll T, Ansoorge C. Values development through physical activity: promoting sportsmanlike behaviors, perceptions, and moral reasoning. *J Teach Phys Educ*. 1988;8:13-22.
61. Caine D, Krebs E. The moral development objective in physical education: a renewed quest? *Contemp Educ*. 1986;57:197-201.
62. Shields D, Bredemeier B. *Character Development and Physical Activity*. Champaign, Ill: Human Kinetics; 1995.
63. Romance T, Weiss M, Bockoven J. A program to promote moral development through elementary school physical education. *J Teach Phys Educ*. 1986;5:126-136.
64. Gibbons S, Ebbeck V, Weiss M. Fair play for kids: effects on the moral development of children in physical education. *Res Q Exerc Sport*. 1995;66:247-255.
65. Hellison D. Teaching responsibility in school physical education. In: Feingold R, Rees C, Barrette G, Fiorentino L, Virgilio S, Kowalski E, eds. *Education for Life: Proceedings of the 1998 AIESEP Conference*. New York, NY: Adelphi University; 1998.
66. Ewing M, Gano-Overway L, Branta C, Seefeldt V. The role of sports in youth development. In: Gatz M, Messner M, Ball-Rokeach SJ, eds. *Paradoxes of Youth and Sport*. New York, NY: State University of New York; 2002:31-47.
67. *Commission of the European Communities Background Report: Social Exclusion—Poverty and Other Social Problems in the European Community*. Luxembourg, Luxembourg: Office for Official Publications of the European Communities; 1993.
68. Micklewright J. *Social Exclusion and Children: A European View for a US Debate*. Florence, Italy: UNICEF Innocenti Research Centre; 2002. Innocenti Working Papers No. 9.
69. Collins M, Kay T. *Sport and Social Exclusion*. London, UK: Routledge; 2003.
70. Snyder E, Spreitzer E. Sport education and schools. In: Lueschen G, Sage G, eds. *Handbook of Social Science of Sport*. Champaign, Ill: Stipes; 1977:119-146.
71. Lau P, Yu C, Lee A, So R, Sung R. The relationship among physical fitness, physical education, conduct and academic performance of Chinese primary school children. *Int J Phys Educ*. 2004;12:17-26.
72. Hills A. Scholastic and intellectual development and sport. In: Chan K-M, Micheli L, eds. *Sports and Children*. Champaign, Ill: Human Kinetics; 1998:76-90.
73. Herve R. Vanves, son Experience, ses Perspectives. *Rev Institut Sports*. 1952;24:4-6.
74. Sallis J, McKenzie J, Kolody B, Lewis M, Marshall S, Rosengard P. Effects of health-related physical education on academic achievement: project SPARK. *Res Q Exerc Sport*. 1999;70:127-134.
75. Shephard R. Curricular physical activity and academic performance. *Pediatr Exerc Sci*. 1997;9:113-126.

Helping the Student with Diabetes Succeed: A Guide for School Personnel
Available from the National Diabetes Education Program

This comprehensive guide provides school personnel, parents, and students with a framework for managing diabetes effectively in the school setting. The guide helps to ensure that students with diabetes are medically safe and have access to all educational opportunities and activities. Developed by the U.S. Department of Health and Human Services' National Diabetes Education Program, the guide includes user-friendly tools, copier-ready action plans, a diabetes primer, and a review of school responsibilities under federal laws. To obtain a copy of the guide, visit www.ndep.nih.gov/resources/school.htm or call 1-800-438-5383.



Copyright of Journal of School Health is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.