Children and Young People – the Importance of Physical Activity

A paper published in the context of the European Heart Health Initiative

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Foreword

In 1998, the European Heart Health Initiative (EHHI) was launched. Funded in part by the European Commission, EHHI was based on an expert report published in February 1997, which examined how coordinated European action could enhance efforts to reduce the burden of cardiovascular diseases (CVD).

In the course of the initial phase of the EHHI, which lasted approximately two years, a structure of national alliances was put in place and a number of activities were implemented. The national alliances were led by national coordinators who met at European level to discuss developments in their respective countries. Based on these exchanges, a pan-European theme was agreed: children and young people. To address this target group, a declaration was adopted that reflects the fact that CVD is largely preventable and encapsulates the aims of heart foundations everywhere: *'Every child born in the new millennium has the right to live until the age of at least 65 without avoidable cardiovascular disease'*. The importance of the theme is further substantiated by the fact that risk factors develop early in life and are, therefore, most effectively tackled at an early age.

Many organisations active in health promotion had already created programmes targeting children and young people, but the focus was sharpened by the Europe-wide cooperation. The dramatic increase in levels of overweight and obesity observed in European children and adolescents demanded action. In the subsequent phase of the EHHI, it was agreed to examine more closely children's and young people's engagement in physical activity at various levels.

This paper is the fruit of the joint work of the national coordinators and their national alliances as well as experts in the area of physical activity. Evidence has been reviewed by experts and discussed in depth by the national coordinators. The paper is published in the context of the EHHI with the intention of promoting physical activity measures as a way to reduce the burden of CVD.

It is known that physical activity is an important factor in maintaining a healthy heart. Practising healthy dietary habits and remaining smoke free are other factors that must be considered equally, but this paper is concerned only with physical activity. It sets out the nature of the problem and proposes realistic approaches to solving it. Everyone who has contributed to this paper is adamant on this point: raising levels of physical activity in the population is one key to managing the burden of CVD. An insufficient level of physical activity is an issue of concern to all European Union countries as well as to the candidate countries.

We therefore recommend that the European Commission, in accordance with its health mandate, come forward with a proposal for a Council Recommendation in the area of children and young people and physical

activity. We are firmly convinced that such an action will provide a strong impetus to the Member States, which will be able to draw on the information in this paper in addition to material that is available in their own countries.

1. Introduction – Young People and Physical Activity

Physical activity should be a normal part of growing up for young people. Throughout the early years of life, physical activity plays a key part in young people's physical, social and mental development. All forms of activity have a part to play over the years, whether informal play, 'free range' activity and games, physical education, sport, walking and cycling as transport, or more formal 'exercise'. Babies learn and develop physical capabilities through play; toddlers develop key social skills through games with others; and young people develop basic skills and an understanding of rules and team membership through sport and physical education.

In addition, a physically active lifestyle has direct and indirect health benefits for young people, particularly by: preventing overweight and obesity; helping to build strong bones, healthy joints, and an efficient heart; promoting good mental health; and establishing healthy lifestyles that may be continued into adulthood.

Many young people do take part in regular physical activity and sport and reap the benefits to their health, development, enjoyment and friendships. However, large numbers of young people across the European Union (EU) are not taking part in physical activity to a level recommended to benefit their health.[1] The provision of physical education in schools has declined in many countries. Outside of school, opportunities to be active in daily life are decreasing. This is due to a combination of the low availability of safe and accessible places for activity, the lack of adult support, supervision and guidance, and to the increasing popularity of the car as a mode of transport and the computer or television screen as a mode of recreation.[2]

Participation in exercise and sport can also enhance social integration, cultural tolerance, understanding of ethics and respect for the environment. All these benefits have a growing importance for young Europeans.

[1] WHO, *Health behaviour in school-aged children: a WHO cross-national study (HBSC),* International Report World Health Organization Regional Office for Europe, 2000.
[2] Dietz, W.H., The obesity epidemic in young children. Reduce television viewing and promote playing, *BMJ*, 2001, 322(7282): 313-14.

2. The Nature of the Problem

i) Physical inactivity harms current and future health

There is a strong and growing body of evidence that indicates that regular physical activity is one of the cornerstones of adult health. Physical activity reduces morbidity and mortality from many of the leading causes of ill health, notably coronary heart disease, as well as having positive effects on aspects of health including control of body fat and weight, and counteracting depression and anxiety.[3] Many of the serious diseases of adult life have their origins in a younger age, even as far back as childhood.

The direct relationship between physical activity and health is less clear for young people. This is partly due to methodological problems, but is primarily because the main morbidities which affect adults, and which are caused at least in part by a sedentary lifestyle, have not had long enough to develop.[4]

The main exception to this is childhood obesity, which has been referred to as a global epidemic,[5] and can be considered a health problem in its own right. Obesity levels have increased across the EU in recent years.[6]

Obesity can be referred to as a symptom of an imbalance between caloric intake as food and calories expended through physical activity. Although physical inactivity does not on its own cause obesity, there is a correlation between sedentary behaviours and levels of overweight and obesity. Persistent obesity in childhood may increase the risk of developing many chronic diseases in adulthood. These include cardiovascular diseases, non-insulin dependent diabetes mellitus (now occurring in children), osteoarthritis, and colon cancer. Obesity is also linked to psychosocial and psychological problems which can persist into adulthood.[7]

The link between obesity and physical activity is important as there is good tracking of obesity from youth into adulthood, and physical activity, combined with dietary modification, has been shown to be an effective treatment for obesity.[8] It has been suggested that this alone, together with likely

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[3] U.S. Department of Health and Human Services, *Physical activity and health: A report of the Surgeon General*, Atlanta, GA: Centres for Disease Control and Prevention, 1996.
[4] Riddoch, C., Relationships between physical activity and physical health in young people. In: Biddle, S., Sallis, J., Cavill, N., editors, *Young and active? Young people and health-enhancing physical activity: Evidence and implications*, London: Health Education Authority, 1998: 17-48.
[5] World Health Organization, *Obesity: preventing and managing the global epidemic*, Geneva: WHO, 1998.
[6] Durnin, J.V.G.A., Physical activity levels past and present, in: Norgan, N., editor, *Physical activity and health*, Cambridge: Cambridge University Press, 1992: 20-27.
[7] Edmunds, et al., Evidence based management of childhood obesity, *BMJ* 2001; 323: 916–19.
[8] Bar-Or, 0., and Baranowski, I., Physical activity, adiposity and obesity among adolescents, *Ped. Exer. Sci.* 6: 348-60, 1994.

improvements in young people's psychological health, constitutes sufficient reason to justify efforts to assist all young people in developing regular physical activity habits.[9]

Indeed, the importance of the links between physical activity and psychological health should not be underestimated. Physical activity can reduce symptoms of depression and anxiety, and enhance psychological wellbeing and self-esteem. This is particularly marked in disadvantaged groups such as those with learning difficulties and those who initially suffer from low self-esteem.

Participation in strength and weight-bearing activities is also important, as this is positively associated with bone mineral density and is believed to be related to a reduced long-term risk of osteoporosis and osteoarthritis.[10] Developing muscular strength is important to help activities of daily life such as lifting and carrying, bending and twisting and protecting joints from injuries and malfunction.[9]

ii) Active lifestyles in young people may influence adult lifestyles

This is a strong rationale for encouraging the development of healthy habits among young people. Although the evidence to support the 'tracking' of activity from youth into adulthood is sparse,[11] this may be due to methodological problems rather than the lack of any 'tracking' effect.

Studies testing the statistical relationship between physical activity in adulthood and activity in childhood or adolescence show a low-to-moderate level of association, meaning that active children do not necessarily become active adolescents or active adults.[12,13] However, studies show slightly stronger effects for the nature of early life experiences in physical activity as precursors of adult physical activity, although these effects appear small.[14] It may be that physical inactivity tracks better into adulthood (meaning that

[9] Riddoch, C., Relationships between physical activity and physical health in young people, in: Biddle, S., Sallis, J., Cavill, N., editors, *Young and active? Young people and health-enhancing physical activity: Evidence and implications*, London: Health Education Authority, 1998: 17-48.
[10] Grimston, S.K., Willows, N.D., and Haniey, D.A., Mechanical loading regime and its relationship to bone mineral density in children, *Med Sci Sports Exerc* 25 (11): 1203-10, 1993.
[11] Cavill, N., Biddle, S., What are the determinants of young people's participation in physical activity? Does activity in childhood continue into adulthood?, Paper for NHF Young@Heart conference, National Heart Forum, London, 2001.
[12] Powell, K.E., Dsyinger, W., Childhood participation in organized school sports and physical education as precursors of adult physical activity, *American Journal of Preventive Medicine,* 1987; 3(5): 276-81.
[13] Malina, R.M., Tracking of physical activity and physical fitness across the lifespan, *Research Quarterly for Exercise and Sport* 1996; 67 (3, Suppl.): S48-S57.
[14] Engstrom, L.-M., Exercise adherence in sport for all from youth to adulthood, in: Oja, P., Telama, R., editors, *Sport for all*, Amsterdam: Elsevier, 1991: 473-83.

sedentary young people have an increased risk of becoming sedentary adults) but research in this area yields mixed results.[15]

Some studies have shown that a physically active lifestyle during childhood and adolescence is associated with lower body fat and increased fitness in young adulthood.[16,17] There is also some evidence that active boys and girls are less likely to become regular smokers. However, it should be pointed out that there are many problems of measurement of physical activity which may contribute to the lack of clarity in this area.

However, the lack of evidence of the direct 'tracking' of physical activity from youth to adulthood does not justify complacency. The importance of physical activity in influencing other aspects of current and future health justifies efforts to design programmes which give young people positive experiences and aim to maximise the possibility that physical activity in youth may be continued into adulthood.

iii) Physical activity helps development

Finally, it should be remembered that physical activity – whether through sport, games, play, dance, structured exercise, or walking and cycling – can give young people valuable experiences that help in learning basic motor skills as well as in social integration, moral and social development[18] and the joy of movement and exploration.

[15] Twisk, J.W.R., Physical activity guidelines for children and adolescents: A critical review, *Sports Medicine* 2001: 31 (8); 617-627.
16 Telama, R., Laakso, L., Yang, X., Viikari, J., Physical activity in childhood and adolescence as predictors of physical activity in young adulthood, *Am J of Prev Med* 1997; 13(4): 317-23.
17 Van Mechelen et al., Physical Activity of Young People: The Amsterdam Longitudinal Growth and Health Study, *Med Sci Sport Ex* 2000; 32: 1250-57.
18 Shields, D.L.L. and Bredemeier, B.J.L., Character development and physical activity, Champaign: Human Kinetics, 1994.

3. The Scale of the Problem

i) Patterns of activity

The Health Behaviour of School Children survey[19] provides the most comprehensive data on activity patterns across Europe among 11 to 15-year-olds. These data do need to be treated with caution, however, due to inconsistencies in the way the questions were asked in each country.[20] It is thought that seasonal variations in particular may affect the data, as the time of year for the survey was not standardised.

The survey shows that in all EU Member States, the majority of 11-year-olds report exercising twice a week or more, with a great variation between countries. For example 54% of girls in France are active at this level compared to 89% of girls in Northern Ireland, and 76% of boys in Norway compared to 93% of boys in Northern Ireland.

In all countries boys are more active than girls, and time spent in activity declines with age across the majority of countries. By age 15, the most active countries still have around 90% of boys exercising twice a week (Northern Ireland; Austria) and 67% of girls (Germany and Austria) while the least active have around 70% of boys (Denmark Norway and Sweden) and 45% of girls (Greece and France).

Television watching was also measured, and it was found that in many countries, at least one in three young people aged 11-15 reported watching television for as much as four hours or more per day.

ii) Prevalence of activity in the EU Member States

Measurement methods vary considerably between Member States' own surveys, but an overall picture can be gained of levels and types of activity. It is clear that many young people are very active, and enjoy a great deal of sport and recreation. However, in some countries, especially with boys, polarisation of activity can be observed: while the overall number of inactive young people grows, there is an increase in the proportion reporting vigorous activity. This leads to polarised groups of very active and very inactive adolescents.[21] This could in some cases be put down to the growth of organised activities at the expense of informal play or recreation.

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19 WHO, Health behaviour in school-aged children: a WHO cross-national study (HBSC), International Report World Health Organization Regional Office for Europe, 2000.
20 Countries in the study included Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Latvia, Lithuania, Norway, Palestinian Authority, Poland, Portugal, Russian Federation, Slovakia, Spain, Sweden, Switzerland, United Kingdom (including England, Wales, Scotland and Northern Ireland).
21 Rimpela, M., Telama, R., Trends in physical activity – and inactivity – in early adolescence: experiences from Finland, *Heart Matters* 1; 2001; 3-6.

- In Belgium a survey found that levels of inactivity were higher among girls than boys. For example among 12-year-olds, 6.3% of boys were doing activity less than one hour/week, compared to 16.5% of girls. Among 17-year-olds 15.2% of boys did less than one hour per week compared to 19% of girls. However, they also reported that physical activity levels increased among 12 to 17-year-olds between 1990 and 1997, particularly the proportion taking part in activity for more than six hours per week.[22]

- In Denmark[23] boys and girls (aged 7-15) are active on average for 36 minutes per day. This is self-reported activity but excludes walking and cycling as transport. Around 71% of all children are engaged in some kind of organised sports activity including being members of a club, with 17% involved in unorganised sports. Participation drops with age from 90% sport participation at age 12 to only 46% at age 17.

- In England, 61% of young males and 42% of young females (aged 7-18) achieved the recommendation for an hour a day of at least moderate intensity physical activity.[24] These proportions declined with age.

- A survey in Finland in 1999[25] showed that 40% of boys and 27% of girls aged 12-18 were active enough to meet the 'hour a day' recommended level of activity. Between 1997 and 1999 there was an increase in the proportion of boys and girls taking part in activity within sports clubs, and an increase in the proportion taking part in 'very frequent' activity. Activity outside sports clubs remained more common than participation in sports club activities.

- In Ireland 62% of boys and 45% of girls exercise four times per week. Levels decrease with age, from 63% of 9 to 11-year-olds and 58% of 12 to 14-year-olds to 40% of 15 to 17-year-olds.[26]

- In the Netherlands, most data are available for sport activity. Between 70 and 80% of Dutch youngsters aged 6 to 24 play sport on a regular basis. Participation declines with age, and males are more active than females. One survey found that 61% of boys and 35% of girls practise sport three times a week or more. [27]

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[22] Lefevre, J., et al., Bloso, Barometer of physical activity in youth in the Flemish part of Belgium, 1999.
[23] Wedderkopp N., Thesis from the Institute of Sport and Science and Clinical Biomechanics, Faculty of Health Sciences, University of Southern Denmark, Main campus: Odense University, 2001.
[24] Department of Health, National diet and nutrition survey: young people aged 4 to 18 years, HMSO London, 2000.
[25] Adolescent health and lifestyle survey (Finland): trends in physical activity of 12-18 year olds 1997 –1999, *Liikunta & Tiede*: 6, 2000: 4-11.
[26] Friel, S., Nic Gabhainn, S., Kelleher, C., The National Health and Lifestyle Surveys, Dept. of Health and Children, Dublin, 1999.
[27] NIPO 1999; research undertaken by Jeugd in Beweging.

In terms of more general physical activity, among young men and women aged 16-24, 20% are active for the recommended one hour per day. It should be noted however that this figure is for one hour a day of 'intensive' activity.

Data have been collected for some years in the Netherlands, and these indicate that between 1979 and 1999, there was in general *no* decrease in sports participation in any age group.

- One study in Norway found 85% of 9-year-old boys and 75% of 9-year-old girls were active for one hour per day.[28]

- In Spain, a survey[29] showed that 67% of 15 to 17-year-olds practised some form of physical activity on three or more occasions per week. This dropped to 49% of 18 to 24-year-olds. Young males were found to be more active than females. Participation levels have remained generally stable in the last ten years.

- In Sweden, it is estimated that at least 30% of adolescents do not achieve appropriate levels of physical activity considered to be beneficial for health.[30] Trend data comparing 16-year-olds from 1974 to 1995 showed that average weight and leg strength have increased, while total oxygen uptake (a measure of cardiorespiratory fitness) and arm strength have decreased.[31]

iii) Physical education in the Member States[32]

A world-wide UNESCO survey[33] showed that school-based physical education (PE) faces many challenges across the world. Some schools have sought to reduce the number of physical education lessons, often due to pressures on the curriculum from other subjects. The quality of teacher training is variable, as is the priority given to PE as a subject. This is the case despite data that show that an appropriately designed, delivered and supported PE curriculum can enhance current levels of physical activity and can improve physical skill development,[9] and that a greater number of PE

[28] Abstract from European Youth Heart Study, Norwegian Sports Medicine Congress 2001.
[29] García Ferrando, M., "Los Españoles y el Deporte: Prácticas y Comportamientos en la última década del siglo XX. Encuesta sobre los hábitos deportivos de los Españoles", 2000. Consejo Superior de Deportes, Madrid, in press.
[30] Ekelund, U., Sjöström, M., Yngve, A., Nilsson, A., Total daily energy expenditure and pattern of physical activity measured by minute-by-minute heart rate monitoring in 14-15 year old Swedish adolescents, *European Journal of Clinical Nutrition*, pp. 195-202.
[31] Jansson, E., Westerstahl, M. Har ungdomars fysiska kapacitet förändrats under de senaste 20 ärens? *Svensk Idrottsforskning* 2/98, 1998.
[32] All information in this section on PE levels was submitted by the EHHI national coordinators unless otherwise stated.
[33] Hardman K, Marshall, J., The state and status of physical education in schools in international context, *European Physical Education Review* 2000, 6, 3: 203-29.

lessons correlated with increased participation in active leisure pursuits.[34]

- In Austrian schools, there is compulsory PE in most types of schools. There is a goal of daily exercise for children and young people aged 6-14.

- In Denmark, two hours per week is the minimum provision of PE with some schools adding an extra hour of swimming at age 11. This marks a decline in provision from four lessons per week in the late 1960s. Some schools are engaged in projects to add extra PE classes to see the effect on fitness levels.

- In England, an 'entitlement' to two hours of physical activity in school per week was recently announced. This is not all to take place in PE lessons, however – it includes activity outside of core curriculum time.

  A survey showed a sharp decline in the amount of PE that schoolchildren are receiving in the last five years. The proportion spending two hours or more in PE lessons each week fell from 46% to 33% between 1994 and 1999. The decline in primary schools was even sharper – from 32% to 11%.

- In Finland, children aged 7-15 must do a compulsory two hours per week of PE. For 16 to 19-year-olds, one hour per week is compulsory in the first two years, but not in the third year.

- In Greece, physical activity programmes are mandatory in the school curricula and consist of two hours per week for the children aged 5½-12 years. Older children aged 12-15 are required to do three hours/ week for the first year, falling to two hours/week by the third year.

- In primary schools in Ireland the suggested minimum time for PE is one hour per week, with post-primary schools expected to offer two hours per week. This is expected to be supplemented by recreational opportunities in after-school hours. A new primary school curriculum currently being introduced provides for more emphasis on physical activity and improved training of PE teachers.

- In the Netherlands, while there is no compulsory number of hours for PE, the government funds provision of two sessions of 45 minutes per week for primary schools.

- In Norway, children aged 6-11 must do two sessions of 45 minutes per week, rising to three sessions for 12-year-olds, and four sessions for 13-year-olds. At the age of 14-15 the requirement falls to two sessions per

[34] Gordon-Larsen, P., McMurray, R. & Popkin, B., Determinants of adolescent physical activity and inactivity patterns, *Pediatrics*, 2000; 105: 6.

week.

- In Spain[35] it is compulsory for PE to be provided as part of the curriculum. From the age of 12, PE takes place for 50 minutes, twice a week, until age 16 when attendance is not compulsory. PE is taught to pupils aged 6-11 by qualified teachers, whereas for young people aged 12 and upwards PE is always taught by PE graduates. Around seven out of ten young people (aged 6-11) in Spain take part in extra-curricular sport and activity in addition to curricular PE.[36]

- In Sweden there is a legal minimum of one hour of PE per week during the comprehensive school, but many schools offer more. A study of actual time has found that time offered varied from 71 minutes per week in pre-school through to around 100 minutes per week from the fourth year of school.

[35] Data kindly provided by the Consejo Superior de Deportes, Spain.
[36] Rodriguez Allen, A., "Adolescencia y Deporte", Ed. Nobel, S.A. Oviedo, 2000.

iv) Prevalence of obesity among young people

Much attention has been focused in recent years on apparent rising levels of overweight and obesity among young people. Indeed, the World Health Organization has referred to a 'global epidemic' of obesity among adults and children.[37]

Any increase in body weight is caused by an excess of energy taken in as food over energy expended through physical activity. The twin causes of the rising levels of obesity in the population are therefore increased food consumption – notably of foods rich in saturated fat – and decreased energy expenditure. In the absence of high quality data on food consumption, it is difficult to state with certainty which of these issues is more important. What is clear, however, is that increasingly sedentary lifestyles are playing an important part in rising levels of obesity among young people.

Obesity in young people cannot be simply defined, due to variations in maturation. If young people mature earlier, they may appear overweight. In addition, there is no general consensus on standard definitions of obesity for young people, so that many studies continue to use adult definitions for overweight (body mass index >25) or obese (>30). However, data from many countries have shown that levels of overweight and obesity are high enough to give cause for concern:

- In Denmark 3% of girls aged 8-10 and 4% of boys aged 8-10 are classed as obese.[38]

- Among young people in England, it has been estimated that 20% of 4-year-olds were overweight, and 8% were obese. Among 16 to 24-year-olds, based on body mass index (BMI), 23% of young men and 19% of young women were overweight and a further 6% of young men and 8% of young women were obese.[39]

- Another study in England[40] has shown that the rate of obesity has increased dramatically in recent years. From 1984 to 1994 overweight among 4 to 11-year-olds increased from 5% to 9% in English boys and from 6% to 10% in Scottish boys. Values for girls were 9% to 14% and 10% to 16% respectively. The prevalence of obesity increased correspondingly, reaching 2% of English and Scottish boys, and 3% of English and Scottish girls. The authors concluded that these rising trends

[37] World Health Organization, Obesity: preventing and managing the global epidemic, Geneva: WHO, 1998.
[38] Wedderkopp, N., Thesis from Institute of Sport and Science and Clinical Biomechanics, Faculty of Health Sciences, University of Southern Denmark, Main campus: Odense University, 2001.
[39] Dept of Health, Health Survey for England. Health of Young People 1995-1997, TSO 1999.
[40] Chinn, S., Rona, R., Prevalence and trends in overweight and obesity in three cross sectional studies of British children, 1974-94, *BMJ* 2001; 322: 24-26.

are likely to be reflected in increases in adult obesity and associated morbidity.

- In Finland, the level of overweight and obesity of 12 to 18-year-olds increased steadily from 1977 to 1999.[41] The Adolescent Health and Lifestyle Survey collected data from national samples every other year and used international cut-off points for BMI. This showed that overweight has increased among 14-year-old boys from 6% to 17% and among girls from 4% to 10%. Obesity has increased from 2% to 3% in boys and from 0% to 2% in girls.

- In France the prevalence of obesity among 5 to 12-year-olds has doubled in 15 years, from 6% in the 1980s to around 12% today.[42]

- In the Netherlands, 16% of boys and 15% of girls aged 18-24 were classed as overweight (body mass index >25) in 1997, a rise from 15% and 11% in 1990.[43]

- In Norway the average increase in weight (adjusted for height) among 9-year-olds was found to be 3 kg in the last 25 years.[44]

[41] Kautiainen, S., Rimpelä, A., Vikat, A., Virtanen, S.M., Secular trends in overweight and obesity among Finnish adolescents in 1977-1999, *Int J Obes Relat Metab Dis*: in print.
[42] Gibault, T., L'Obesite de l'enfant, *Coeur et Sante* 127 Sept-Oct 2001.
[43] Van Mechelen et al., Physical Activity of Young People: The Amsterdam Longitudinal Growth and Health Study, *Med Sci Sport Ex* 2000; 32: 1250-1257.
[44] Extract from European Youth Heart Study, Unpublished.

4. The Proposed Approach

A number of consensus statements have attempted to define how much and what type of physical activity we should be encouraging young people to do. Recent statements have indicated that:

> "All young people should participate in physical activity of at least moderate intensity for one hour per day." [45,46]

Although it is important to note that these statements are based on expert consensus rather than data on any threshold effect of activity,[47] they do give a useful target level for promotion of physical activity. For the majority of young people in EU Member States, this level of activity represents a considerable increase over existing levels.

The recommendations include the idea of adding up activity over the day, which allows for the accumulation of short bouts of time taken up by different activities. This is particularly important for young people, who do not tend to take part in sustained activity of vigorous intensity. However, the optimum or minimum duration for an exercise session is not known. While there will be some benefits from short (1-2 minute) bursts of activity, it is likely that longer periods will lead to greater benefits. An achievable aim for most young people would be to break the one hour into four sessions of 15 minutes per day.

This accumulation of activity emphasises the role that all sectors in society play, as young people can reach their total hour of physical activity through sport, PE, games, walking or cycling, family activities or planned exercise.

Research on the determinants of activity among young people has shown that a variety of factors have an influence on physical activity levels.[48] Coupled with results from effective interventions, a number of priority policy areas can be outlined for action.

Firstly, in nearly all surveys, girls are less active than boys, and activity levels decline steeply in adolescence. It is thus crucial that activities are promoted which appeal to girls and young women, especially those entering adolescence. These should not necessarily be the activities that we assume are popular, but those actually identified by young people in consultation. Failures in this arena can be seen in the example of the skateboard parks that

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[45] Cavill, N., Biddle, S., Sallis, J.F., Health-enhancing physical activity for young people: Statement of the United Kingdom Expert Consensus Conference, *Pediatric Exercise Science,* 2001; 13: 12-25.
[46] National Heart Alliance, Ireland, Position Statement 2001.
[47] Twisk, J.W.R., Physical activity guidelines for children and adolescents: A critical review, *Sports Medicine* 2001: 31 (8); 617-627.
[48] Sallis, J.F., Prochaska, J.J., Taylor, W.C., A review of correlates of physical activity of children and adolescents, *Medicine and Science in Sports and Exercise* 2000; 32: 963-975.

were enthusiastically built in many cities in the UK during the 1970s only to lie unused during the 1980s.

Clearly, activity preferences are age-specific. Games for the under 5s are entirely different from those enjoyed by teenagers. Again, consultation is crucial to ensuring that needs are adequately met.

Young people are more likely to be physically active if they spend more time out of doors. Access to suitable environments and facilities are also key determinants. This justifies an environmental approach to promoting physical activity – supporting efforts made at EU and national level to increase funds available for environmental improvements which may make it easier for young people to enjoy sport and activity. This includes safe walking and cycling routes, access to countryside and open space as well as community sports and facilities.

After school and weekends are key times associated with activity for young people. If young people do not take part in activity during these times they are unlikely to reach recommended levels. Therefore the provision of facilities and services to promote activity at these times is crucial. After-school clubs can be the responsibility of schools or the voluntary sector, but must be designed around the needs of young people. The role of national governing bodies of sport in providing opportunities for participation in both school and after-school settings should be considered. Good provision of after-school clubs also helps with childcare so parents can remain at work, or perhaps pursue their own activities.

A family approach is also justified, in terms of encouraging family activities, although parents may need education and support to help them effectively encourage initiation and sustenance of activities.

Parents can help to influence activity preferences and participation among their children. Research in this area is mixed, but one of the clearest findings is that young people need actual support in being active – sometimes things as simple as being taken to a sports field, or being shown the safest route to walk or cycle to school.

The available data on physical activity participation by social class indicate that young people from lower socio-economic groups are less active, and have less access to sports and exercise facilities and programmes. Policies should therefore aim to offer opportunities for appropriate physical activity for people from disadvantaged backgrounds.

Finally, physical education (PE) is clearly an absolutely crucial area. PE needs to be enhanced, both in terms of quantity of time devoted to it during the school day, and in terms of the quality of provision. Evidence has shown that properly designed and delivered PE programmes can enhance young people’s enjoyment of and participation in PE, and possibly increase leisure time participation in physical activity. However, qualitative research often

uncovers strongly held negative views about PE, and shows how badly delivered PE can put someone off physical activity for life.

School-based promotion of physical activity needs to extend far beyond the PE curriculum. Evidence from the European Network of Health Promoting Schools project points to the success of the 'whole school approach' to health and physical activity promotion. This needs to be enhanced and extended as it takes a very broad view of the subject and encourages schools to combine physical activity promotion with attention to other health promotion subjects.

5. Recommendations

Recommendations are grouped around the hierarchy of influences on a young person's life, from home and family through school, community and the environment, to national and EU policies.

Young people
Ensure all policies and programmes are centred around the needs of young people themselves, taking into consideration the fact that young people are not just 'mini adults'.

Establish methods to consult with young people, and involve them in the development of programmes. Examples of successful approaches include the model developed by PlayTrain in the UK, or the Network Children's Health Forum in Finland, which organises annual *Listen adult workshops.*

Home and family
Promote activities that can be done as a family, or that involve the family.

Encourage parents to support and encourage their children to take part in a range of activities. Parental support for activity is crucial, if only to ensure that young people are given access to facilities and programmes.

Encourage parents to limit time spent in front of a television or computer screen.

School
Increase the number of hours devoted to physical education in the curriculum across the EU. There should be a statutory three-hour minimum per week dedicated to physical education in schools across the EU for all ages of young people, all the year round. In countries with no existing statutory minimum, an initial aim should be for a statutory two-hour minimum per week. Schools should be encouraged to go beyond these minimum levels.

Facilitate an increase in the quality of physical education and training for dedicated physical education teachers, through standardised training packages for specialist physical education teachers and non-specialists, for all age groups.

Promote opportunities and practices to build activity into the rest of the school day, not just during the physical education lesson.

Develop the concept of the Health Promoting School that takes a whole school approach to health, and ensure that physical activity is a core component.

Establish ‘safe zones’ around all schools where walking and cycling are prioritised and car travel is made difficult, and ‘safe routes’ to schools from neighbouring communities.

Establish guidance and incentives for schools and local governments on improving the environment around schools to encourage walking and cycling. Consider guidance on establishment of locally-led networks of ‘safe houses’ on popular walk-to-school routes where children can go if in trouble from bullying etc.

Provide safe parking places for bicycles within the school grounds.

Establish the principle of schools as healthy living centres for pupils and for the wider community to increase the out-of-hours use of school sports facilities.

Environment
Prioritise the enhancement of safe environments to support formal and informal physical activity, especially non-club-based informal activity in deprived areas. This would need to be based on consultation with young people and local needs assessment, but ideas include: new community sports facilities aimed at young people; basketball hoops in cities; skate parks and adventure playgrounds; appropriate facilities targeted at girls.

Local communities
Extend the concept of ‘Home Zones’ to promote safe local play and activity facilities in communities, with traffic-calming measures.

Develop networks of regional or local physical activity/leisure coordinators. These people would have a similar role to the more progressive sports development officers, but would be working across government, facilitating links between all agencies at the local level including schools, and stimulating community-level action.

Ensure funding for physical activity programmes at local community level that aim to increase participation in sport and activity and tackle social exclusion.

National policies
Increase the degree of interdisciplinary governmental work on physical activity for young people, by establishing a national task force including representatives from sport, education, transport, health and the environment as a minimum.

Enhance funding for physical activity programmes aimed at deprived children and young people.

Develop initiatives within sports ministries to make sport more relevant to broader range of people, shifting the emphasis from competition to participation.

Prioritise walking and cycling within transport departments, especially walking and cycling to school.

Ensure that health departments prioritise the promotion of physical activity among young people and link effectively across government.

Develop clear policies on smoke-free and drug-free sports for young people.

Promote positive attitudes to physical activity, through work with youth magazines or by running mass media campaigns.

European Community dimension
Develop a coordinated EU health strategy for young people, which includes physical activity in the context of the new EU programme of Community action in the field of public health. Place physical activity in the context of a healthy lifestyle that also includes healthy eating.

Establish and fund a European-wide network for physical activity, promoting the health of children and young people. The target of the network should be to share information, research results and experiences on the promotion of physical activity.

Consider EU-wide programmes and campaigns to encourage healthy activity and discourage sedentary activities, taking into account the international nature of youth culture. This includes the influence of video games and 'television culture'.

Intensify the collection, analysis and dissemination of information and experiences regarding policies and programmes on physical activity, especially to policy makers.

Support studies to develop more specific and sensitive survey tools and methods covering the whole spectrum of physical activity, from sedentary behaviour through to daily participation in sports and exercise.

Monitor the level of physical activity and fitness among children and young people through regular surveys using standardised tools and methods. Prioritise the use of standardised tools across the EU to follow trends consistently and reliably over time both within and between countries.

Fund studies to provide data on the physical activity levels of pre-school aged children.

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