

Wold, B., Duda, J. L., Balaguer, I., Smith, O. R. F., Ommundsen, Y., Hall, H., ... Krommidas, C. (2013). Comparing self-reported leisure-time physical activity, subjective health, and life satisfaction among youth soccer players and adolescents in a reference sample. *International Journal of Sport and Exercise Psychology*, 11, 328-340.

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**Comparing self-reported leisure-time physical activity, subjective health and life satisfaction among youth football (soccer) players and adolescents in a reference sample**

Bente Wold<sup>a1</sup>, Joan L Duda<sup>b</sup>, Isabel Balaguer<sup>c</sup>, Otto Robert Frans Smith<sup>a</sup>, Yngvar Ommundsen<sup>d</sup>, Howard K Hall<sup>e</sup>, Oddrun Samdal<sup>a</sup>, Jean-Philippe Heuzé<sup>f</sup>, Ellen Haug<sup>a</sup>, Samantha Bracey<sup>b</sup>, Isabel Castillo<sup>c</sup>, Yago Ramis<sup>g</sup>, Eleanor Quested<sup>b</sup>, Charalampos Krommidas<sup>h</sup>.

*<sup>a</sup> Department of Health Promotion and Development, University of Bergen, Norway; <sup>b</sup> School of Sport and Exercise Sciences, University of Birmingham, U.K.; <sup>c</sup> Department of Social Psychology, University of Valencia, Spain; <sup>d</sup> Norwegian School of Sport Sciences, Norway; <sup>e</sup> York St. John University, U.K.; <sup>f</sup> Laboratoire Sport et Environnement Social, Université Grenoble Alpes, France; <sup>g</sup> Universitat Autònoma de Barcelona, Spain; <sup>h</sup> Department of Physical Education and Sport Science, University of Thessaly.*

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<sup>1</sup> Corresponding author: Bente Wold. Email: bente.wold@uib.no

**Abstract**

The aim of the study was to examine to what extent young people who play organized football rate their leisure-time moderate-to-vigorous physical activity, life satisfaction and health more positive and higher than a same-aged population-based reference group (including some adolescents who also played organized football). Data from two samples from five countries (England, France, Greece, Norway, and Spain) were included; a sample of football players aged 10-14 years who participated in the Promoting Adolescent Physical Activity (PAPA) project (Duda et al., in press); and a nationally representative reference sample of 11 and 13 year-olds from the Health Behaviour in School-aged Children (HBSC) study. Results from multivariate logistic regression analysis showed that the participants in the football sample, in particular girls, reported a higher level of moderate-to-vigorous leisure time physical activity than those in the reference sample. They also rated their life satisfaction and subjective health more favourably than the reference sample. The associations did not differ according to age or socio-economic status. The results suggest that playing football is a positive activity for youth, and seems to be a very potent way of increasing regular moderate-to-vigorous physical activity among girls. Thus, efforts aimed at increasing participation in organized youth football may potentially be beneficial to young people's psychosocial health, and hold the potential to increase physical activity, particularly among girls.

**Keywords:** youth football; leisure-time physical activity; life satisfaction; self-rated health

## **Comparing self-reported leisure-time physical activity, subjective health and life satisfaction among youth football (soccer) players and adolescents in a reference sample**

### ***Background***

Physical inactivity is considered one of the main behavioural risk factors for diseases such as type-2 diabetes, cardiovascular diseases, mental health disorders, chronic obstructive pulmonary diseases and certain types of cancer (Bauman, 2004; Hallal, Victora, Azevedo, & Wells, 2006; Strong et al., 2005). Evidence of a positive association between physical activity and mental health has also begun to emerge in young people, although research designs are often weak, and effects tend to be small to moderate (Biddle & Asare, 2011; Boone & Leadbeater, 2006; Ekeland, Heian, Hagen, & Coren, 2005; Whitelaw, Teuton, Swift, & Scobie, 2010). Based on the collective evidence of the physical, psychological, and social benefits, several recent international initiatives have suggested that sport may be an important vehicle for the provision of health-enhancing physical activity (European Commission, 2007). It is important to recognize, however, that the type of sport one plays may differentially affect health outcomes, and such knowledge may be used in the development of recommendations for health enhancing programmes. Studies have documented that compared to other activities, football (soccer) is a sport that entails high levels of physical activity (Faude et al., 2010; Krustup et al., 2010). Faude, et al. (2010) found that a 6-month football training was as efficacious in improving the physical capacity, health-related fitness parameters and self-esteem of overweight children as a standard exercise program. Further, recreational football has been shown to effectively stimulate musculoskeletal, metabolic and cardiovascular adaptations of importance for health and thereby reduce the risk of developing life-style diseases (Krustup, et al., 2010). The aim of this paper is to extend the knowledge base regarding the health benefits of football, by examining the extent to which participation in grassroots youth football (soccer) is associated with higher self-reports of leisure-time

moderate-to vigorous physical activity, self-rated health and life satisfaction than a representative comparison group.

Football is considered to be the most popular sport in the world (Malina, 2005) with over 265 million participants worldwide (Kunz, 2007). In many European countries, football is often the first organized activity in which young people engage, before taking up other activities either in addition to football or instead of it. Grassroots football is widely prevalent and accessible even in rural areas, and the threshold for participation is low in terms of costs and required physical abilities compared to other sports. A high number of boys (and in some countries, girls) participate in this sport at different ages and within different competitive groups. Adherence to youth sport increases the potential for sustained involvement later in life. For example, (Kjønniksen, Torsheim, & Wold, 2008) found that those who reported playing football at age 15 had higher odds for engagement in football at age 23, compared to likelihood that they would engage in other sports. Participation in football, therefore, holds the potential to influence lifelong development and the adoption of health-related habits in young people. According to Krustup, et al. (2010) football training that is regarded as a fun and rewarding activity in itself, has many important indirect effects, including the accumulation of social capital and the adoption of healthy behaviours.

Although participation in recreational football is expected to be related to positive mental health, there is a dearth of empirical research documenting such associations (Krustup, et al., 2010). According to Bauman (2004), there are few studies in the area of physical activity and mental health in general. Most studies concern the benefits of promoting physical activity in relation to indicators of mental ill health such as anxiety, depression, mood and emotion, self-esteem, cognitive functioning, and psychological dysfunction (Biddle, Fox, Boutcher, & Faulkner, 2001; Janssen & LeBlanc, 2010). Positive indicators of well-being such as vitality, positive views of one's own health and life satisfaction, have been

absent in studies of youth football until recently (Alvarez, Balaguer, Castillo, & Duda, 2012; Balaguer et al., 2012; Castillo, Duda, Álvarez, Mercé, & Balaguer, 2011).

Clearly, the benefits of being active are not limited to physical health. Growing empirical evidence demonstrates the overall value of participation in organized sporting activities for positive youth development, including fewer behaviour problems, increased educational achievement, higher academic attainment, and better psychosocial adjustment (Farb & Matjasko, 2012; Mahoney, Larson, & Eccles, 2005). Among the six higher-order categories of organized youth activities (sport, arts, academic, community, service, and faith-based), sport is the most prevalent. In their review of studies on physical activity and well-being among children, Ommundsen, Løndal, and Loland (in press) conclude that physical activity in general, and organized team sport in particular have the potential to alleviate symptoms of psychological ill-being, while also being a positive source for the development of children's well-being.

However, there may be differences in the many positive outcomes that result from playing football in an organized context as a function of both gender and social class. While women's football has been identified as the fastest growing sport in several countries (Blauvelt, 2003; Fasting, 2003; Liston, 2006), it is still undoubtedly a male dominated activity (Kunz, 2007; Williams, 2003). Several studies suggest that football may be a highly potent site for the construction of masculine identity during childhood and adolescence (Clark & Paechter, 2007; Meân, 2001). Among girls, playing football may be perceived as a threat to their femininity, and participation may, therefore, undermine feelings of social acceptance (Williams, 2003). Thus, it is feasible that football is a context that is less supportive of psychological needs among girls than among boys, and as a result of their participation, girls may experience fewer positive mental health benefits than do boys.

Moreover, football is traditionally conceived of as a low social class activity in several European countries (Scheerder, Vanreusel, Taks, & Renson, 2005). As youth from low socio-economic status (SES) backgrounds more often experience adverse family circumstances and school adjustment problems than youth from higher SES backgrounds, it is feasible that low SES youth may benefit more from participation in organized sport. To low SES youth, grassroots football may represent a viable arena for enjoyment and well-being, especially if the activities are characterized by social acceptance and support for the development of competence.

Based on the preceding rationale, the research sought to answer the following questions:

1. To what extent do young people who play organized football rate their leisure-time moderate-to vigorous physical activity as higher, and life satisfaction and health as more positive than a same-aged population-based reference group?
2. To what extent are these associations influenced by gender and SES?

## ***Methods***

### *Participants*

Two samples were drawn for comparison purposes. The first, comprised 10-14 year old children participating in organized youth football programmes from five European countries. The second sample comprised 11-13 year old school children from five of the 43 European countries who had completed the Health Behaviour in School-aged Children (HBSC) survey in 2011.

*Football sample.* Football teams with 10-14 year-old players from selected regions from England, France, Greece, Norway and Spain were selected for participation based on a procedure ensuring a sample representative of young football players (Duda, et al., in press). Girl teams were oversampled in England, Norway and Spain.

*Reference sample (HBSC).* Data were gathered from the Health Behaviour in School-aged Children (HBSC) study, in which 43 countries participated (Currie et al., 2012). The sample for each country was designed to elicit national-level data about young people aged 11, 13 and 15 years and attending school. Each country team used a stratified cluster probability sampling scheme with school class as the sampling unit. Response rates were over 60% in most countries. The sample comprised ordinary youth, thus including some children and adolescents who played organized football.

Table 1 gives an overview of countries, regions, sample size and mean age for the two samples included in the study; a sample of football players and the reference sample. The proportion of girls in the football sample was very low in France (3 %) and Greece (1 %). Therefore, data from girls in these two countries were not included for further analysis. The mean age of the football sample was one year below the reference sample. Mean number of hours playing football per week differed between the countries, from 2.77 in England to 4.81 in Greece.

#### *Data Collection*

*Football sample.* The data collection was undertaken by trained data collectors, and took place immediately before or soon after a training session (for the players), in most cases in the clubhouse, or a classroom or at a facility adjacent to the football pitch. Data were collected during each country football season. This was from March-May 2011 in Norway, and September-November 2011 in all other countries in the sample. Appropriate ethical consent for the data collection was gained in all countries and in individual teams.

*Reference sample (HBSC).* Countries timed their data collection so that the mean ages of pupils within the samples were as close as possible to 11.5 and 13.5 years. Self-report anonymous questionnaires were administered in schools between October 2009 and May 2010. The questionnaires were administered by researchers in some countries and by teachers

in others, using a standard protocol provided by country teams (Roberts et al., 2009). Appropriate ethical consent for the data collection was gained in all countries and in individual schools.

### *Measures*

Only those measures which were common to the multi-section instruments administered to both samples are described below. Life satisfaction was measured by the Cantril Ladder (Cantril, 1965). Respondents were presented with a picture of a ladder and asked to choose a position on one of the 10 steps. The top of the ladder represented the best possible life and bottom step the worst. Responses indicated how they felt about their life at the moment. In line with previous work, the item was dichotomized with a score of 6 or higher representing a high level of life satisfaction (Currie, et al., 2012). Psychometric evaluation has deemed the Cantril Ladder to be a valid and reliable measure (Horley & Lavery, 1991).

Self-rated health (SRH) was measured through the single item “Would you say your health is... 1) excellent; 2) good; 3) fair; 4) poor”. This indicator has been used extensively in public health research, in particular with adults (Benjamins, Hummer, Eberstein, & Nam, 2004). Due to the skewed response distribution, the scale was dichotomized into excellent versus good/fair/poor for the current analysis.

Moderate-to-vigorous physical activity was measured with the item “How often do you usually exercise in your free time so much that you get out of breath or sweat?” Participants were asked how many days in a typical week they were physically active, ranging from every day to not at all. The responses were dichotomized into 4 or more times a week versus less than 4 times a week (Currie, et al., 2012).

Socioeconomic status was indicated by family wealth, measured through the single item “How well off do you think your family is?” (very well off, quite well off, average, not

very well off, not at all well off). The responses were dichotomized into very/quite well off versus average/not very/not at all well off.

### *Statistical Analyses*

As there are known gender differences in self-reported physical activity, life satisfaction and self-rated health, the dataset was stratified by sex and treated as two separate datasets. Data on girls were only available for England, Norway and Spain. To account for clustering of the data (football sample: teams, reference sample [HBSC]: classes), logistic regression using SPSS Complex Samples was adopted to examine differences between estimates in the two samples. The univariate relationship between sample (football vs. reference sample) and respectively life satisfaction, self-rated health, physical activity and family wealth was examined separately by gender in England, Norway and Spain. Multivariate logistic regression was then used to examine the effect of belonging to a different sample on life satisfaction, self-rated health and physical activity, while simultaneously controlling for the effects of age, country and family wealth. Month of measurement was also included as a variable to control for seasonal variations.

### *Results*

The prevalence of being moderate-to-vigorously active four or more times per week, high life satisfaction and excellent self-rated health was significantly higher for football players compared to the reference sample for boys across the five countries, and for girls in the three countries with available data (Table 2). Exceptions to this pattern were observed for Norwegian boys and Spanish girls with regard to life satisfaction, and French boys, Spanish boys and Spanish girls with regard to self-rated health. In these cases the means were not significantly different when the reference sample was compared with the sample of football players.

The association between family wealth and sample differed across countries. A relatively low prevalence of being quite to very well off was observed in football players compared to adolescents in the reference sample in Greece, whereas a relatively high prevalence was observed in Spanish football players in comparison with the Spanish reference sample. Norwegian and French football players also reported significantly higher prevalence of being quite to very well off as compared to the general population. For England, the effect of family wealth was only significant for girls with football players having a lower prevalence of being quite to very well off as compared to the general population.

Multivariate logistic regression revealed that, after taking into account age, country and family wealth, those in the sample of football players were more likely to report high levels of life satisfaction, excellent self-rated health and being moderate-to-vigorously active four or more times a week in comparison to the HBSC sample (Table 3). Lower age and being quite to very well off were also associated with a higher prevalence of life satisfaction, excellent self-rated health and being moderate-to-vigorously active four or more time per week.

A post-hoc analysis was conducted to examine whether the effect of sample membership differed for boys and girls on the variables of life satisfaction, self-reported health and physical activity. The two separate datasets were pooled and a gender by sample interaction was included in the logistic regression model. This analysis was conducted separately with samples from England, Norway and Spain. The gender by sample interaction was only found to be significant for physical activity, and only in Spain (Football sample x Girls: OR = 2.37; 95% CI 1.60-3.51,  $p < .001$ ) and England (Football sample x Girls: OR = 1.67; 95% CI 1.09-2.54,  $p < .05$ ), showing that the impact of playing football on being physically active is stronger for girls as compared to boys in both Spain and England.

### ***Discussion***

The findings from this study suggest that there are important health benefits of participation in grassroots youth football with regard to leisure-time moderate-to vigorous physical activity, self-rated health and life satisfaction. The participants in the football sample, and in particular the girls, reported a considerably higher level of moderate-to-vigorous leisure time physical activity compared to those in the HBSC reference sample. They also rated their life satisfaction and subjective health more favourably than the reference sample, although the differences between the samples were quite small. The associations did not differ significantly as a function of either gender or socio-economic status.

In Greece and France, the number of girl teams was too small to warrant inclusion in the present analyses. The prevalence of girls playing organized football in these countries is very low, i.e., only 2.7 % in France; (Kunz, 2007). According to information collected for the purpose of this study from the football associations in England, Norway, and Spain (see Table 1), the proportions of girls playing football are much lower than for boys in the relevant regions. As a matter of interest, Norway exhibited the highest participation rates among girls, possibly because gender equality is an especially important social issue in this country in comparison to some of the other countries in the study (Fasting, 2003).

In three of the countries (France, Norway and Spain), a higher proportion of the football sample indicated that their family is well off compared to the reference sample. The association was reversed in Greece and among English girls, while there was no difference among the English boys. With reservation caveat that the two samples may not be directly comparable in terms of social position, these findings do not support the common belief that football is typically a low SES activity. While it is possible that football was considered a low SES type of sport in the past, football may have increased in popularity in all SES groups. Pitter and Andrews (1997) suggest that in the USA, football (soccer) has emerged as a collective expression of a new White suburban identity. As such, it could be considered more

of a middle class activity. Similar processes may have taken place in other European countries as a result of media, commercial and marketing influences.

Among boys, 66 % of the football sample reported moderate-to-vigorous physical activity during leisure time four times or more every week, while the corresponding number was 49 % in the reference sample. The difference between the two samples was even more pronounced for girls (i.e., 60 % vs. 30 % in terms of the football and the reference samples, respectively). As some adolescents in the reference sample also participate in organized youth football, these differences are probably an underestimation of the increased level of physical activity among football players. Naturally, a higher level of physical activity is to be expected in a sample of sports active adolescents compared to a sample with mixed participation rates. In most countries, the football players reported participating in football about 4-5 hours per week, and this activity is obviously included in their estimation of total moderate-to-vigorous physical activity. Taking into account the magnitude of the difference between the two samples, the findings are in line with previous studies indicating that football is a sport that entails high levels of physical activity (Krustrup, et al., 2010).

As evidenced in other studies (Riddoch et al., 2004; Samdal et al., 2007), the data from this investigation confirmed that the general level of self-reported physical activity was lower among girls than boys in the three countries where there was available data from both genders. In two of the countries (England and Spain), the difference between the two samples in moderate-to-vigorous physical activity was significantly larger for girls than for boys. Hence, the gender differences in general physical activity in the football sample were much smaller than in the reference sample. Consequently, girls who are involved in football seem to report increased levels of physical activity, highlighting the potential for football to enable girls to become more physically active. This potential may be realized by overcoming obstacles related to football being considered a masculine type of activity (Williams, 2003),

thereby increasing the low proportion of girls currently playing organized youth football. Increased media coverage of women's football may be an important target to this end. Girls are likely to become more positive and accepting towards playing football if they are exposed to positive female football role models on TV and in other media forms.

In both samples, life satisfaction was rated as high, with about 90 % choosing position 6 or higher to indicate how they felt about their life at present on the 10-point ladder. The football sample reported higher life satisfaction as compared to the reference sample, indicating that being part of a football team may be related to enhanced well-being and overall life satisfaction. Likewise, a higher proportion of the football sample rated their health as excellent. The perceived beneficial effects of playing football seem to be the same for both genders, as the difference in life satisfaction and self-rated health between the football sample and reference sample was negligible among boys and girls. Thus, the findings do not support the assumption that because football is considered a masculine activity, it may be a context less supportive of psychological needs and social acceptance for girls than for boys.

As the data from both studies are cross-sectional, one should be careful about inferring causality. A possible selection effect may occur in that young people who feel healthy and good about their life are more prone to take up organized leisure activities such as football (Fletcher, Nickerson, & Wright, 2003). The findings are, however, in line with a previous study on the positive psychological experiences of participating in team sports (Zullig & White, 2011). In their study of a US convenience sample of 245 students in grades 7 and 8, significantly reduced life satisfaction was detected for adolescents who reported not playing on a sports team when compared to those who reported playing on a team. The odds of reporting fair/poor self-reported health significantly increased for adolescents who reported not playing on a sports team when compared to those who reported playing on a team.

One of the dynamic properties that appears to distinguish sport activities is the degree of interdependency required among members for the performance of a task (Evans, Eys, & Bruner, 2012). Furthermore, the categories of team and individual sports are conceptually distinguished based on interdependency, with team sports conceptually requiring a higher degree of collaboration and social interaction. Findings reported by Hansen, Skorupski, and Arrington (2010) suggest that interdependent sports such as football, provide participants with greater opportunities to experience positive developmental experiences. Thus, based on previous studies suggesting positive outcomes from participating in football (Alvarez, et al., 2012; Balaguer, et al., 2012; Zullig & White, 2011), as well as growing evidence demonstrating the overall value of participation in organized activities for positive youth development (Farb & Matjasko, 2012; Hansen, et al., 2010; Leversen, Danielsen, Birkeland, & Samdal, 2012), it is likely that the higher scores on self-reported health and life satisfaction in the football sample are at least in part due to participants' football experiences.

### *Limitations*

Several important limitations should be noted when interpreting the findings. A first issue revolves around whether the two samples are directly comparable. The football sample comes from selected regions in each country, while the reference sample is based on nationally representative data. With the available data in the football sample, it is not possible to check whether SES, football participation, physical activity level, life satisfaction and self-rated health in the selected regions differ markedly from those in the country at large. However, there is no reason to suspect such regional differences.

The time of data collection differed as the data for the football sample was collected almost a year after the reference sample. The month of data collection also differed between the samples in some of the countries. Moreover, the age composition is somewhat different in that the mean age of the football sample was one year below the reference sample. In the

multivariate logistic regression analysis, several of these potential limitations were addressed by adjusting for age and month of data collection.

Moderate-to-vigorous leisure-time physical activity was measured by self-report. Although self-reported measures may be poor indicators of actual energy expenditure, they may be regarded as good indicators of how active people consider themselves to be. Thus, even if their reporting of frequency (and intensity) of activity may be inaccurate in terms of energy expenditure, self-report may still differentiate between different groups of people with regard to broad levels of physical activity. The test-retest reliability of the measure of general leisure-time physical activity in this study has been found to be acceptable (Booth, Okely, Chey, & Bauman, 2001; Vuori, 2005). In addition, that adolescents' scores on this item were relatively stable in a study in seven European countries from 1986 to 2002 which also adds to the reliability of this instrument ((Samdal, et al., 2007). Moreover, a similar single "sweat" question has been found to correlate well with maximal oxygen uptake (Aarnio, Winter, Peltonen, Kujala, & Kaprio, 2002). Thus, the finding showing differences in self-reported physical activity between the two samples is likely to indicate an actual difference in levels of physical activity between the samples.

Finally, because the reference sample also included some children and adolescents who played organized football, it made it more difficult to separate out the effect of being involved in football. While this is a limitation related to the design, the consequence may not be regarded as a major threat to the validity of the findings, as the magnitude of the observed associations are likely to be reduced by this design weakness rather than inflated.

### *Conclusion*

The findings suggest that 10-14 year-olds who play organized football are better off in terms of higher levels of vigorous-to-moderate leisure-time physical activity, higher life satisfaction and better self-rated health than those less involved in football. Bearing in mind

the cross-sectional nature of the data, one should be careful about interpreting the findings as evidence of positive outcomes associated with youth football. Although not studied here, football experiences related to injuries, worries and threats to self-confidence represent some of the potential risks of participating in youth football. However, a comprehensive review by Shanmugam and Maffulli (2008) concluded that most injuries caused in children's sports are minor and self-limiting, suggesting that children and youth sports are safe.

Therefore, at a minimum, this study suggests that playing football is generally a positive activity for youth. Interestingly, playing football may be a particularly potent way of increasing regular moderate-to-vigorous physical activity among girls and across SES groups. Thus, efforts aimed at increasing participation in organized youth football may be particularly beneficial to increasing physical activity levels among girls. The study findings imply that increasing the quality of the football experience for both genders may result in higher overall physical activity, better self-rated health and higher life satisfaction among youth.

Although in the current study playing football has been shown as a potential positive milieu that seems to contribute to increase physical activity in young people and to favour well-being, some motivational theories (e.g., Achievement Goal Theory and Self-determination Theory) emphasize the importance of creating empowering atmospheres to foster the potential benefits that playing in such youth sport activities for children. Some recent studies with young football players have provided evidence regarding the potential positive impact of empowering climates to well-being and disempowering climates to ill-being (Balaguer, et al., 2012) as well as the importance of empowering climates to promote children's enjoyment, and intentions to continue, playing football (Quested et al., in press). These findings highlight the importance of interventions directed to create empowering atmospheres in the football settings (Duda, et al., in press).

## Acknowledgement

Sincere thanks to Principal Investigators in the PAPA project; Philippe Sarrazin (France) and Athanosios Papaioannou (Greece); and in the HBSC project; international coordinator Candace Currie and Antony Morgan and Fiona Brooks (England), Emmanuelle Godeau (France), Anna Kokkevi (Greece), and Carmen Moreno (Spain).

## Funding

The research leading to these results has received funding from the European Community's Seventh Framework Programme FP7/2007-2013 [under grant agreement n° 223600].

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Table 1

*Countries, Regions, Sample Size and Mean Age Distribution for the Football Sample and the Reference Sample*

| <b>Characteristics</b>   | <b>France</b>   | <b>Greece</b>  | <b>Norway</b>                           | <b>Spain</b>                                 | <b>England</b>                                     |
|--|-----------------|--|---|--|--|
| Regions in football sample   | Iserre<br>Drome | Athens<br>Thessaloniki<br>Larissa, Volos<br>Trikala, Patra | Hordaland<br>Vestfold<br>Nord-Trøndelag | Barcelona<br>Castellon<br>Lleida<br>Valencia | London<br>North West<br>West Midlands<br>Yorkshire |
| Proportion (%) of licensed players (girls) age 10-14 years playing organised football in sampled regions in 2010-2011 <sup>1</sup> | 11 (1)          | 2 (0.5)  | 44 (30)                                 | 10 (0.6)                                     | 25(2)  |
| Football sample: sample size (% girls) age 10-14 years   | 1248 (2.7)      | 1507 (1.5)   | 1397 (41.4)                             | 2245 (9.0)                                   | 1372 (13.9)  |
| Football sample: mean age (SD)   | 11.40 (1.7)     | 11.70 (1.5)  | 11.81 (1.2)                             | 11.49 (1.8)                                  | 11.41 (1.6)  |
| Football sample : hours (SD) per week training and playing games with team   | 4,7 (1.1)       | 4.8 (1.7)  | 3,6 (1.7)                               | 4.7 (1.2)                                    | 2.9 (1.1)  |
| Reference sample: sample size (% girls)  | 4142 (49.2)     | 3251 (52.7)  | 2949 (51.3)                             | 2700 (50.6)                                  | 2384 (56.9)  |
| Reference sample: total response rate (%)  | 77              | 87   | 49                                      | 58   | 40   |
| Reference sample: mean age (SD)  | 12,4 (1,1)      | 12,7 (1,0)   | 12,5 (1,0)                              | 12,6 (1,16)                                  | 12,7 (1,0)   |

<sup>1</sup> Estimation based on numbers of licensed players registered in the national football associations in each country for the purpose of this study and regional census data.

Table 2 *Frequencies of Selected Variables by Country and Gender*

|                | % Life Satisfaction<br>6 or higher |             |              | % Excellent self-rated health |             |              | % Four or more times per week<br>vigorously active |             |              | % Quite to very<br>well off |             |              |
|----------------|------------------------------------|-------------|--------------|-------------------------------|-------------|--------------|--|-------------|--------------|-----------------------------|-------------|--------------|
| <i>Boys</i>    |                                    |             |              |                               |             |              |  |             |              |                             |             |              |
| <b>Country</b> | PAPA                               | HBSC        | OR           | PAPA                          | HBSC        | OR           | PAPA   | HBSC        | OR           | PAPA                        | HBSC        | OR           |
| England        | 94.0                               | 88.3        | 2.07*        | 41.8                          | 34.5        | 1.37*        | 71.2   | 51.7        | 2.32*        | 45.6                        | 42.9        | 0.63         |
| France         | 90.8                               | 86.7        | 1.50*        | 47.1                          | 43.8        | 1.19         | 59.4   | 45.1        | 1.78*        | 72.7                        | 70.3        | 1.12*        |
| Greece         | 96.0                               | 92.7        | 1.90*        | 65.9                          | 61.9        | 1.19†        | 70.6   | 54.4        | 2.01*        | 42.5                        | 69.9        | 0.32*        |
| Norway         | 93.3                               | 91.4        | 1.30         | 52.1                          | 45.8        | 1.29†        | 63.3   | 50.8        | 1.67*        | 83.9                        | 78.5        | 1.42*        |
| Spain          | 95.6                               | 91.5        | 2.01*        | 50.6                          | 52.1        | 0.94         | 65.5   | 46.3        | 2.21*        | 47.9                        | 16.0        | 4.82*        |
| <b>Overall</b> | <b>94.4</b>                        | <b>89.9</b> | <b>1.87*</b> | <b>52.1</b>                   | <b>48.2</b> | <b>1.17*</b> | <b>66.4</b>  | <b>49.2</b> | <b>2.04*</b> | <b>54.7</b>                 | <b>59.5</b> | <b>0.82*</b> |
| <i>Girls</i>   |                                    |             |              |                               |             |              |  |             |              |                             |             |              |
| <b>Country</b> | PAPA                               | HBSC        | OR           | PAPA                          | HBSC        | OR           | PAPA   | HBSC        | OR           | PAPA                        | HBSC        | OR           |
| England        | 91.9                               | 84.2        | 2.11*        | 34.3                          | 24.5        | 1.61†        | 69.1   | 35.3        | 4.10*        | 26.3                        | 50.3        | 0.35*        |
| Norway         | 92.1                               | 88.1        | 1.56†        | 48.3                          | 36.9        | 1.59*        | 57.2   | 37.0        | 2.27*        | 85.1                        | 75.3        | 1.88*        |
| Spain          | 92.9                               | 90.7        | 1.33         | 41.6                          | 39.3        | 1.10         | 60.4   | 22.6        | 5.21*        | 45.6                        | 10.4        | 7.22*        |
| <b>Overall</b> | <b>92.4</b>                        | <b>87.7</b> | <b>1.65*</b> | <b>44.3</b>                   | <b>39.6</b> | <b>1.21†</b> | <b>60.1</b>  | <b>31.9</b> | <b>3.22*</b> | <b>65.7</b>                 | <b>44.7</b> | <b>2.37*</b> |

† p&lt;.05; \* p&lt;.01

OR=Odds Ratio

Table 3

*Multivariate Logistic Regression Models for Life Satisfaction, Self-rated Health, and Physical Activity*

| <i>Boys</i>          | Life Satisfaction |           | Self-rated health |           | Physical Activity |           |
|----------------------|-------------------|-----------|-------------------|-----------|-------------------|-----------|
|                      | OR                | 95%CI     | OR                | 95%CI     | OR                | 95%CI     |
| Age                  | 0.91              | 0.85-0.96 | 0.92              | 0.89-0.94 | 0.98              | 0.95-1.02 |
| Study; PAPA          | 1.63              | 1.41-1.89 | 1.10              | 1.01-1.19 | 1.98              | 1.83-2.15 |
| Country <sup>1</sup> |                   |           |                   |           |                   |           |
| France               | 0.61              | 0.49-0.76 | 1.20              | 1.07-1.36 | 0.67              | 0.59-0.76 |
| Greece               | 1.48              | 1.18-1.87 | 2.82              | 2.49-3.19 | 1.03              | 0.90-1.17 |
| Norway               | 0.97              | 0.75-1.24 | 1.37              | 1.19-1.57 | 0.83              | 0.72-0.96 |
| Spain                | 1.63              | 1.30-2.04 | 1.82              | 1.61-2.07 | 0.81              | 0.72-0.92 |
| Family well off      | 2.47              | 2.13-2.87 | 1.66              | 1.53-1.80 | 1.16              | 1.07-1.26 |
| <i>Girls</i>         |                   |           |                   |           |                   |           |
| Age                  | 0.82              | 0.75-0.90 | 0.78              | 0.73-0.83 | 0.89              | 0.82-0.95 |
| Study; PAPA          | 1.40              | 1.04-1.90 | 1.22              | 1.02-1.46 | 2.94              | 2.42-3.56 |
| Country <sup>1</sup> |                   |           |                   |           |                   |           |
| Norway               | 1.05              | 0.81-1.36 | 1.54              | 1.29-1.85 | 0.90              | 0.75-1.08 |
| Spain                | 2.32              | 1.80-3.01 | 2.46              | 2.05-2.97 | 0.61              | 0.50-0.74 |
| Family well off      | 2.53              | 2.02-3.17 | 1.95              | 1.67-2.29 | 1.23              | 1.06-1.43 |

Note. <sup>1</sup>: England