I COACH KIDS+ 13-18

YOUTH SPORT PARTICIPATION TRENDS IN EUROPE

An output of Erasmus+ Sport Project ICOACHKIDS+

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DISCLAIMER

Co-funded by the Erasmus+ Programme of the European Union

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The ICOACHKIDS+ Partners

YOUTH SPORT PARTICIPATION TRENDS IN EUROPE

EXECUTIVE SUMMARY

I COACH KIDS+ 13-18

Co-funded by the Erasmus+ Programme of the European Union

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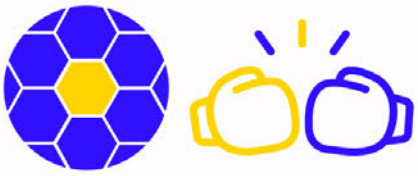
Children's physical activity levels and competence have declined steadily and globally over the last two decades. The impact of this decline in their physical and mental wellbeing, now and in the future, has been demonstrated in multiple studies.

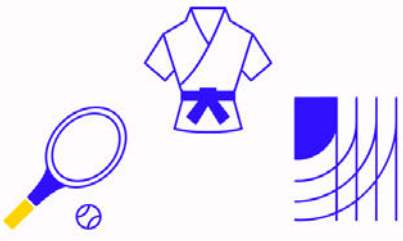
ICOACHKIDS+ is an Erasmus+ Sport co-funded project part of the overall activities of the ICOACHKIDS Global Movement. It aims to enhance sport participation and reduce dropout for children aged 13-18, and to maximise sport's health enhancing properties. This will be achieved by conducting research into participation trends, the causes of dropout, and the features of holistic positive talent development environments. ICOACHKIDS+ will then develop relevant educational tools for coaches and clubs based on these findings.

This research report presents the findings of a unique, multi-country and multi-sport study investigating the participation rates of children in organised youth sport. Participation data were collected for the period 2017-2020 from 18 sports across 27 countries. In total over 5.5 million children were sampled in this study.

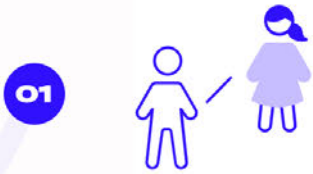
PARTICIPATION:



02 Low female participation sports include: soccer (8%), Wrestling (18%), Table Tennis (24%), and Boxing (26%)



04 Equal/Near Equal female participation sports include: Water Sports (39%) and Martial Arts (40%), Triathlon (44%), Fencing (44%), Handball (48%), Badminton (49%), Tennis (49%), Athletics (49%), Swimming/Diving (53%), and Skiing (51%).



01 Overall, youth male sport participation rates (80%) are significantly higher than females (20%).

This trend has a distinct sport-specific flavour

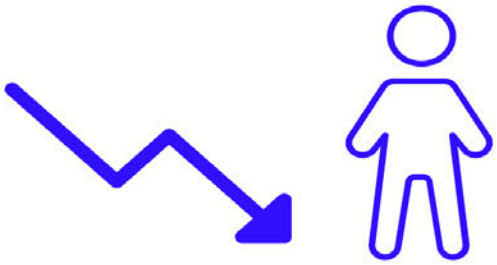
03 Moderate female participation sports include: Basketball (34%), and Cycling (35%)

05 High female participation sports include: volleyball (73%) and dance sports (85%)

U12-U14 Overall participation peaks for both males and females at the U12 to U14 level.

DROPOUT:

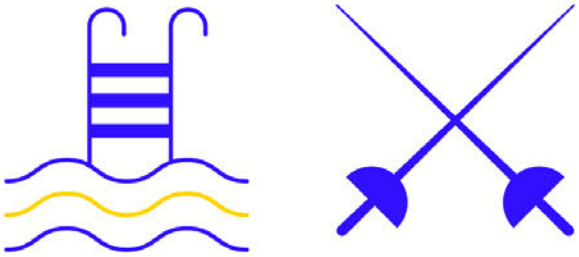
MALES



U14-U18

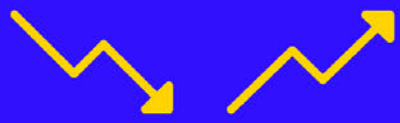
Participation decreases significantly for youth males from U14-U18s in most sports

Not one-size-fits all



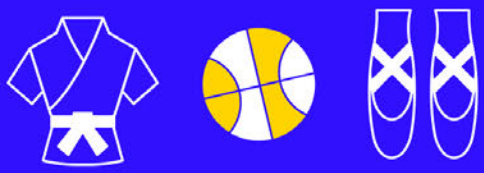
This trend is also sport and age-specific: Basketball (30% reduction from U12 to U18), Fencing (42% from U12 to U18), Martial Arts (67% from U8 to U18), Swimming/Diving (75% from U8 to U18), and Cycling (92% from U14 to U18).

FEMALES

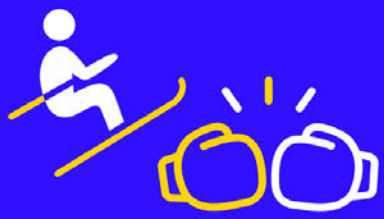


U14-U18

Youth female participation significantly decreases between U14-U16 but increases again between U16-U18 in some sports.



The largest decreases are seen in Basketball (41% from U12 to U18), Wrestling (52% from U8 to U18), Water Sports (54% from U14 to U16), Martial Arts (55% from U8 to U16), Dance Sports (57% from U8 to U16), Swimming/Diving (71% from U8 to U18).



The largest increases are seen in Skiing (55% from U16 to U18) and Boxing (86% from U8 to U18).

These findings across multiple sports and countries confirm that there is a need to further understand sport participation trends. This is especially true of the participation declines observed for youth males post 14 years of age, and for youth females between 14 and 16 years. It is also paramount to understand the return to sport observed in youth females between 16 and 18 years.

However, in order to achieve this greater comprehension of the phenomena of participation, dropout and re-engagement, sports and countries must do better in relation to how they collect participation data.

The difficulty in accessing data experienced during this research, and the heterogeneous way in which data is collected make progress in this area very difficult. The creation of standardised participation registration systems, including individual identifier numbers for each participant , would facilitate tracking real participation in order to gain a more accurate picture of these phenomena.

Moreover, participation, dropout and re-engagement appear to be highly personal and context-specific events. More needs to be known about the different factors that influence participation patterns for different people in different sports and contexts. The next ICOACHKIDS+ research report will take on this challenge.

ICOACHKIDS PARTNERS:

Leeds Beckett University · ICCE International Council for Coaching Excellence · Sport Ireland · NOC*NSF · Universidad Europea · dsj Deutsche Sportjugend im DOSB

INTRODUCTION

ICOACHKIDS is a non-profit global movement which champions sport education, policy and practice that PUTS KIDS FIRST.

The movement was born out of the success of the original ICOACHKIDS Erasmus+ project (2016-2019). This initiative was an international, collaborative, multi-agency effort aiming to support the development of a Specialist Youth Sport Coaching Workforce across the European Union. The ultimate goal was to make sure all youth sport participants are inspired to stay in sport for life through positive experiences led by suitably trained coaches.

The success of the original project attracted attention and interest from non-EU nations, International Sports Federations and Global players in health and industry. ICOACHKIDS continues to harness this global interest and momentum for the development of a global sport system that provides a safe and supportive environment for children everywhere.

ICOACHKIDS originally focused on children from 5 to 12 years of age. However, it soon became clear that coaches and organisations were also eager to receive information and resources related to young sportspeople of 13 to 18 years. ICOACHKIDS+ responds to this need for a greater understanding around the key issues relevant to sport during the teenage years.

A three-year (2020-2022) Erasmus+ co-funded project, ICOACHKIDS+ focuses on two key issues in youth sport – dropout and talent development – and aims to achieve the following objectives:

- Enhance participation in sport and decrease dropout for children aged 13-18 (especially in girls)
- Maximise the health enhancing properties of sport participation
- Take full advantage of the potential of sport as tool for positive youth development

In order to achieve these objectives, ICOACHKIDS+ is conducting the following project activities:

- Research adolescent sport participation trends across Europe
- Research motivations and barriers for sport engagement in European adolescents

- Review talent identification and development literature to enhance our understanding of what holistic and effective talent development environments look like

- Research exemplary youth sport environments across Europe to identify best practices and create guidelines to support coaches, clubs and governing bodies of sport promote personal and social development through sport.

- Develop two Massive Online Open Courses (MOOCs) and accompanying study guides and infographics for coaches on the topics of dropout and talent development

- Create the ICOACHKIDS+ Online Platform to host the MOOCs and serve as a hub and repository of information for the European community of youth sport coaches.

This technical report focuses on the identification and examination of participation trends of young people in sport across a variety of European countries, and a mix of sports. This is the first study to provide a pan-European analysis of participation data in organised youth sport. It thus offers a new and up to date perspective of participation rates and marks a departure point to guide future developments in this very important area of work.

RESEARCH RATIONALE

The Benefits of Sport Participation for Adolescents

The health and wellbeing benefits of taking part in sport for adolescents have been widely reported in the academic literature:

- Increased physical activity in adolescence is associated with improved mental health (Biddle and Asare, 2011) and improved academic performance (Fox et al., 2010).
- Muscular fitness developed through sports participation is associated with decreased risk of cardiovascular disease and metabolic risk factors (Smith et al., 2014).
- Team sport participation has been reported to have a strong inverse association with weight status (Drake et al., 2012).
- Sport participation during the teens has been shown to be a protective factor against sedentary behaviour, risk for depression and body esteem issues (Alberga et al., 2012).

Likewise, sport has been heralded as an environment containing a large number of positive features which can support the personal and social development of young people (Holt et al., 2017). Research has shown how participation in sport can lead to cognitive, emotional, moral, social and identity development (Lara-Bercial, 2018). These gains are due to the amalgamation of a number of generative mechanisms including capturing the attention of the young person, providing a nurturing and caring environment, building young people's self-confidence and providing opportunities to experience situations, positive and negative, similar to those that appear in adult life (i.e., conflict, disappointment, failure, success, struggle, competition, diversity). All research into this area (Holt et al., 2017; Lara-Bercial & McKenna 2019) has concluded that the role of the coach is paramount in maximising the beneficial properties of sport for personal and social development in young people.

Moreover, a recent paper commissioned by the European Commission, "Study on the Contribution of Sport to the Employability of Young People in the Context of the Europe 2020 Strategy" (Theeboom et al., 2017) has shown how participation in sport and physical activity can make a strong contribution to the employability skills and prospects of young people. This is particularly so in relation to the development of soft and transversal skills highly valued by employers. Yet, for this development to happen, certain key conditions need to be in place such as appropriate recruitment, relevance to the participant, positive social relationships, and a developmental social climate within the sporting context. This again highlights the importance of the coach as a catalyst and mediator of positive outcomes, and the paramount need to educate coaches accordingly.

All of the above highlight the importance of sports engagement during adolescence as a tool to enhance health, promote lifelong sports participation, and prepare young people for life outside sport. However, it has been reported that the positive aspects of sport participation are often underutilised (Duda et al., 2013). In other words, coaches, clubs, federations and local authorities are struggling to capitalise on the potential of sport as a tool for wider benefits.

The Decline in Sport Participation

One reason for this is that ,in recent years, there has been a decline in the number of adolescents participating in sport (Eime, Harvey, Charity 2019; Murphy, Rowe, Woods, 2016). The onset of puberty particularly (approximately 11 years for girls and 13 years for boys) has been identified as a key time point where such a decline is observed (Brown, Patel, Darmawan, 2017; Alberga et al., 2012). A survey of children aged 0–14 years reported sport participation peaking at ages 9–11 years (Australian Sports Comission 2016), and other studies of sport participants have reported peak participation at ages 10–14 years (Wong et al. 2016, Eime et al. 2016c). Furthermore, a national participation reports in England (Sport England, 2019) and Ireland (Sport Ireland and Sport Northern Ireland, 2018) suggested that adolescents are the least likely to be active, with participation rates reported to be particularly low for females (Australian Sports Commission 2016, Wong et al. 2016, Eime et al. 2016b, 2016c).Therefore, the need to look at strategies to keep more adolescents engaged in sport and physical activity is evident (Drake et al., 2012).

Young people report that poor practice by coaches and negative relationships are a key factor in sport adolescent dropout. In fact, research has pointed out the need to understand that sport is not a "magic bullet" (Coalter, 2006) or a "panacea" for all of societies ailments (Coakley, 2011). To the contrary, sport can only fulfil its potential for positive impact when delivered by a highly qualified and

appropriately trained workforce. A far cry from the actual picture (North, 2009). The vital role sports organisations, and more importantly, the coaches working within them, may have in promoting health and wellbeing in adolescents through engagement in sport is thus clear (Alberga et al., 2012). Yet, to date, the majority of this research has been conducted in the US context. Therefore, although it is safe to assume certain similarities, particularly in relation to the role of the coach, the European context has not been fully explored and further, pan-European research in this area is required.

Therefore, the aims of this project were to explore current organised youth sport participation rates across Europe and aim to provide insights to the follow questions:

1. What are the current participation rates in organised sport of children and adolescents across Europe?
2. Are there differences in participation rates between girls and boys?
3. Are there differences in participation rates between different sports?

The report contains three sections. First, the methods of the research are detailed, including the countries and sports who provided data and the data analysis process. Second, the results of the audit are presented under two main headings: (1) Overall trends in organised youth sport participation; and (2) trends by specific sports. Finally, the results are followed by a discussion, conclusion and recommendations that highlight the significance of the findings for the wider ICOACHKIDS+ project.

RESEARCH METHODOLOGY

Participants

The range of sports (18) and the countries (27) where data was collected from for that sport are shown in Table 1.

Table 1: The sports and countries participation data was collected for.

Sport	Countries Involved
Athletics	Estonia, Croatia, England, Spain, Germany
Badminton	Estonia, Croatia, Germany
Basketball	Estonia, Croatia, England, Spain, Germany, FIBA (Belarus, Bulgaria, Czechia, Denmark, Spain, France, Netherlands, Poland, Portugal, Russia, Slovenia, Serbia, Switzerland)
Cycling	Estonia, Germany
Dance	Estonia, Croatia, Germany
Fencing	Estonia, Croatia, Germany
Handball	Estonia, Croatia, Germany
Martial Arts	Estonia, Croatia, Germany
Skiing	Estonia, Croatia, Germany
Soccer	UEFA (England, Scotland, Latvia, Montenegro, Northern Ireland, Estonia, Czech Republic, Iceland, Italy, Spain, Slovakia, Poland, Germany, Macedonia)
Swimming	Estonia, Croatia, Germany, Spain
Table Tennis	Estonia, Croatia, Germany
Tennis	Estonia, Croatia, Germany
Triathlon	Estonia, Croatia, Germany
Water Sports	Estonia, Croatia, Germany
Wrestling	Estonia, Germany
	An additional 3500 data points were collected from Ireland, the Netherlands and Hungary. Unfortunately, these data were not included in the analysis due to being presented in a non-compatible format.

Data Collection

The research study involved two main data collection stages:

Stage 1: For the initial stage of data collection, all ICOACHKIDS+ partner organisations were asked to provide participation data for as many sports as possible within their respective country across multiple years. Specifically, participants were asked to contribute registration/licences data in organised NGB-led sports. Partners were provided with an excel template and were asked to use this template to provide data where possible in order to standardise data collection methods.

Data collection period was set as 2017 to 2020. This period was chosen based on a review of the data received and the aim to have an up to date understanding of youth sport participation.

Stage 2: After all available data was provided by the partner organisations, it was then collated into one centralised database in preparation for data analysis.

The initial data structure included participation totals per continuous age category (e.g. Under 7, U8, U9), gender and sport for multiple years (e.g. 2017 to 2019). Each annual age category (e.g. U7, U8, U9, U10) were firstly summed to create bi-annual age categories (e.g. U8, U10). For each country, multiple years of data within a sport, gender and bi-annual age category were then averaged to provide a single value of participation per country for each sport, gender and age category. This provided the final dataset for analysis. As mentioned above, additional data from Ireland, the Netherland and Hungary was discarded due to being presented in a format not compatible with the analysis.

Data Analysis

In total, participation data from over 5 million young people from U8s to U18s was included in the analysis.

Table 2: Number of participants and percentage per age category and gender

	Under 8s	Under 10s	Under 12s	Under 14s	Under 16s	Under 18s	Total
Boys	597,556 (82%)	808,525 (81%)	868,166 (80%)	796,721 (79%)	683,699 (79%)	702,248 (79%)	4,456,915 (80%)
Girls	125,671 (18%)	185,436 (19%)	217,131 (20%)	216,408 (21%)	179,913 (21%)	184,386 (21%)	1,108,945 (20%)
				Total Number of Participants			5,565,860

Differences in the participation rates between age categories were investigated using a generalised linear mixed effects model. To account for the variability in participation rates between countries within an age category, the country ID was specified as a random effect. This allowed to compare the true difference in participation rate between bi-annual age categories for each sport and by gender (all fixed effects). Estimates of participation (accounting for country) were then produced for each age category. From those, odds ratios (95% confidence interval) were calculated for each bi-annual age category comparison for each sport and gender to examine the extent of participation increases / decreases across sports and genders.

RESULTS

A high-level overview of the results that examine organised youth sports participation in a range of sports across Europe is presented under five main sub-sections:

1. Overall participation trends by sport and gender
2. Gender comparison across each sport
3. Male Participation trends across each age category by each sport
4. Female participation trends across each age category by each sport
5. Summary of changes in male and female participation trends between age categories for each sport

1. Overall Participation Trends by Sport

Table 3 overleaf displays the number of participants per age category by sport and gender. Overall, there were significantly more male participants (approx. 80%) than female participants, with this trend apparent across all age categories.

Sport	Gender	Under 8s	Under 10s	Under 12s	Under 14s	Under 16s	Under 18s
Wrestling	**Male**	2238 **(81%)**	1760 **(83%)**	1673 **(83%)**	1519 **(84%)**	1363 **(86%)**	1139 **(82%)**
	Female	518 **(19%)**	367 **(17%)**	347 **(17%)**	294 **(16%)**	220 **(14%)**	251 **(18%)**
Water sports	**Male**	2068 **(60%)**	5666 **(73%)**	5798 **(64%)**	7130 **(65%)**	7056 **(68%)**	6538 **(61%)**
	Female	1405 **(40%)**	2149 **(27%)**	3212 **(36%)**	3918 **(35%)**	3310 **(32%)**	4181 **(39%)**
Volleyball	**Male**	1075 **(37%)**	1924 **(31%)**	3496 **(28%)**	4661 **(24%)**	5115 **(27%)**	5540 **(27%)**
	Female	2027 **(63%)**	4330 **(69%)**	9097 **(72%)**	14584 **(76%)**	13669 **(73%)**	14776 **(73%)**
Triathlon	**Male**	400 **(54%)**	473 **(55%)**	562 **(58%)**	593 **(58%)**	525 **(62%)**	493 **(56%)**
	Female	337 **(46%)**	381 **(45%)**	405 **(42%)**	424 **(42%)**	324 **(38%)**	384 **(44%)**
Tennis	**Male**	13154 **(58%)**	16152 **(58%)**	18649 **(59%)**	20036 **(58%)**	18008 **(61%)**	14703 **(51%)**
	Female	9397 **(42%)**	11502 **(42%)**	13102 **(41%)**	14330 **(42%)**	11351 **(39%)**	14371 **(49%)**
Table Tennis	**Male**	3108 **(67%)**	7125 **(73%)**	11953 **(77%)**	14664 **(80%)**	13515 **(83%)**	11067 **(76%)**
	Female	1523 **(33%)**	2583 **(27%)**	3575 **(23%)**	3750 **(20%)**	2816 **(37%)**	3571 **(24%)**
Swimming/diving	**Male**	23468 **(51%)**	16112 **(51%)**	13348 **(50%)**	11409 (**51%)**	8400 **(55%)**	5826 **(47%)**
	Female	22831 **(49%)**	16058 (**49%)**	13393 **(50%)**	11330 **(49%)**	6802 **(45%)**	6576 **(53%)**
Soccer	**Male**	476296 **(95%)**	599070 **(94%)**	639153 **(93%)**	565826 **(93%)**	470993 **(92%)**	523121 **(92%)**
	Female	24483 **(5%)**	37390 **(6%)**	48720 (**7%)**	45212 **(7%)**	40361 **(8%)**	44226 **(8%)**
Skiing	**Male**	5174 **(52%)**	4919 **(52%)**	5683 **(53%)**	6246 **(54%)**	6455 **(60%)**	6373 **(49%)**
	Female	4750 **(48%)**	4479 **(48%)**	5089 **(47%)**	5417 **(46%)**	4249 **(40%)**	6589 **(51%)**
Martial Arts	**Male**	23645 **(68%)**	21439 **(66%)**	18355 **(65%)**	14935 **(65%)**	10927 **(69%)**	7718 **(60%)**
	Female	11154 **(32%)**	11088 **(34%)**	9731 **(35%)**	7942 **(35%)**	5001 **(31%)**	5208 **(40%)**
Handball	**Male**	16698 **(58%)**	16749 **(56%)**	18346 **(56%)**	18561 **(56%)**	16891 **(60%)**	14999 **(52%)**
	Female	12282 **(42%)**	13272 **(44%)**	14562 **(44%)**	14847 **(44%)**	11261 **(40%)**	14123 **(48%)**
Fencing	**Male**	419 **(66%)**	834 **(67%)**	1081 **(66%)**	1041 **(63%)**	822 **(66%)**	627 **(56%)**
	Female	220 **(34%)**	403 **(33%)**	561 (**34%)**	609 **(37%)**	431 **(34%)**	486 **(44%)**
Dance Sports	**Male**	1054 **(9%)**	957 **(11%)**	1019 **(12%)**	991 **(13%)**	969 **(17%)**	931 **(15%)**
	Female	11160 **(91%)**	7934 **(89%)**	7325 **(88%)**	6853 **(87%)**	4756 **(83%)**	5248 **(85%)**
Cycling	**Male**	1358 **(63%)**	1679 (**60%)**	2006 **(63%)**	2130 **(66%)**	1921 **(70%)**	1741 **(65%)**
	Female	785 **(37%)**	1132 **(40%)**	1163 **(37%)**	1120 **(34%)**	822 **(30%)**	948 **(35%)**

Boxing	**Male**	1765 **(71%)**	2230 **(74%)**	2613 **(77%)**	3308 **(77%)**	3966 **(80%)**	3842 **(74%)**
	Female	711 **(29%)**	788 **(26%)**	790 **(23%)**	1007 **(23%)**	1012 **(20%)**	1322 **(26%)**
Basketball	**Male**	8412 **(66%)**	90619 **(65%)**	99734 **(63%)**	93314 **(63%)**	83293 **(64%)**	69503 **(66%)**
	Female	4290 **(34%)**	48207 **(35%)**	59800 **(27%)**	55808 **(37%)**	45891 **(37%)**	35381 **(34%)**
Badminton	**Male**	884 **(60%)**	1668 **(56%)**	2797 **(56%)**	3802 **(56%)**	3752 **(59%)**	3177 **(51%)**
	Female	589 **(40%)**	1321 **(44%)**	2202 **(44%)**	2976 **(44%)**	2610 **(41%)**	3174 **(49%)**
Athletics	**Male**	16340 **(49%)**	21129 **(49%)**	21905 **(48%)**	26553 **(51%)**	29720 (**54%)**	24798 **(51%)**
	Female	17199 **(51%)**	21995 **(51%)**	23944 **(52%)**	25829 **(49%)**	24915 **(46%)**	23453 **(49%)**

Table 3. Number of participants per age category by sport and gender.

2. Gender Comparison Across Each Sport

Generally, males were four times more likely to participate in organised youth sport than females. As seen in Table 2 and 3, approximately 80% of sampled participants were male and 20% female. These percentages remain relatively unchanged across age groups from U8 to U18.

In addition, figure 1 below highlights the odds ratio comparisons for the difference in total participation number between females and males for each sport. Overall:

- **16/18 (61%) of sports had significantly greater male participation than female** Mean ± standard deviation increase = 166 ± 311%
- **2/18 (28%) of sports had significantly greater female participation than male** Mean ± standard deviation decrease = -75 ± 17%

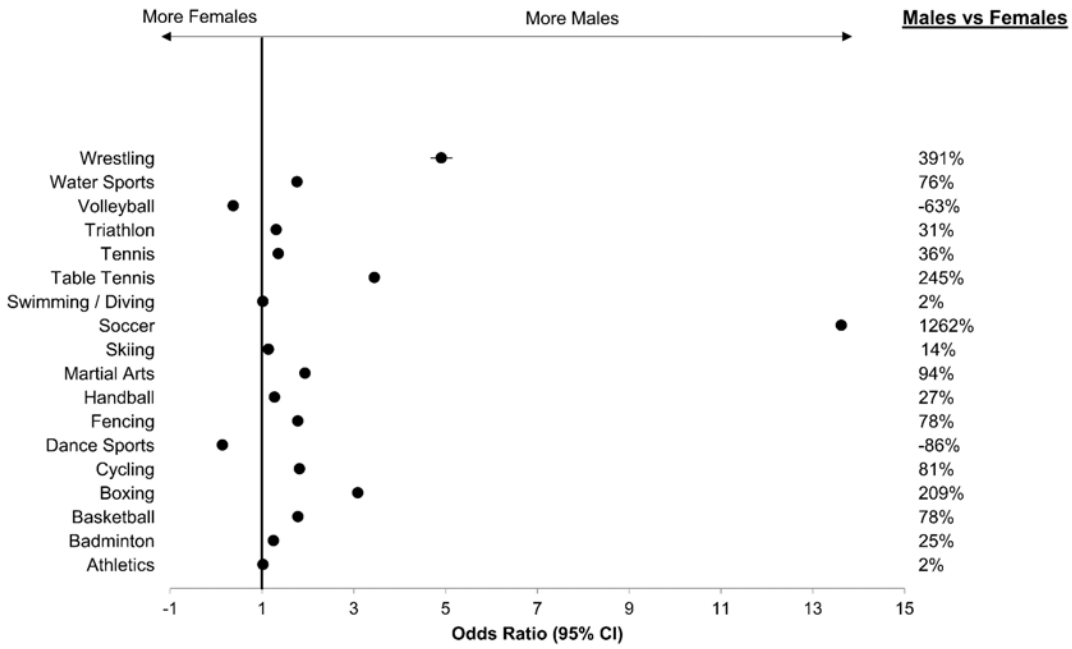


Figure 1. Odds ratio (95% confidence interval) for difference in participation number between females and males for each sport. Values represent % difference between female and male for that sport. Red sports highlights non-significant changes.

3. Male Participation Trends by Sport and Age Category

Male U8 to U10

Figure 2 highlights the odds ratio comparisons for the changes in participation number between U8 to U10 age categories for males. Overall:

- **11/18 (61%) of sports demonstrated a significant increase↑**
  Mean ± standard deviation increase = 49 ± 42%
- **6/18 (28%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -19 ± 18%
- **1/18 (6%) of sports demonstrated no significant change**

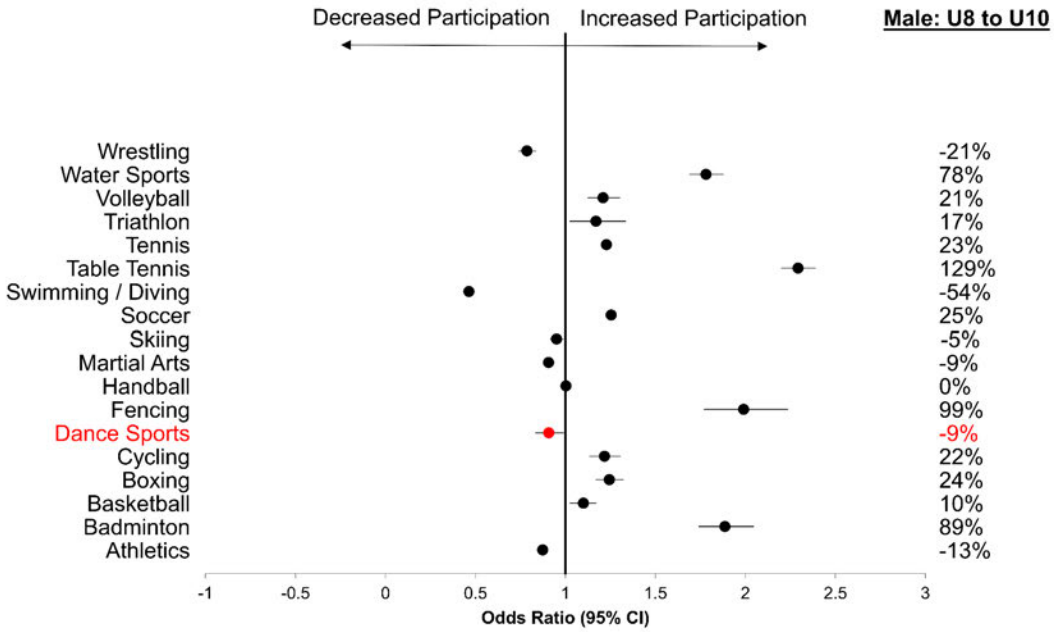


Figure 2. Odds ratio (95% confidence interval) for change in participation numbers between U8 and U10 categories for male sports. Values represent % change between U8 and U10 for that sport. Red sports highlights non-significant changes.

Male U10 to U12

Figure 3 highlights the odds ratio comparisons for the changes in participation number between U10 to U12 age categories for males. Overall:

- **13/18 (72%) of sports had a significant increase ↑**
  Mean ± standard deviation increase = 30 ± 27%
- **4/18 (22%) of sports had a significant decrease ↓**
  Mean ± standard deviation decrease = -14 ± 6%
- **1/18 (6%) of sports had no significant change**

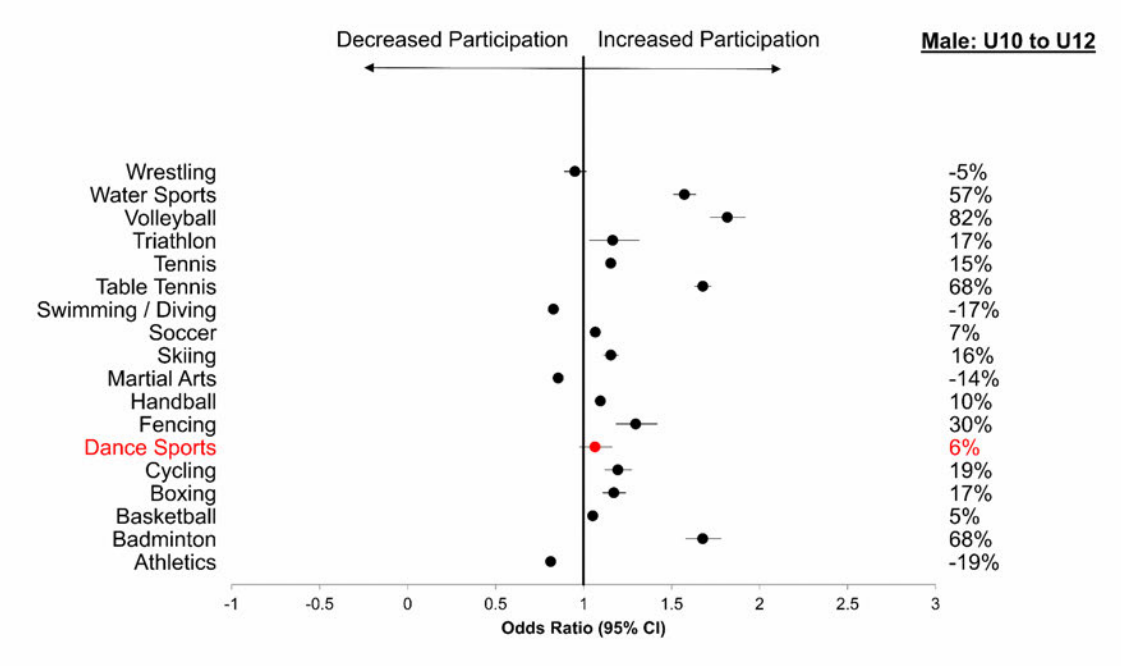


Figure 3. Odds ratio (95% confidence interval) for change in participation numbers between U10 and U12 categories for male sports. Values represent % change between U10 and U12 for that sport. Red sports highlights non-significant changes.

Male U12 to U14

Figure 4 highlights the odds ratio comparisons for the changes in participation number between U12 to U14 age categories for males. Overall:

- **9/18 (50%) of sports demonstrated a significant increase ↑**
  Mean ± standard deviation increase = 18 ± 12%
- **5/18 (28%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -10 ± 6%
- **4/18 (22%) of sports demonstrated no significant change**

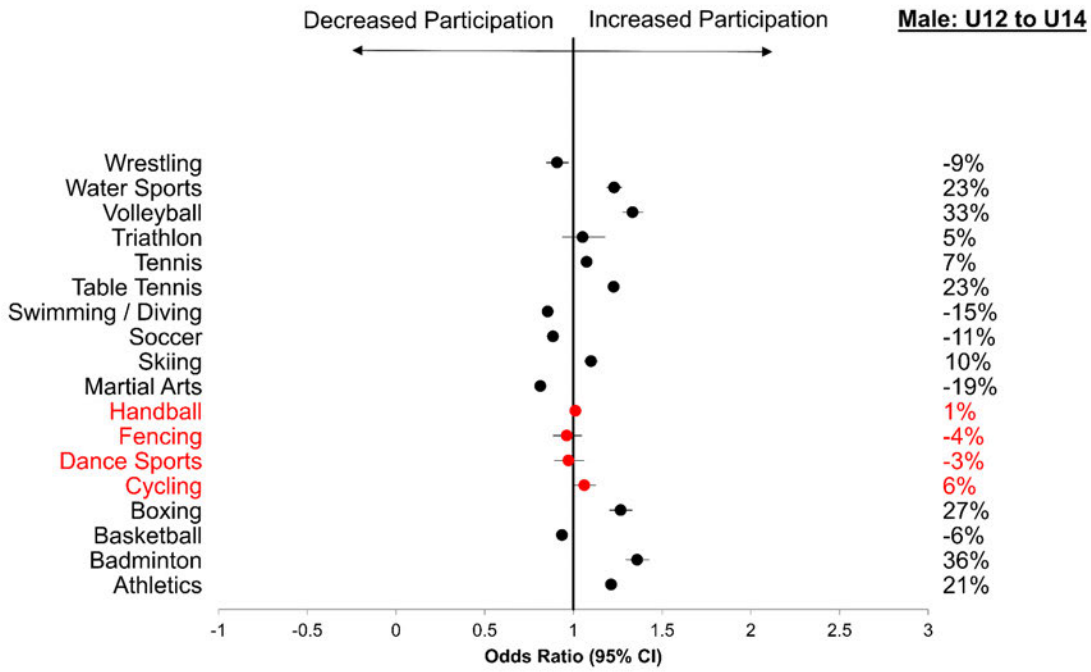


Figure 4. Odds ratio (95% confidence interval) for change in participation numbers between U12 and U14 categories for male sports. Values represent % change between U12 and U14 for that sport. Red sports highlights non-significant changes.

Male U14 to U16

Figure 5 highlights the odds ratio comparisons for the changes in participation number between U14 to U16 age categories for males. Overall:

- **3/18 (17%) of sports demonstrated a significant increase ↑**
  Mean ± standard deviation increase = 9 ± 8%
- **11/18 (61%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -13 ± 8%
- **4/18 (22%) of sports demonstrated no significant change**

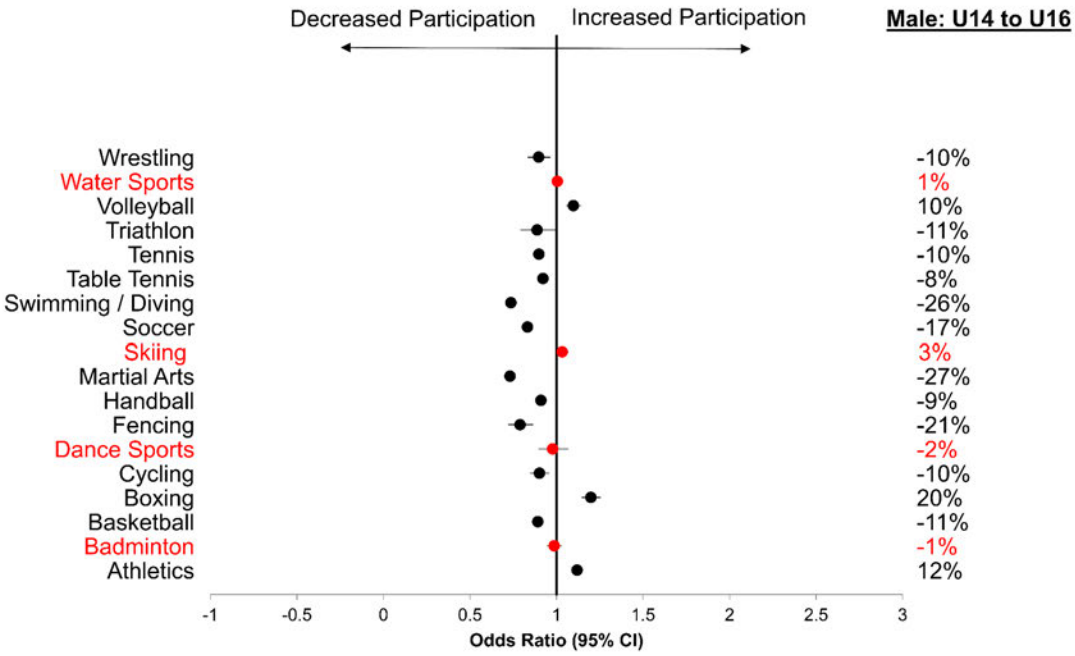


Figure 5. Odds ratio (95% confidence interval) for change in participation numbers between U14 and U16 categories for male sports. Values represent % change between U14 and U16 for that sport. Red sports highlights non-significant changes.

Male U16 to U18

Figure 6 highlights the odds ratio comparisons for the changes in participation number between U16 to U18 age categories for males. Overall:

- **2/18 (11%) of sports demonstrated a significant increase↑**
  Mean ± standard deviation increase = 10 ± 2%
- **12/18 (67%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -14 ± 9%
- **4/18 (22%) of sports demonstrated no significant change**

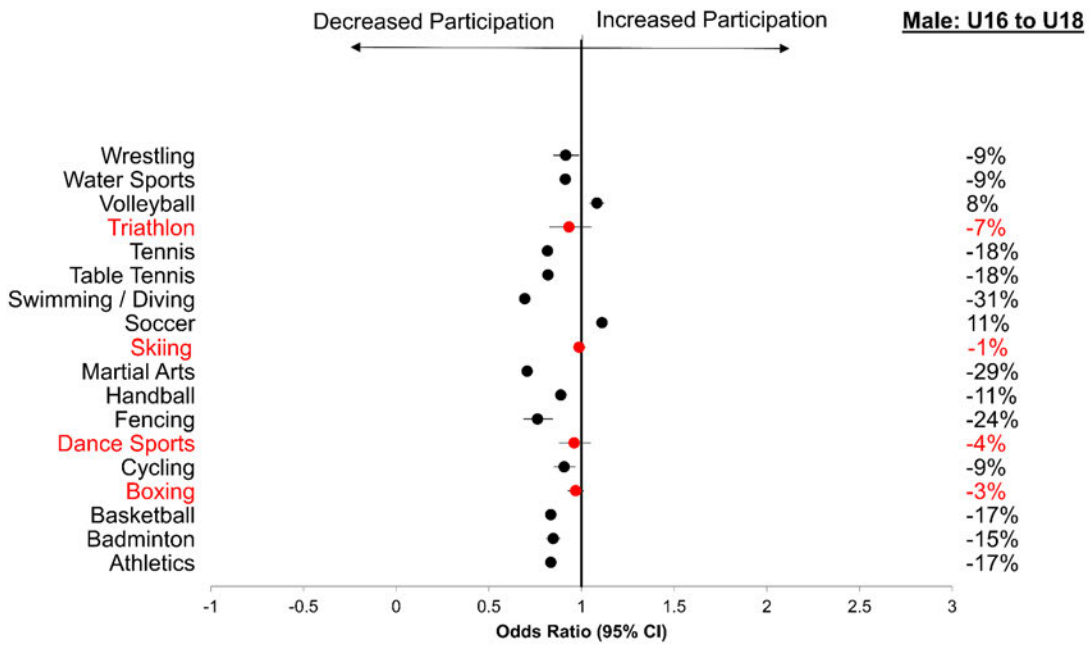


Figure 6. Odds ratio (95% confidence interval) for change in participation numbers between U16 and U18 categories for male sports. Values represent % change between U16 and U18 for that sport. Red sports highlights non-significant changes.

4. Female Participation Trends by Sport and Age Category

Female U8 to U10

Figure 7 highlights the odds ratio comparisons for the changes in participation number between U8 to U10 age categories for females. Overall:

- **11/18 (61%) of sports demonstrated a significant increase ↑**
  Mean ± standard deviation increase = 47 ± 35%
- **6/18 (33%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -22 ± 19%
- **1/18 (6%) of sports demonstrated no significant change**

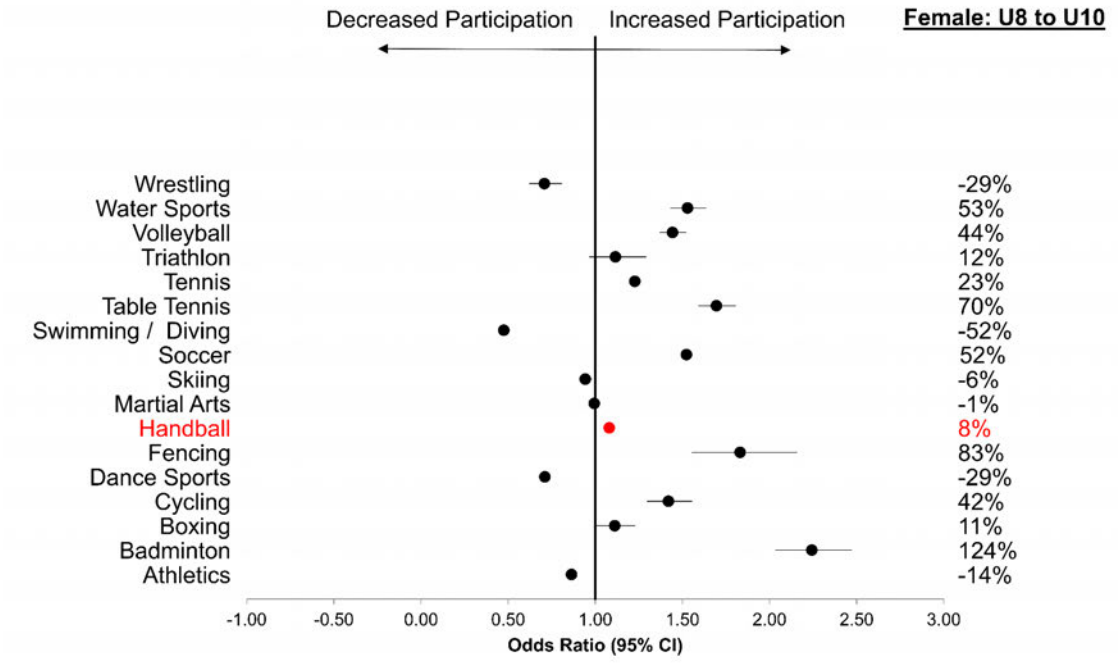


Figure 7. Odds ratio (95% confidence interval) for change in participation numbers between U8 and U10 categories for female sports. Values represent % change between U8 and U10 for that sport. Red sports highlights non-significant changes.

Female U10 to U12

Figure 8 highlights the odds ratio comparisons for the changes in participation number between U10 to U12 age categories for females. Overall:

- **10/18 (56%) of sports demonstrated a significant increase ↑**
  Mean ± standard deviation increase = 33 ± 31%
- **4/18 (22%) of sports demonstrated a significant decrease↓**
  Mean ± standard deviation decrease = -11 ± 5%
- **4/18 (22%) of sports demonstrated no significant change**

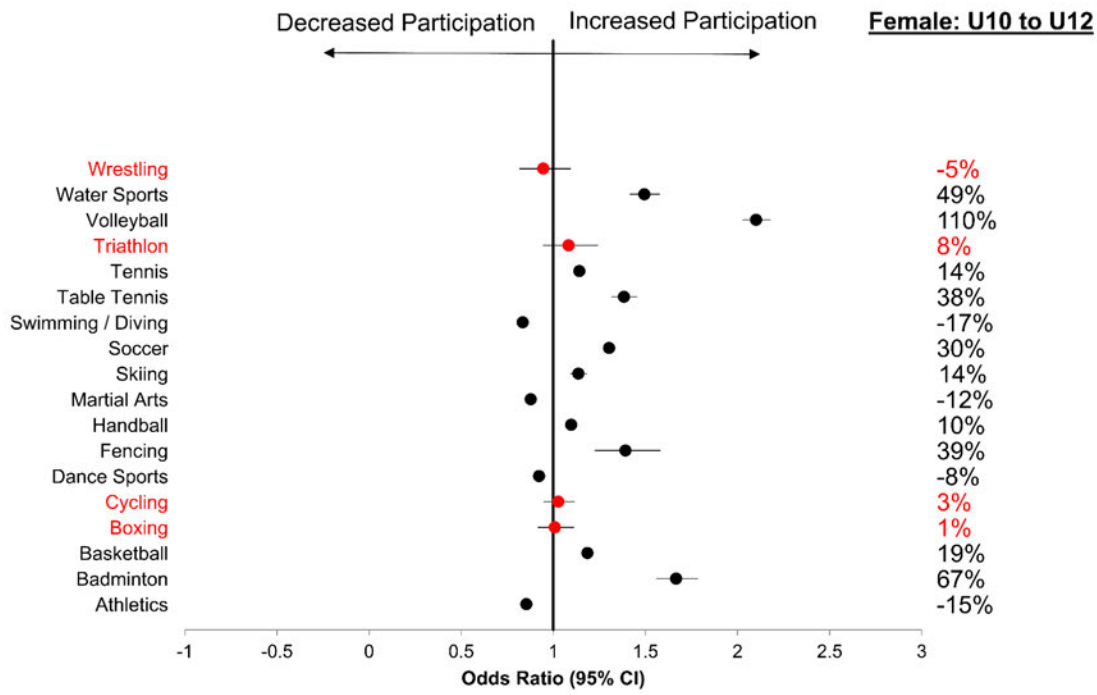


Figure 8. Odds ratio (95% confidence interval) for change in participation numbers between U10 and U12 categories for female sports. Values represent % change between U10 and U12 for that sport. Red sports highlights non-significant changes.

Female U12 to U14

Figure 9 highlights the odds ratio comparisons for the changes in participation number between U12 to U14 age categories for females. Overall:

- **8/18 (44%) of sports demonstrated a significant increase ↑** Mean ± standard deviation increase = 17 ± 18%
- **6/18 (33%) of sports demonstrated a significant decrease ↓** Mean ± standard deviation decrease = -10 ± 6%
- **4/18 (22%) of sports demonstrated no significant change**

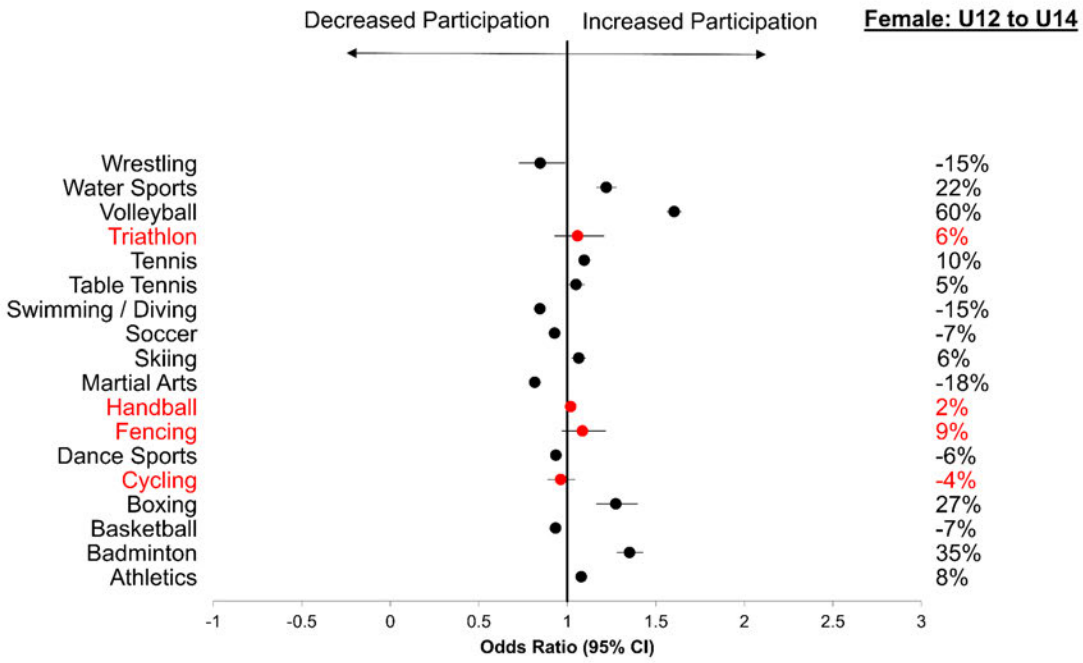


Figure 9. Odds ratio (95% confidence interval) for change in participation numbers between U12 and U14 categories for female sports. Values represent % change between U12 and U14 for that sport. Red sports highlights non-significant changes.

Female U14 to U16

Figure 10 highlights the odds ratio comparisons for the changes in participation number between U14 to U16 age categories for females. Overall:

- **0/18 (0%) of sports demonstrated a significant increase ↑**
- **17/18 (94%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -22 ± 10%
- **1/18 (6%) of sports demonstrated no significant change**

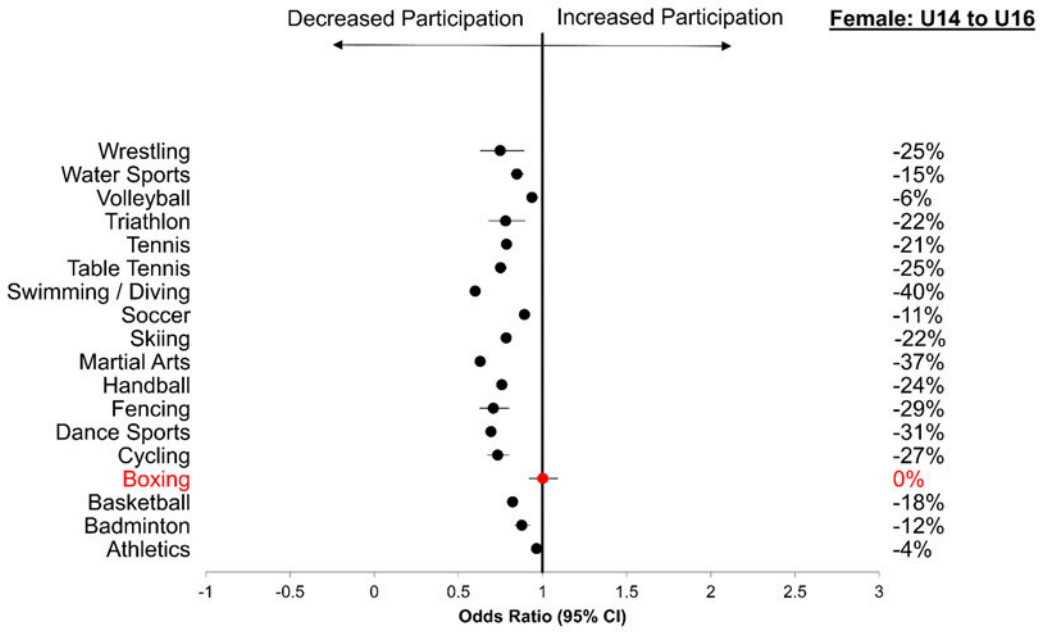


Figure 10. Odds ratio (95% confidence interval) for change in participation numbers between U14 and U16 categories for female sports. Values represent % change between U14 and U16 for that sport. Red sports highlights non-significant changes.

Female U16 to U18

Figure 11 highlights the odds ratio comparisons for the changes in participation number between U16 to U18 age categories for females. Overall:

- **13/18 (72%) of sports demonstrated a significant increase ↑**
  Mean ± standard deviation increase = 20 ± 13%
- **2/18 (11%) of sports demonstrated a significant decrease ↓**
  Mean ± standard deviation decrease = -11 ± 11%
- **3/18 (17%) of sports demonstrated no significant change**

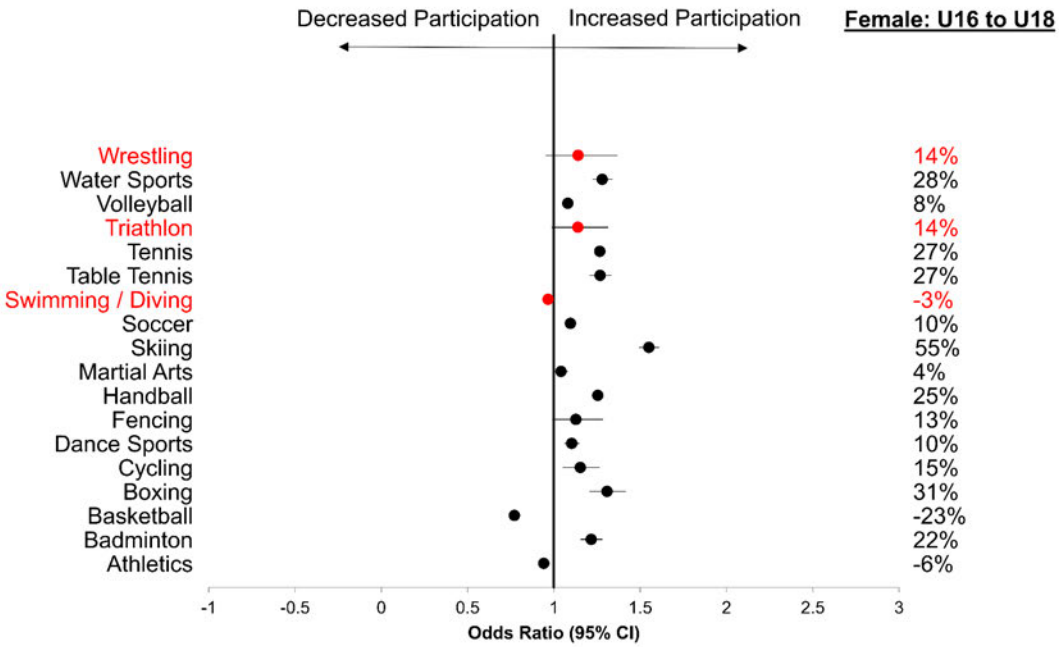


Figure 11. Odds ratio (95% confidence interval) for change in participation numbers between U16 and U18 categories for female sports. Values represent % change between U16 and U18 for that sport. Red sports highlights non-significant changes.

5. Summary of Participation Trends

Table 4 below outlines the overall changes in participation rates between consecutive age categories for male sport. There was a significant decrease across sports in participation rates for males during adolescence from U14-U16 and U16-U18.

	U8 to U10	U10 to U12	U12 to U14	U14 to U16	U16 to U18	Largest Increase	Largest Decrease
Athletics	↑	↑	↑	↑	↓	U8=16340-U16=29720 (82%)	U16=29720-U18=24798 (17%)
Badminton	↑	↑	↑	↔	↓	U8=884-U14=3802 (330%)	U14=3802-U18=3177 (16%)
Basketball	↑	↑	↓	↓	↓	U8=8412-U12=99734 (1086%)	U12=99734-U18=69503 (30%)
Boxing	↑	↑	↑	↑	↔	U8=1765-U16=3966 (125%)	U16=3966-U18=3842 (3%)
Cycling	↑	↑	↔	↓	↓	U8=1358-U14=2130 (57%)	U14=2130-U18=174 (92%)
Dance Sports	↓	↔	↔	↔	↔	U10=957-U12=1019 (6%)	U8=1054-U10=957 (9%)
Fencing	↑	↑	↔	↓	↓	U8=419-U12=1081 (158%)	U12=1081-U18=627 (42%)
Handball	↔	↑	↔	↓	↓	U10=16749-U12=18346 (10%)	U14=18561-U18=14999 (19%)
Martial Arts	↓	↓	↓	↓	↓	N/A	U8=23645-U18=7718 (67%)
Skiing	↓	↑	↑	↔	↔	U10=4919 – U16=6455 (31%)	U8=5174 – U10=4919 (5%)
Soccer	↑	↑	↓	↓	↑	U8=476296-U12=639153 (34%)	U12=639153-U16=565826 (11%)
Swimming / Diving	↓	↓	↓	↓	↓	N/A	U8= 23468-U18 =5826 (75%)
Table Tennis	↑	↑	↑	↓	↓	U8=3108-U14=14664 (372%)	U14=14664-U18=11067 (25%)
Tennis	↑	↑	↑	↓	↓	U8=13154 – U14=20036 (52%)	U14=20036-U18=14703 (27%)
Triathlon	↑	↑	↑	↓	↔	U8=400 U14=593 (48%)	U14=593-U18=493 (17%)
Volleyball	↑	↑	↑	↑	↑	U8= 1075 - U18 = 5540 (515%)	N/A
Water Sports	↑	↑	↑	↔	↓	U8=2068 - U14=7130 (344%)	U14=7130-U18=6538 (8%)
Wrestling	↓	↓	↓	↓	↓	N/A	U8=2238-U18=1139 (51%)
Key: ↑ = Significant increase; ↓ = Significant decrease; ↔ = No significant change							

Table 5 below outlines the overall changes in participation rates between consecutive age categories for female sport. There was a significant decrease in participation rates for females from U14-U16 but an increase from U16-U18.

	U8 to U10	U10 to U12	U12 to U14	U14 to U16	U16 to U18	Largest Increase	Largest Decrease
Athletics	↓	↓	↑	↓	↓	U8=17199-U14=25829 (50%)	U14=25829-U18=23453 (9%)
Badminton	↑	↑	↑	↔	↑	U8=589-U14=2976 (405%)	U14=2976-U16=2610 (12%)
Basketball	↑	↑	↓	↓	↓	U8=4290-U12=59800 (1294%)	U12=59800-U18=35381 (41%)
Boxing	↑	↔	↑	↔	↑	U8=711-U18=1322 (86%)	N/A
Cycling	↑	↔	↔	↓	↑	U8=785-U12=1163 (48%)	U12=1163-U16=822 (29%)
Dance Sports	↓	↓	↓	↓	↑	U16=4756-U18=5248 (10%)	U8=11160-U16=4756 (57%)
Fencing	↑	↑	↔	↓	↑	U8=220-U14=609 (177%)	U14=609-U16=431 (29%)
Handball	↔	↑	↔	↓	↑	U8=12282-U14=14847 (21%)	U14=14847-U16=11261 (24%)
Martial Arts	↓	↓	↓	↓	↑	U16=5001-U18=5208 (4%)	U8=11154-U16=5001 (55%)
Skiing	↓	↑	↑	↓	↑	U16=4249-U18=6589 (55%)	U14=5417-U16=4249 (22%)
Soccer	↑	↑	↓	↓	↑	U8=24483-U12=48720 (99%)	U12=48720-U16=40361 (17%)
Swimming / Diving	↓↓	↓	↓	↓	↔	N/A	U8=22831-U18=6576 (71%)
Table Tennis	↑	↑	↑	↓	↑	U8=152-U14=3750 (2367%)	U14=3750-U16=2816 (25%)
Tennis	↑	↑	↑	↓	↑	U8=9397-U14=14330 (52%)	U14=14330-U16=11351 (21%)
Triathlon	↑	↔	↔	↓	↔	U8=337-U14=424 (26%)	U14=424-U16=324 (24%)
Volleyball	↑	↑	↑	↓	↑	U8=2027-U14=14584 (619%)	U14=14584-U16=13669 (6%)
Water Sports	↑	↑	↑	↓	↑	U8=1405-U14=7130 (407%)	U14=7130-U16=3310 (54%)
Wrestling	↓	↔	↓	↓	↔	N/A	U8=518 U18=251 (52%)

Key: ↑ = Significant increase; ↓ = Significant decrease; ↔ = No significant change

DISCUSSION

This research report provides an overview of organised youth sport participation rates for 18 sports across 27 European countries. Data was collected from over 5.5 million participants. Specifically, the report offers an overview of the current participation trends by gender and age categories within specific sports. The report also highlights some of the challenges of tracking youth sport participation rates across Europe.

Participation Rates for Males versus Females

Overall, male participation in youth sport was significantly higher than female. This trend was evident across all age categories from U8 to U18 with (approximately 80% male versus 20% female). This trend is consistent with previous literature, which has highlighted that boys participate more in sport, and generally sample or play more sports than females from a young age (Eime, Harvey, Charity, 2019).

- An explanation for this finding has been suggested to be related to the increased opportunities for boys to play multiple sports, relative to girls, and to parents encouraging boys to play sport more than girls (Wheeler 2012, Eime et al. 2016b).
- Furthermore, previous research has reported that there is evidence of a competence difference between young females compared to males, and that competence (i.e., the ability to do something successfully or efficiently) is a major factor relating to participation in sport (Veldman et al. 2017). There is evidence that young girls are less competent at ball (manipulation) skills than young boys (Veldman et al. 2017; Behan et al., 2019).
- Further, other research amongst 6–12-year-olds reports that playing multiple sports and spending more time playing sport contributes to improved gross motor coordination (Fransen et al. 2012). Therefore, by sampling multiple sports children are exposed to a greater number of physical, cognitive, affective and psycho-social environments than those playing only one sport and develop competence in these skills (Fransen et al. 2012). Higher sports competence in young childhood is associated with continued sport participation across childhood (Henrique et al. 2016).

Therefore, the findings of this report support the need to increase participation rates of young girls in sport across Europe. If more young girls can sample a broader variety of sports from a young age, this is likely to lead to greater competence and therefore girls will be more likely to continue participating.

Participation Trends

Participation rates generally increased from U8-U14 for both boys and girls, and across the majority of sports. However, a significant decrease in participation was observed in adolescence.

- For example, for males, 11 (61%) and 12 (66%) sports had decreased participant trends between U14 to U16 and U16 to U18 respectively.
- For females, 17 (94%) sports demonstrated decreasing participation trends at U14 to U16.

These findings are consistent with previous literature, which has reported that sport participation rates peak between the ages of 10-14 years (Wong et al. 2016, Eime et al. 2016c), with significant decreases in sport participation rates observed for both adolescent males and females from U14 onwards.

While it is not possible to determine the specific cause of this within this report, previous literature has hypothesised that this may be an artefact of sampling behaviour with adolescents specialising within a specific sport (Eime, Harvey and Charity, 2019). However it has been shown that, even when this is accounted for, there is a significant decrease in sports participation in adolescents. Other research has suggested there is evidence of a shift away from competitive club-based sport towards non-competitive and non-organised forms of leisure-time physical activity during late adolescence (Eime et al. 2015a, 2016c, Australian Sports Commission 2016, Harris et al. 2017). Therefore, there is a need for further research to explore the reasons for reduced sport participation numbers in late adolescence. This will be the aim of phase two of the research project.

Causes of Youth Sport Attrition

Previous research has suggested causes of adolescent sport attrition include competency and social factors such as enjoyment, support from parents, peers and coaches and a positive social

club environment (Eime et al. 2013b, Balish et al. 2014, Henrique et al. 2016, Casey et al. 2017, Gardner et al. 2017).

It is also possible that factors related to growth and maturation during these ages may influence participant competency levels (Lloyd,et al., 2014) with competency reported as a major factor relating to participation in sport (Veldman et al. 2017). The period of adolescence is associated with a variety of biological, morphological and psychological changes, whereby accelerated periods of development may lead to momentary changes to physical capabilities often referred to as the 'adolescent awkwardness' (Lloyd et al., 2014). This, coupled with psychosocial development changes during these ages, may impact participant capabilities and their perceived competency. As such it is important that coaches are educated on such growth, maturation and development during adolescence, understand the impact that these may have on participant competence and perceived competency and factor these considerations into their coaching to maximise participation and continued involvement in sport.

Sport Attrition in Girls

A concerning pattern is the more severe decline in participation rates for females between U14-U16 which demonstrated that 94% of sports observed a significant decrease in female participation between these ages. This is consisted with previous findings highlighting a higher decrease in female participation during adolescent versus males (Wong et al. 2016, Eime et al. 2016b).

However, an interesting finding of this research was that 72% of sports also experienced an increase in female participation rates between U16-U18, while there was a 67% decrease in male adolescent participation rates between U16-U18. Despite this, female participation at U18 was still significantly less than for males (approx. 79% of participants male versus 21% female).

A range of intrapersonal, interpersonal, organisational, environmental and policy factors have been suggested to influence participation in sport in youths (Crane & Temple 2015), however it is not possible to determine the specific cause for the trends observed within this report. This is an area that needs further research to inform dropout prevention strategies within coaching. ICOACHKIDS+ is currently developing research in this area which will be published in a second technical report over the course of the project.

Youth Sport Attrition is an Individual, Context-Specific Event

Based on the findings of this research, a key consideration is that a 'One Size Fits All' approach to preventing decreasing participation trends and dropout in youth sport may not be appropriate. While it has been established that overall participation rates were higher in children (peaking at U12s) and that lower participation rates were observed in adolescents, there were some interesting trends observed for some specific sports.

For example, in swimming there was a decrease in participation observed for each consecutive age category regardless of gender, with decreases of approximately 370% from U8 to U18. Previous research has reported that early specialisation often leads to dropout (Fraser-Thomas et al. 2008). Children who specialise in a single sport, particularly with heavy training, risk burnout (Myer et al. 2015). Given that swimming may be considered an early specialisation sport, this may explain the trends observed in this study and it requires further research to understand the trends in dropout observed before strategies to prevent dropout from such sports can be developed.

The opposite was observed in other sports. Increases in participation during adolescence were observed for sports such as volleyball and boxing. Speculatively, the increase in participation during adolescence for these sport may be influenced by the development of certain physical attributes of the participants which may not become apparent until adolescence.

There is therefore a need for a follow up to this study to explore the reasonings behind the general adolescent attrition observed within this study. These findings, however, suggest that there is not one strategy to maintaining and increasing sports participation across childhood and adolescence, and that sports and countries may need to consider different strategies at different age categories.

Limitations and Future Directions

Whilst this research report provided the participation trends of over 5.5 million children and young people, limitations do exist. Firstly, a limitation of this research was the amount of data that could not be included as it could not be accessed in a format that would allow comparisons between age categories, or where it was not possible to establish differences between male and female participants. For example, some sports in certain countries grouped age categories together (e.g. U9-U12).

Secondly, a limitation of the research is that due to the way data is currently recorded, it is only possible to get a cross-sectional interpretation of youth participation rates at a given time point. Therefore, assumptions are made regarding dropout by comparing participation rates between two consecutive age categories. However, from this approach is not possible to confidently determine whether participants began a sport during childhood and continued in that sport until adolescence, or if the dropout observed in adolescence is to some degree an artefact of sampling versus specialisation in adolescence.

In order to truly track youth participation in sport and identify when participants drop out of sport or transfer to a different sport, there is a need to implement data collection strategies that allow individual participants to be tracked longitudinally. Therefore, it is recommended that individual identifiers should be used for each participant which is assigned to the individual and is also used to track them within a specific sport and if they change sports. Should a participant transfer from one sport to another, then they would keep the same identifier number. Such an approach to tracking, would provide a much more robust method to assess youth participation and dropout rates in sport. It is therefore recommended that this is something that is explored further and a standardised approach to be implemented across Europe. This system is already in place in Flanders.

Future research should also aim to explore the reasons why specific dropout trends were observed. By understanding the barriers and facilities to sports participation in adolescence in sport across Europe, this will allow tailored strategies to be implemented to decrease dropout rates in youth sport. This is essential to keeping children and adolescents engaged in sport for health benefits, not only physical but also psychological, and to support their psychosocial development (Eime et al. 2013a). Future ICOACHKIDS+ research reports will attempt to make further contributions in this area.

CONCLUSIONS

This research shows male sports participation is significantly greater than female. Furthermore, findings showed that for both male and female participants, participation rates increased from U8–U14 for the majority of sports followed by a significant increase in drop-out rates in adolescence. Overall, female participation in sport shows a concerning declining pattern. The more severe decline in participation rates for females takes place between U14–U16. This is demonstrated by the fact that 94% of sports observed a significant decrease in female participation.

Therefore, the need to look at strategies to keep more adolescents engaged in sport and physical activity is evident (Drake et al., 2012). It is recommended that sport policy focuses on overall participation across sports using a longitudinal track approach, which takes into account the sampling and specialising phenomena which naturally occur, rather than merely asking individual sports to increase participation.

Considering the magnitude of this drop-off, sport policy should specifically prioritise retention in sport, and not merely focus on increasing total sport participation numbers. This requires a longitudinal rather than cross-sectional approach to the monitoring of participation. A policy relating to retention is needed to provide sporting organisations with the lever to make this a priority for their sport-specific strategies. However, from a policy and planning perspective it is important to know what proportion of the apparent drop off in late childhood and adolescence, both in individual sports, and in data aggregated across sports, is due to increased specialisation, and what proportion is due to drop-out from sport altogether. In the absence of a common unique participant identifier across sports this is currently not possible to track. Unique participant identifiers and a standardised approach between sports and nations for tracking sports participation should be adopted.

We know that participation in sport during childhood and adolescence has a lasting positive effect on physical activity (Murphy et al. 2016). Furthermore, sports participants are often more active and fitter than participants in non-sport physical activity; however, these associated benefits of sport participation can diminish during adolescence and especially so for girls (Telford et al. 2015). Therefore, strategies are needed to keep children and adolescents engaged in sport for health benefits, not only physical but also psychological and social health (Eime et al. 2013a).

RECOMMMENDATIONS

The key points to arise from this report include:

- Sport participation rates for male and female children and adolescents are significantly lower in females (80/20). Therefore, there is a need to increase and support female participation and retention within sport from a young age.
- There is a significant decrease in sport participation for youth males from U14-U18s for most sports. Therefore, there is a need to understand male sport participation trends and minimise dropout in sport post 14 years.
- There is a significant decrease in sports participation for youth females between U14-U16 but an increase in participation between U16-U18. Therefore, there is a need to understand female sport participation trends and minimise dropout between 14-16 years.
- There is a need to standardise longitudinal participation tracking methods between sports and different countries to allow a true comprehensive analysis of sport participation rate and drop out in youth sport.
- A 'one size fits all' approach may not be an appropriate method to increase youth sports participation. Factors such as gender and sport must be considered, and specific strategies developed.
- Education of coaches and practitioners on the growth, maturation and development of the adolescent period seems key to establish strategies to maximise participation in sport by understanding the needs of both male and female participants

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