The Healing Power of Sport:

COVID-19 and Girls' Participation, Health, and Achievement

A Women's Sports Foundation Research Report, January 2023

Women's Sports Foundation

Letter from the CEO

In 2020, the COVID-19 pandemic swept across the globe and the nation, presenting an unprecedented health crisis unlike any other in modern times. COVID-19's immense impact shuttered businesses and schools, and much of the country came to a standstill, leaving communities, families, and young people grappling with fear, confusion, and isolation.

As schools temporarily closed their doors and shifted to online learning, other critical outlets and activities for young people closed completely, including many sport facilities and school, community, and after-school athletic programs. Programs with the proper financial means and resources managed to pivot and create virtual experiences; but most young people were left with few options for physical activity, sport skills, team practice, athletic competition, and — above all — connection with peers, coaches, and mentors.

After almost three years, many programs have returned, although not all young people have been able to resume play. Too many young people remain sidelined, rooted in loss of interest, lack of financial resources, changed family circumstances, and lingering concerns about health risks for themselves and their families. Educators, coaches, mental health professionals, and families are coping with the consequences of COVID-19 and recognizing the significant toll it has taken on young people, many of whom, prior to the pandemic, were experiencing high levels of mental health stressors.

The Healing Power of Sport: COVID-19 and Girls' Participation, Health, and Achievement is one of the first studies to examine ways in which sports participation among girls was impacted during the pandemic and how sport served as a protective factor against some of COVID-19's negative impacts on behavior, mental health, and academic achievement. These findings underscore the importance of sports participation for girls, highlight the need to invest more so that all girls have access and opportunity, and can serve as a foundation for strategies that meet the needs of girls more holistically, especially those most marginalized.

The declines in sport participation triggered by COVID-19 exacerbated the gender and racial inequities documented in our research report, *50 Years of Title IX: We're Not Done Yet*. This could have a profound generational effect unless we acknowledge the need and work to address it. That is why the Women's Sports Foundation is committed to ensuring that all girls and women have equal access to sports and physical activity and the tremendous life-long benefits they provide, without barriers.

We are proud to be at the forefront of research and practice, and we look forward to working with other leaders in the field to bring these new research findings into practice to not only get young people playing again but to keep them playing.

All girls. All women. All sports.®

Danette Leighton
CEO, Women's Sports Foundation

Foreword and Acknowledgments

First, the Women's Sports Foundation is indebted to the study principal investigators, Phil Veliz, Ph.D., and Nicole Zarrett, Ph.D., whose research excellence brought this project to fruition. We are grateful for the leadership provided by Karen Issokson-Silver, MPH, Vice President, Research and Evaluation, Women's Sports Foundation, who directed the project.

We gratefully acknowledge Megan Bartlett, Founder, Center for Healing & Justice Through Sport, for developing the relevant evidence-based policy and practice recommendations for this report to help shape future planning, research, and action.

The panel of scholars and practitioners who reviewed the findings provided invaluable feedback and improved the content and clarity of the final report immensely. We greatly appreciate their consultative energy and scholarly insights:

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Wayne B. Moss, *Executive Director, National Council of Youth Sports (NCYS)*

Vanessa Washington, LPC, *Trauma Specialist; Equity Consultant, Village Resiliency Founder*

A special note of acknowledgement and appreciation is extended, as well, to Deana Monahan for her editorial and graphic skills.

About The Women's Sports Foundation

The Women's Sports Foundation exists to enable girls and women to reach their potential in sport and life. We are an ally, an advocate and a catalyst. Founded by Billie Jean King in 1974, we strengthen and expand participation and leadership opportunities through research, advocacy, community programming and a wide variety of collaborative partnerships. From its inception to Title IX's 50th anniversary in 2022, WSF has invested over $100 million in these impact efforts, helping to shape the lives of millions of youth, high school and collegiate student-athletes, elite athletes and coaches. We're building a future where every girl and woman can #KeepPlaying and unlock the lifelong benefits of sport participation. All girls. All women. All sports.® To learn more about the Women's Sports Foundation, please visit www.WomensSportsFoundation.org.

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Executive Summary

The Healing Power of Sport report is one of the first studies to assess ways in which sports participation during the coronavirus pandemic (COVID-19) may have buffered girls from the detrimental impacts of the pandemic on youth physical health behaviors, psychological well-being, and academic engagement and achievement. To gain a better understanding of the landscape of girls' sports during the pandemic, the current report first set out to examine whether there were observed declines in girls' sports participation during the first full year of the pandemic (2021) when compared to prior to school years before the pandemic began (i.e., 2019 through first quarter 2020), and whether COVID-19 exacerbated pre-existing gender disparities in youth sports participation with consideration of differences between boys' and girls' participation by race/ethnicity, socioeconomic status (i.e., parent education), urbanicity, and youth grade level. The current report then examined whether participation in sports during the pandemic was related to girls' and boys' physical and mental health and academic outcomes, with a particular focus on the impact for girls. Given youth reap the greatest benefits from their participation when they are engaged in two or more sports across the year, the report considered differences between girls who were able to maintain their participation in multiple sports (at least two sports) during the pandemic compared to those who participated in one sport and their non-participating peers.

To accomplish this objective, the Women's Sports Foundation (WSF) used cross-sectional data from the 2019, 2020, and 2021 Monitoring the Future (MTF) study of eighth-, 10th-, and 12th-grade students. The MTF study is an annual self-administered (pen and paper or electronic tablet) survey conducted with nationally representative samples of eighth-, 10th-, and 12th-grade students in U.S. secondary schools in the United States. The 12th-grade sample has been collected since 1975, and the eighth- and 10th-grade samples have been collected since 1991. This study used a partial sample of eighth, 10th and 12th graders who were randomly selected to answer questions on participation in 21 different types of competitive sports (2010 was the first year to include an expanded list of competitive sports). Thus, The Monitoring the Future (MTF) dataset provides cross-sectional samples of eighth-, 10th- and 12th-grade students who participated in surveys prior (i.e., 2019 and 2020) and during (i.e., 2021) COVID-19 and provides a unique opportunity to assess several important questions about girls' participation in sports during a global crisis.

Key Findings

Teen Sport Participation Rates Decline During the First Year of the Pandemic. Using a nationally representative sample of youth in eighth, 10th, and 12th grades, our findings indicated that there was a decline of more than six percentage points in participation rates for both boys and girls (from 76.3% to 69.6%; this would translate in to a loss of roughly 1 million sport participants in U.S. high schools), with even greater observed declines (48.9% to 40.5%) in the number of adolescents participating in multiple sports (two or more sports). As expected, the pandemic impacted sport communities differently, with the greatest declines observed among Black and Hispanic youth, those who lived in urban areas, and youth who were in the 12th grade. Among girls, the biggest drops in participation rates were found in the percentage of girls participating in track and field (15.9% in 2019-20 to 12.3% in 2021) and among boys the biggest declines were observed in the percentages of participating in football (32.6% in 2019-20 to 27.5% in 2021) and weightlifting (19.5% in 2019-20 to 14.4% in 2021). However, declines in participation rates observed within each sport varied by intersections of gender with race/ethnicity, socioeconomic status, urbanicity, and grade level.

Greatest Sport Participation Declines Occur for 12th-Grade Girls (Across Regions) and for Those Residing in Rural Areas (Across Grades). There were minimal differences found between boys and girls in overall participation declines. Gender differences in participation were found, however, within distinct subgroups of youth. In particular, girls, but not boys, experienced declines in rural areas, and 12th-grade girls experienced significantly greater declines in participation than any other group examined, with participation rates dropping by an alarming 17 percentage points (66.4% to 49.4%). These findings suggest that the pandemic may have exacerbated the already higher rates of sports dropout observed among girls as compared to boys, as they develop through the middle- and high school years (Zarrett, Veliz, & Sabo, 2020). Given the benefits associated with sport participation, dropping out of sports during high school can have both immediate and long-term effects on youth physical-, psychological-, and achievement-related trajectories (Zarrett, Veliz, & Sabo, 2020), and thus, greater attention and efforts are needed to return these girls to sport (even if participation is in a different sport than where they started) and to keep future cohorts of teen girls in sport.

The Pandemic Negatively Impacted Multiple Markers for Youth Well-Being. Aligned with national reports by the Centers for Disease Control and Prevention (2020) and others (e.g., American Academy of Pediatrics, 2021; Ammar et al., 2020; White et al., 2021), our findings indicate that the range of negative long-term impacts that COVID-19 had on youths' lives

has been widespread. Youth demonstrated notable declines from 2019-20 to 2021 in physical health behaviors (i.e., exercise/physical activity), academic achievement expectations/aspirations (i.e., expectation to graduate from a four-year college, expectation that they will definitely attend graduate or professional school after college), and mental health, including decreases in self-esteem, self-efficacy, and social support, and increases in self-derogation and depression.

Sports Participation Served as a Protective Factor for Girls Against the Detrimental Impacts of the Pandemic. Girls who played sports across the initial year of the COVID-19 pandemic did not experience the same widespread declines in well-being as girls who did not play. Compared to those who did not participate, girls who played sports were more physically active (i.e., more likely to exercise vigorously and for 60 minutes daily). They were also more likely to have higher achievement outcomes (i.e., more likely to have earned an average grade of an A/A-) and had more positive self-perceptions of their academic achievement and goals, including believing they are above average in their school ability and reporting higher expectations that they will graduate from a four-year college and pursue graduate/professional school after college. Lastly, and perhaps most notably given the recent alarming declines in youth mental health, girls who played sports during the first year of the pandemic were faring significantly better than those who did not participate in any sport on multiple markers of psychology well-being. In particular, compared to those who did not participate, girls who played sports had higher levels of self-esteem, self-efficacy, and social support, and lower levels of loneliness, self-derogation, fatalism, and depression. Given the significant impact of the pandemic on declines in the physical, psychological, and academic well-being of today's teens, sports participation and the support it provides for the promotion of positive health and development may be more important now than ever before.

Girls' Participation in Multiple Sports Matters. Across all areas of girls' health, academic achievement, and psychological well-being, we found that girls who participated in more than one sport benefitted more from their participation than those who focused on a single sport, and, in the majority of instances, participation was linked to more positive outcomes only among girls who participated in at least two sports. Thus, the significantly greater observed declines in the percentage of adolescents participating in multiple sports (48.9% to 40.5%) raises concern and highlights the critical need for continuous access across a wide array of girls' sports settings and education to parents, schools, and other stakeholders of the value and importance of keeping girls involved in multiple sports. Likewise, given the powerful impact that sports participation had on the lives of adolescent girls during the pandemic, reduced access and other COVID-19 related restrictions that impacted the participation rates of girls, especially participation among 12th graders, Black and Hispanic girls, and those residing in urban areas, is of particularly grave concern.

Introduction

The purpose of this project is to assess how participation in sports during the coronavirus pandemic (COVID-19) may have buffered girls from the detrimental impacts of the pandemic on youth physical health behaviors, psychological well-being, and academic engagement and achievement. On March 11, 2020, the WHO officially declared the SARS-Cov-2 (COVID-19) outbreak to be a pandemic. To reduce viral transmission, in many countries, people had to radically change their lifestyle, including home confinement; restrictions on social gatherings; and coping with the isolation experienced by the temporary closures of schools, community recreational settings, and the majority of other public buildings. Consequently, the COVID-19 pandemic interrupted the life and development of youth. In particular, recent reports showed that the pandemic reduced opportunities for youth to engage in healthy behaviors with observed decreases in physical activity, increases in hours spent in sedentary activities, and negative changes in food consumption and meal patterns (e.g., increased consumption of unhealthy foods, greater snacking between meals; Ammar et al., 2020; Stockwell et al., 2021). The pandemic also gravely impacted the mental health of youth, with a two-fold increase in the prevalence of youth depression and anxiety, and increased rates of suicidal behaviors among school-aged children and adolescents, with especially higher rates observed for girls (American Academy of Pediatrics, 2021; Benton et al., 2022; Racine et al., 2021; Yard et al., 2021). School closures were deemed necessary to curb the spread of COVID-19 (Haug et al., 2020) but also had a significant long-term effect on youth's academic achievement and learning inequalities despite remote learning modalities (Hammerstein et al., 2021). The disproportionate effect of COVID-19 on girls and vulnerable communities has resulted in serious physical and mental health disparities (Rundle et al., 2020; Centers for Disease Control and Prevention, 2020; White et al., 2021) and further exacerbated the achievement gap among underserved low-income, minority youth (Hammerstein et al., 2021).

Sports participation may have served as an important protective factor for youth during the COVID-19 pandemic, buffering youth from the negative effects of the pandemic. A substantial body of research policy and practice have evidenced the favorable impact that athletic participation has on the long-term academic/occupational, physical, and mental health of youth (Zarrett et al., 2018; Zarrett & Veliz, 2021), with some indication that girls may reap even greater benefits from sports participation than do boys (Sabo & Veliz, 2008; Zarrett et al., 2009; Zarrett et al., 2018). In particular, youth who participate in sports have more positive academic self-concepts, greater expectations and aspirations, and higher academic achievement and educational attainment compared to non-participants (Bradley et al., 2013; Eccles et al., 2003;

Fox et al., 2010; Zarrett et al., 2009; Zarrett et al., 2018). In terms of health behaviors, youth who participate in sports are more likely to engage in daily exercise and vigorous daily exercise, as well as acquire at least seven hours of sleep every night and have a healthier diet (i.e., consume more fruits and vegetables, eat breakfast daily, lower consumption of soft drinks and other sweetened beverages; Staurowsky et al., 2009; Zarrett et al., 2018). Participation in sports is also linked to several positive mental health benefits, including high self-esteem, self-efficacy, peer acceptance, and social support, and being less likely to report fatalistic attitudes, self-derogation, and loneliness (Biddle & Asare, 2011; Breistøl et al., 2017; Zarrett et al., 2018)

Youth reap the greatest benefits from their participation when they are engaged in two or more sports across the year (Zarrett et al., 2018; Zarrett & Veliz, 2021). Participation in multiple sports is believed to expose youth to a broader range of growth-related experiences and skills and the opportunity to exercise these skills across multiple settings and with different sets of peers and adults. In this way, there are greater chances to build a strong sense of competency and initiative, as well as feel close connections with others who share the same interests and goals.

The massive shutdown of public spaces and mandates for social distancing and restricted use of shared equipment due to the COVID-19 pandemic significantly interrupted youth sports. Although approximately 12 to 14 million children and adolescents in the U.S. that were involved in extracurricular, private sports programs were able to continue sports activities in 2021, many of

the 25 million children and teens involved in school-sponsored activities had their programs closed for a significant time (Aspen Institute, 2021), leaving many youth unable to train in-person with their teammates and coaches. Given youth benefit most from playing two or more sports, any reduction that youth experienced in their access to sports was likely to impact their health, well-being, and achievement.

Moreover, these closures may have impacted youth access differentially, exacerbating disparities in girls' participation, especially girls from minoritized and/or low-income communities. Historically, communities, schools, and parents devote more resources and invest more in supporting boys' participation (Amorose & Anderson-Butcher 2015; Keathley et al., 2013; Kipp & Weiss, 2013; McCallister et al., 2003; Zarrett et al., 2019). "Pay to play" sport opportunities, largely characteristic of private sports, has disproportionately affected girls' access and ability to play sports and reap its benefits, as parents place greater value on sponsoring sports participation for their sons than their daughters, both financially and ideologically, especially within low-income families that have more restricted resources to allocate to sports (Cooky, 2009; Heinze, et al., 2014; Kipp & Weiss, 2013). Thus, the COVID-19 closure of school-sponsored sports, a sport setting that has been instrumental for supporting girls' access to sport, may have a greater impact on girls' access and participation in sports than boys'. However, there is little research to date on the impact of these closures on girls' sports participation.

The current report set out to examine whether the COVID-19 exacerbated pre-existing disparities in youth sports participation. Indeed, some sports still operated during the pandemic, and it is important to determine if both boys and girls had equal access to sports during a period in which school closures and other restrictions were in place. Moreover, given the interruptions in normal adolescent life and development, this report also set out to determine if continued participation in sports during the COVID-19-related closures and restrictions protected girls from the negative impacts of the pandemic on their physical, psychological, and academic well-being. Accordingly, the Monitoring the Future (MTF) dataset provides cross-sectional samples of eighth-, 10th- and 12th-grade students who participated in surveys prior (i.e., 2019 and 2020) and during (i.e., 2021) COVID-19 and provides a unique opportunity to assess several important questions about girls' participation in sports during a global crisis. In particular, the current report addressed the following two critical questions that can inform youth sport policies and practice on youth access and benefits of sports participation:

1. Are there observed declines in girls' sports participation during the first year of the pandemic (2021) when compared to prior school years (i.e., 2019-20)?
2. Did participation in sports during the pandemic improve girls' physical, mental health and academic outcomes?

Design, Sample, and Data Analysis

The present study used cross-section data from the 2019, 2020 and 2021 Monitoring the Future (MTF) study of eighth-, 10th-, and 12th-grade students. The MTF study is an annual self-administered (pen and paper or electronic tablet) survey conducted with nationally representative samples of eighth-, 10th-, and 12th-grade students in U.S. secondary schools. The 12th-grade samples has been collected since 1975, and the eighth- and 10th-grade samples have been collected since 1991. This study used a partial sample of eighth, 10th and 12th graders who were randomly selected to answer questions on participation in 21 different types of competitive sports (2010 was the first year to include an expanded list of competitive sports). It should be noted that for the analyses assessing differences in participation rates for different types of sports, we only used the 10 most popular sports for girls and boys (13 sports total) along with an indicator of "other" types of sports participation. The response rate for the sample between 2019 and 2021 ranged between 69% and 89% (response rate are typically lower among 12th-grade respondents. More details on the MTF can be found at the following website: http://www.monitoringthefuture.org/). It should also be highlighted that the first part of the report assessing participation rates in sports will include the eighth-, 10th-, and 12th-grade samples. However, the form assessing participation in different types of sports for eighth and 10th graders (Form 1) offered fewer health and psychological outcomes when compared to the form provided to the 12th graders (Form 5). Accordingly, the second part of the report only discusses the findings from the 12th-grade sample in order to provide the widest number of outcomes for health behaviors, academic achievement, and psychological health.

The sample used for this report consists of 9,479 eighth graders, 10,300 10th graders and 4,372 12th graders who were surveyed between 2019 and 2021. The sample was 49.7% female (50.3% male), 47.0% white, 10.9% Black, 17.0% Hispanic, and 25.2% "other race." The majority (59.5%) of the sample indicated having at least one parent with a college degree or higher. Roughly 38.3% of respondents lived in the Southern region of the United States, while 22.7% lived in the Western region, 21.7% lived in the Midwestern region, and 17.3% lived in the Northeastern region. Roughly half of the respondents lived in suburban areas (48.4%), followed by urban (32.6%) and rural areas (19.0%).

Because the 2020 completed surveys represented about 25% of the size of a typical year's data collection, we pooled this data with that from the 2019 survey in order to provide a larger sample size to assess differences with the 2021 cohort. This larger sample is termed "2019-20" throughout the report. The 2019 MTF was conducted under normal circumstances and is reflective of prior years of data collection. More than 11,800 students from 112 schools across the United States participated in the 2020 survey. Data collection stopped prematurely

(mid-March 2020) due to the COVID-19 pandemic. While 2020 provides a smaller subset of the sample that is normally collected by the MTF, this subset was still considered nationally representative of students in the eighth, 10th and 12th grades.

For the 2021 data, we used the MTF 2021 survey data. In the spring of 2021, the MTF investigators collected 32,260 surveys from students enrolled across 319 public and private schools in the United States.

For the analyses, descriptive statistics were provided to assess participation rates and examine the association between competitive sport participation and the measures for health behaviors, academic achievement, and psychological health (see the Measures index on page 51 for more detail on the items used and coding procedures for the analyses). For the analyses, STATA 17.0 software was used to estimate the analyses outlined above (Version 17.0; StataCorp LP, College Station, Texas). All analyses were designed to account for the complex sampling design and used the weights provided by the MTF to account for the probability of selection into the sample.

Part 1: Assessing Sport Participation Rates Before and During COVID

U.S. Teen Sport Participation Rates 2019-20 and 2021

Among the full sample of eighth, 10th and 12th graders in the U.S., Figure 1a shows that participation in any competitive sports has generally been declining since 2006, but there was a small increase between 2017-18 and 2019-20. However, despite this increase, participation rates dropped sharply in 2021. Figure 1b (on following page) shows that 76.3% of the sampled adolescents indicated participating in at least one sport during the past year between 2019 and 2020, this dropped in 2021 to 69.6%. Moreover, Figure 1c (on following page) shows the number of adolescents involved in two or more sports dropped from 48.9% (2019-20) to 40.5% (2021) during this time frame. With respect to participation in different types of sports, Figure 1d (on following page) shows that participation rates dropped or remained the same across each of the 21 sports that were assessed within the MTF survey. Notably, the biggest drops in participation rates were found in the percent of adolescents participating in football (18.3% in 2019-20 to 14.5% in 2021) and track and field (16.6% in 2019-2020 to 12.9% in 2021).

Figure 1a: Participation Rates in Any Competitive Sport Between 2006 and 2021

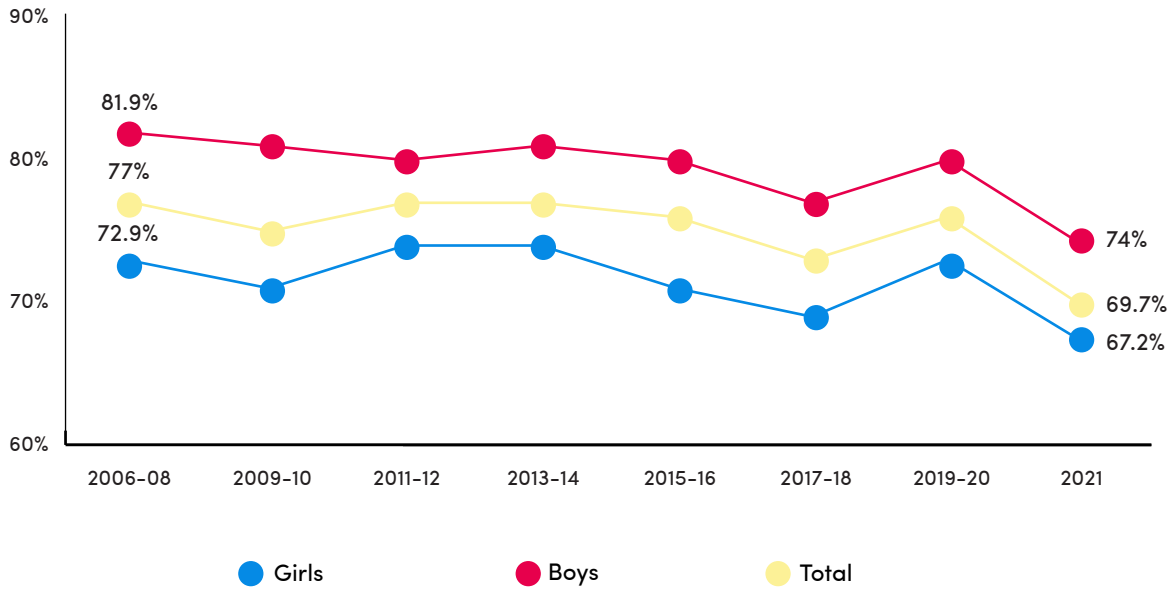


Figure 1b: Participated in at Least One Sport During the Past Year (Girls and Boys)

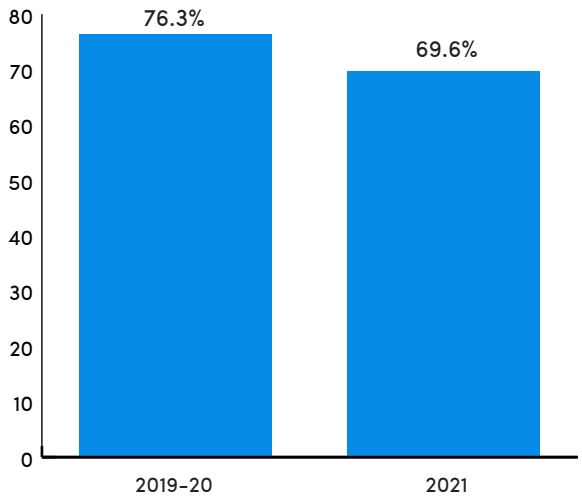


Figure 1c: Number of Sports Played (Girls and Boys)

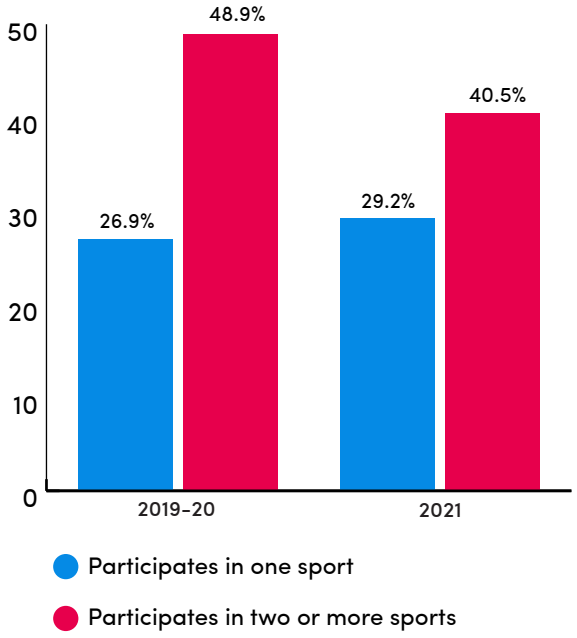
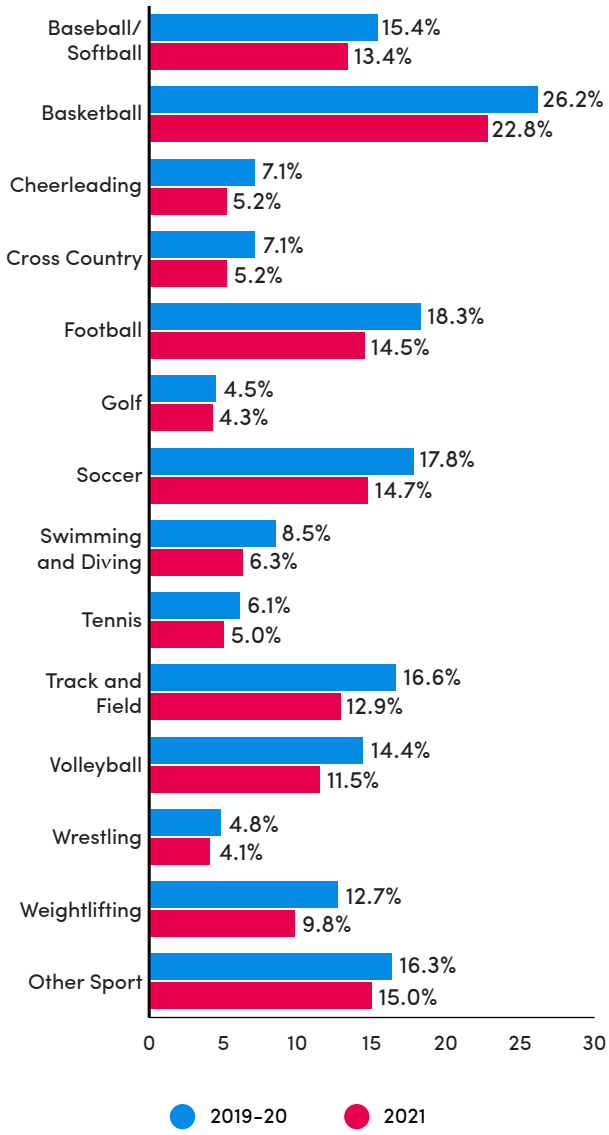


Figure 1d: Participation in Different Types of Sports Among Girls and Boys



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Sex

Assessing these trends between girls and boys showed similar declines in sport participation (see Figures 2a and 2b). For instance, participation in at least one sport dropped from 73.1% to 67.2% between 2019-20 and 2021 for girls, while participation in two or more sports among girls dropped from 43.8% to 36.8% between 2019-20 and 2021. Figures 2c and 2d (on following page) also show some gender differences in participation rates across different types of sports for both girls and boys. The biggest drops in participation rates were found in the percentage of girls participating in track and field (15.9% in 2019-20 to 12.3% in 2021) and the percentage of boys participating in football (32.6% in 2019-20 to 27.5% in 2021) and weightlifting (19.5% in 2019-20 to 14.4% in 2021).

U.S. Teen Sport Participation Rates 2019-20 and 2021, by Race

Figures 3a and 3b (on page 13) show the participation rates by race between 2019-2020 and 2021. Figure 3a shows that White, Black, and Hispanic students saw a significant drop in participation rates during this time period. Overall, declines in participation (in any sport) were similar. However, Figure 3b shows a more drastic decline in Hispanic and Black adolescents involved in two or more sports during this period, with a drop of five percentage points among White adolescents (51.9% in 2019-20 to 46.7% in 2021, similar to the decline in White teens who participate in one sport, 79.2% in 2019-20 to 74.7% in 2021), a drop of more than 10 percentage points among Black adolescents (50.4% in 2019-20 to 40.2% in 2021) and a drop of more than 12 percentage points among Hispanic adolescents (39.4% in 2019-20 to 26.9% in 2021).

Figure 2a: Participated in at Least One Sport During the Past Year (by Sex)

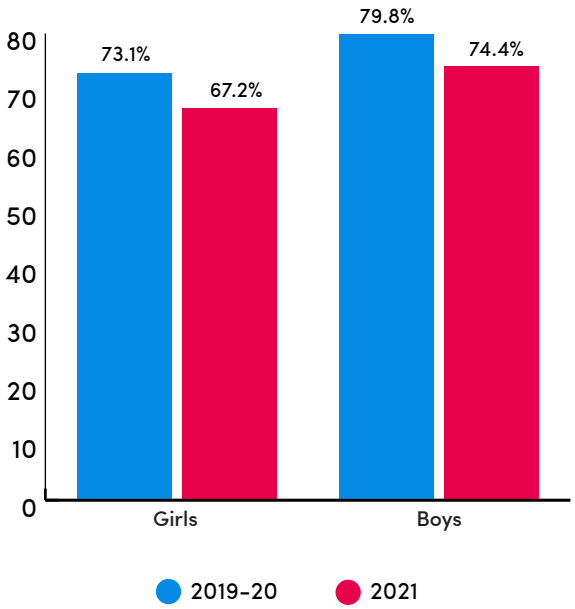


Figure 2b: Number of Sports (by Sex)

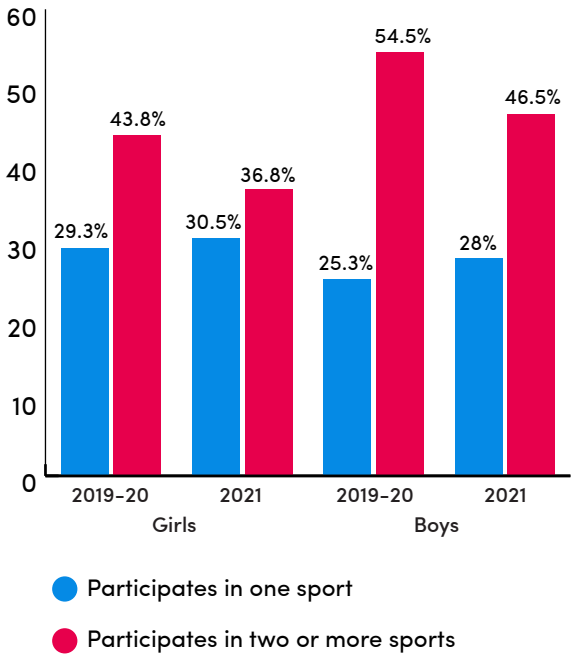


Figure 2c: Participation in Different Types of Sports Among Girls (2019-20 and 2021)

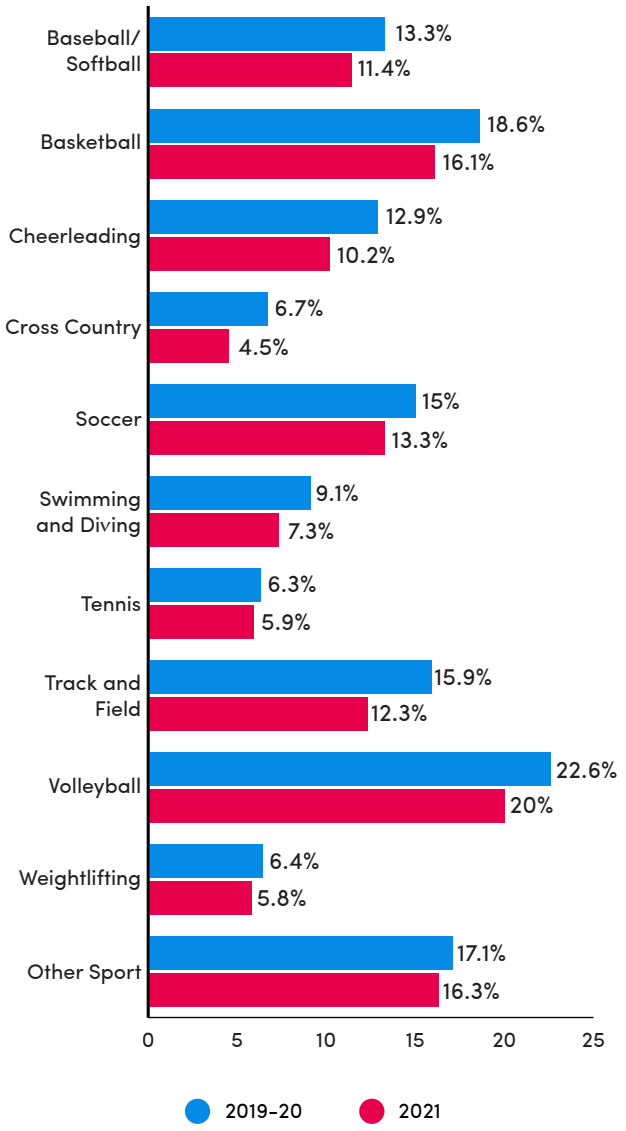


Figure 2d: Participation in Different Types of Sports Among Boys (2019-20 and 2021)

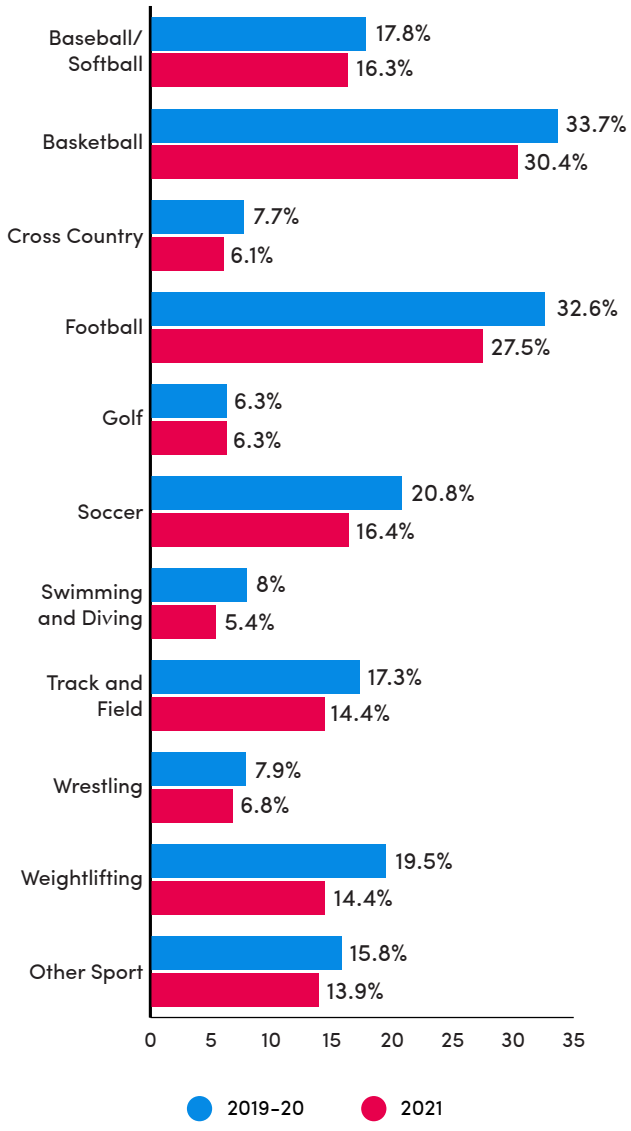


Figure 3a: Participated in at Least One Sport During the Past Year (by Race)

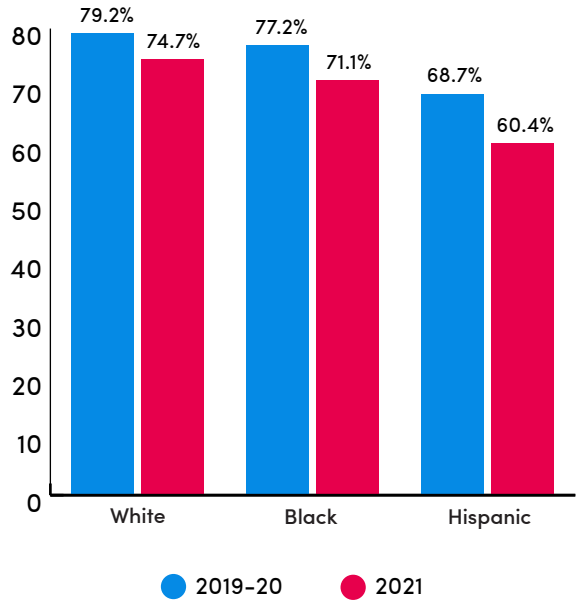
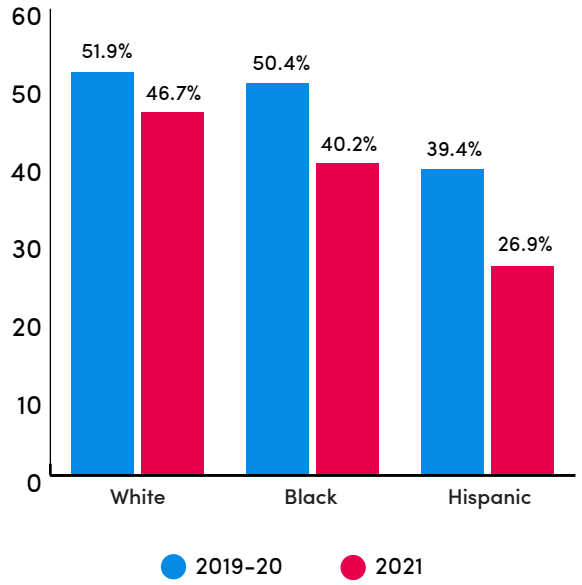


Figure 3b: Participated in Two or More Sports During the Past Year (by Race)



Figures 3c, 3d, and 3e (below and on following page) also show substantial variation in participation rates across different types of sports for each of these racial groups. The biggest drops in participation rates for White adolescents were found in the percentage of those participating in track and field (17.7% in 2019-20 to 14.4% in 2021), for Black adolescents in weightlifting (12.7% in 2019-20 to 8% in 2021), and for Hispanic adolescents in soccer (29% in 2019-20 to 22.3% in 2021).

Figure 3c: Participation in Different Types of Sports Among White Adolecents (2019-20 and 2021)

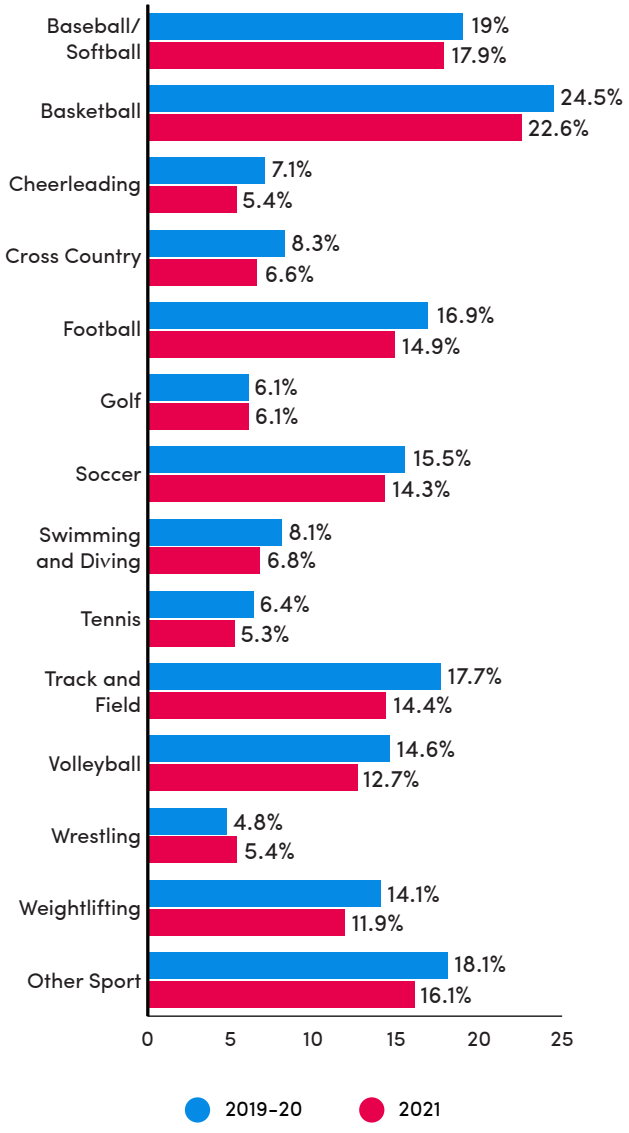


Figure 3d: Participation in Different Types of Sports Among Black Adolecents (2019-20 and 2021)

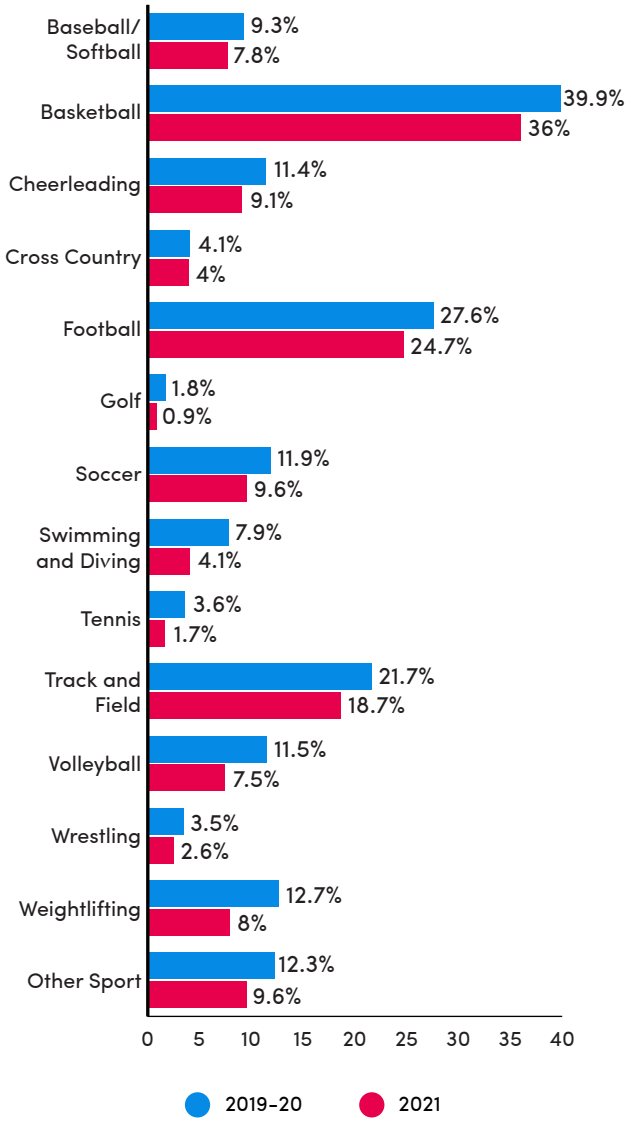
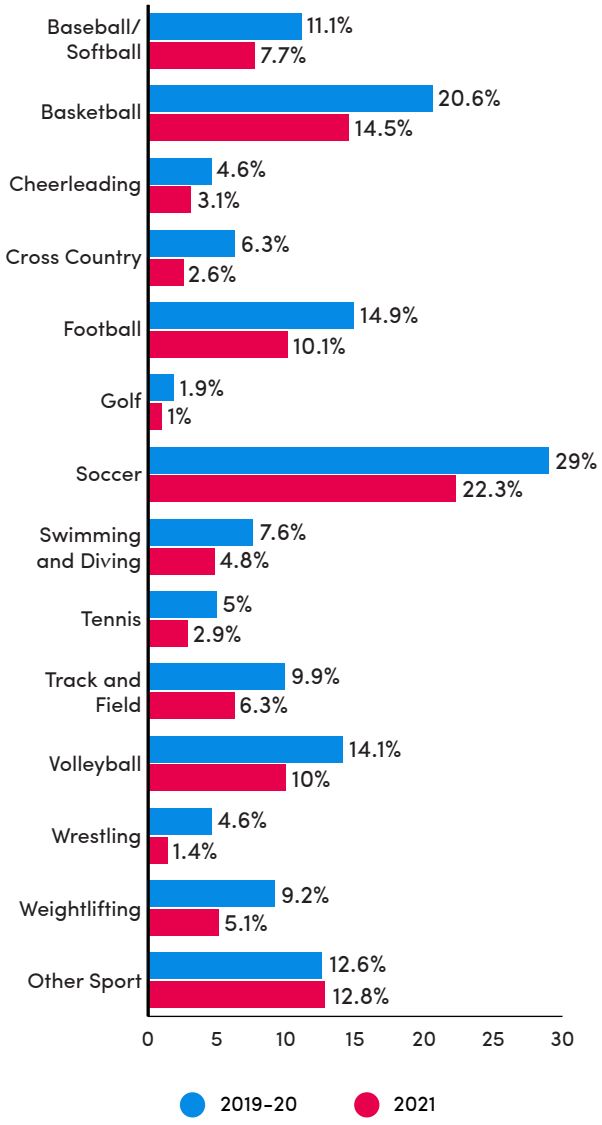


Figure 3e: Participation in Different Types of Sports Among Hispanic Adolecents (2019-20 and 2021)



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Race and Sex

Looking at racial differences in sport participation rates among girls and boys in Figure 4a shows that both boys and girls of different races saw declines in participating in any sport during this time period, with the biggest declines occurring among Hispanic girls (61.9% in 2019-20 to 52.7% in 2021) and Black boys (88.3% in 2019-20 to 80.4% in 2021). Figure 4b also shows that participation in two or more sports also declined, with the largest drops occurring among Black girls (38.9% in 2019-20 to 27.5% in 2021) and Hispanic boys (45.6% in 2019-20 to 31.6% in 2021). Figures 4c through 4h (on following pages) also show several differences in participation rates across different types of sports for each of these racial groups for both girls and boys. The biggest drop in participation rates among girls were found in the percentage of White girls participating in track and field (18.2% in 2019-20 to 14% in 2021); the percentage of Black girls participating in swimming and diving (8.7% in 2019-20 to 3.7% in 2021), track and field (20.8% in 2019-20 to 15.7% in 2021), and volleyball (18% in 2019-20 to 12.6% in 2021); and the percentage of Hispanic girls participating in soccer (23% in 2019-20 to 15.3% in 2021) and volleyball (20.1% in 2019-20 to 14.4% in 2021). Moreover, the biggest drop in participation rates among White boys was found in the percentage of those participating in weightlifting (20.4% in 2019-20 to 16.6% in 2021), among Black boys were found in those participating in basketball (57.5% in 2019-20 to 49.4% in 2021) and weightlifting (21.8% in 2019-20 to 12.9% in 2021), and among of Hispanic boys in those participating in basketball (27.9% in 2019-20 to 20.9% in 2021) and weightlifting (14.2% in 2019-20 to 6.9% in 2021).

Figure 4a: Participated in at Least One Sport During the Past Year (by Race and Sex)

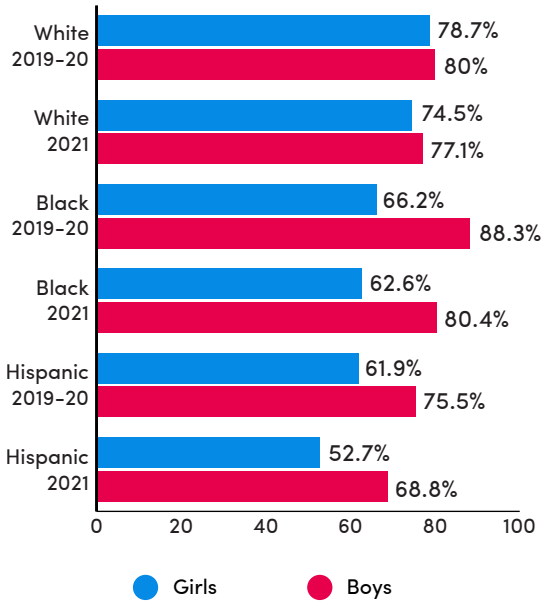


Figure 4b: Participated in Two or More Sports During the Past Year (by Race and Sex)

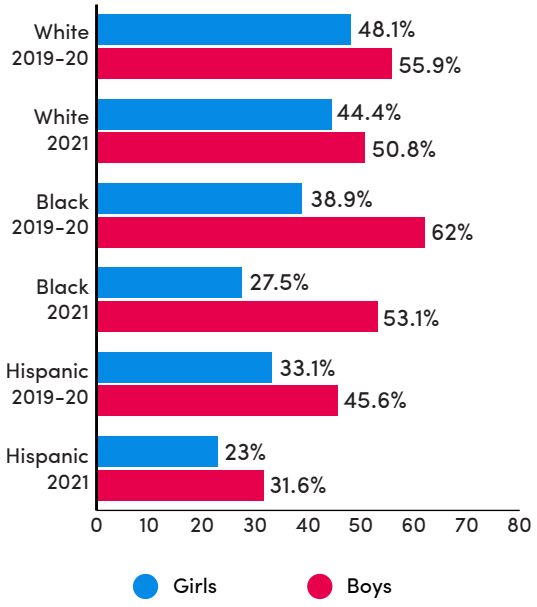


Figure 4c: Participation in Different Types of Sports Among White Girls (2019-20 and 2021)

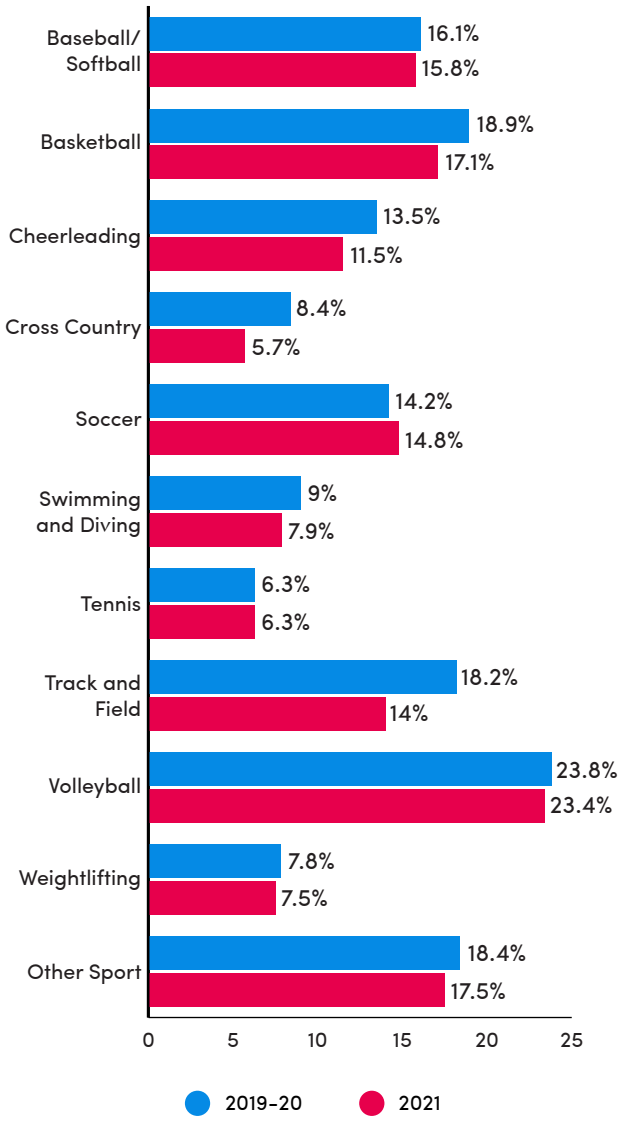


Figure 4d: Participation in Different Types of Sports Among Black Girls (2019-20 and 2021)

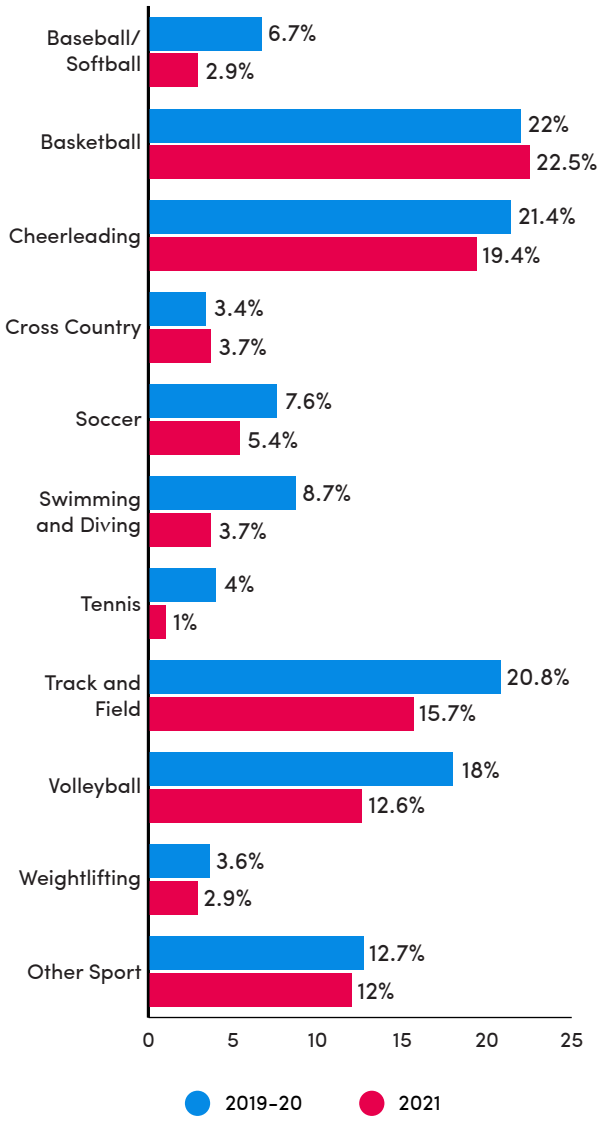


Figure 4e: Participation in Different Types of Sports Among Hispanic Girls (2019-20 and 2021)

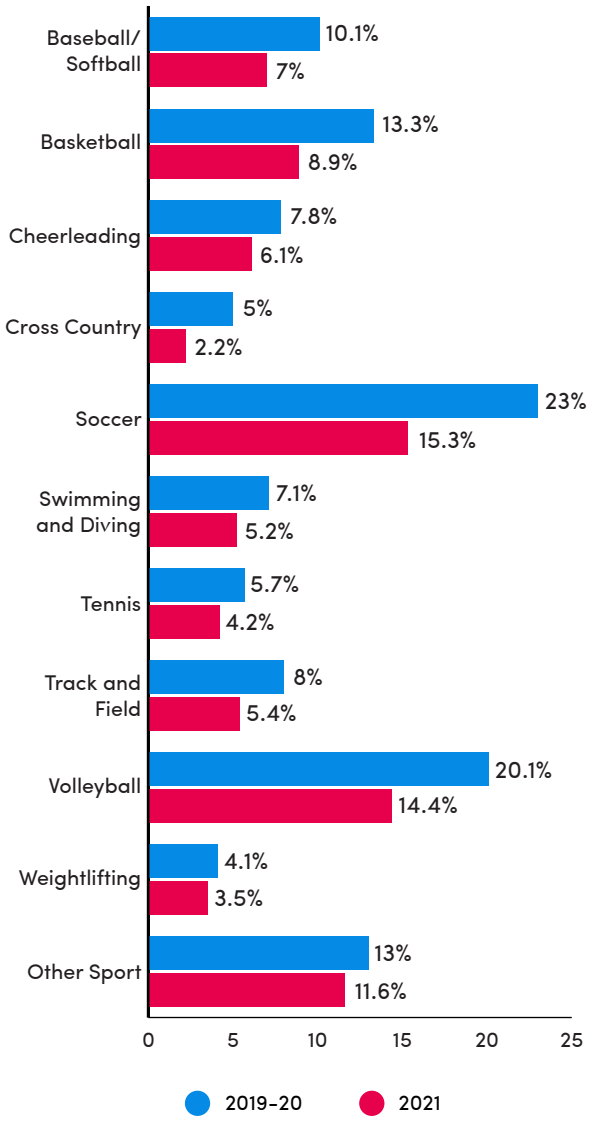


Figure 4f: Participation in Different Types of Sports Among White Boys (2019-20 and 2021)

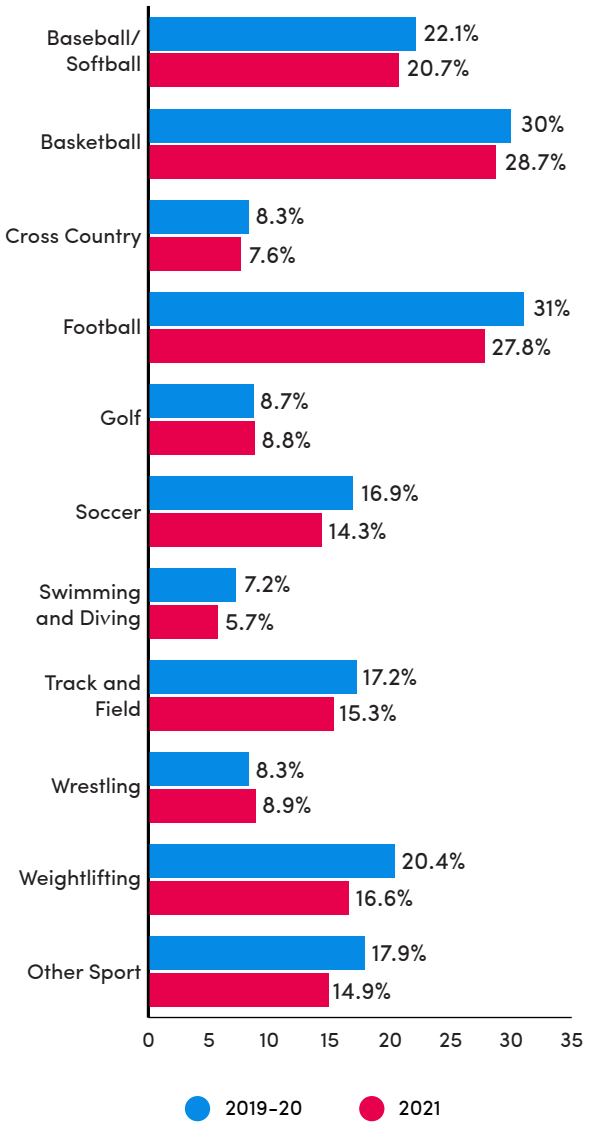


Figure 4g: Participation in Different Types of Sports Among Black Boys (2019-20 and 2021)

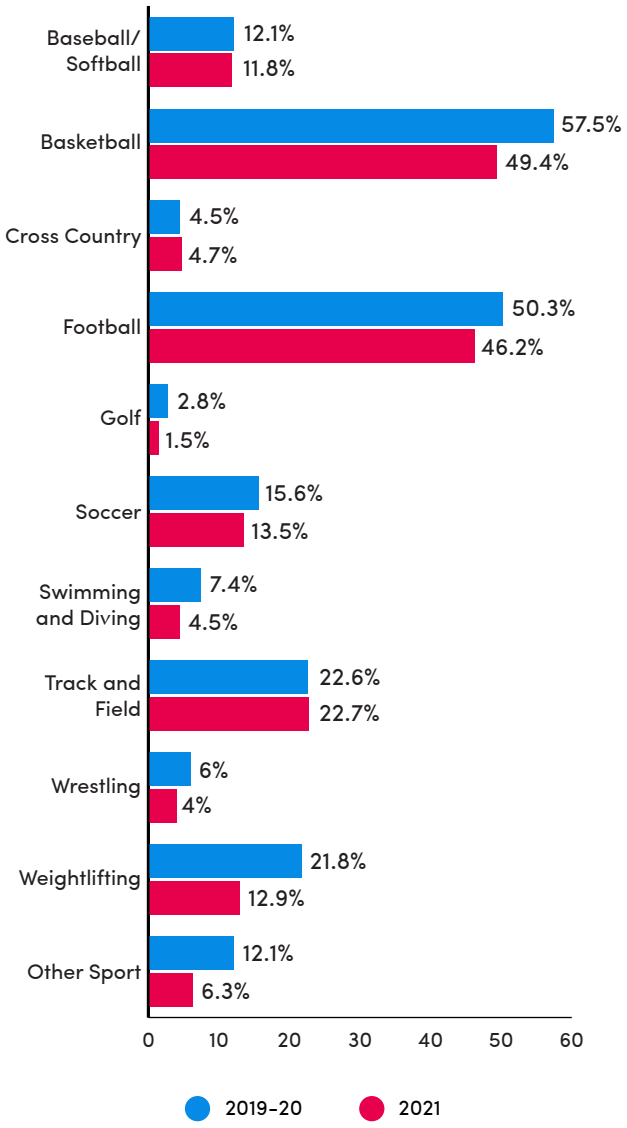
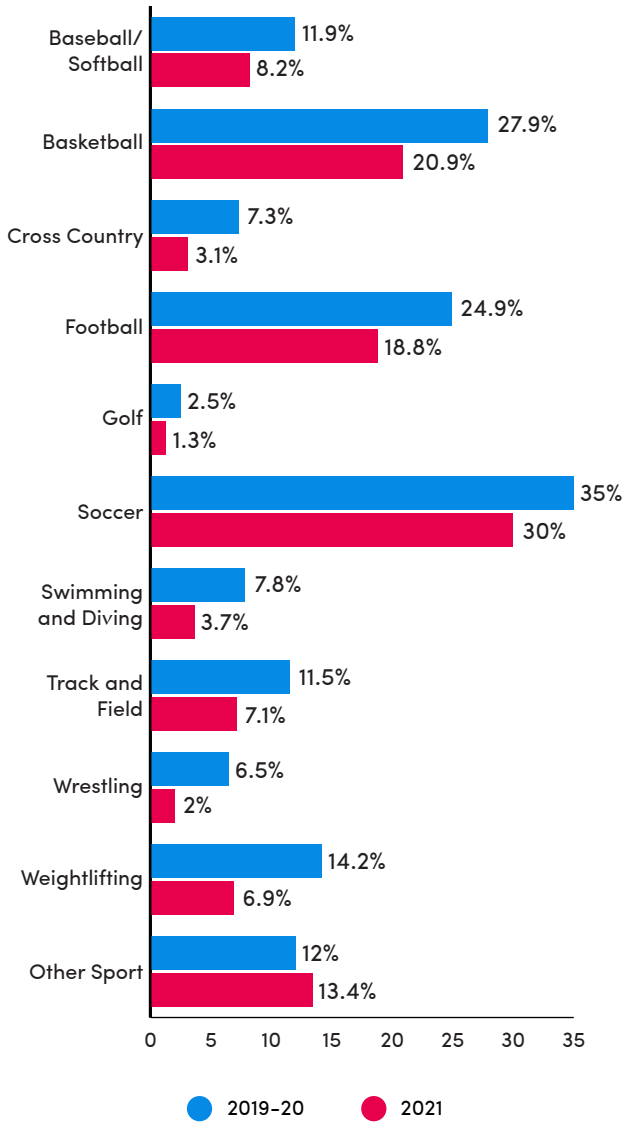


Figure 4h: Participation in Different Types of Sports Among Hispanic Boys (2019-20 and 2021)



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Parental Education

Figures 5a and 5b show the participation rates by parental education between 2019-20 and 2021. Figure 5a shows that adolescents with parents who have less than a college degree (low parental education) and who have parents who have a college degree or higher (high parental education) both saw a drop in participation rates of approximately seven percentage points during this time period (69.4% in 2019-20 to 62.8% in 2021, and 82.8% in 2019-20 to 75.9% in 2021, respectively). Note that sport participations rates are generally higher among adolescents with high parental education. Figure 5b shows a larger decline in adolescents involved in two or more sports during this period among adolescents with low parental education (41.9% in 2019-20 to 33.5% in 2021) and with high parental education (55.6% in 2019-20 to 46.8% in 2021). Figures 5c and 5d (on following page) continue to show that participation rates declined or remained the same across different types of sports based on parental education. The biggest drops in participation rates across different sports among respondents with lower parental education were found in the percentage of adolescents participating in basketball (23.4% in 2019-20 to 19.4% in 2021), football (18.1% in 2019-20 to 13.8% in 2021), soccer (16.9% in 2019-20 to 13.3% in 2021), and track and field (13.3% in 2019-20 to 9.3% in 2021). The biggest drop in participation rates across different sports among respondents with higher parental education was found in the percentage of adolescents participating in track and field (19.8% in 2019-20 to 15.5% in 2021).

Figure 5a: Participated in at Least One Sport During the Past Year (by Parental Education)

Figure 5b: Participated in Two or More Sports During the Past Year (by Parental Education)

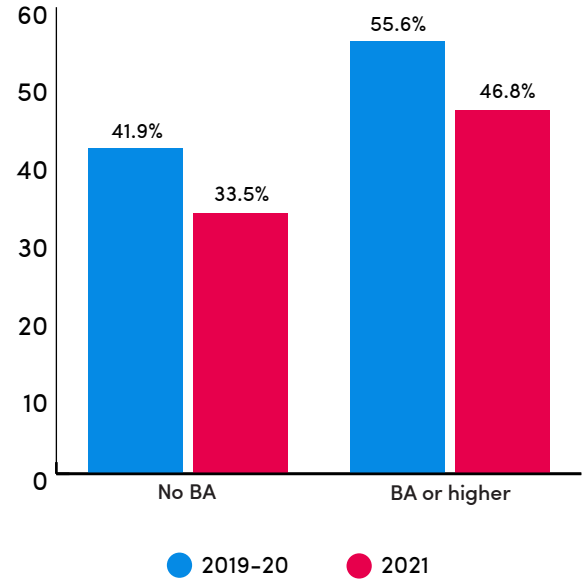


Figure 5c: Participation in Different Types of Sports Among Respondents Whose Parents Did Not Graduate From College (2019-20 and 2021)

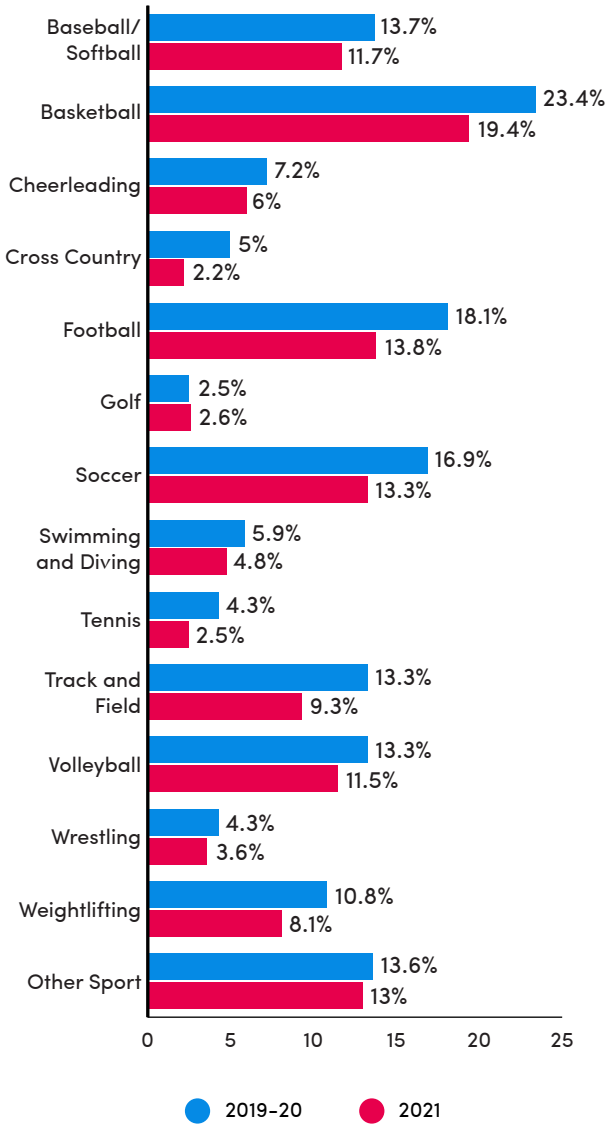
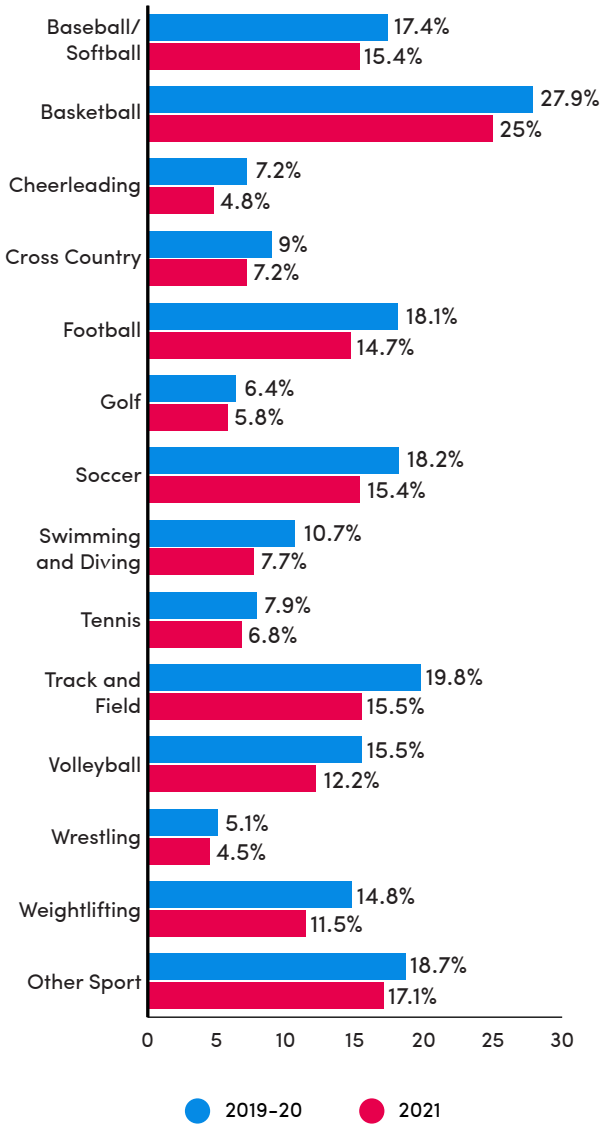


Figure 5d: Participation in Different Types of Sports Among Respondents Whose Parents (at Least One Parent) Did Graduate From College (2019-20 and 2021)



U.S. Teen Sport Participation rates 2019-20 and 2021, by Parental Education and Sex

When assessing the differences in sport participation rates among girls and boys by parental education, Figures 6a and 6b show that both boys and girls with either low or high parental education saw similar declines in participating in any sport during the past year. For instance, girls with either high (49.7% in 2019-20 to 42.6% in 2021) or low parental (37.4% in 2019-20 to 29.8% in 2021) education saw drop in participation in two or more sports of approximately even percentage points (see Figure 6b). Figures 6c through 6f (below and on following pages) display the participation rates across different types of sports for both girls and boys by parental education. The sport with the biggest drop in participation rates among girls with low parental education was basketball (16.8% in 2019-20 to 13.3% in 2021), while the sport with biggest drop in participation rates among girls with high parental education was track and field (19.2% in 2019-20 to 14.6% in 2021). Additionally, the sport with the biggest drop in participation rates among boys with low parental education was track and field (14.3% in 2019-20 to 10.3% in 2021), while the sports with the biggest drops in participation rates among boys with high parental education were soccer (21.3% in 2019-20 to 16.3% in 2021) and weightlifting (22.2% in 2019-20 to 16.5% in 2021).

Figure 6a: Participated in at Least One Sport During the Past Year (by Parental Education and Sex)

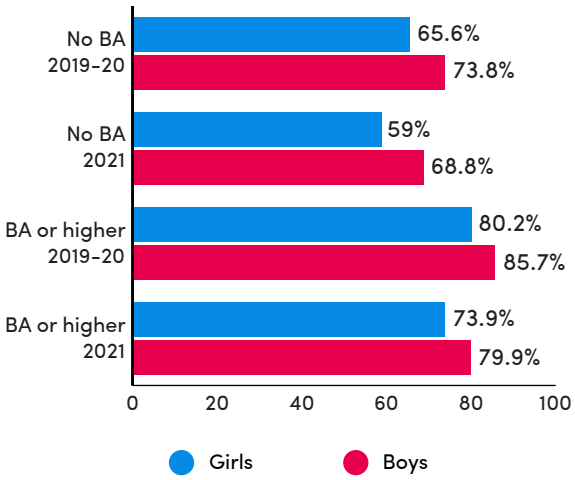


Figure 6b: Participated in Two or More Sports During the Past Year (by Parental Education and Sex)

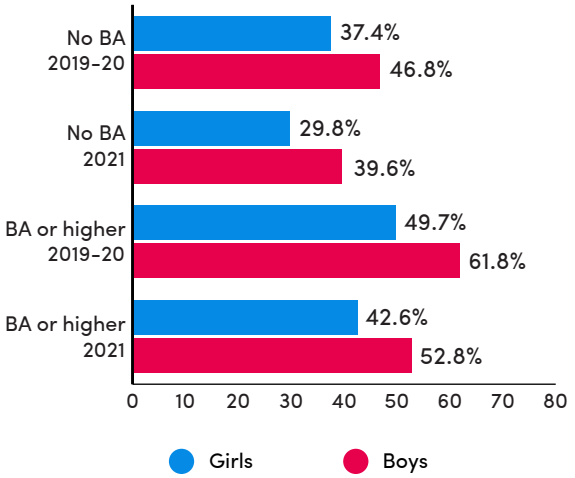


Figure 6c: Participation in Different Types of Sports Among Girls Whose Parents Did Not Graduate From College (2019-20 and 2021)

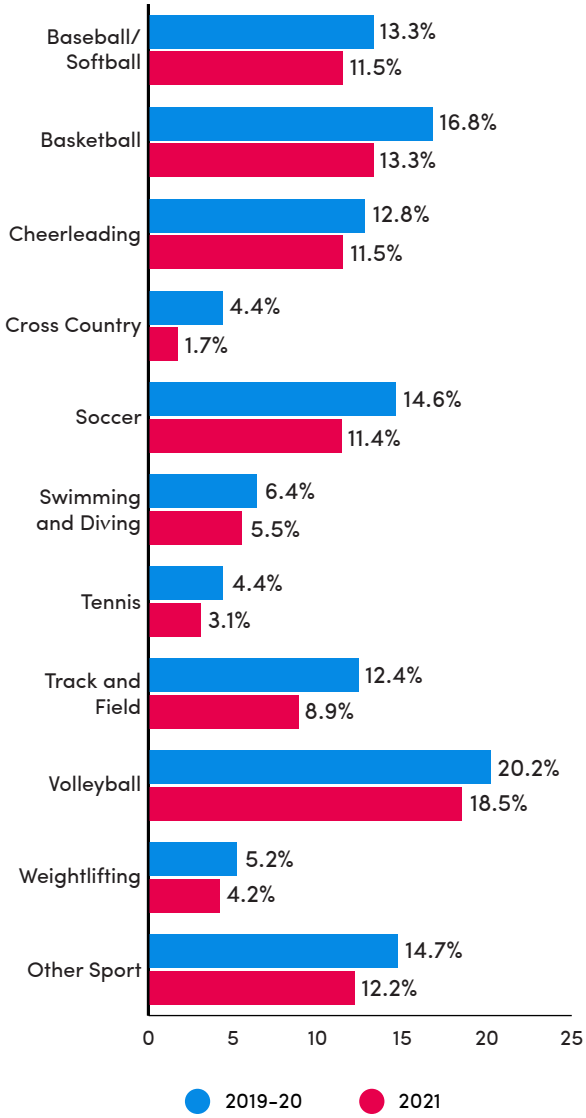


Figure 6d: Participation in Different Types of Sports Among Girls Whose Parents (at Least One Parent) Did Graduate From College (2019-20 and 2021)

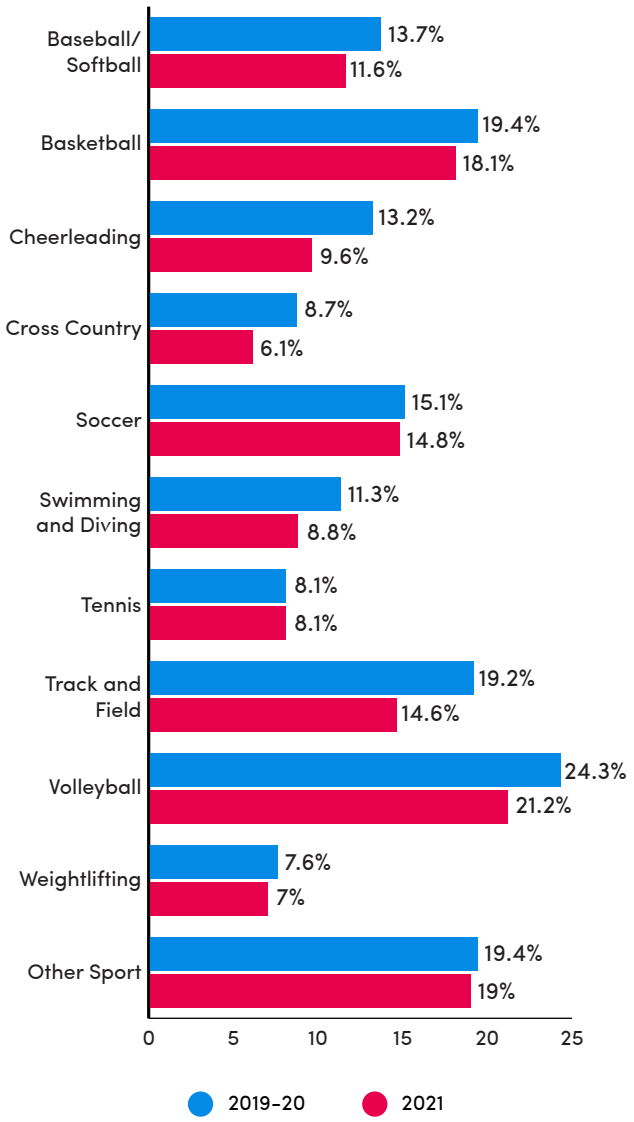


Figure 6e: Participation in Different Types of Sports Among Boys Whose Parents Did Not Graduate From College (2019-20 and 2021)

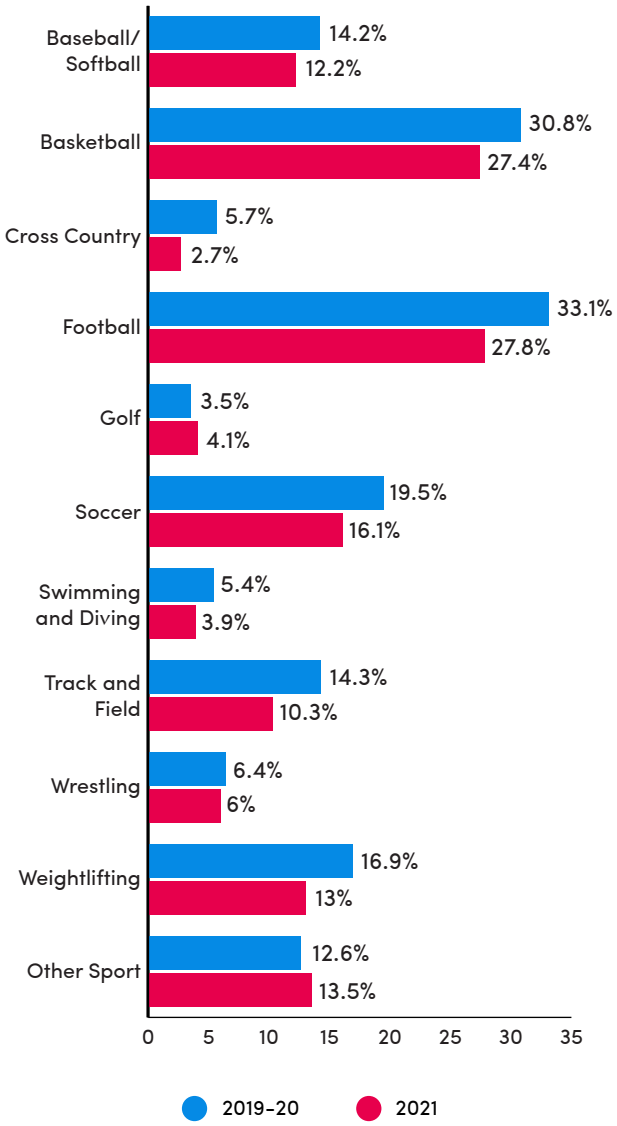
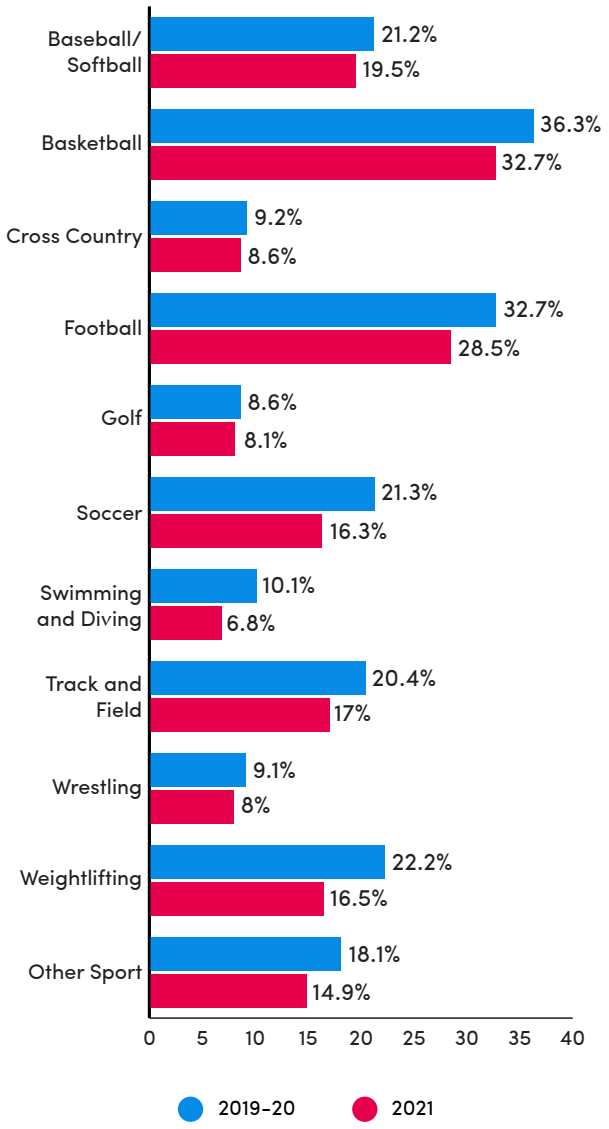


Figure 6f: Participation in Different Types of Sports Among Boys Whose Parents (at Least One Parent) Did Graduate From College (2019-20 and 2021)



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Urbanicity

Figures 7a and 7b show the participation rates by urbanicity between 2019-20 and 2021. Figure 7a shows that adolescents attending schools in rural, suburban, and urban areas all saw a significant drop in participation rates during this time period. This decline during this period was relatively similar for students attending schools in each of these areas, with declines in urban areas being the most pronounced (75.6% in 2019-20 to 67.7% in 2021). Figure 7b shows a similar, but larger

Figure 7a: Participated in at Least One Sport During the Past Year (by Urbanicity)

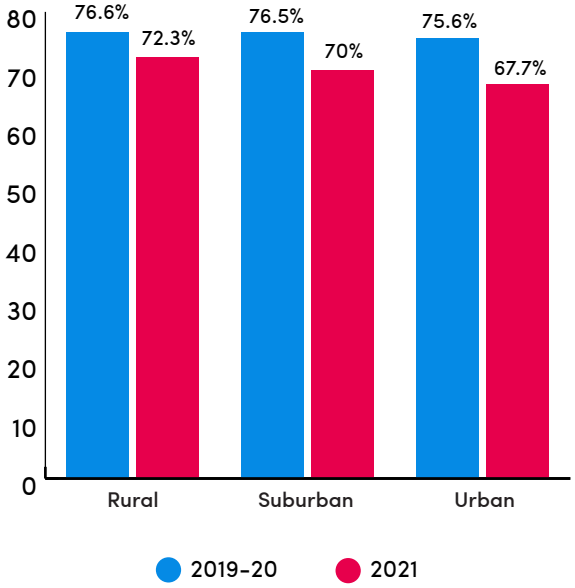
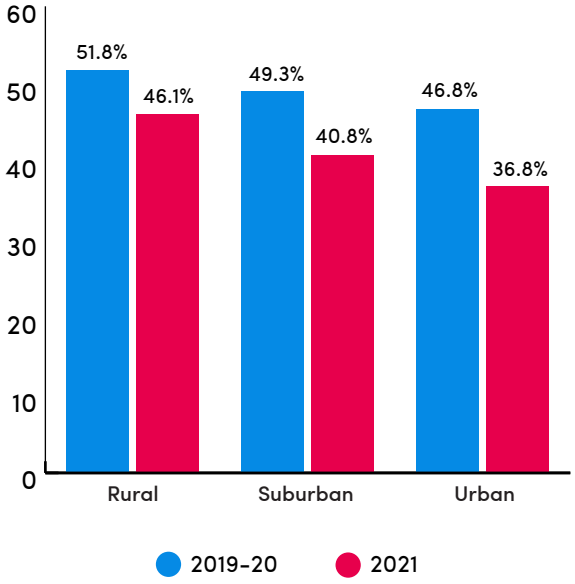


Figure 7b: Participated in Two or More Sports During the Past Year (by Urbanicity)



decline in adolescents involved in two or more sports during this period with a drop of 10 percentage points among adolescents attending schools in urban areas (46.8% in 2019-20 to 36.8% in 2021). The drop was slightly less among adolescents attending schools in suburban areas (49.3% in 2019-20 to 40.8% in 2021) and in rural areas (51.8% in 2019-20 to 46.1% in 2021). Figures 7c, 7d, and 7e (below and on following page) show the participation rates across different types of sports for each of these areas. The biggest drop in participation rates among students attending schools in rural areas was in track and field (18.5% in 2019-20 to 13.8% in 2021). Students attending schools in suburban areas saw the biggest drops in participation rates in basketball (26.7% in 2019-20 to 21.7% in 2021), football (19.6% in 2019-20 to 14.4% in 2021), and soccer (18.2% in 2019-20 to 13.6% in 2021). With respect to students attending schools in urban areas, the biggest drops in participation rates were in track and field and volleyball (both roughly 15% in 2019-20 to 10% in 2021).

Figure 7c: Participation in Different Types of Sports Among Respondents in Rural Areas (2019-20 and 2021)

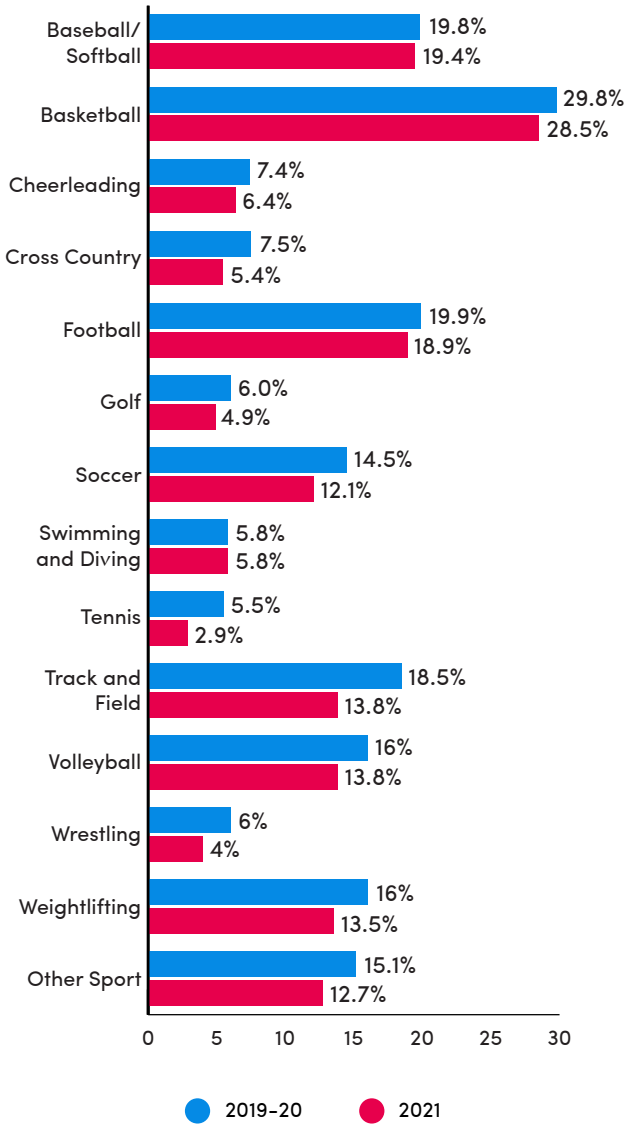


Figure 7d: Participation in Different Types of Sports Among Respondents in Suburban Areas (2019-20 and 2021)

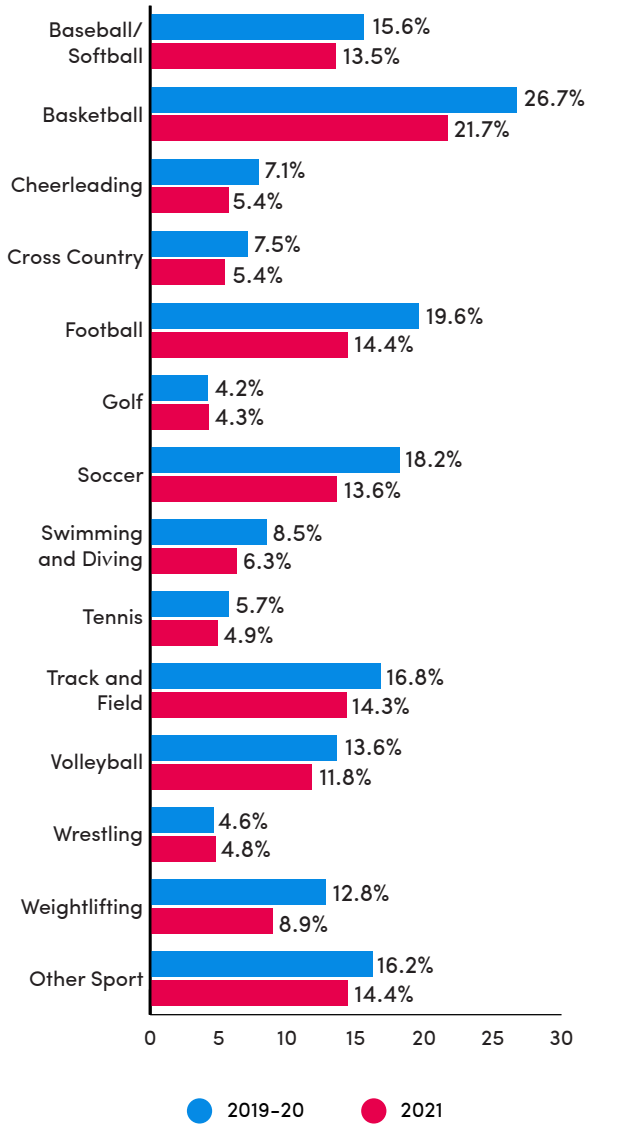
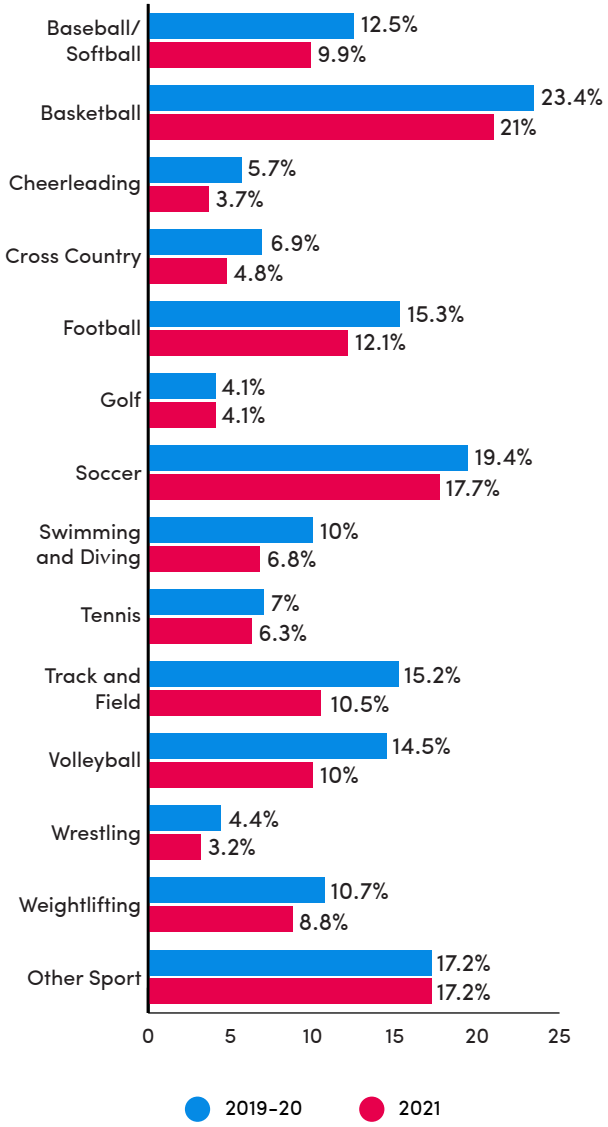


Figure 7e: Participation in Different Types of Sports Among Respondents in Urban Areas (2019-20 and 2021)



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Urbanicity and Sex

Figure 8a shows the differences between urban, suburban, and rural areas in sport participation rates among girls and boys. Both girls and boys attending schools within each of these areas saw declines in participating in any sport during this time period, with the biggest declines occurring among girls attending school in rural areas (76.3% in 2019-20 to 68.2% in 2021) and boys attending schools in urban areas (81.3% in 2019-20 to 73.7% in 2021). However, boys attending schools in rural areas had similar participation rates between 2019-20 and 2021 (77.2% in 2019-20 to 77.4% in 2021). Figure 8b also

Figure 8a: Participated in at Least One Sport During the Past Year (by Urbanicity and Sex)

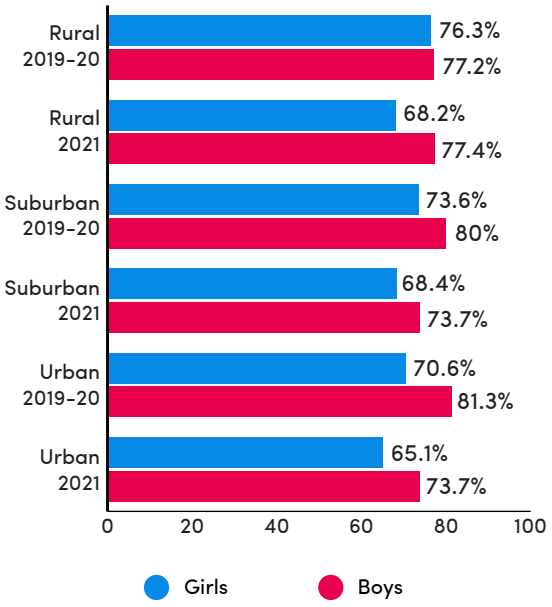
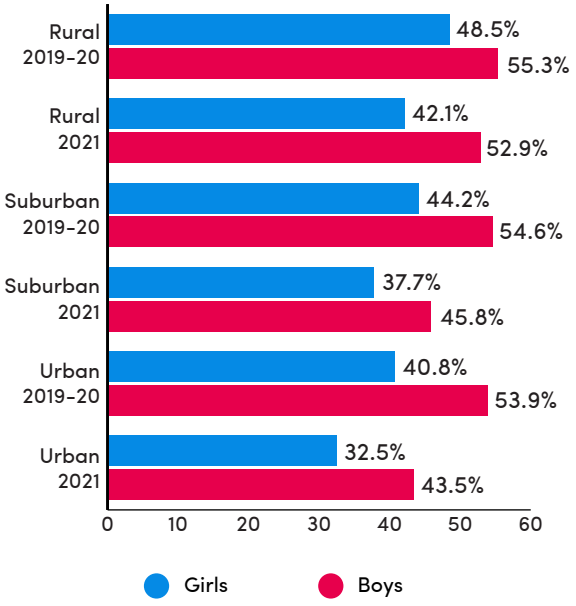


Figure 8b: Participated in Two or More Sports During the Past Year (by Urbanicity and Sex)



shows that participation in two or more sports also declined, with the largest drops occurring among girls (40.8% in 2019-20 to 32.5% in 2021) and boys (53.9% in 2019-20 to 43.5% in 2021) attending schools in urban areas, as well as suburban boys

54.6% in 2019-20 to 45.8% in 2021). Moreover, boys attending schools in rural areas only saw a small decline in participation in two or more sports (55.3% in 2019-20 to 52.9% in 2021). Figures 8c through 8h (below and on following pages) also shows that participation rates declined or remained the same for most different types of sports across each of these areas for both girls and boys (slight increases were found among rural boys in baseball/softball, basketball, and football; see Figure 8f on following page). The biggest drops in participation rates among girls attending schools in rural areas were found in basketball 25.2% in 2019-20 to 20.9% in 2021), track and field (16.8% in 2019-20 to 12.9% in 2021), and volleyball (28.6% in 2019-20 to 24.7% in 2021). The biggest drops in participation rates among girls attending schools in suburban areas were found in soccer (15.7% in 2019-20 to 11.7% in 2021) and track and field (17.4% in 2019-20 to 13.4% in 2021). Finally, the biggest drop in participation rates among girls attending schools in urban areas was found in volleyball (20.8% in 2019-20 to 16.2% in 2021). With respect to boys, the biggest drops in participation rates were found among boys attending schools in rural areas in weightlifting (23.4% in 2019-20 to 18.6% in 2021), among boys attending schools in suburban areas in football (33.8% in 2019-20 to 26.6% in 2021), and among boys attending schools in urban areas in track and field (17.9% in 2019-20 to 11.2% in 2021).

Figure 8c: Participation in Different Types of Sports Among Girls in Rural Areas (2019-20 and 2021)

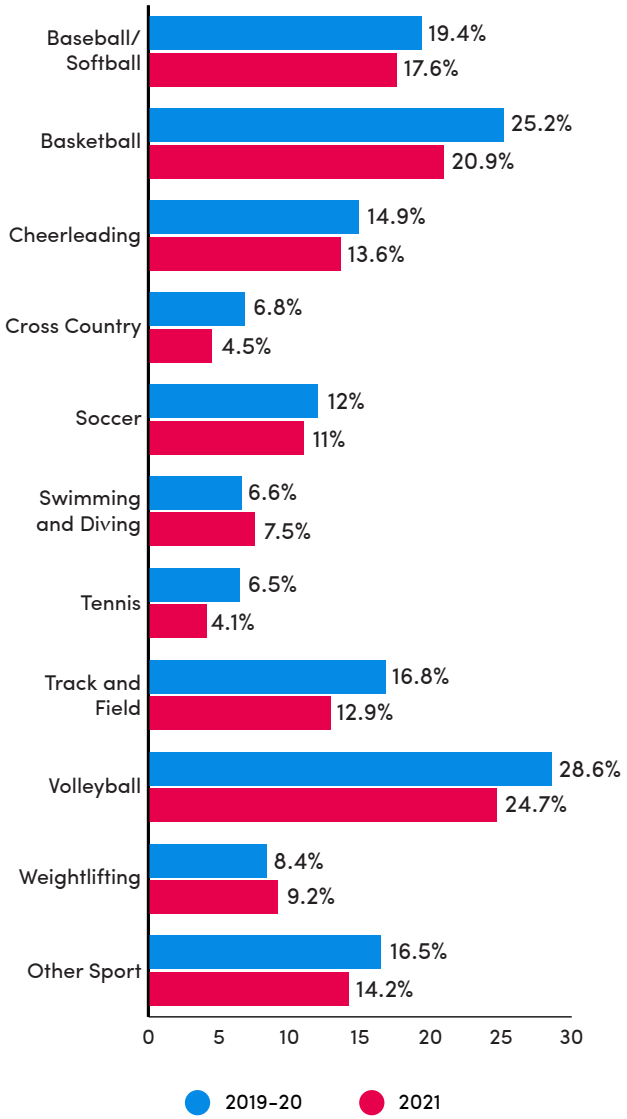


Figure 8d: Participation in Different Types of Sports Among Girls in Suburban Areas (2019-20 and 2021)

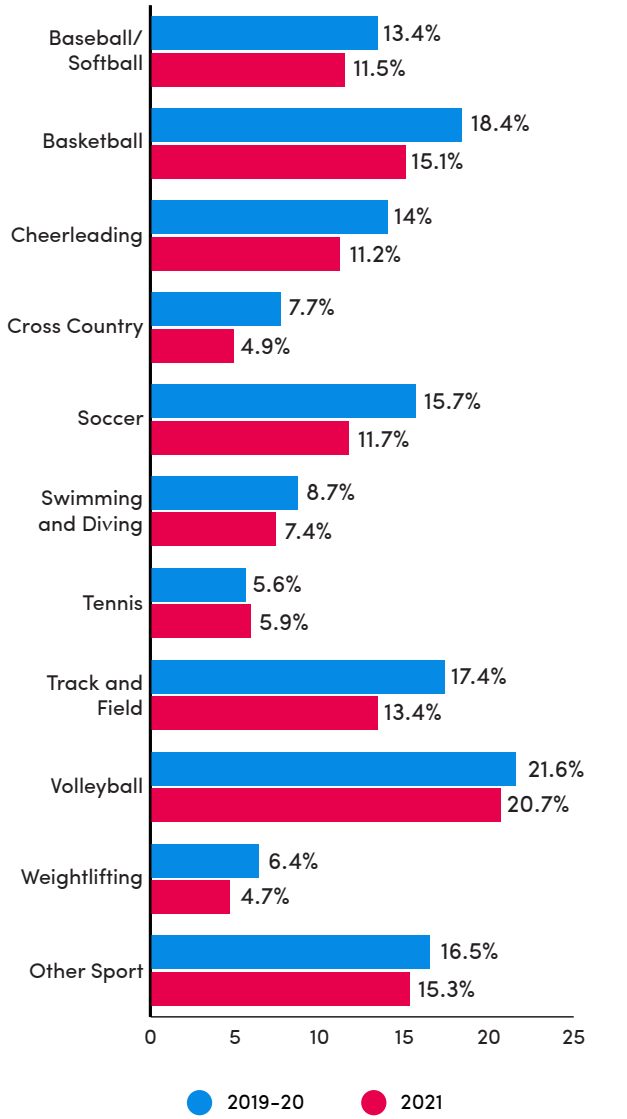


Figure 8e: Participation in Different Types of Sports Among Girls in Urban Areas (2019-20 and 2021)

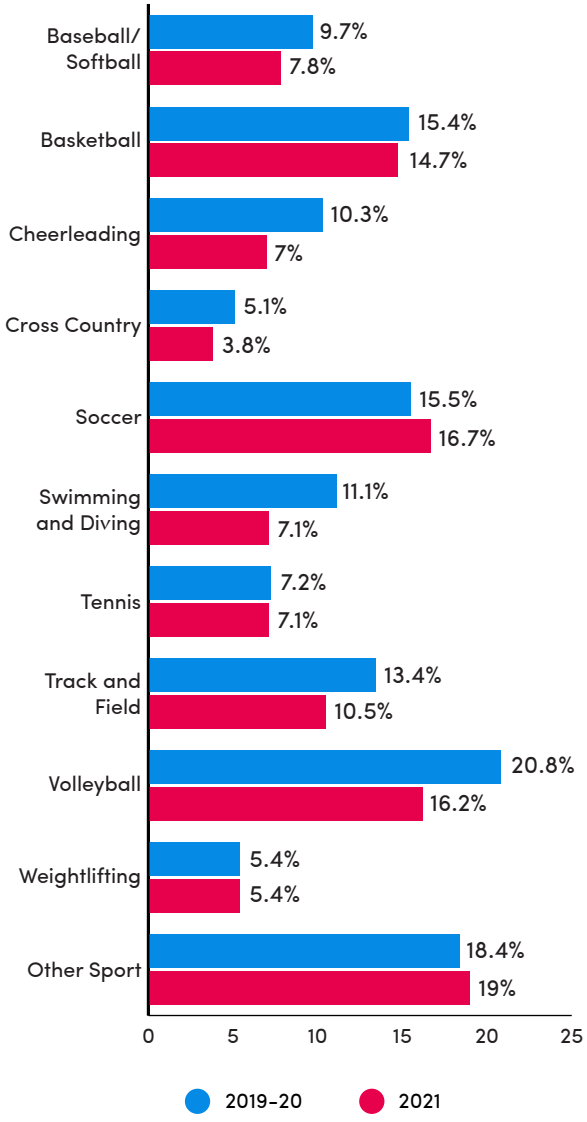


Figure 8f: Participation in Different Types of Sports Among Boys in Rural Areas (2019-20 and 2021)

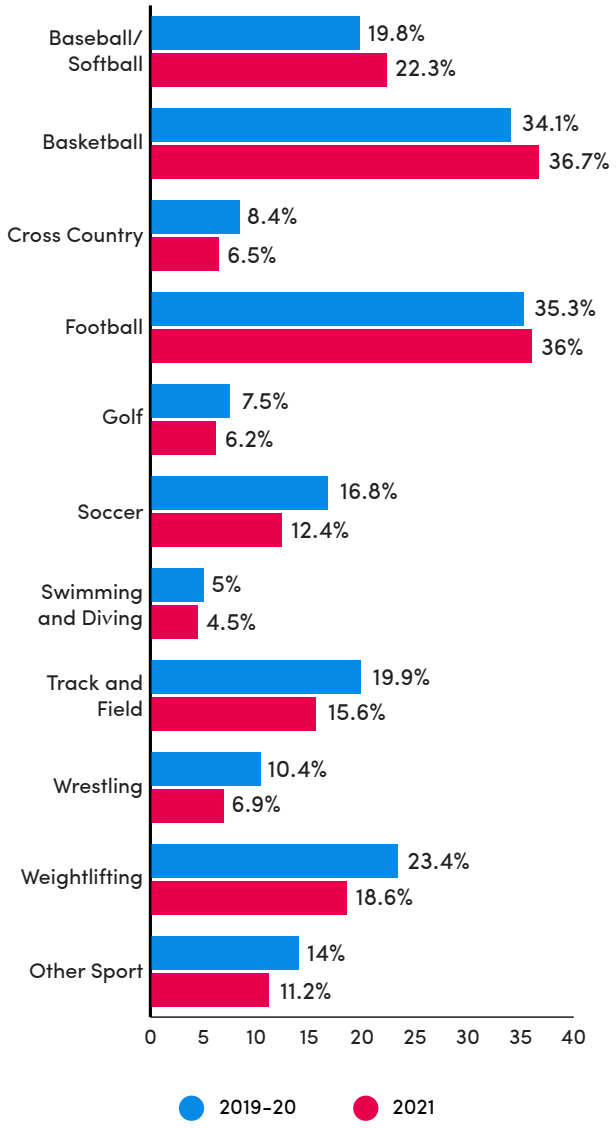


Figure 8g: Participation in Different Types of Sports Among Boys in Suburban Areas (2019-20 and 2021)

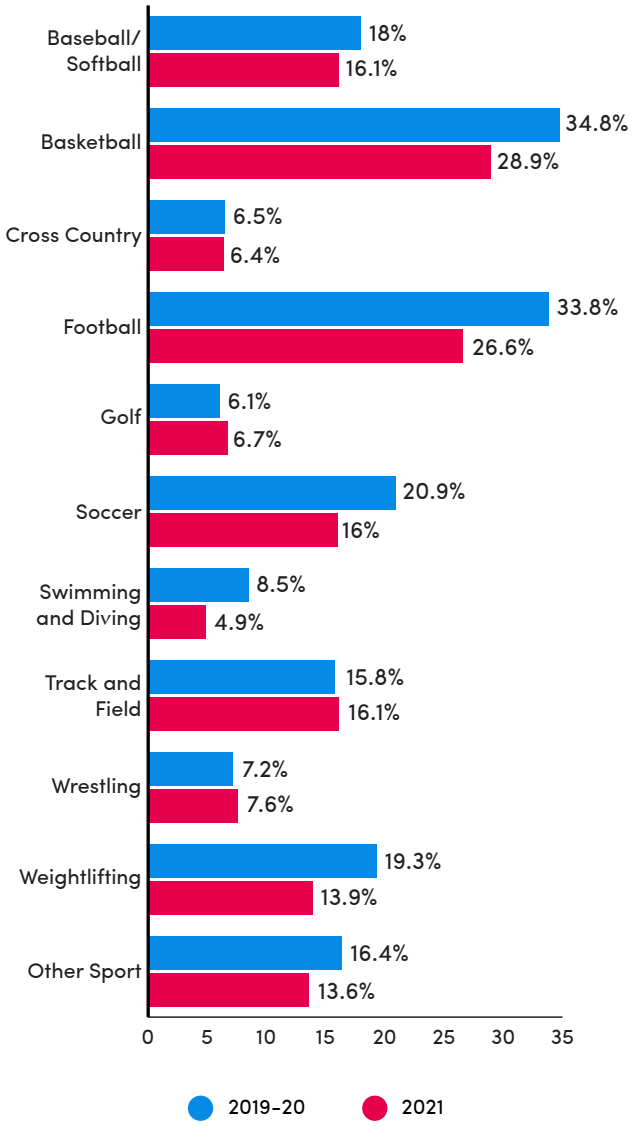
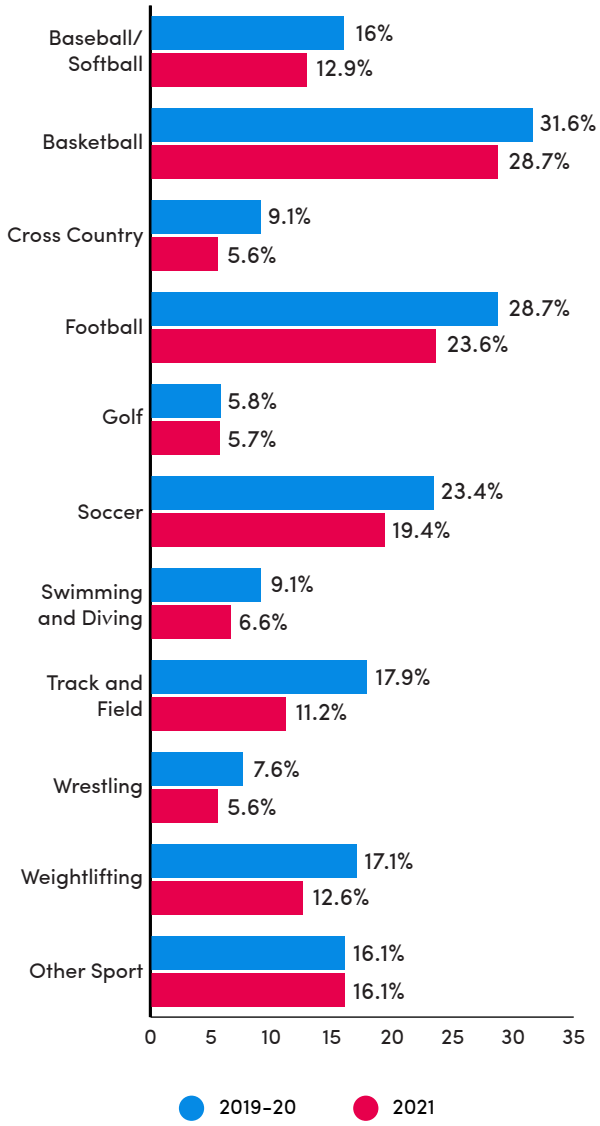


Figure 8h: Participation in Different Types of Sports Among Boys in Urban Areas (2019-20 and 2021)



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Grade Level

Figures 9a and 9b show the participation rates by grade level between 2019-20 and 2021. Figure 9a shows that 12th graders had the biggest drop in participation rates during this period (69.1% in 2019-20 to 55.7% in 2021), followed by 10th (74.4% in 2019-20 to 67.3% in 2021) and eighth graders (81.5% in 2019-20 to 76.7% in 2021). Figure 9b also shows a larger decline in 12th graders involved in two or more sports during this period (38.9% in 2019-20 to 26.9% in 2021) when compared to 10th graders (45% in 2019-20 to 36.4% in 2021) and eighth graders (57.8% in 2019-20 to 49.3% in 2021). Figures 9c, 9d, and 9e (on following pages) continue to show that participation rates declined or remained the same across different types of sports based across different grade levels. The biggest drops in participation rates across different sports among eighth graders were found in basketball (34.8% in 2019-20 to 30.7% in 2021), football (23% in 2019-20 to 18.9% in 2021), soccer (21.6% in 2019-20 to 17.8% in 2021), and volleyball (19.8% in 2019-20 to 15.4% in 2021). Among 10th graders, the biggest drops were in basketball (21.8% in 2019-20 to 18.1% in 2021), track and field (15.6% in 2019-20 to 11.2% in 2021), and weightlifting (13.8% in 2019-20 to 9.8% in 2021). Finally, among 12th graders, the biggest drop in participation was found in football (14% in 2019-20 to 7.4% in 2021).

Figure 9a: Participated in at Least One Sport During the Past Year (by Grade Level)

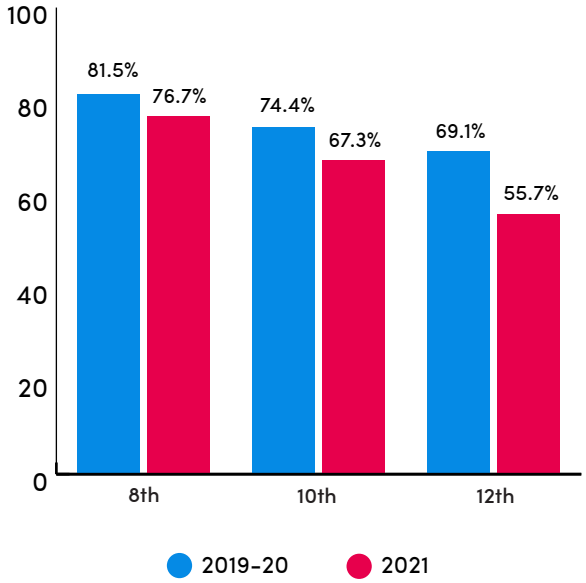


Figure 9b: Participated in Two or More Sports During the Past Year (by Grade Level)

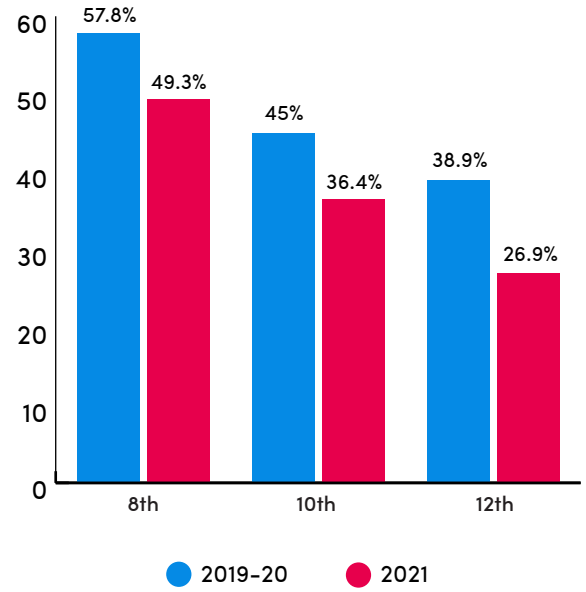


Figure 9c: Participation in Different Types of Sports Among Eighth Graders (2019-20 and 2021)

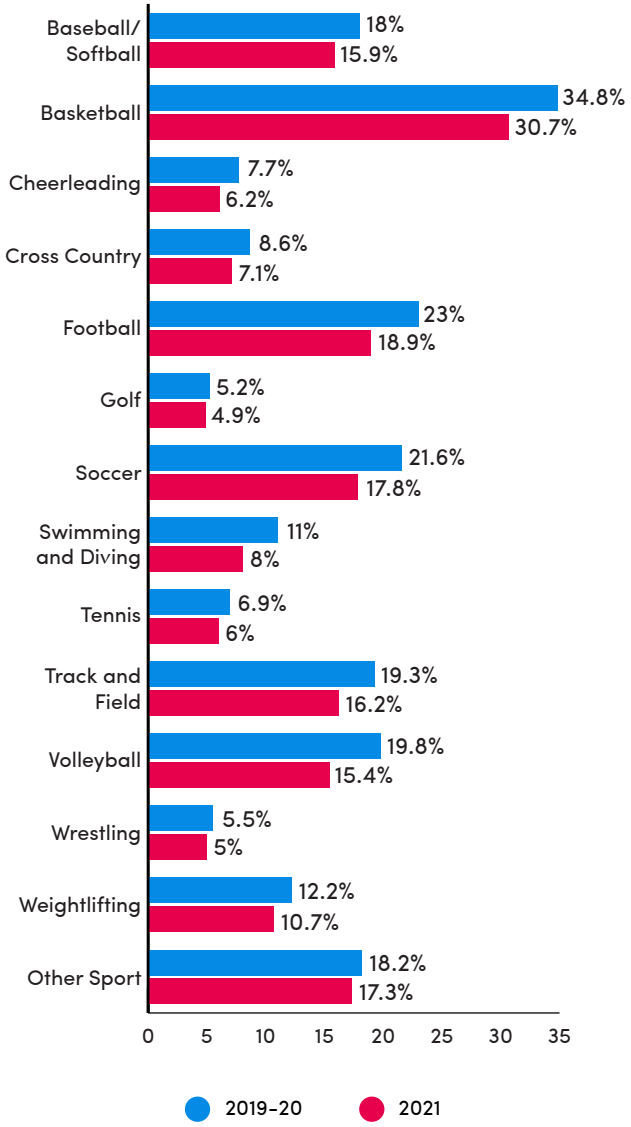


Figure 9d: Participation in Different Types of Sports Among 10th Graders (2019-20 and 2021)

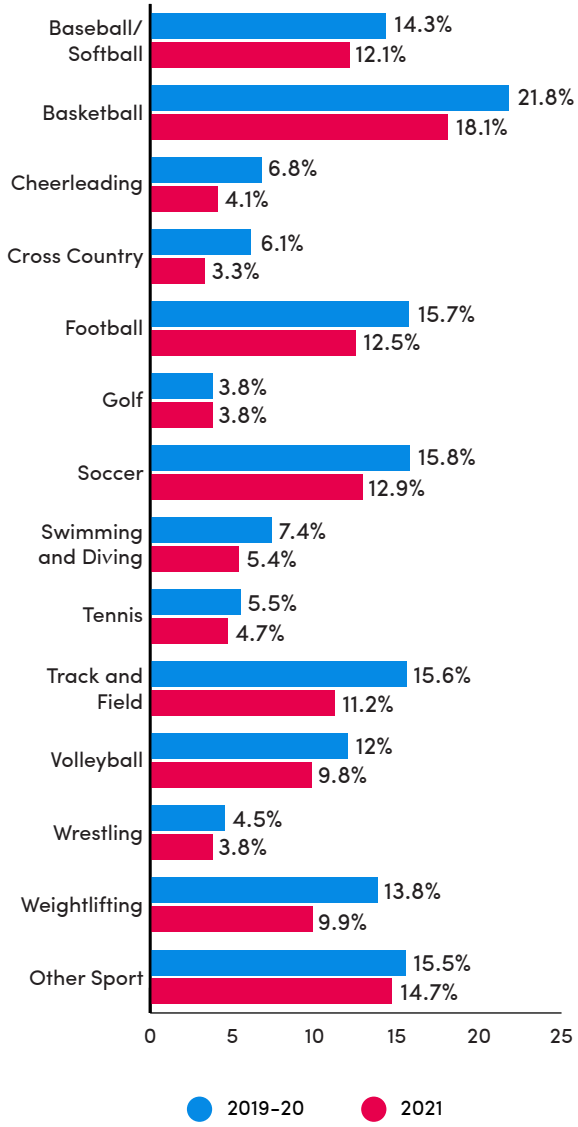


Figure 9e: Participation in Different Types of Sports Among 12th Graders (2019-20 and 2021)

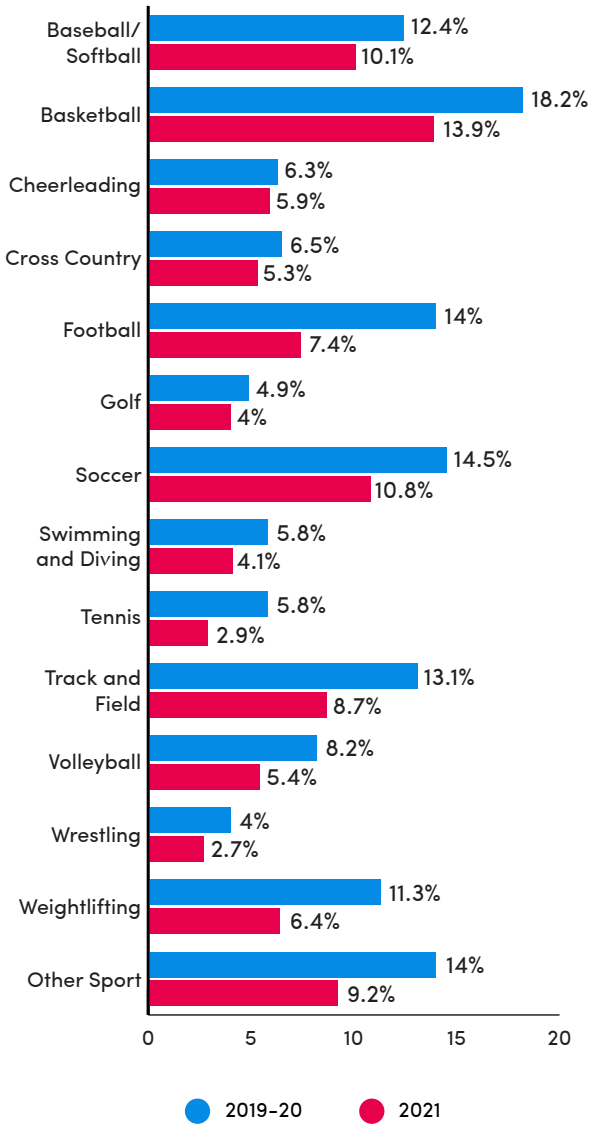


Figure 10a: Participated in at Least One Sport During the Past Year (by Grade Level and Sex)

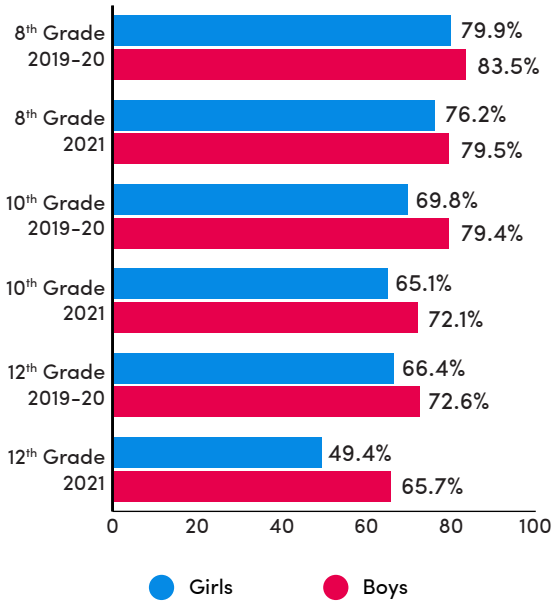
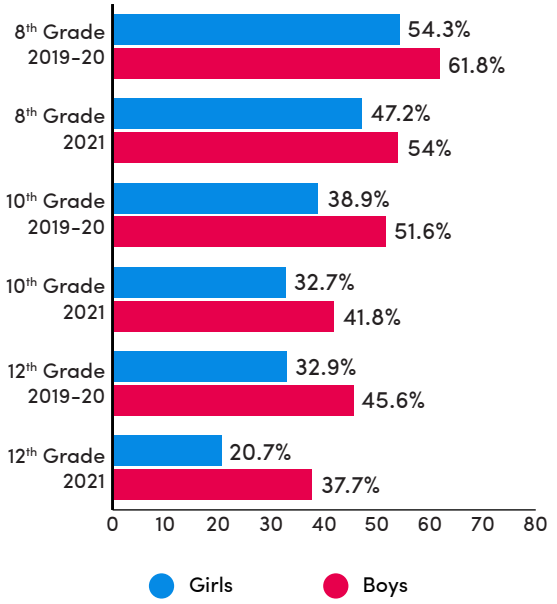


Figure 10b: Participated in Two or More Sports During the Past Year (by Grade Level and Sex)



U.S. Teen Sport Participation Rates 2019-20 and 2021, by Grade Level and Sex

Figure 10a shows the differences between eighth, 10th, and 12th graders in sport participation rates among girls and boys. Both girls and boys across grade levels saw declines in participating in any sport during this time period, with the biggest decline occurring among girls in the 12th grade (66.4% in 2019-20 to 49.4% in 2021). Figure 10b also shows that participation in two or more sports also declined across each grade level among girls and boys, with the largest drop occurring among girls in the 12th grade (32.9% in 2019-20 to 20.7% in 2021). Figures 10c through 10h (on following pages) also shows that participation rates declined or remained the same across different types of sports among girls and boys in the eighth, 10th and 12th grades. The biggest drops in participation rates among girls in the

eighth grade were found in basketball (27.6% in 2019-20 to 23.7% in 2021) and volleyball (32.8% in 2019-20 to 28.6% in 2021). The biggest drop in participation rates among girls in the 10th grade was found in track and field (15.4% in 2019-20 to 10.7% in 2021). The biggest drop in participation rates among girls in the 12th grade was found in "other sports" (15% in 2019-20 to 7.5% in 2021). With respect to boys, the biggest drops in participation rates were found among boys in eighth grade in soccer (24.9% in 2019-20 to 19.1% in 2021), among boys in the 10th grade in weightlifting (21.4% in 2019-20 to 14.9% in 2021), and among boys in the 12th grade in football (26.3% in 2019-20 to 15.8% in 2021).

Figure 10c: Participation in Different Types of Sports Among Eighth-Grade Girls (2019-20 and 2021)

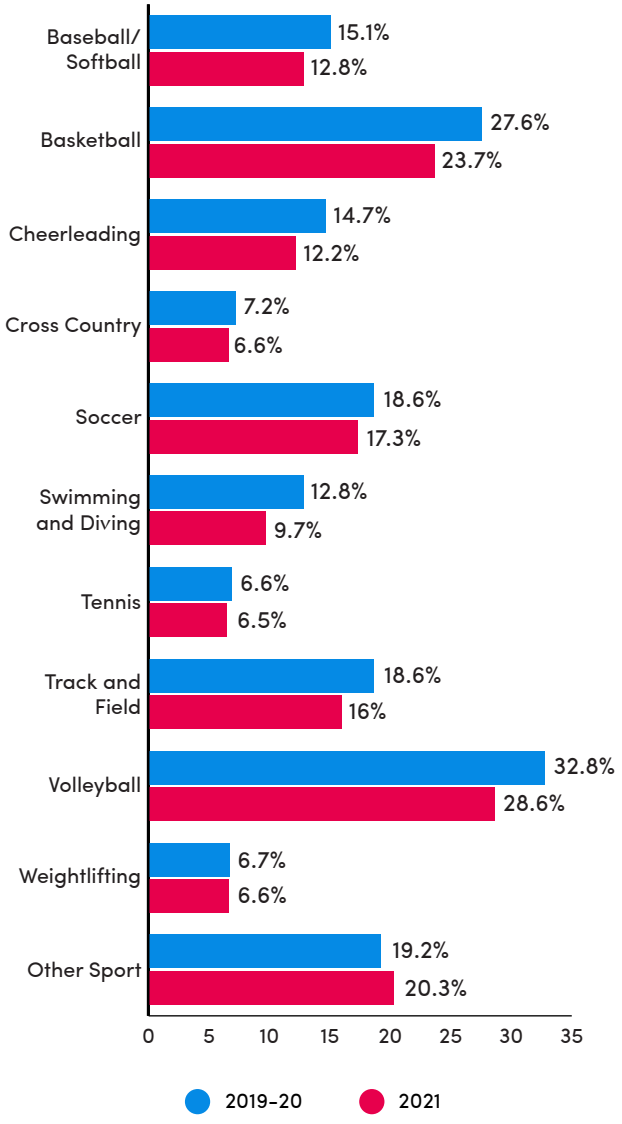


Figure 10d: Participation in Different Types of Sports Among 10th-Grade Girls (2019-20 and 2021)

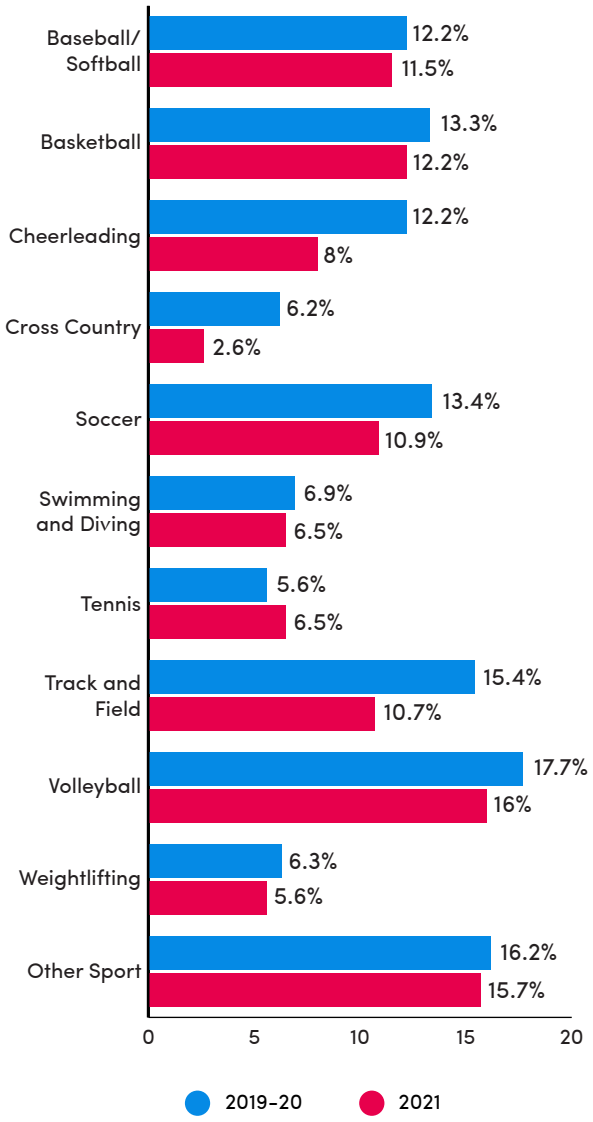


Figure 10e: Participation in Different Types of Sports Among 12th-Grade Girls (2019-20 and 2021)

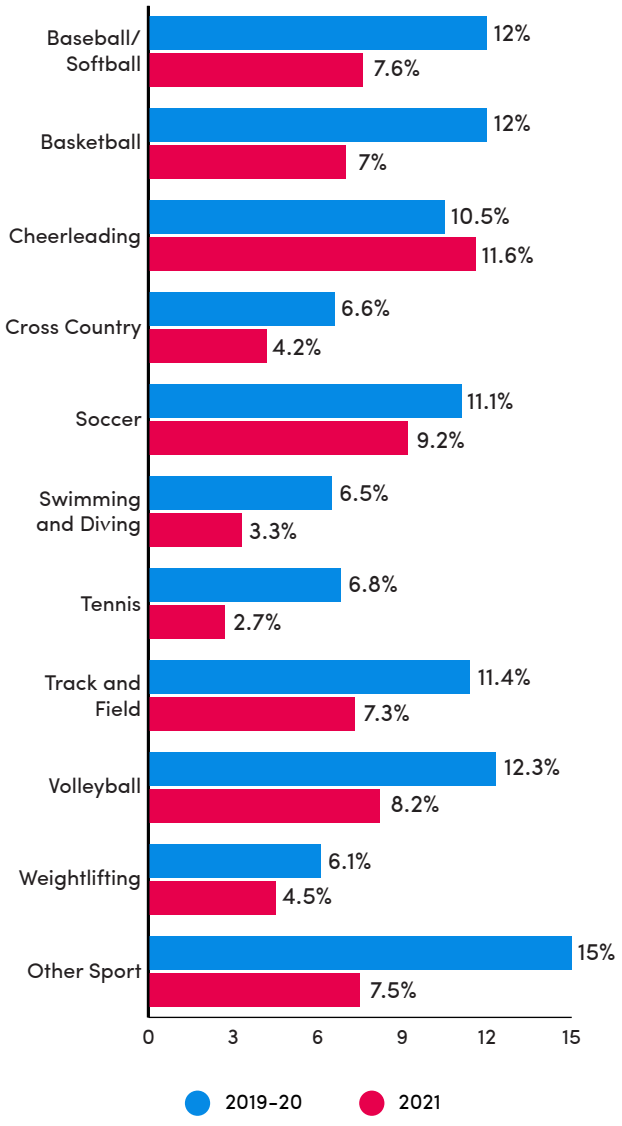


Figure 10f: Participation in Different Types of Sports Among Eighth-Grade Boys (2019-20 and 2021)

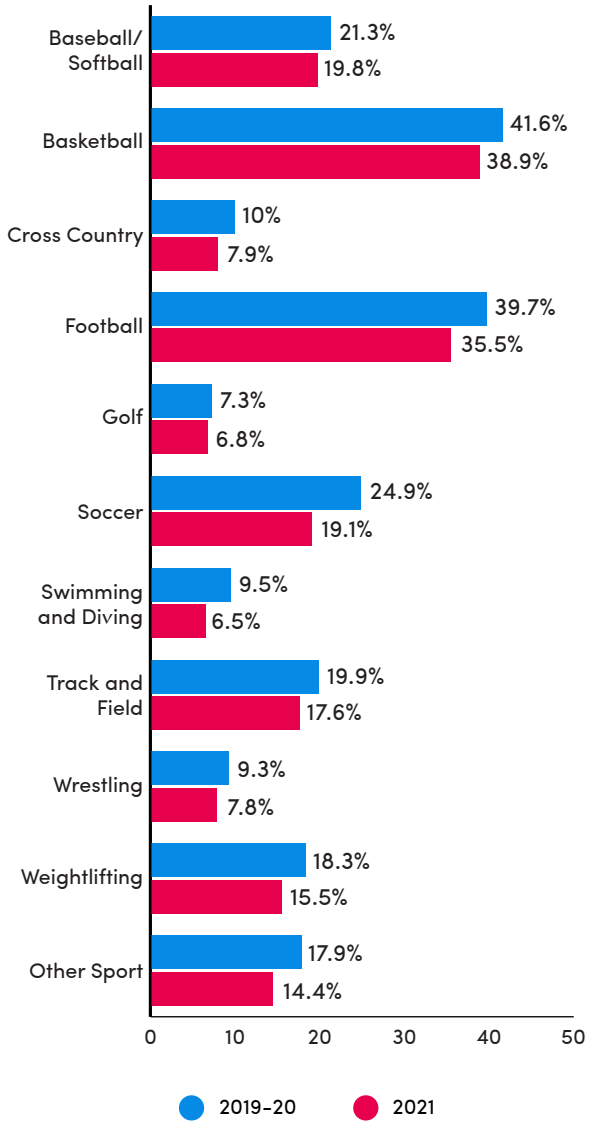


Figure 10g: Participation in Different Types of Sports Among 10th-Grade Boys (2019-20 and 2021)

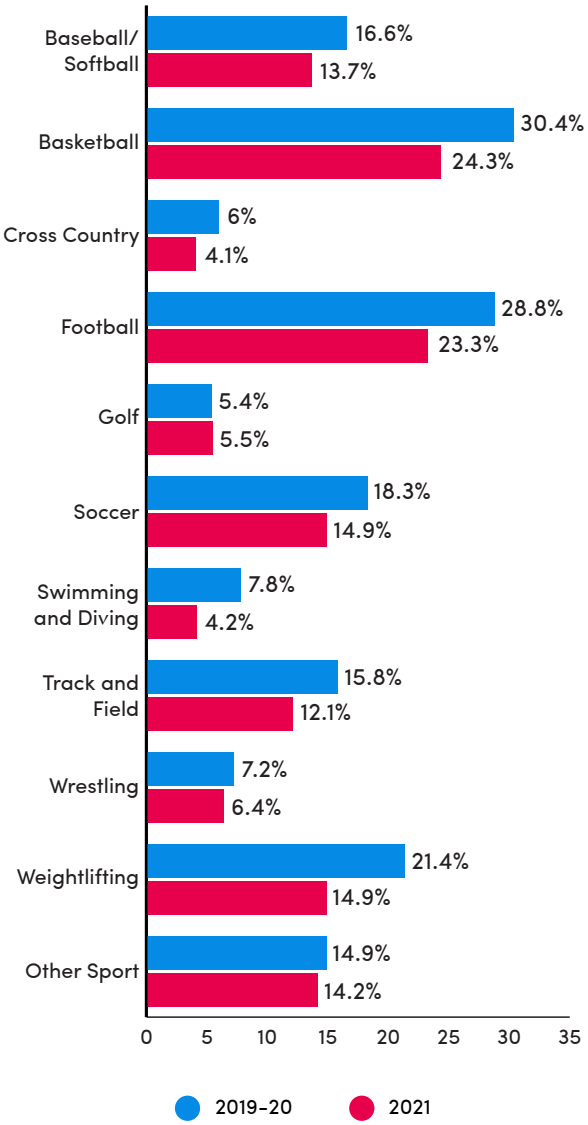
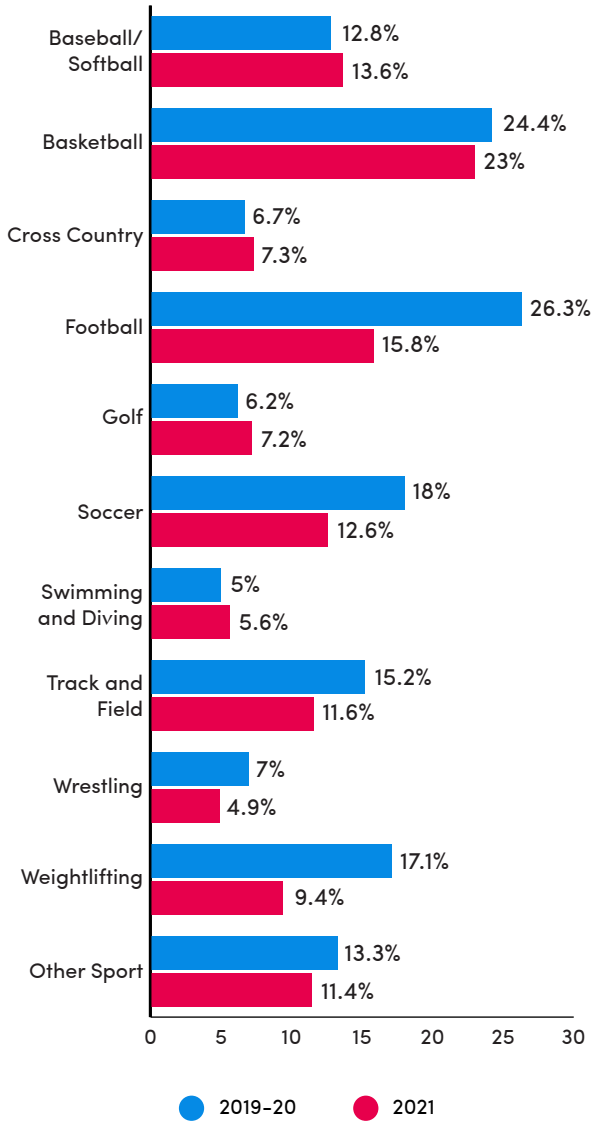


Figure 10h: Participation in Different Types of Sports Among 12th-Grade Boys (2019-20 and 2021)



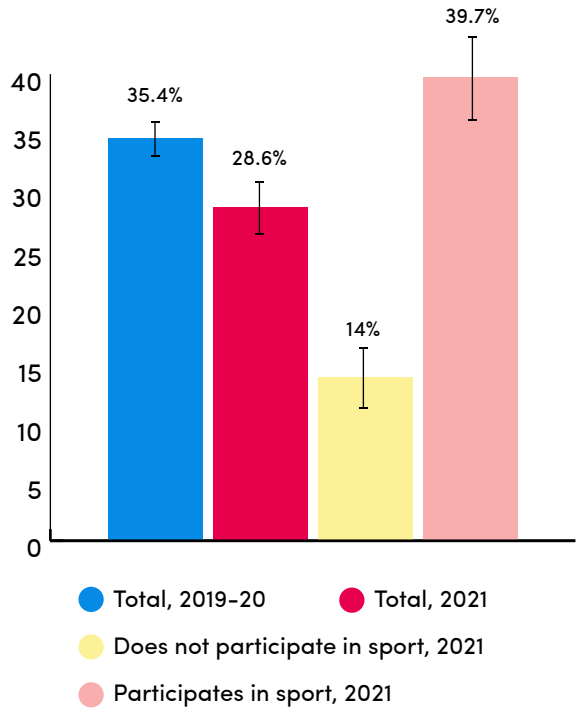
Part II: Assessing How Sport Participation Is Associated With Health-Related Behaviors, Academic Outcomes, and Mental Health

Sport Participation and Health-Related Behaviors

Figure 11a shows how participation in sports is related to 12th graders' reports of exercising vigorously nearly every day. The percentage of 12th graders indicating exercising vigorously nearly every day declined from 34.5% to 28.6% between 2019-20 to 2021. However, we see that 12th graders who participated in at least one sport during 2021 were more likely to indicate exercising vigorously nearly every day when compared to their peers who did not participate in sport (39.7% versus 14%). Figure 11b shows these results by sex and number of sports. We see that both girls and boys who participated in two or more sports were roughly three-and-a-half to four times more likely to indicate exercising vigorously nearly every day when compared to their peers who did not participate in any sport (girls — two or more sports [54.4%] versus girls — no sports [16.4%]; boys — two or more sports [54.1%] versus boys — no sports [12.3%]).

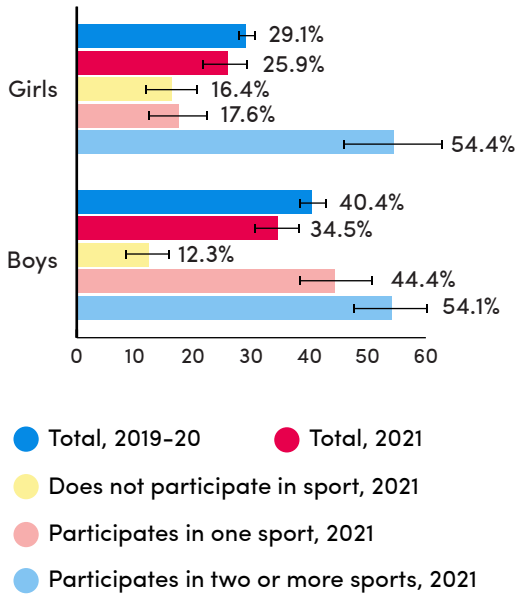
Figure 12a (on following page) shows how participation in sports is related to 12th graders' reports of exercising for 60 minutes or more seven days a week. The percentage of 12th graders indicating exercising for 60 minutes or more seven days a week slightly declined from 17% to 13.7% between 2019-20 to 2021. However, we see that 12th graders who participated in at least one sport during 2021 were more than twice as likely to indicate exercising for 60 minutes or more seven days a week when compared to their peers who did not participate in sport (17.8% versus 8.3%). Figure 12b (on following page) shows these results by sex and number of sports and shows that both girls and boys who participated in two or more sports were roughly two to

Figure 11a: Exercises Vigorously Nearly Every Day



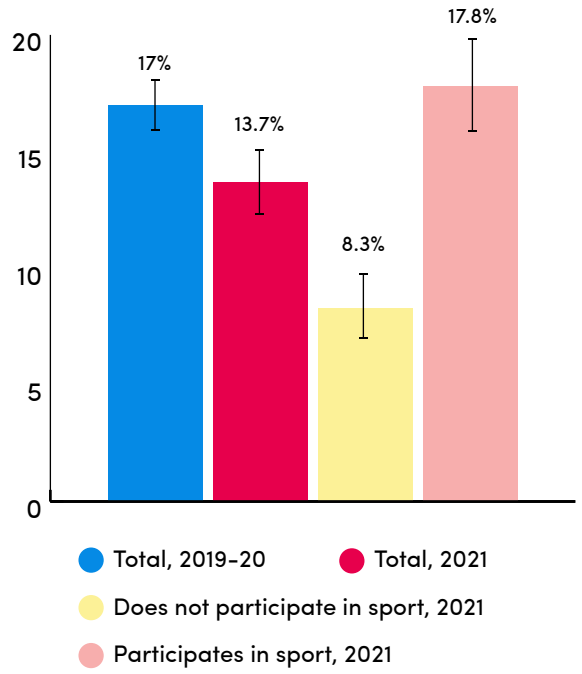
Note: Error bars that do not overlap reflect statistically significant differences.

Figure 11b: Exercises Vigorously Nearly Every Day (by Sex)



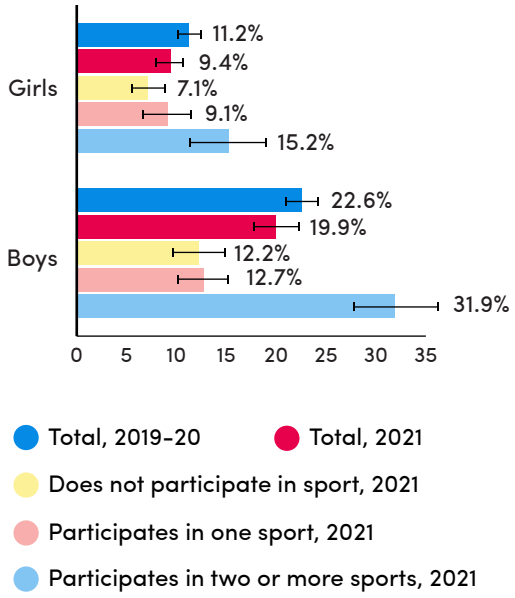
Note: Error bars that do not overlap reflect statistically significant differences.

Figure 12a: Exercises for 60 Minutes or More Seven Days a Week



Note: Error bars that do not overlap reflect statistically significant differences.

Figure 12b: Exercises for 60 Minutes or More Seven Days a Week (by Sex)

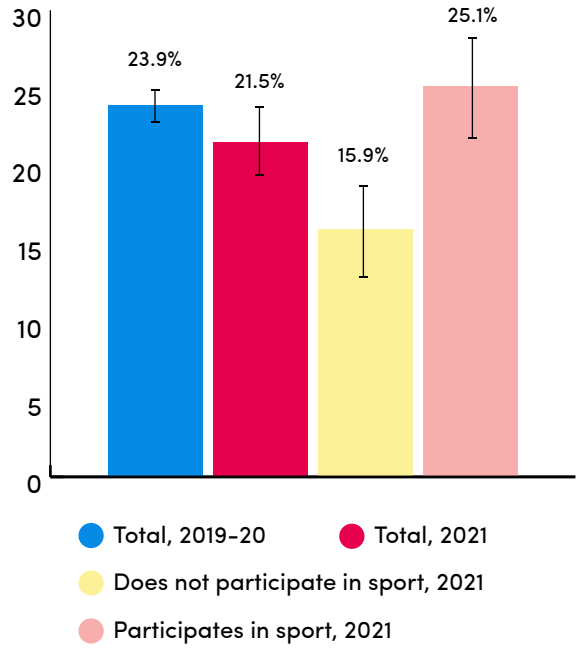


Note: Error bars that do not overlap reflect statistically significant differences.

three times more likely to indicate exercising for 60 minutes or more seven days a week when compared to their peers who did not participate in any sport (girls — two or more sports [15.2%] versus girls — no sports [7.1%]; boys — two or more sports [31.9%] versus boys — no sports [12.2%]).

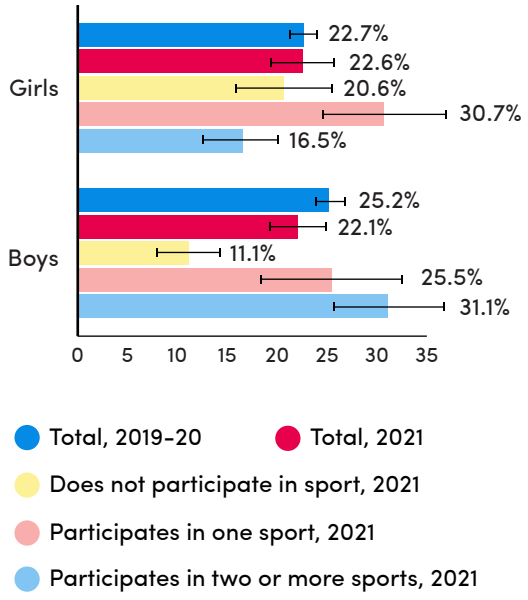
Figure 13a (on following page) shows how participation in sports is related to 12th graders getting seven hours of sleep nearly every day. The percentage of 12th graders reporting getting seven hours of sleep nearly every day was relatively similar between 2019-20 to 2021 (23.9% versus 21.5%). However, we see that 12th graders who participated in at least one sport during 2021 were roughly one-and-a-half times more likely to get seven hours of sleep nearly every day when compared to their peers who did not participate in sport (25.1% versus 15.9%). Figure 13b (on following page) shows these results by sex and number of sports. While the percentage of 12th graders getting seven hours of sleep nearly every day remained similar between 2019-20 and 2021 for both girls and boys, we see that boys who participated in two or more sports were roughly three times more likely to indicate getting seven hours of sleep nearly every day when compared to their peers who did not participate in any sport (boys — two or more sports [31.1%] versus boys — no sports [11.1%]). No significant differences in getting seven hours of sleep nearly every day were found between 12th-grade girls who were or were not involved in sports.

Figure 13a: Gets Seven Hours of Sleep Nearly Every Day



Note: Error bars that do not overlap reflect statistically significant differences.

Figure 13b: Gets Seven Hours of Sleep Nearly Every Day (by Sex)

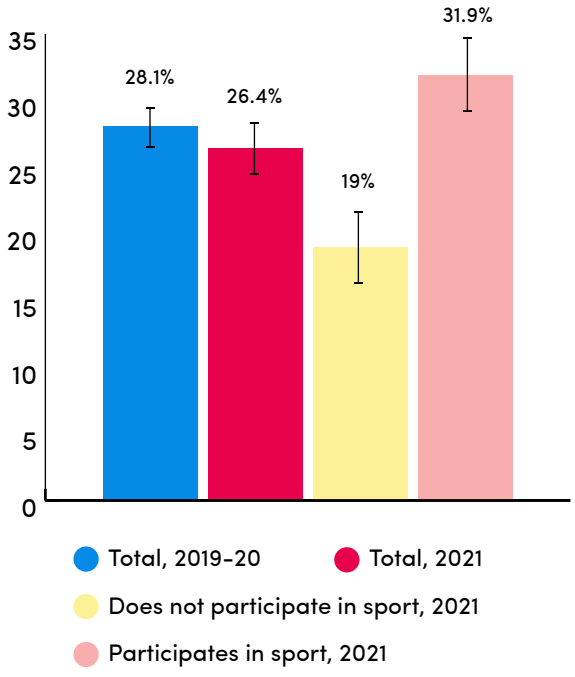


Note: Error bars that do not overlap reflect statistically significant differences.

Sport Participation and Academic Outcomes

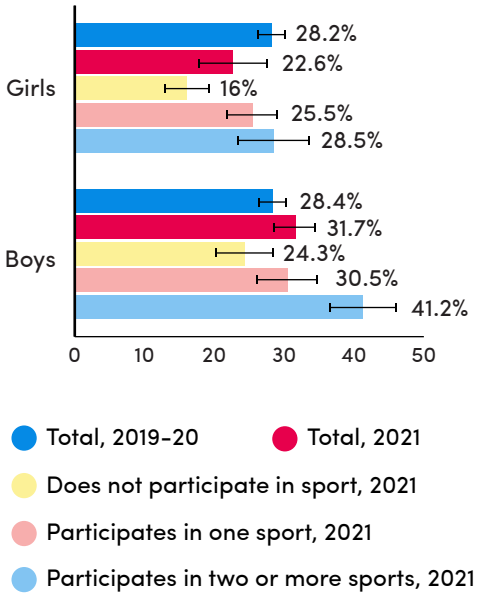
Figure 14a shows how participation in sports is related to 12th graders believing themselves to be above average with respect to their school ability. The percentage of 12th graders believing themselves to be above average in school ability was similar between 2019-20 and 2021 (28.1% versus 26.4%). However, we see that 12th graders who participated in at least one sport during 2021 were more than one-and-a-half times more likely to believe themselves to be above average in their school ability when compared to their peers who did not participate in sport (31.9% versus 19%). Figure 14b (on following page) shows these results by sex and number of sports. While the percentage of 12th graders believing themselves to be above average in their school ability remained relatively similar between 2019-20 and 2021 for both girls and boys, we see that both girls and boys who participated in two or more sports were nearly two times more likely to believe themselves to be above average in their school ability when compared to their peers who did not participate in any sport (girls — two or more sports [28.5%] versus girls — no sports [16%]; boys — two or more sports [41.2%] versus boys — no sports [24.3%]).

Figure 14a: Believes Themselves to Be Above Average With Respect to School Ability, Compared to Peers



Note: Error bars that do not overlap reflect statistically significant differences.

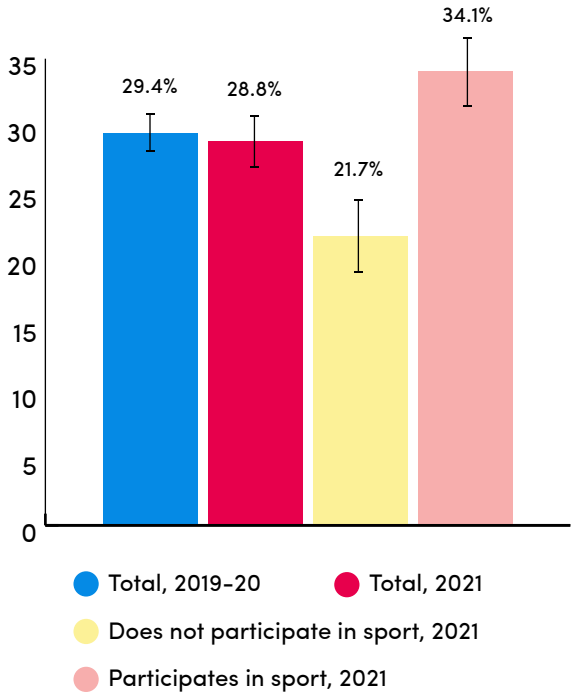
Figure 14b: Believes Themselves to Be Above Average With Respect to School Ability, Compared to Peers (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

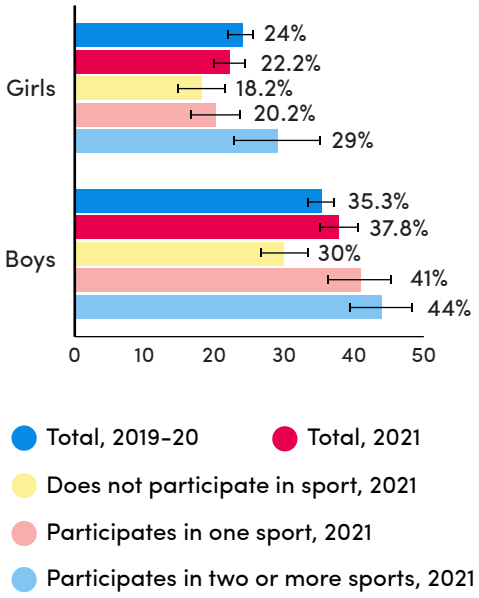
Figure 15a shows how participation in sports is related to 12th graders believing themselves to be above average with respect to intelligence. The percentage of 12th graders believing themselves to be above average in intelligence was similar between 2019-20 and 2021 (29.4% versus 28.8%). However, we see that 12th graders who participated in at least one sport during 2021 were roughly one-and-a-half times more likely to believe themselves to be above average in intelligence when compared to their peers who did not participate in sport (34.1% versus 21.7%). Figure 15b (on following page) shows these results by sex and number of sports. While the percentage of 12th graders believing themselves to be above average in intelligence remained similar between 2019-20 and 2021 for both girls and boys, we see that boys who participated in one, and two or more sports, were roughly 30%-50% more likely to believe themselves to be above average in intelligence when compared to their peers who did not participate in any sport (boys — one sport [41%] versus boys — no sports [30%]; boys — two or more sports [44%] versus boys — no sports [30%]). No significant differences among 12th-grade girls in believing themselves to be above average in intelligence were found between those who were or were not involved in sports.

Figure 15a: Believes Themselves to Be Above Average With Respect to Intelligence, Compared to Peers



Note: Error bars that do not overlap reflect statistically significant differences.

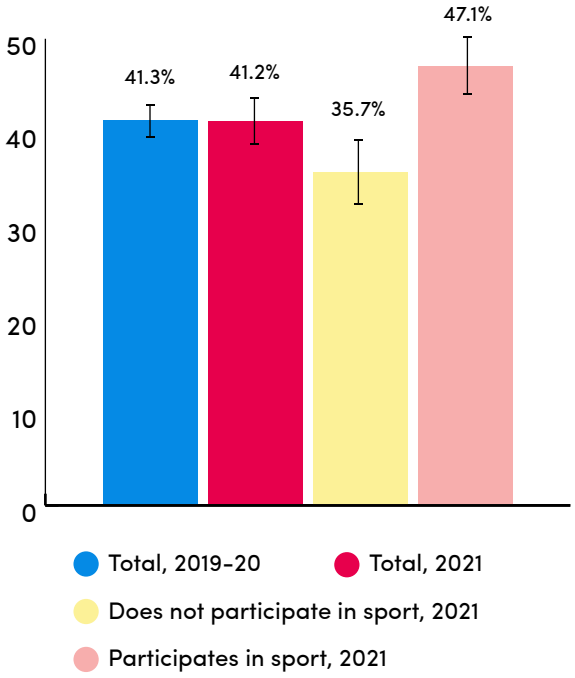
Figure 15b: Believes Themselves to Be Above Average With Respect to Intelligence, Compared to Peers (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

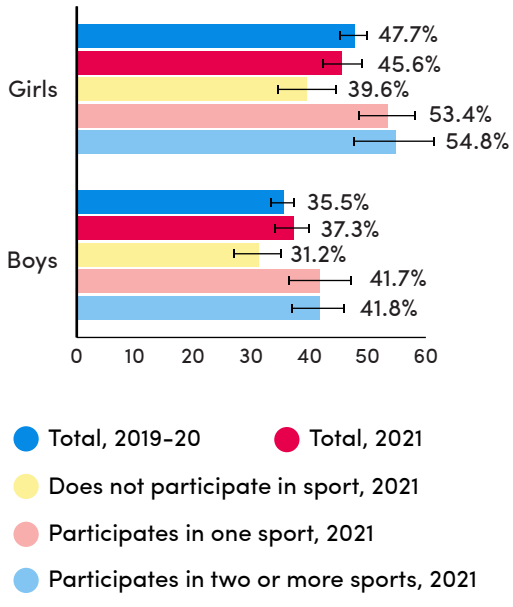
Figure 16a shows how participation in sports is related to 12th graders' reports of earning an average grade of an A/A-. The percentage of 12th graders indicating an average grade of an A/A- was similar between 2019-20 and 2021 (41.3% versus 41.2%). However, we see that 12th graders who participated in at least one sport during 2021 were roughly 30% more likely to indicate an average grade of an A/A- when compared to their peers who did not participate in sport (47.1% versus 35.7%). Figure 16b shows these results by sex and number of sports. While the percentage of 12th graders indicating an average grade of an A/A- was similar between 2019-20 and 2021 for both girls and boys, we see that girls who participated in one and two or more sports were more than 30% more likely to indicate an average grade of an A/A- when compared to their peers who did not participate in any sport (girls — one sport [53.4%] versus girls — no sports [39.6%]; girls — two or more sports [54.8%] versus girls — no sports [39.6%]). No significant differences in indicating an average grade of an A/A- were found between 12th-grade boys who were either involved in sports (just one or two or more) or who were not.

Figure 16a: Average Grade in School of A/A-



Note: Error bars that do not overlap reflect statistically significant differences.

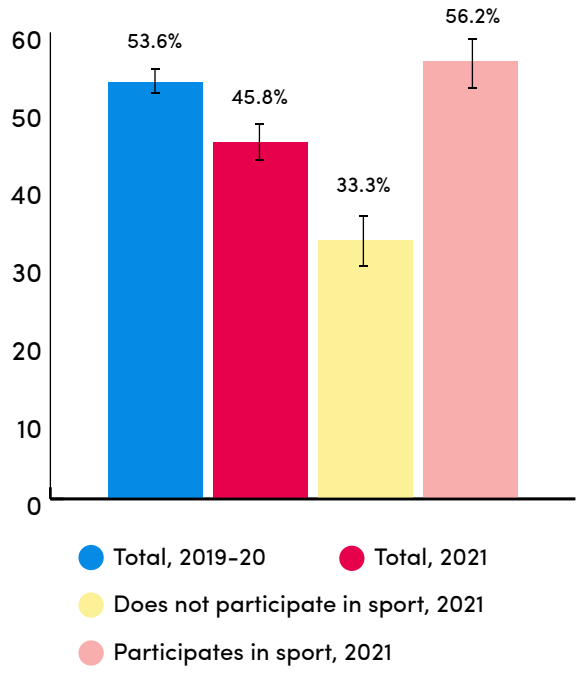
Figure 16b: Average Grade in School of A/A- (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

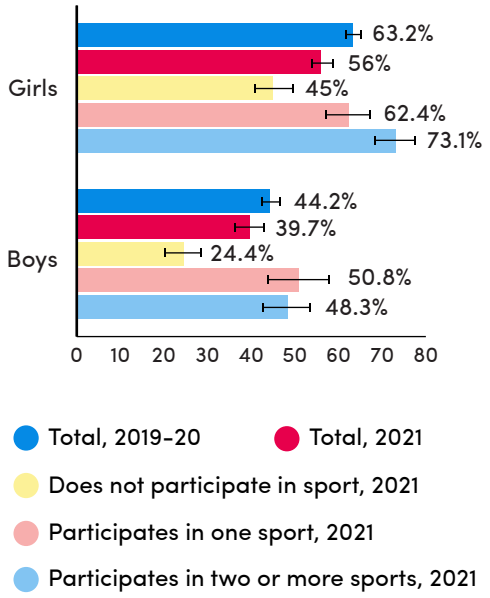
Figure 17a shows how participation in sports is related to 12th graders reporting that they will definitely graduate from a four-year college. The percentage of 12th graders indicating that they will definitely graduate from a four-year college dropped between 2019-20 and 2021 (53.6% versus 45.8%). We also see that 12th graders who participated in at least one sport during 2021 were roughly 70% more likely to indicate that they will definitely graduate from a four-year college when compared to their peers who did not participate in sport (56.2% versus 33.3%). Figure 17b shows these results by sex and number of sports. While the percentage of 12th graders indicating that they will definitely graduate from a four-year college was similar between 2019-20 and 2021 for boys, this dropped for girls (63.2% versus 56%). Moreover, we see that girls and boys who participated in one, and two or more sports, were roughly one-and-a-half to two times more likely to indicate that they will definitely graduate from a four-year college when compared to their peers who did not participate in any sport (girls — one sport [62.4%] versus girls — no sports [45%]; girls — two or more sports [73.1%] versus girls — no sports [45%]; boys — one sport [50.8%] versus boys — no sports [24.4%]; boys — two or more sports [48.3%] versus boys — no sports [24.4%]).

Figure 17a: Definitely Will Graduate From a Four-Year College



Note: Error bars that do not overlap reflect statistically significant differences.

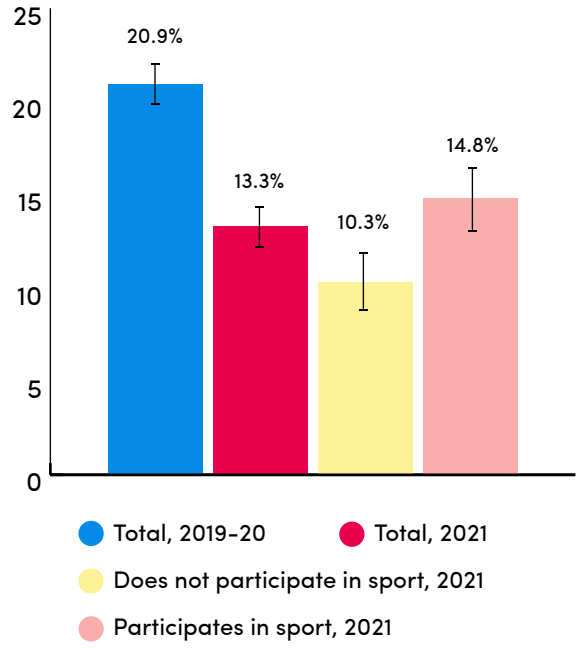
Figure 17b: Definitely Will Graduate From a Four-Year College (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

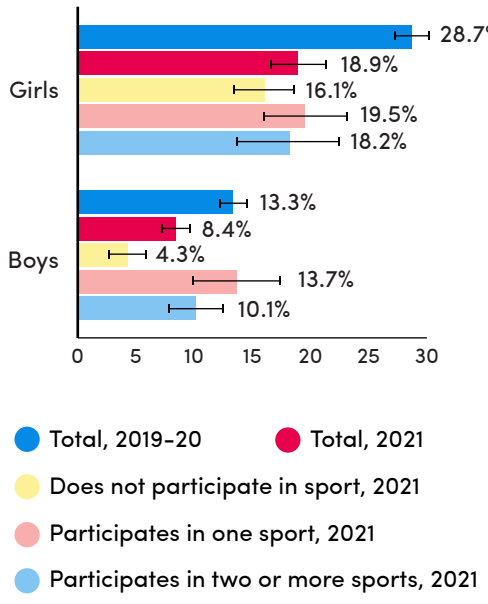
Figure 18a (on following page) shows how participation in sports is related to 12th graders stating that they will definitely pursue graduate or professional school after college. The percentage of 12th graders indicating that they will definitely pursue graduate or professional school after college dropped by nearly 40% between 2019-20 and 2021 (20.9% versus 13.3%). We also see that 12th graders who participated in at least one sport during 2021 were roughly one-and-a-half times more likely to indicate that they will definitely pursue graduate or professional school after college when compared to their peers who did not participate in sport (14.8% versus 10.3%). Figure 18b (on following page) shows these results by sex and number of sports. The percentage of 12th graders indicating that they will definitely pursue graduate or professional school after college dropped between 2019-20 and 2021 for both girls (28.7% versus 18.9%) and boys (13.3% versus 8.4%). Moreover, we see that boys who participated in one sport and those who competed in two or more sports were roughly three times and two-and-a-half times more likely respectively, to indicate that they will definitely pursue graduate or professional school after college, when compared to their peers who did not participate in any sport (boys — one sport [13.7%] versus boys — no sports [4.3%]; boys — two or more sports [10.1%] versus boys — no sports [4.3%]). No significant differences were found among girls with respect to sport participation.

Figure 18a: Definitely Will Attend a Graduate or Professional School After College



Note: Error bars that do not overlap reflect statistically significant differences.

Figure 18b: Definitely Will Attend a Graduate or Professional School After College (by Sex)



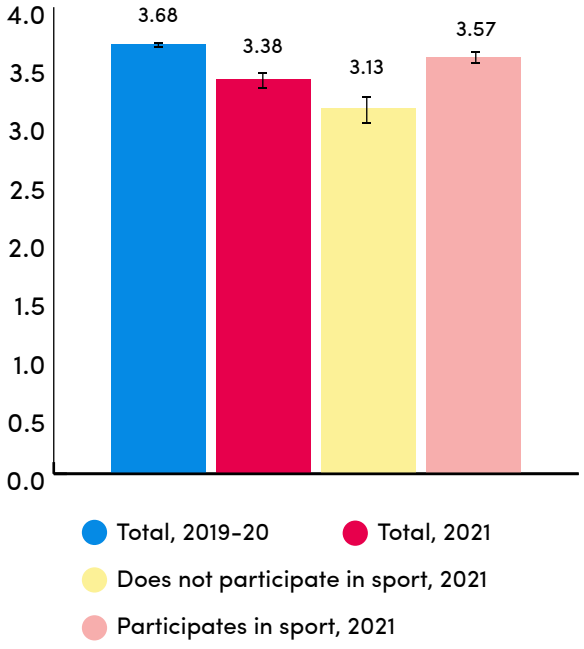
Note: Error bars that do not overlap reflect statistically significant differences.

Sport Participation and Mental Health

Figure 19a shows how participation in sports is related to self-esteem (on a scale of 1 to 4, with 4 being high self-esteem) among 12th graders. Figure 19a shows that the average level of self-esteem among 12th graders dropped between 2019-20 and 2021 (3.68 versus 3.38, p<.001). We also see that 12th graders who participated in at least one sport during 2021 had higher levels of self-esteem when compared to their peers who did not participate in sport (3.57 versus 3.13, p<.001). Figure 19b (on following page) shows these results by sex and number of sports. The average level of self-esteem dropped for both girls (3.65 versus 3.35%, p<.001) and boys (3.72 versus 3.52%, p<.05) between 2019-20 and 2021. Moreover, we see that girls and boys who participated in two or more sports had higher levels of self-esteem when compared to their peers who did not participate in any sport (girls — two or more sports [3.53] versus girls — no sports [3.19], p<.05; boys — two or more sports [3.82] versus boys — no sports [3.18], p<.001).

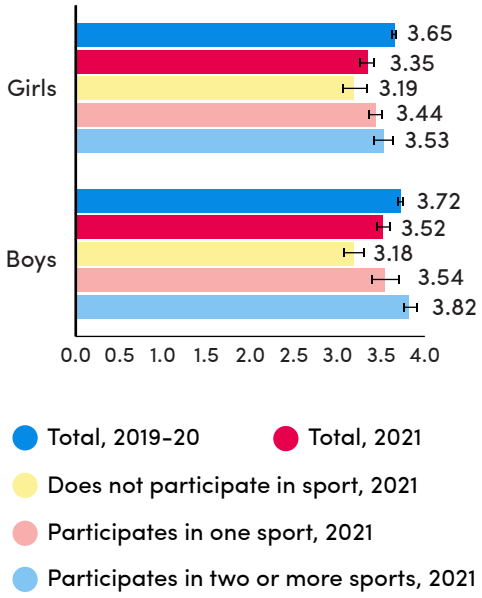
Figure 20a (on following page) shows how participation in sports is related to fatalism (on a scale of 1 to 4, with 4 being high fatalism) among 12th graders. Youth with high fatalistic beliefs or dispositions have general expectations that things will turn out badly and feel that they cannot control events or prevent unpleasant things from happening, but rather that these are inevitable and they are powerless to change them. Figure 20a shows that the average level of fatalism among

Figure 19a: Self-Esteem



Note: Error bars that do not overlap reflect statistically significant differences.

Figure 19b: Self-Esteem (by Sex)

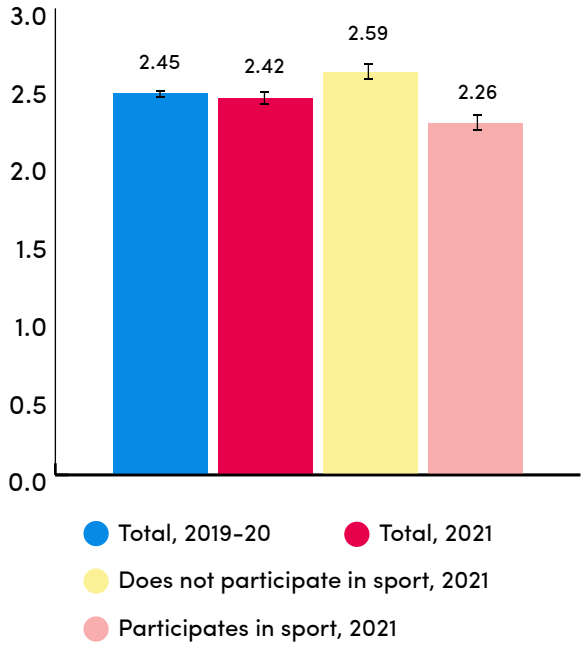


Note: Error bars that do not overlap reflect statistically significant differences.

12th graders was similar between 2019-20 and 2021 (2.45 versus 2.42, p=.469). We also see that 12th graders who participated in at least one sport during 2021 had lower levels of fatalism when compared to their peers who did not participate in sport (2.26 versus 2.59, p<.001). Figure 20b shows these results by sex and number of sports. The average level of fatalism was similar for girls between 2019-20 and 2021 and dropped for boys (2.50 versus 2.36, p<.05). Moreover, we see that girls and boys who participated in two or more sports had lower levels of fatalism when compared to their peers who did not participate in any sport (girls — two or more sports [2.18] versus girls — no sports [2.60], p<.05; boys — two or more sports [2.20] versus boys — no sports [2.58], p<.01).

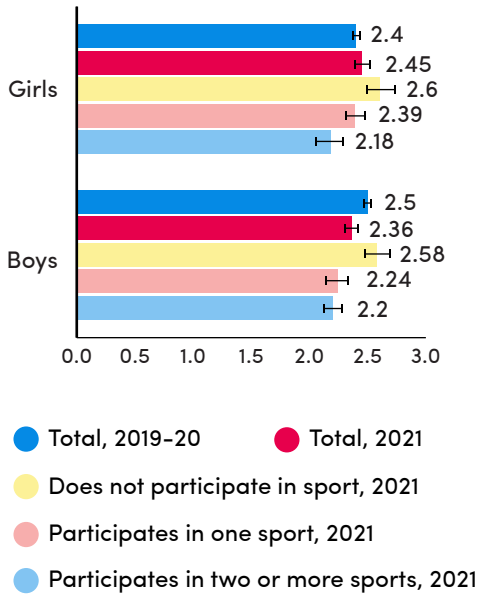
Figure 21a (on following page) shows how participation in sports is related to self-efficacy (on a scale of 1 to 4, with 4 being high self-efficacy) among 12th graders. Figure 21a shows that the average level of self-efficacy among 12th graders dropped between 2019-20 and 2021 (3.65 versus 3.53, p<.01). We also see that 12th graders who participated in at least one sport during 2021 had higher levels of self-efficacy when compared to their peers who did not participate in sport (3.61 versus 3.44, p<.01). Figure 21b (on following page) shows these results by sex and number of sports. The average level of self-efficacy only marginally declined for both girls and boys between 2019-20 and 2021. Moreover, we see that girls and boys who participated in two or more sports had higher levels of self-efficacy when compared to their peers who did not participate in any sport (girls — two or more sports [3.80] versus girls — no sports [3.47], p<.05; boys — two or more sports [3.57] versus boys — no sports [3.39], p<.05).

Figure 20a: Fatalism



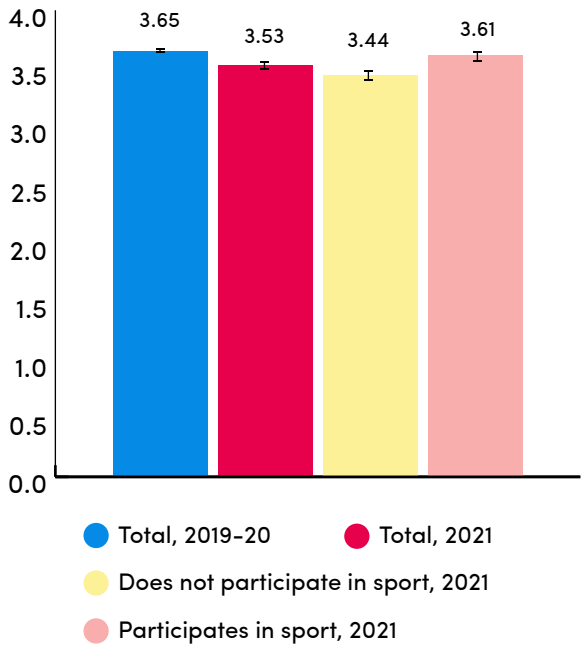
Note: Error bars that do not overlap reflect statistically significant differences.

Figure 20b: Fatalism (by Sex)



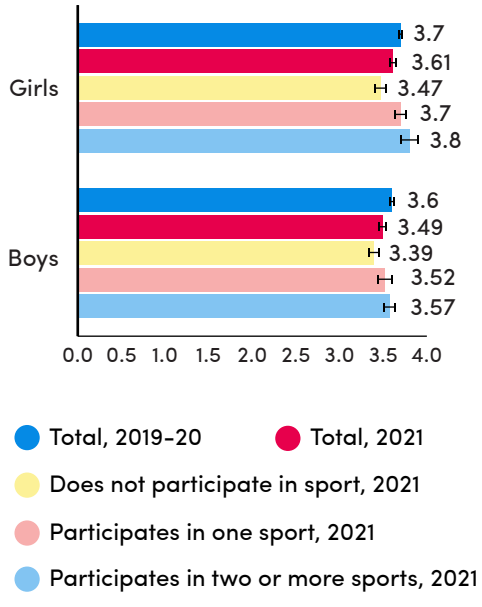
Note: Error bars that do not overlap reflect statistically significant differences.

Figure 21a: Self-Efficacy



Note: Error bars that do not overlap reflect statistically significant differences.

Figure 21b: Self-Efficacy (by Sex)

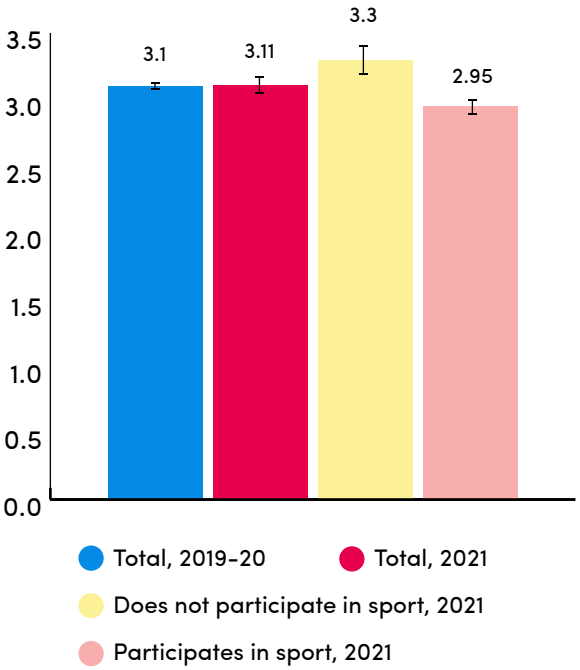


Note: Error bars that do not overlap reflect statistically significant differences.

Figure 22a shows how participation in sports is related to loneliness (on a scale of 1 to 4, with 4 being high loneliness) among 12th graders. Figure 22a shows that the average level of loneliness among 12th graders was similar between 2019-20 and 2021 (3.10 versus 3.11, p=.822). We also see that 12th graders who participated in at least one sport during 2021 had lower levels of loneliness when compared to their peers who did not participate in sport (2.95 versus 3.30, p<.01). Figure 22b (on following page) shows these results by sex and number of sports. The average level of loneliness was similar for both girls and boys between 2019-20 and 2021. Moreover, we see that girls who participated in two or more sports had lower levels of loneliness when compared to their peers who did not participate in any sport (girls — two or more sports [2.99] versus girls — no sports [3.39]). Only minor differences were found among boys.

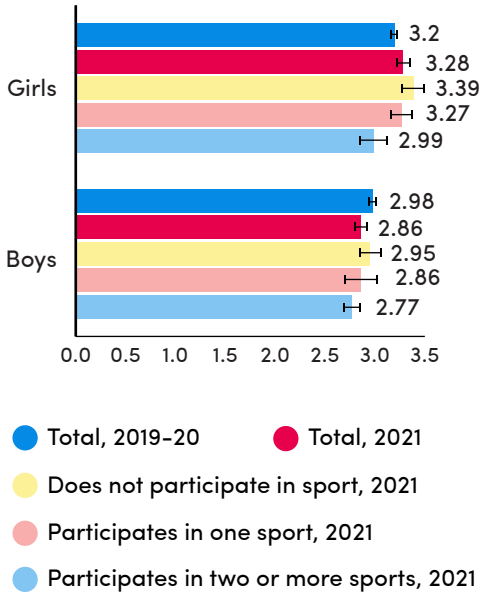
Figure 23a (on following page) shows how participation in sports is related to self-derogation, or the tendency to think and speak poorly of oneself (view as unimportant, belittle or disparage oneself), often unrealistically, (on a scale of 1 to 4, with 4 being high self-derogation) among 12th graders. Figure 23a shows that the average level of self-derogation among 12th graders marginally increased between 2019-20 and 2021 (2.58 versus 2.71, p=.072). We also see that 12th graders who participated in at least one sport during 2021 had lower levels of self-derogation when compared to their peers who did not participate in sport (2.49 versus 2.98, p<.01). Figure 23b shows these results by sex

Figure 22a: Loneliness



Note: Error bars that do not overlap reflect statistically significant differences.

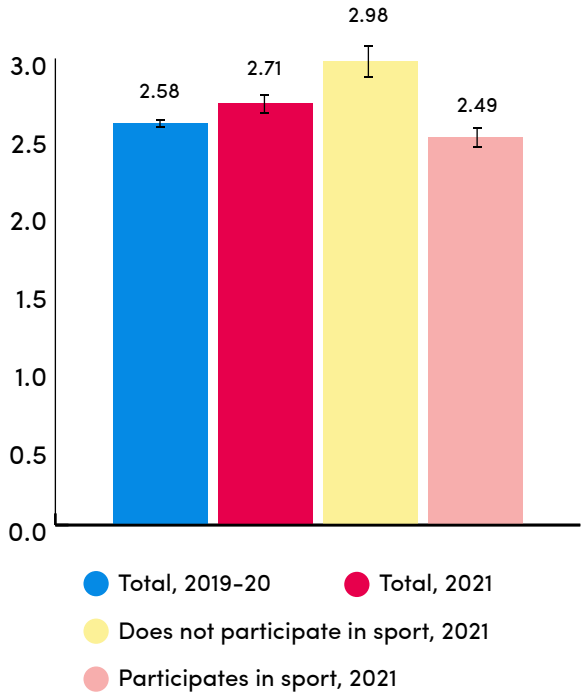
Figure 22b: Loneliness (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

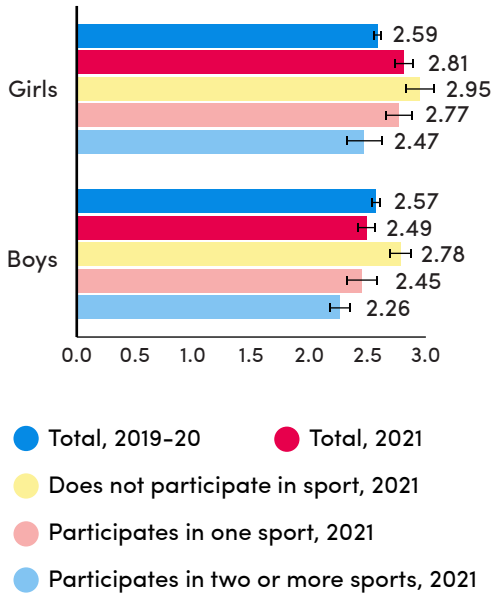
and number of sports. The average level of self-derogation was similar for boys between 2019-20 and 2021, but increased among girls (2.59 versus 2.81, p<.05). Moreover, we see that girls and boys who participated in two or more sports had lower levels of self-derogation when compared to their peers who did not participate in any sport (girls — two or more sports [2.47] versus girls — no sports [2.95], p<.05; boys — two or more sports [2.26] versus boys — no sports [2.78], p<.01).

Figure 23a: Self-Derogation



Note: Error bars that do not overlap reflect statistically significant differences.

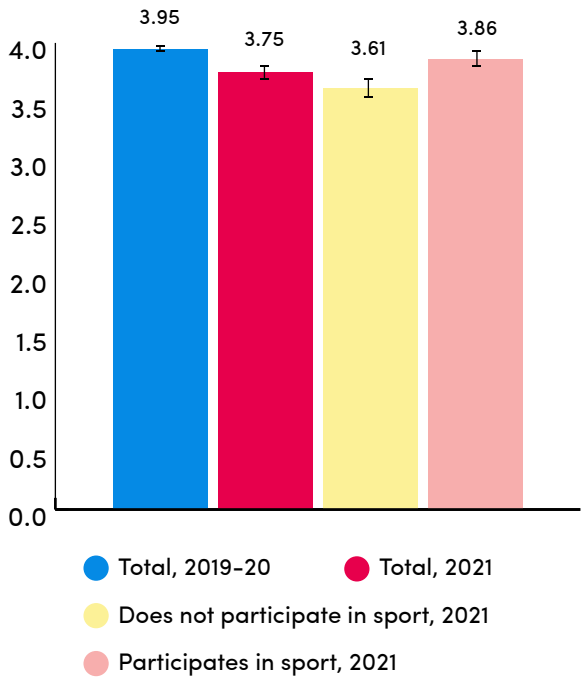
Figure 23b: Self-Derogation (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

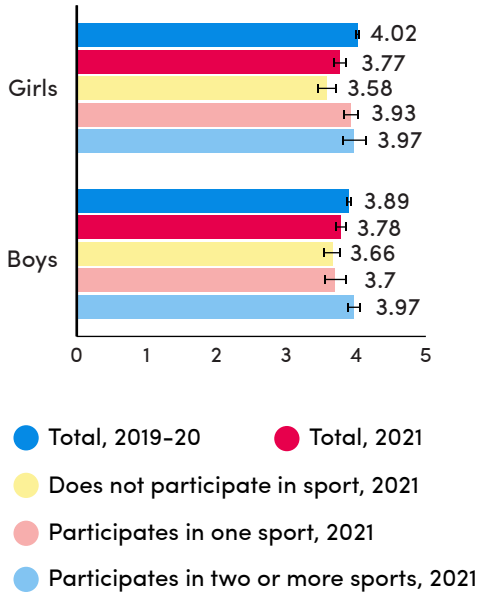
Figure 24a shows how participation in sports is related to social support (on a scale of 1 to 4, with 4 being high social support) among 12th graders. Figure 24a shows that the average level of social support among 12th graders declined between 2019-20 and 2021 (3.95 versus 3.75, p<.01). We also see that 12th graders who participated in at least one sport during 2021 had higher levels of social support when compared to their peers who did not participate in sport (3.86 versus 3.61, p<.01). Figure 24b shows these results by sex and number of sports. The average level of social support was similar for boys between 2019-20 and 2021, but decreased among girls (4.02 versus 3.77, p<.05). Moreover, we see that girls who participated in one sport or participated in two or more sports had higher levels of social support when compared to their peers who did not participate in any sport (girls — one sport [3.93] versus girls — no sports [3.58], p<.05; girls — two or more sports [3.97] versus girls — no sports [3.58], p<.05). Boys who participated in two or more sports showed higher levels of social support when compared to their peers who did not participate in sport (boys — two or more sports [3.97] versus boys — no sports [3.66], p<.05).

Figure 24a: Social Support



Note: Error bars that do not overlap reflect statistically significant differences.

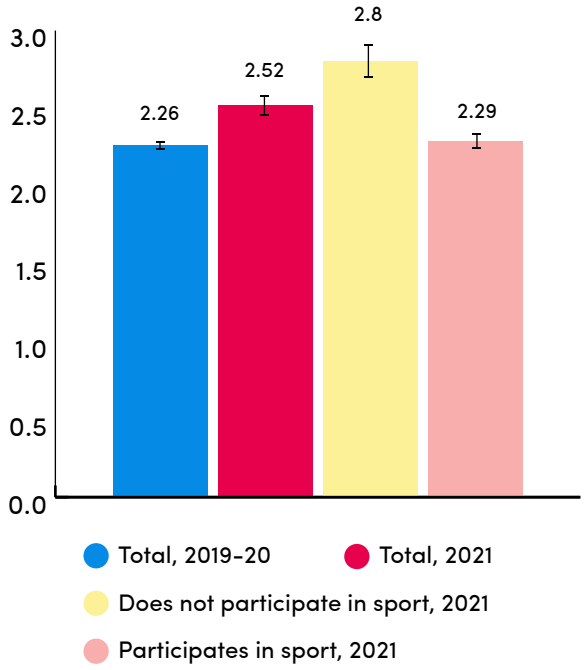
Figure 24b: Social Support (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

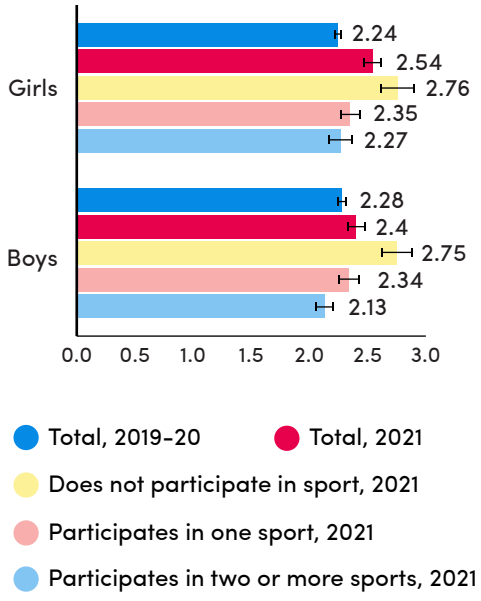
Figure 25a (on following page) shows how participation in sports is related to depression (on a scale of 1 to 4, with 4 being high depression) among 12th graders. Figure 25a shows that the average level of depression among 12th graders increased between 2019-20 and 2021 (2.26 versus 2.52, p<.001). We also see that 12th graders who participated in at least one sport during 2021 had lower levels of depression when compared to their peers who did not participate in sport (2.29 versus 2.80, p<.001). Figure 25b (on following page) shows these results by sex and number of sports. The average level of depression was similar for boys between 2019-20 and 2021, but increased among girls (2.24 versus 2.54, p<.001). Moreover, we see that girls and boys who participated in one sport or two or more sports had lower levels of depression when compared to their peers who did not participate in any sport (girls — one sport [2.35] versus girls — no sports [2.76], p<.05; girls — two or more sports [2.27] versus girls — no sports [2.76], p<.01; boys — one sport [2.34] versus boys — no sports [2.75], p<.001; boys — two or more sports [2.13] versus boys — no sports [2.75], p<.001).

Figure 25a: Depression



Note: Error bars that do not overlap reflect statistically significant differences.

Figure 25b: Depression (by Sex)



Note: Error bars that do not overlap reflect statistically significant differences.

Conclusions

The COVID-19 pandemic profoundly impacted the health and well-being of youth and impeded the engagement and development of athletes and sports organizations of all ages and calibers. The current report addressed two important questions to inform youth sport policies and practice to ensure youth access and benefits of sports participation. First, this report set out to examine the impact of the COVID-19 pandemic on girls' participation in sport, with particular attention to the potential impact the pandemic may have on increasing observed economic and ethnic-racial disparities that already exist in teen sports participation. Second, this report examined ways in which sport participation functioned as an important protective factor for adolescents, buffering them against the negative impact of COVID-19 on the physical, psychological, and achievement-related declines observed in youth throughout the 2021 pandemic-related shutdowns and other restrictions. Using a nationally representative sample of youth in eighth, 10th, and 12th grades, our findings indicated that there was a significant decline in participation rates for both boys and girls (from 76.3% to 69.6%; this would translate in to a loss of roughly 1 million sport participants in U.S. high schools), with an even greater observed decline (48.9% to 40.5%) in the number of adolescents participating in multiple sports. These findings support other national reports that indicated significant declines in the average number of team sports that youth ages 13-17 played during 2020 (Aspen Institute, 2021). These declines are likely due to national, state, and local restrictions placed on sports that reduced access, as well as changes in the seasons in which certain sports were offered so sport seasons overlapped in ways they did not prior to the pandemic.

As expected, the pandemic impacted sport communities differently, with the greatest declines observed among Black and Hispanic youth, those who lived in urban areas, and youth who were in the 12th grade. Although there were minimal differences found between boys and girls in overall participation declines, girls, but not boys, experienced declines in rural areas, and 12th-grade girls experienced significantly greater declines in participation than any other group examined, with participation rates dropping by an alarming 17 percentage points (66.4% to 49.4%). These findings suggest that the pandemic may have exacerbated the already higher rates of sports dropout observed among girls as compared to boys, as they develop through the middle and high school years (Zarrett, Veliz, & Sabo, 2020). Given the benefits associated with sport participation, dropping out of sports during high school can have both immediate and long-term effects on youth physical, psychological, and achievement-related trajectories (Zarrett, Veliz, & Sabo, 2020), and thus, greater attention and efforts are needed to return these girls to sport (even if participation is in a different sport than where they started) and to keep future cohorts of teen girls in sport.

Second, our findings provide support for the important role sports participation plays in supporting long-term health, achievement, and well-being in the lives of girls during the continued challenges faced by the COVID-19 pandemic. Aligned with national reports by the Centers for Disease Control and Prevention (2020) and others (e.g., American Academy of Pediatrics, 2021; Ammar et al., 2020; White et al., 2021), our findings indicate that the range of negative long-term impacts that COVID-19 had on youths' lives has been widespread. Youth demonstrated notable declines from 2019-20 to 2021 in physical health behaviors (i.e., exercise/physical activity), academic achievement expectations/aspirations (i.e., expectation to graduate from a four-year college, expectation that they will definitely graduate or professional school after college), and mental health, including decreases in self-esteem, self-efficacy, and social support, and increases in self-derogation and depression. However, girls who played sports across the initial year of the COVID-19 pandemic did not experience the same widespread decline. Compared to those who did not participate, girls who played sports were more likely to exercise vigorously and for 60 minutes daily. Girls who played sports were also more likely to have and higher achievement outcomes (i.e., more likely to have earned an average grade of an A/A-) and more positive self-perceptions of their academic achievement and goals, including believing they are above average in their school ability and reporting higher expectations that they will graduate from a four-year college and pursue graduate or professional school after college when compared to their peers who did not participate in any sport. Lastly, and perhaps most notably given the alarming declines in youth mental health, girls who played sports during the first year of the pandemic were faring significantly better than those who did not participate in any sport on multiple markers of psychological well-being. Compared to those who did not participate, girls who played sports had higher levels of self-esteem, self-efficacy, and social support, and lower levels of loneliness, self-derogation, fatalism, and depression. Given the significant impact of the pandemic on declines in the physical, psychological, and academic well-being of today's teens, sports participation and the support it provides for the promotion of positive health and development may be more important now than ever before.

Across all areas of girls' health, academic achievement, and psychological well-being, we found that girls who participated in more than one sport benefitted more from their participation than those who focused on a single sport, and in the majority of instances, participation was linked to more positive outcomes only among girls who participated in at least two sports. Thus, the significantly greater observed declines in the percentage of adolescents participating in multiple sports raises concern and highlights the critical need for continuous access across a

wide array of girls' sports settings; education to parents, schools, and other stakeholders of the value and importance of keeping girls involved in multiple sports; and greater communication and collaborative planning and organization between sports programs so they can avoid overlapping seasons, space, and times as much as possible. Likewise, given the powerful impact that sports participation had on the lives of adolescent girls during the pandemic, reduced access and other COVID-19 related restrictions that impacted the participation rates of girls, especially participation among 12th graders, Black and Hispanic girls, and those residing in urban areas, is of particularly grave concern.

As we continue to face global challenges and restrictions related to the COVID-19 pandemic, it is critical for stakeholders of youth sport to envision new and varied ways of offering sports to ensure safety and continued access, as well as ways to further enrich the landscape of sport offerings and the sport setting to address the changing needs of today's youth. The regionality of sports participation during the 2021 season, with greater declines within urban regions, and differences found between girls' and boys' participation within rural areas, as well as pervasive racial/ethnic disparities in girls' and boys' participation, highlights the ways in which the pandemic exacerbated pre-existing resource and funding disparities among communities. Greater considerations made to how resources are allocated by location, time, and place of sport offerings, as well as clear adjustments made to ensure safety, are essential to support girls' participation moving forward. Given school-sponsored activities and community recreational programs are more accessible to youth across race-ethnicity and socio-economic backgrounds with little-to-no participation fees and better transportation provisions (Eyler et al., 2018; Sabo & Veliz, 2014), strategies to prevent closures of school- and community-sponsored sports are critical.

Moreover, developing intentional strategies to support community belonging and youth connection with peers and coaches within the sport setting (Zarrett et al., 2019; Zarrett, Abraczinskas, et al., 2020; Zarrett et al., 2021, Zarrett et al., 2022) could support youth return to and long-term engagement in sport. This will require increased training opportunities for coaches, and organization-wide resources and potential restructuring of sport to ensure that there is a range of options from more recreational/informal offerings to more competitive sport programs available to appeal to all youth. (Zarrett et al., 2019, Zarrett et al., 2022). These same strategies will likely support the return or continued sport participation of 12th-grade girls. Additionally, development of opportunities designed specifically for girls in late adolescence, including opportunities to participate in new sport experiences or to acquire junior coaching roles to teach younger children/adolescents sport skills, are likely to also help keep girls in sport during their late high school and early young adulthood years (Zarrett et al., 2019).

The declines in youth sports offerings/access due to cancellations, postponements, and modifications during the 2021 season highlighted the critical role that sports play in adolescents' physical, academic/achievement, mental, and social health. Thus, greater attention and efforts must be given towards ways that sport can be used to support positive youth development. This not only involves tending to the overall physical health needs of youth, including how to return to competition (and allow for spectators) safely and responsibility, providing adequate opportunities to be active, and reducing risk of injury after time off from training (Flynn & Trentacosta, 2021); but also involves tending to the overall health and well-being of youth and their positive development (Côte et al., 2014; Gould & Carson, 2008). High-quality sport settings provide youth the opportunity to connect and develop meaningful/impactful relationships with caring adult mentors and a set of peers who share similar interests. Relatedly, sports often function as a setting that nurtures a sense of community where youth can find a valued role or defined "place" within a group that is highly valued by them and their peers, parents, and others that are important to them (Blanchard et al., 2009; Edwards, 2015; Zarrett et al., 2019). These important connections to others and to one's community not only provide youth a strong social support system and opportunities for identity development, but also function to tie/connect youth to other pro-social settings/institutions, such as school, and provide important social networks that can help support the development and achievement of one's academic and career goals (Eccles & Gootman, 2002; Hodge et al., 2013).

Sport settings that emphasize mastery of skills (i.e., task-oriented), rather than having a sole focus on external motivations (such as winning, social comparisons, and public/social recognition) further nurture a sense of purpose and are shown to foster important life skills, including strong work ethic, taking initiative and committing the time and effort needed for learning and growth, leadership and teamwork, and persistence and resilience in the face of failures/disappointments or setbacks (Gould & Carson, 2008; Goudas, 2010; Petipas et al., 2005). Providing young teen athletes with opportunities to teach younger children helps both the young and more experienced athletes develop and master sport skills and further helps build a sense of connection, community, and purpose.

During these highly stressful, unpredictable, and potentially isolating times, sport settings that meet these important social and developmental needs for mastery, meaningful connections with others, and a strong sense of contribution and belonging are more critical now for youth than ever before. Developing clear missions/goals and associated programming within sport organizations that intentionally focus on facilitating these supports can help reverse the adverse effects of lockdowns, social isolation, educational adaptations, and loss of moderating community supports.

Policy and Practice Recommendations

The findings from this report highlight the powerful protective role that sports can play in supporting the physical, social and emotional well-being of girls. While sports participation among young people was significantly impacted by COVID, girls who were able to continue playing experienced a myriad of positive impacts in areas of physical health, mental health, and academics. The report shines a light on the critical role of sports in girls' lives and underscores the need to invest in girls' sports programming so that all girls reap the benefits.

Make More Sports Opportunities Available for Girls

As background, June 23, 2022, marked the 50th anniversary of Title IX, federal legislation that guarantees equitable access to school sports for girls. Research from the Women's Sports Foundation, *50 Years of Title IX: We're Not Done Yet*, focused on the pressing need to address inequities, especially among female athletes of color, LGBTQ+ athletes, and athletes with disabilities. Even without COVID, glaring inequities in sport persist.

COVID-19 presented enormous challenges everywhere girls live, learn, and play. Nevertheless, sport participation played an enormous role in protecting girls' health and well-being during this time, critically important given the pandemic's well-documented impact on mental health in particular.

The report challenges everyone invested in girls' holistic development to consider sport as a viable intervention to address urgent issues of mental health challenges and learning loss as part of COVID recovery. This report demands urgent and thoughtful strategies for improving access and opportunity for girls, staving off further attrition, and reengaging those who have not returned to sport.

School-Based Sports

- Make the case to schools, school boards, and other program providers who are the beneficiaries of funding through the American Rescue Plan Act and any other COVID recovery resources to increase access and decrease barriers to participation in school-based sports for all kids, especially girls. Work with intermediaries with complementary interests, like the National Summer Learning Association and Afterschool Alliance, to raise the profile of sport as a support for school-day outcomes.
- Change the way sport is integrated into the school environment. Address damaging narratives about sport participation in schools, like:
  - "Participation in sport is something that needs to be 'earned'" with good behavior and a minimum grade point average when it can, instead, be used effectively to promote positive behavior and support a young person's school achievement. Dangling sport as an incentive takes sport away from the kids who need it the most.
  - "The best way to address learning loss is to require more 'seat time' for students" at the expense of recess, physical education classes, and extracurricular activities and sports. The findings of this report, coupled with overwhelming bodies of evidence in neuroscience, tell us that the best learning happens in the brains of active kids.

Community-based Organizations

- Partner with public health departments and mental health providers to help address the need for young people to receive mental health support. Educate providers on the value of encouraging young people to participate in sport and include coaches and other sport leaders in the web of support of young people.
- Learn from early successes, like the Laureus Sport for Good Chicago initiative — a collective effort among sports-based youth development organizations to unlock $5 million

from the American Rescue Plan Act for organizations addressing the critical issues facing young people following the pandemic.

- Target messaging to parents who may be concerned that their child is not getting the right support to recover from the stress of the pandemic.
- Encourage parents to advocate for more sport opportunities as a way to address the mental health issues and learning loss that young people face. Help parents as they navigate their families' needs to prioritize their children's sport participation as a valuable source of support.

Learn More About the Protective Role of Sport

There are established bodies of evidence in fields like social work, psychology, and education that establish certain practices as "protective" against the impact of overwhelming stress. Less is understood about the specific ways in which these protective factors show up in sport. Build this knowledge base by:

- Asking girls. What elements of their sport experience helped them develop resiliency in the face of challenges and negative outcomes of COVID? How do they think sport helped them cope during COVID? Are there things that they think could have been done that would have helped even more?
- Learning more about existing models, like the Neurosequential Model in Sport (NM Sport). Like its counterparts in therapeutics and education, the NM Sport certificate is based on more than 30 years of ground-breaking work by world-renowned child psychiatrist and neuroscientist Bruce D. Perry, MD, Ph.D., and provides participants with and understanding of core concepts of brain development and function, particularly as it pertains to the experience of significant adversity and the ways in which sport can be valuable in supporting young people as they develop and heal from trauma.
- Investing in additional research to better understand the ways in which the components of sport — positive relationships, belonging to a team, being physically active, and engaging in resilience-building patterns of stress — help create the neurobiological conditions to minimize the impact of overwhelming stress while promoting learning and better mental health and wellness outcomes. Further, use this research to understand components of sport that may keep sport from being protective — like unhealthy relationships, extreme pressure to succeed, or a culture of perfectionism.
- Highlighting programs that are intentionally using sport as a protective factor against trauma/ overwhelming stress. Leverage the knowledge of trauma-informed practice in the sports-based youth development world to influence some of the more traditional sport spaces, like school-based sport and elite and club sports.
- Investing in rigorous evaluation of these programs to uncover best practices and build the body of evidence supporting systems of accountability for any coaching practice deemed physically or emotionally abusive:
  - A clear understanding of what constitutes physical and emotional abuse;
  - A shift in norms such that any practice that is exclusionary or contributes to an athlete having a negative experience is called out;
  - A clear, easy, and accessible way for athletes to anonymously report negative and abusive experiences in sport; and
  - Coaches to be screened before hiring, mandatory training to avoid abusive practices, and compensation to be tied to more than simply a win-loss record (e.g., athlete experience or athlete growth).
- Going beyond simply "doing no harm" to amplify the potential of sport to be protective by training coaches to deliver developmentally appropriate, healing-centered sport experiences. Ensure that coaches: 1) understand the impact of overwhelming stress (caused by COVID or a host of other individual and institutional factors) on the bodies, brains, and behaviors of their athletes; and 2) know how to create relationally rich, physically active, and resilience-building sport environments so that their athletes are better equipped to manage that overwhelming stress.
- Promoting holistic capacity building for sport programs. Provide training not only to coaches who work directly with athletes, but also to the people in positions of power when it comes to the athlete experience. Program administrators, athletic directors, directors of coaching — anyone who is responsible for the coaches in their program — should be trained in basic principles of positive youth development and brain-aware coaching.
- Enabling coaches to be more responsive to the individual needs of each athlete by learning about and connecting with that athlete's web of support — parents, relatives, teachers, mentors, faith leaders, as well as medical and mental health providers.
- Creating sport environments that are developmentally appropriate, human-centered, and relationship-driven. Sport programs that prioritize these elements create the best places for young people to thrive and develop as athletes.

Appendix: Measures Index

Measures for Sport Participation

Question: In which competitive sports (if any) did you participate during the LAST 12 MONTHS? Include school, community, and other organized sports. (Mark all that apply.)

(1) Baseball/Softball
(2) Basketball
(3) Cheerleading
(4) Cross Country
(5) Football
(6) Golf
(7) Lacrosse
(8) Soccer
(9) Swimming and Diving
(10) Tennis
(11) Track and Field
(12) Volleyball
(13) Wrestling
(14) Crew
(15) Equestrian
(16) Field Hockey
(17) Gymnastics
(18) Ice Hockey
(19) Water Polo
(20) Weightlifting
(21) Other Sport

Participates in at least one sport: if a respondent marked at least 1 of the 2 sports listed.

Number of sports: if a respondent only marked one of the sports (participates in only one sport); if a respondent marked two or more of the sports (participates in two or more sports).

Measures for Physical Activity and Rest

Question: How often do you...
(1) Exercise vigorously (jogging, swimming, calisthenics, or any other active sports)?
(2) Get at least seven hours of sleep?

Response options: Never, Seldom, Most Days, Nearly Every Day, Every Day – RECODED [Never, Seldom, Most Days = 0; Nearly Every Day, Every Day = 1]

Question: During the LAST 7 DAYS, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increased your heart rate and made you get out of breath some of the time.)

Response options: 0="0 days," 1="1 day," 2="2 days," 3="3 days," 4="4 days," 5="5 days," 6="6 days," 7="7 days" — RECODED [0 days = 0; 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, 7 days = 1]

Measures for Academic Achievement

Question: Compared with others your age throughout the country, how do you rate yourself on school ability?

Response options: 1="Far Below Average," 2="Below Average," 3="Slightly Below Average," 4="Average," 5="Slightly Above Average," 6="Above Average," 7="Far Above Average" — RECODED [Far Below Average, Below Average, Slightly Below Average, Average, Slightly Above Average = 0; Above Average, Far Above Average = 1]

Question: How intelligent do you think you are compared with others your age?

Response options: 1="Far Below Average," 2="Below Average," 3="Slightly Below Average," 4="Average," 5="Slightly Above Average," 6="Above Average," 7="Far Above Average" — RECODED [Far Below Average, Below Average, Slightly Below Average, Average, Slightly Above Average = 0; Above Average, Far Above Average = 1]

Question: Which of the following best describes your average grade so far in high school?

Response options: 9="A (93-100)," 8="A- (90-92)," 7="B+ (87-89)," 6="B (83-86)," 5="B- (80-82)," 4="C+ (77-79)," 3="C (73-76)," 2="C- (70-72)," 1="D (69 or below)" – RECODED [B+ (87-89), B (83-86), B- (80-82), C+ (77-79) , C (73-76), C- (70-72), D (69 or below) = 0; A (93-100), A- (90-92) = 1]

Question: How likely is it that you will do each of the following things after high school?
(1) Graduate from college (four-year program)
(2) Attend graduate or professional school after college

Response options: 1="Definitely Won't," 2="Probably Won't," 3="Probably Will," 4="Definitely Will" – RECODED [Definitely Won't, Probably Won't, Probably Will = 0; Definitely Will = 1]

Measures for Psychological Health

SELF-ESTEEM Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the four items for has an alpha of .831]
(1) On the whole, I'm satisfied with myself
(2) I take a positive attitude toward myself
(3) I feel I am a person of worth, on an equal plane with others
(4) I am able to do things as well as most other people

Response options: 1="Disagree," 2="Mostly Disagree," 3="Neither," 4="Mostly Agree," 5="Agree"

FATALISM Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the two items has an alpha of .571]
(1) Every time I try to get ahead, something or somebody stops me
(2) People like me don't have much of a chance to be successful in life

Response options: 1="Disagree," 2="Mostly Disagree," 3="Neither," 4="Mostly Agree," 5="Agree"

SELF-EFFICACY Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the three items has an alpha of .566]
(1) Planning only makes a person unhappy since plans hardly ever work out anyway
(2) When I make plans, I am almost certain that I can make them work
(3) Planning ahead makes things turn out better

Response options: 1="Disagree," 2="Mostly Disagree," 3="Neither," 4="Mostly Agree," 5="Agree"

LONELINESS Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the three items has an alpha of .748]
(1) A lot of times I feel lonely
(2) I often feel left out of things
(3) I often wish I had more good friends

Response options: 1="Disagree," 2="Mostly Disagree," 3="Neither," 4="Mostly Agree," 5="Agree"

SELF-DEROGATION Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the four items has an alpha of .871]
(1) Sometimes I think that I am no good at all
(2) I feel I do not have much to be proud of
(3) I feel that I can't do anything right
(4) I feel that my life is not very useful

Response options: 1="Disagree," 2="Mostly Disagree," 3="Neither," 4="Mostly Agree," 5="Agree"

SOCIAL SUPPORT Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the three items has an alpha of .759]
(1) There is always someone I can turn to if I need help
(2) There is usually someone I can talk to if I need to
(3) I usually have a few friends around that I can get together with

Response options: 1="Disagree," 2="Mostly Disagree," 3="Neither," 4="Mostly Agree," 5="Agree"

DEPRESSION Question: Do you agree or disagree with each of the following? [NOTE: the combined construct of the three items has an alpha of .779]
(1) Life often seems meaningless
(2) The future often seems hopeless
(3) It feels good to be alive
(4) I enjoy life as much as anyone

Response options: 1="Disagree" 2="Mostly Disagree" 3="Neither" 4="Mostly Agree" 5="Agree"

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