



CURLING IN AMERICA

A Profile of Participants and Opportunities for Continued Growth

A national study conducted by
NC State University, October 2023
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**NC STATE
UNIVERSITY**

Background

Despite the well-documented physical and psychosocial benefits of sports participation, it remains the least engaged form of physical activity (PA) among adults (Eime et al., 2016; Physical Activity Council, 2018; Van Tuyckom, Scheerder, & Bracke, 2010). Beyond the more common barriers of time and money, many adults may lack the specific skill set necessary to play or continue to play sports. Leisure theory suggests that a perceived lack of appropriate sports skills can inhibit or prevent participation (Kassavou et al., 2014; Koeneman Koeneman, Verheijden, Chinapaw, & Hopman-Rock, 2011; McPhee et al., 2016). With motor performance beginning to deteriorate at some stage in adulthood (McMorris, 2004) even adults with a diverse array of sports skills accumulated through their lifespan may resist engaging in familiar sports as they age for fear of performance failure. A key factor for enduring involvement in any leisure activity is a sense of performance competence and a moderate level of self-efficacy (Yu, & Song, 2022). Therefore, while many adults may possess a repertoire of sports skills accumulated through involvement in sports as a child and young adult, as motor performance deteriorates so too do one's sports skills compromising their perceived ability to participate.

Age stereotypes have also been identified as factors influencing individual leisure choices and behavior patterns. The stereotype embodiment theory argues that age stereotypes are internalized after repeated and consistent reinforcement throughout the lifespan resulting in a diminishing perception of capabilities with age (Levy, 2009). The result is a reduction in one's perception of their ability to engage in certain behaviors as they age (e.g., reduced self-efficacy) and fear-induced avoidance of certain activities (Liu-Ambrose, Khan, Eng, Lord, & McKay, 2004). Since all sports have a skill-based requirement for participation, aging adults are more likely to avoid participation for fear of poor performance or injury. Moreover, the barriers to sports participation among an aging population in a culture that equates aging to a decline in physical and cognitive abilities represent a significant challenge. However, while the repertoire of sports opportunities certainly decreases with age, some promising developments may circumvent the ageism dilemma. For example, the sport of curling shows great promise for adults seeking new opportunities to participate in an activity that is relatively easy to learn, engaging, competitive, social, and physically active.

Curling is a moderate-intensity team sport comprised of four interchangeable positions (the curler, the skip, and two sweepers) working collectively to deliver 44-pound granite stones across a sheet of ice in an effort to outscore the opponent team by stopping their stones as close as possible to the target house (Bradley, 2009; Steele, Johnson, & Kraft, 2014). A typical curling match will last for two hours, during which time participants often experience bouts of moderate to vigorous physical activity as well as balance, coordination, and muscular strength. Additionally, participants engage in multitasking, and strategic reasoning (Auld & Kiv, 2010; Bradley, 2009; Willoughby & Kostuk, 2005). Curling also facilitates social connectedness both within and between teams and requires a constant flow of communication among team members during the game (Leipert et al., 2011; Lethem, Slade, Troup, & Bentley, 1983). Furthermore, curling may be an ideal sport to promote for most adults since it can be easily adjusted for novices and can cater to most physical challenges without compromising the integrity of the game (Leipert et al., 2011). Typically viewed as a Winter sport, curling has long been considered a popular leisure activity in countries like Scotland, Canada, and Sweden. Following its debut as an Olympic sport at the 1998 Winter Olympics in Nagano, curling in the United States has experienced steady growth over the past 20 years. According to USA Curling, there are over 185 curling clubs across the nation and approximately 23,500 curling participants (USA Curling, 2023). While this pales in comparison to Canada where in 2014 it was reported that more than 700,000 or 2.3 percent of the Canadian population reported curling at an estimated 1,500 clubs across the country (Potwarka, Wilson, and Barrick 2014) continued growth in the United States is noteworthy.

Despite its growing popularity as both a spectator and participation sport, we know very little about the composition of curling participants in the United States. While the principles of curling suggest that it may be an ideal opportunity for adults to engage in sports throughout the lifespan, its growth in nontraditional areas of the country (e.g., North Carolina, Florida, and Texas) indicates that a key first step in promoting curling as a sports opportunity for adults at all ages is to determine who is currently participating and why they curl. For example, at the Triangle Curling Club, in Durham, North Carolina the club was established in 1995 with a small group of members predominantly relocated residents from northern States and Canada. In 2023 the club reported a membership of over 300 adults with over 700 people participating in learn-to-curl programs during a one-week period following the 2022 Winter Olympics. Therefore, the purpose of this study was to examine the demographics of current curling participants at curling clubs across the United

States. Relevant research on curling participants predominantly in a Canadian context, suggests that it's a versatile sport that would fit the physical activity needs of an older adult population (Stone, Rakhamilova, Gage, Baker 2018). It as also been noted that curling participants are predominantly white, upper-class, and male (Conti, 2022). However, to date, there is no research on the curling population in the United States. This study further examined curling participation and consumption as well as how participants were introduced to the sport, reasons for curling, and the welcoming and inclusive nature of curling clubs.

Methods

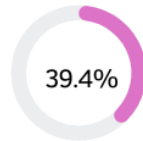
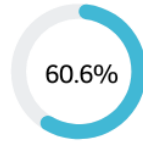
Between the months of October 2022 and February 2023, with the assistance of USA Curling's membership office, a survey was sent to all USA Curling club presidents across the United States. Curling club presidents were asked to send a survey recruitment email to their members inviting them to participate in a national survey about participation in the sport. Survey items included questions about the participant (e.g., demographics), how long they had been curling, how often they curl and at what level, where they started curling and how they were introduced to the sport, where they currently curl, why they participate in the sport, and questions about participants perception of the welcomeness of the place where they normally participate in curling. An announcement about the survey was also published in USA Curling's national online newsletter that included a direct hyperlink to the online survey. Completing this survey was voluntary, individual responses were anonymous, and data were analyzed and reported in aggregate form.

Results

The survey data collection period resulted in 1,551 respondents to the survey. Survey responses were cleaned by removing those that left more than 50 percent of questions unanswered and those that took less than one minute to complete the survey yielding a final dataset of 1,414 responses. Descriptive analyses were completed for all survey items and MANOVA was used to analyze questions with scaled response categories.

Although survey responses were received from 47 States and the District of Columbia the top five responding States were Wisconsin (12.5%), North Carolina (11.3%), Minnesota (9.2%), Ohio (8.5%), and Michigan (6 %).

Gender

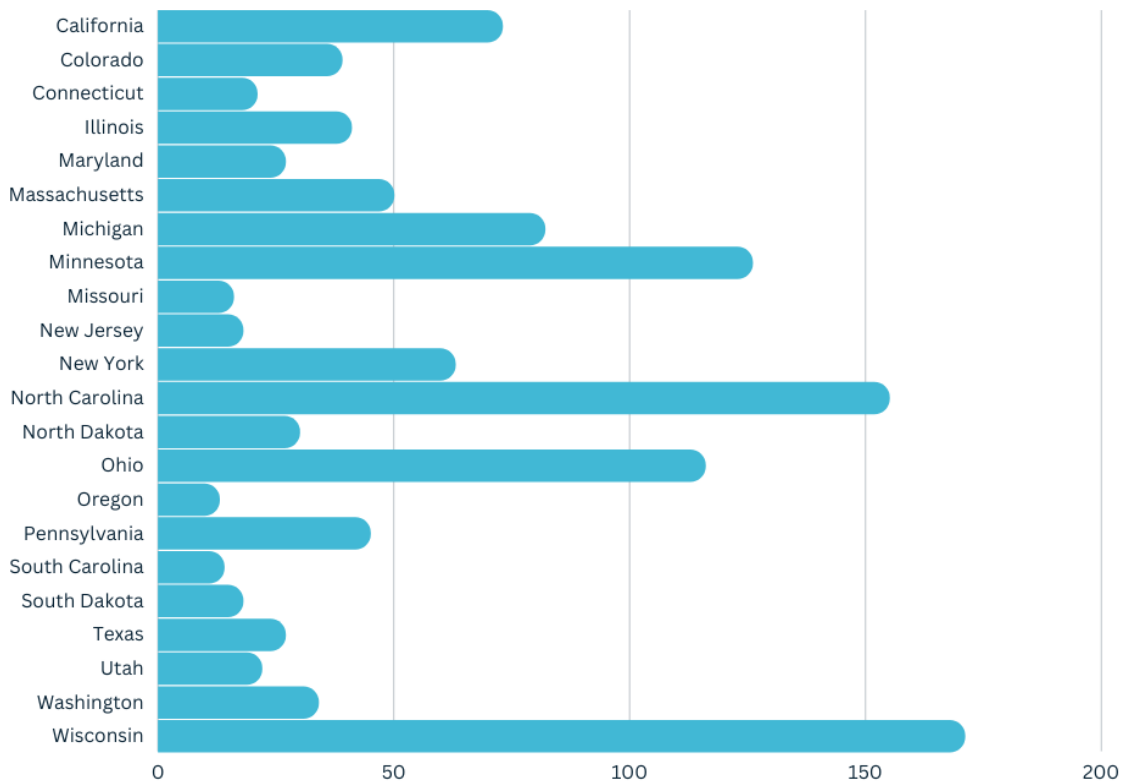


More respondents identified as male (60.6%) than female (39.4%). However, 8 percent of respondents also identified themselves as lesbian, gay, bisexual, pansexual, or asexual. Although the sport of curling has been associated with an older adult population, the majority of participants ranged between the ages of 25 and 54 (62.2%).

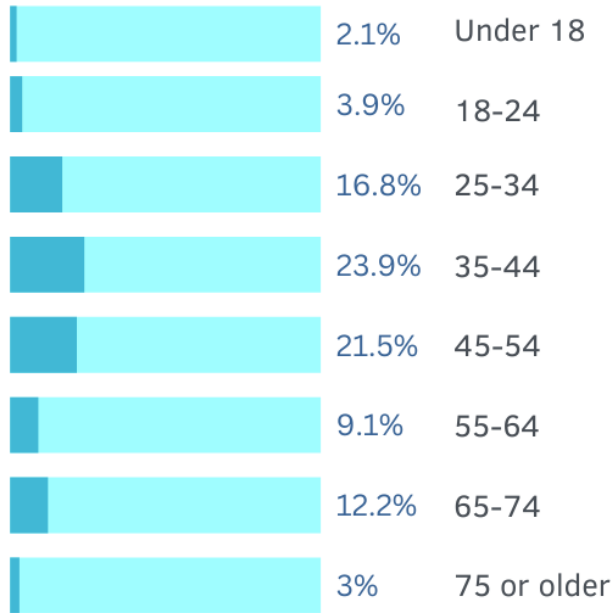
Respondents were also predominantly white (95%), had at least a Bachelor's degree (83.3%), were married or in a domestic partnership (68.6%), were employed (65%), and had a household income over \$100,000 (68.4%).

87 percent of respondents did not have a disability, and 79.4 percent did not have child or elder care responsibilities.

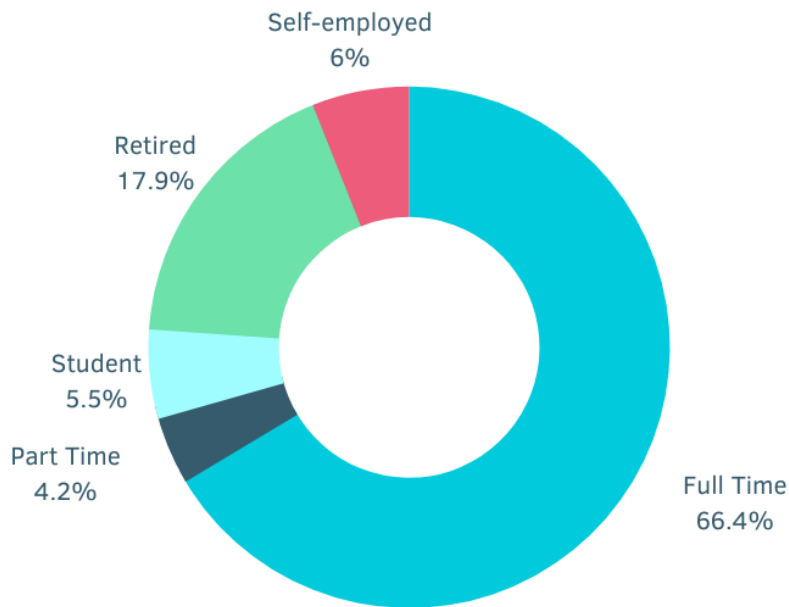
Responses by State



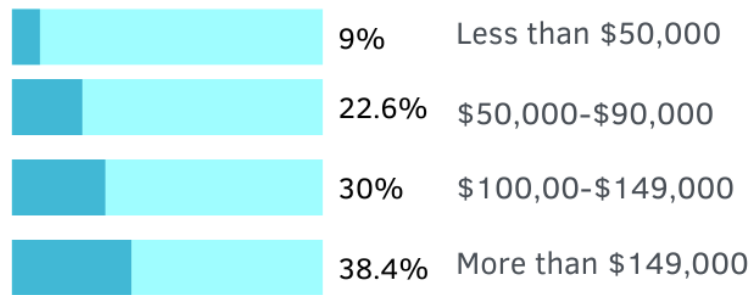
Current age



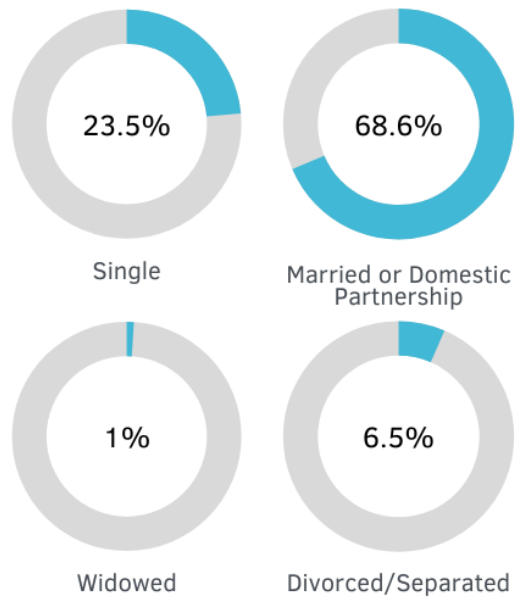
Employment Status



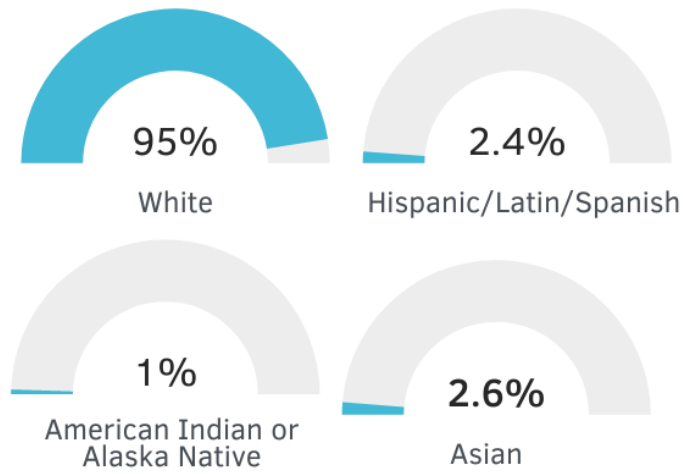
Annual Household Income



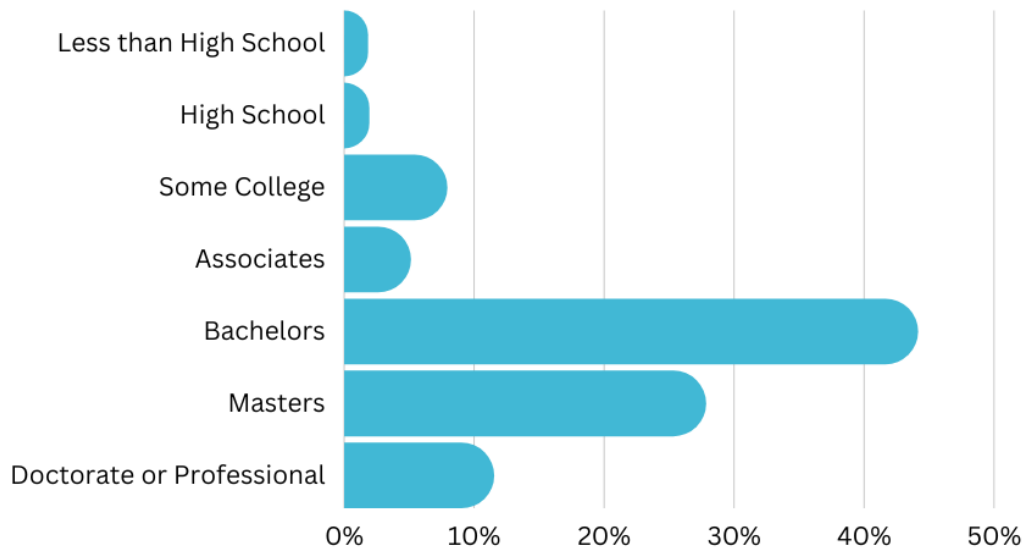
Marital Status



How would you describe yourself?



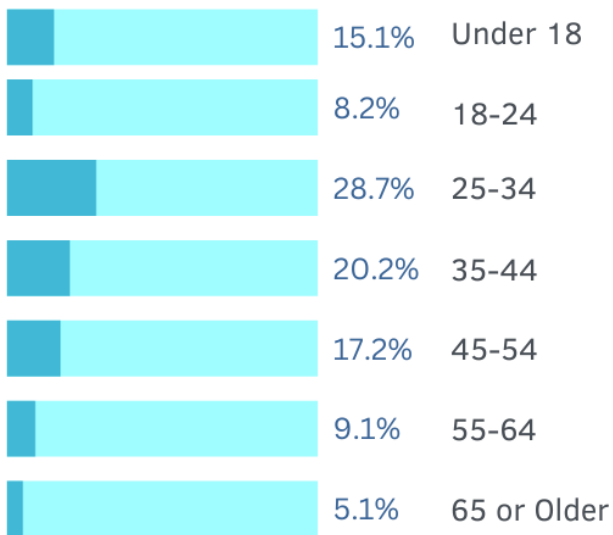
Highest Level of Education



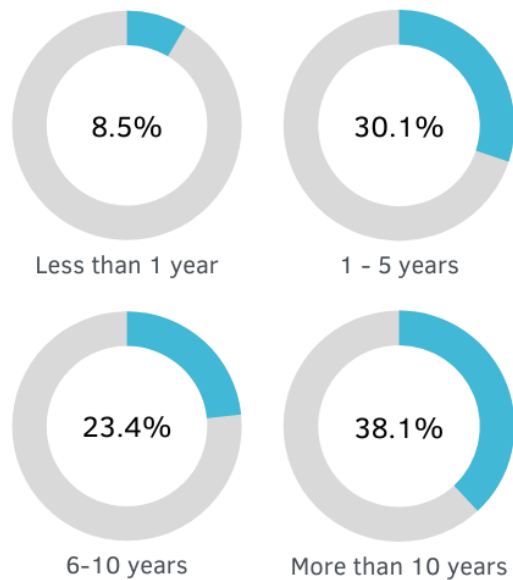
Curling Participation

Respondents had a relatively diverse array of curling participation.. While a majority of respondents had been curling for more than six years (61.5%), there were a relatively large number of participants with less than 5 years of experience (38.6%) and over 75% of respondents did not start curling until the age of 25 or older. Given the size and diverse nature of the United States and that States, it seemed reasonable that curling participants in colder states (e.g., Minnesota, Wisconsin) would be introduced to curling at a younger age. Results do indicate that both Minnesota and Wisconsin had a significantly larger percentage of early-age curlers (34% and 22% respectively) when compared to a southern State like North Carolina which only had nine percent of respondents indicate they started curling under the age of 19.

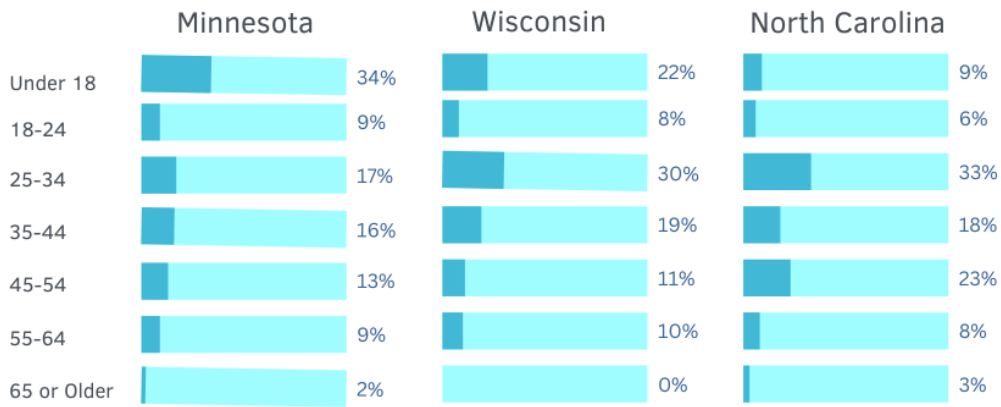
How old were you when you first started curling?



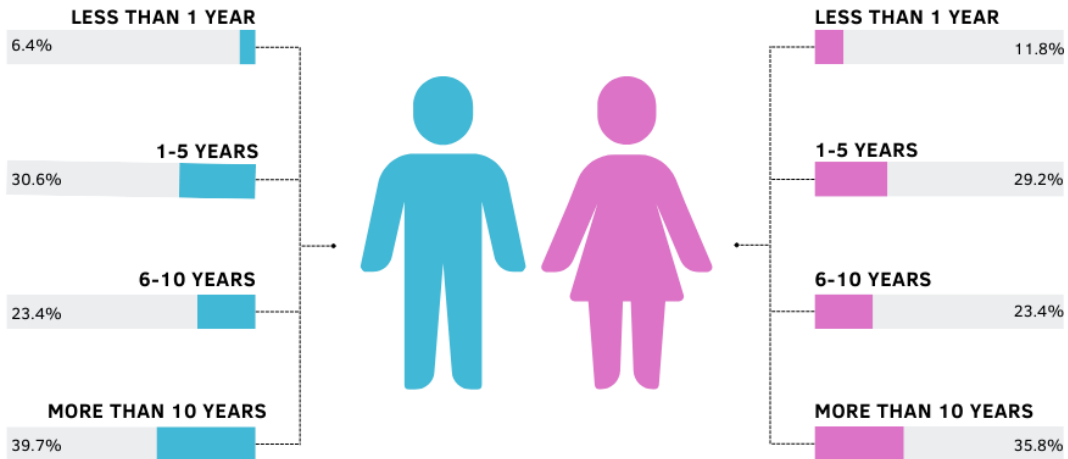
How long have you been curling?



State comparisons for age of initial introduction to curling



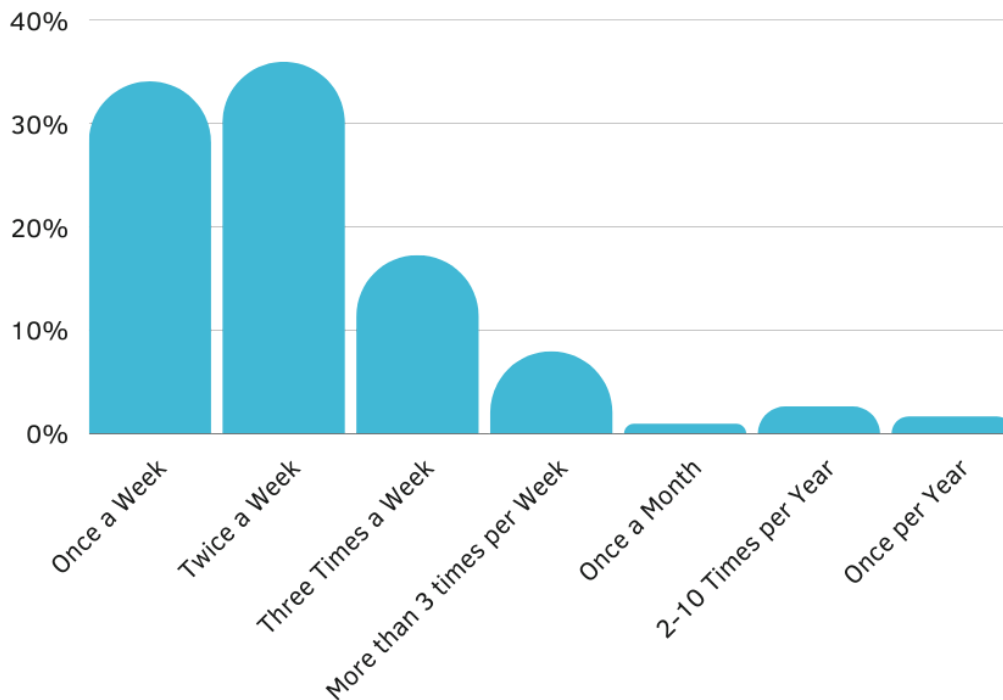
Years Curling



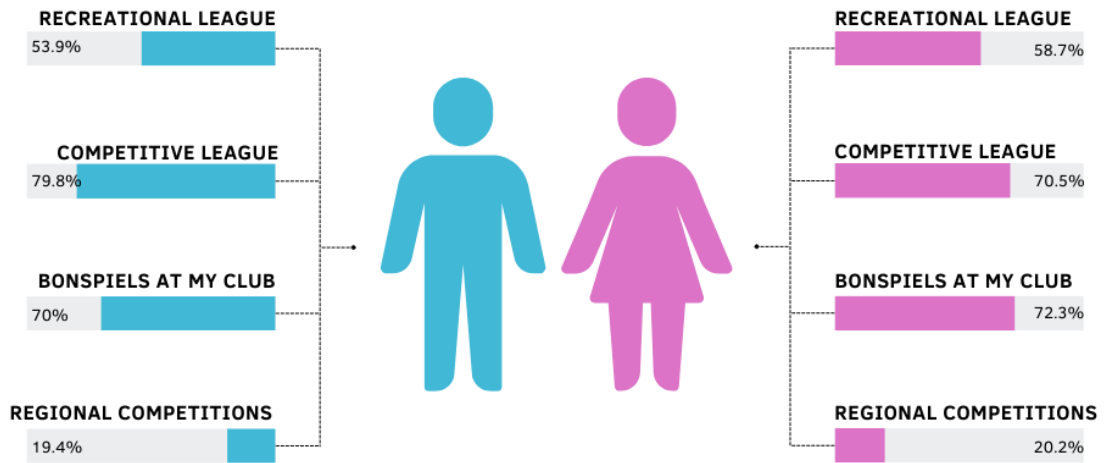
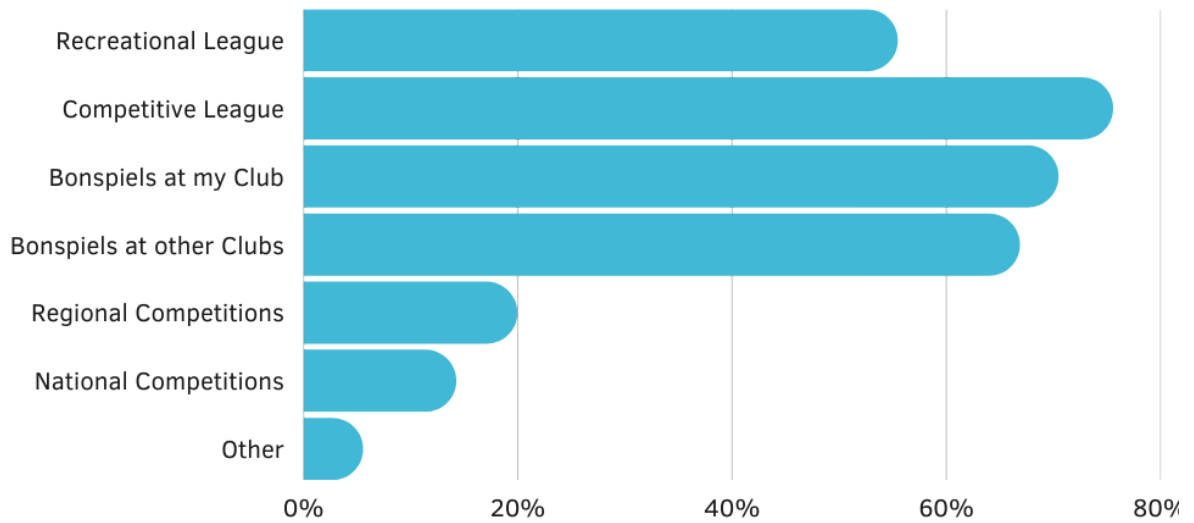
There was also a small difference between men and women curlers with more women having less than 5 years of experience (41%) than men (37%) and more women (25%) starting to curl at a younger age than men (21%).

Most of the respondents indicated that they curled at least once per week during the curling season, played in a competitive league (75.5%) (i.e., set teams with league standings) rather than a recreational league (55.4%) (no set teams or standings), and participated in bonspiels either at their club (70.4%) or at other locations (66.8%). A comparison of male and female respondents indicated that women were slightly more inclined to participate in recreational leagues than men where a higher percentage of males (80%) than females (70%) participated in competitive leagues.

How often do you curl?

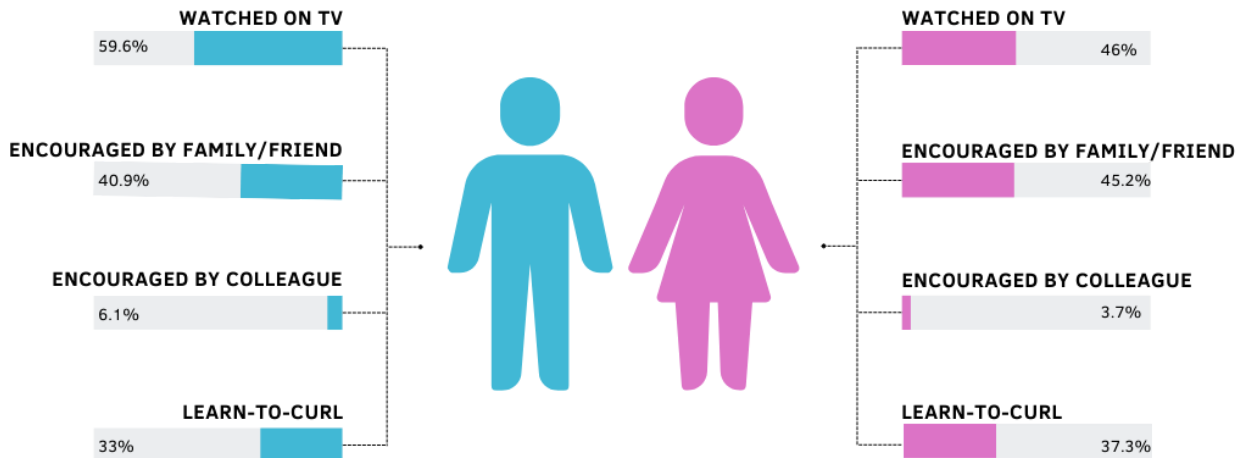
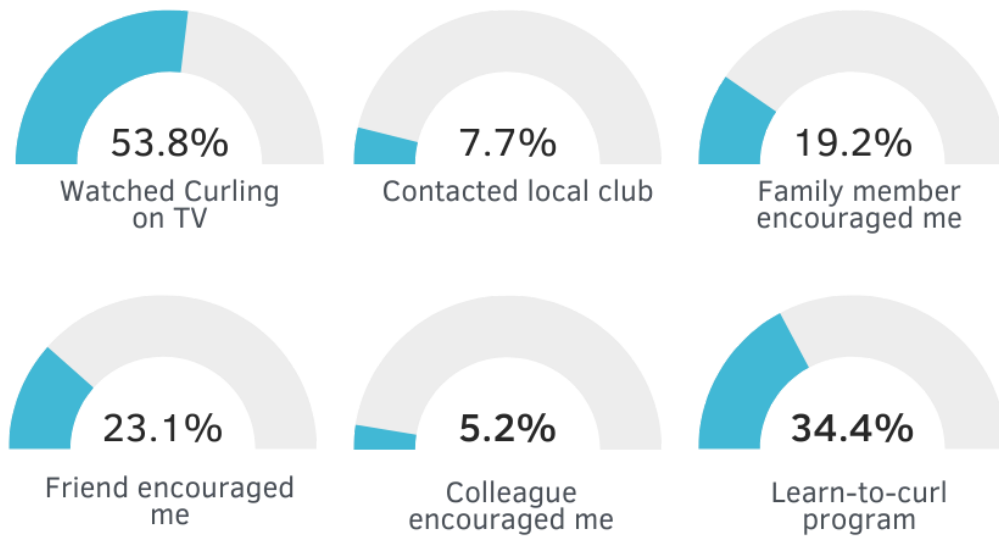


What curling activities do you participate in?



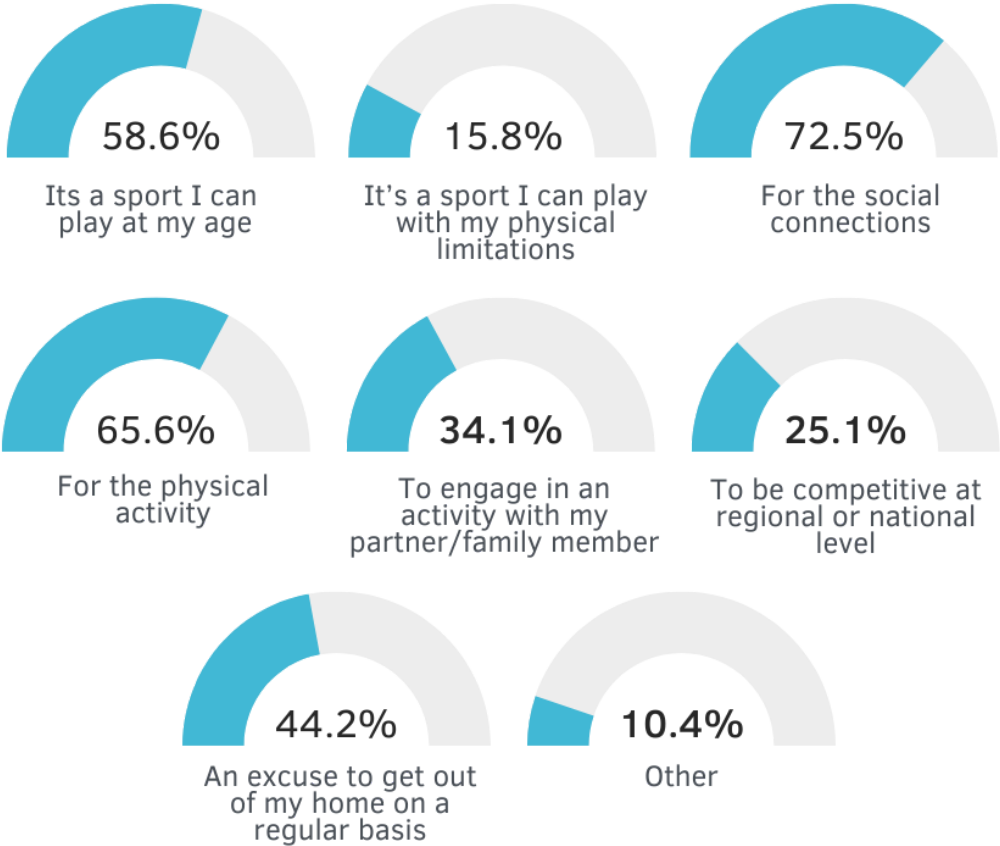
When asked how they were first introduced to curling, the most frequently cited responses were that they had watched curling on TV (53.8%) and participated in a learn-to-curl program (34.4%). However, fewer women (40%) than men (59.6%) watch curling on TV and more women (37%) than men (33%) participated in a learn-to-curl program. Almost all of the respondents (94.2%) were current members of a curling club and 87.4 percent of these clubs were categorized as private (i.e., Requiring a membership fee).

How were you first introduced to curling?



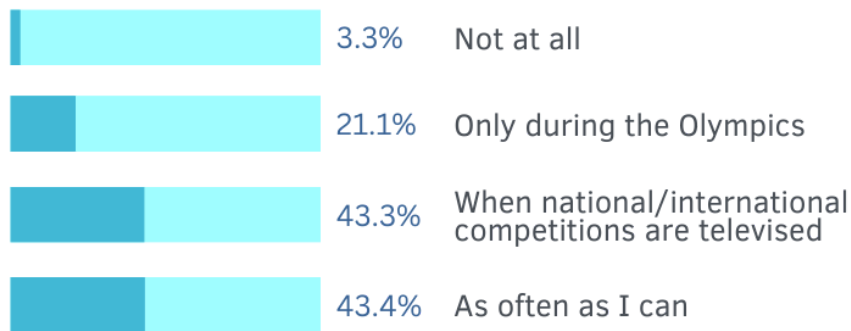
Although respondents indicated a variety of reasons why they participate in the sport of curling, the most common reasons were for social connections (72.5%) and physical activity (65.6%), and it's a sport they can play at their current age (58.6%). 44.2% of respondents also said it gives them an excuse to get out of the home on a regular basis but only 15.8% said it's a sport they can play with physical limitations.

Why do you curl?



Within the United States, the growth of curling has been attributed in part to its inclusion as an Olympic sport and the subsequent national coverage on television and online. When asked how often they watched curling on TV or online 42.8 percent of respondents said they watched as often as they can with only 3.3% not watching at all.

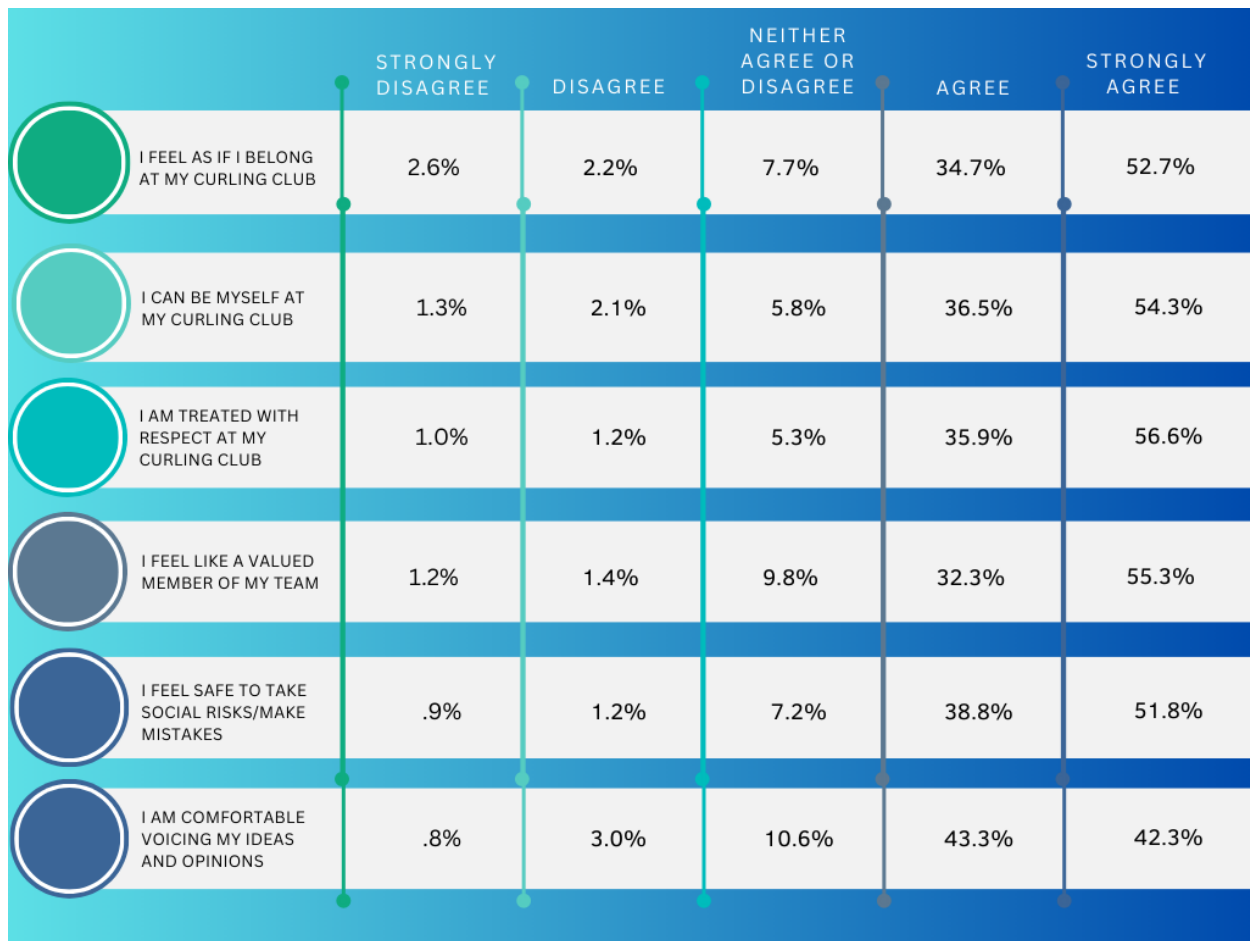
How often do you watch curling on TV or online?



Diversity, Equity & Inclusion Perceptions

Several survey questions were included in an effort to determine the welcomeness or inclusive nature of curling clubs where survey participants belonged. Response distributions for each question are presented below. Generally speaking, respondents felt they were treated with respect, felt like they were a valued member of their curling team, felt safe to take social risks, felt comfortable voicing their opinions, and believed improving diversity and inclusion should be a priority at their curling club. However, only 31 percent of respondents believed that their curling club had made sufficient progress towards greater diversity and inclusion.

Diversity, Equity, and Inclusion Question Responses



A multivariate analysis of variance (MANOVA) procedure was performed to examine differences in the DEI items based on age, sex, and curling frequency. Significant ($p < .05$) group differences are reported below:

1. For age, younger participants (< 65 years old) felt safer to take social risks, and voice ideas and opinions. These younger participants also believe that diversity and inclusion should be a priority.
2. Males and females significantly differed on all items. Males felt a greater feeling of belongingness, could be themselves, were treated with respect and valued, were

safe to take social risks and voice ideas and opinions, and felt significant progress on DEI. Females felt more strongly that DEI should be a priority at the club.

- Trends related to how often participants curled showed that those who curled at least once a week (or more) reported significantly higher levels of agreement on items related to belongingness, being themselves, being treated with respect and valued, were safe to take social risks, and voice ideas and opinions.

Diversity, Equity, and Inclusion Question Responses by Years Curling

	LESS THAN 1 YEAR	1-5 YEARS	6-10 YEARS	MORE THAN 10 YEARS
 I FEEL AS IF I BELONG AT MY CURLING CLUB	3.62*	4.19	4.46	4.48
 I CAN BE MYSELF AT MY CURLING CLUB	3.81*	4.33	4.53	4.46
 I AM TREATED WITH RESPECT AT MY CURLING CLUB	3.97*	4.41	4.56	4.49
 I FEEL LIKE A VALUED MEMBER OF MY TEAM	3.81*	4.28	4.48	4.53
 I FEEL SAFE TO TAKE SOCIAL RISKS/MAKE MISTAKES	4.14*	4.36	4.43	4.45
 I AM COMFORTABLE VOICING MY IDEAS AND OPINIONS	3.90*	4.16	4.30	4.30

* Indicates value was significantly different from other columns

Diversity, Equity, and Inclusion Question Responses by Gender

	MALE	FEMALE
I FEEL AS IF I BELONG AT MY CURLING CLUB	4.38*	4.27
I CAN BE MYSELF AT MY CURLING CLUB	4.47*	4.32
I AM TREATED WITH RESPECT AT MY CURLING CLUB	4.51*	4.39
I FEEL LIKE A VALUED MEMBER OF MY TEAM	4.46*	4.29
I FEEL SAFE TO TAKE SOCIAL RISKS/MAKE MISTAKES	4.45*	4.33
I AM COMFORTABLE VOICING MY IDEAS AND OPINIONS	4.32*	4.11

* Indicates value was significantly different from other column

Summary of Key Findings and Implications

The debut of curling as an Olympic sport in 1998 has clearly impacted the popularity of the sport among a growing segment of the US population. In addition to more than doubling membership in the USA Curling Association since 1998 when TV stations started broadcasting Olympic curling matches, American viewership also increased significantly (Tingley, 2018). According to Tingley, while the sport’s popularity was positively impacted by internationally televised competitions, the translation from sport spectator to sport participant may be attributed to the perceived skills needed to play. Unlike figure skating, ice hockey, skiing, and most Olympic sports where success in competition is attributed to years of training and an elite skill set, curling has been viewed as a sport that not only can be played by anyone but one where participants could be highly competitive in a relatively

short period of time. Following the U.S. men's gold medal performance at the 2018 Winter Olympics, a host of headlines swept across social media platforms with the theme that the men's Olympic curling team looks like a bunch of dads trying to get away from their families for the weekend. While garnering a collective chuckle, a more interesting theme to the newfound popularity of curling was the perception that not only could anyone play the sport, but it was something the average person could play at a highly competitive level. Therein lies a unique benefit of curling, the perception that one can attain a sufficient level of skill to not only play but be successful in a relatively short period of time with no previous experience.

The results of this national survey provide some support for this theory and give us some good initial insights into the population of curlers in the United States. An understanding of current participants is not only important from a local club and national organization's perspective but it can also inform strategies to nurture the growing popularity of the sport. Unlike Scotland, Canada, or Sweden where curling has been an integral part of the culture for generations, curling in the United States is a relatively new phenomenon. It has been well established that the introduction to most sports occurs during childhood years and is predominantly facilitated by family (Bonavolonta et al., 2021). For example, in a Scottish study on curling participation rates, it was reported that most new curlers were attracted to the sport by existing family members or friends and only modest participation increases

Most Americans are attracted to curling by watching it on TV

were realized after national TV exposure during the Winter Olympics (sportsscotland, 2004). However, our survey findings indicate that most curlers in the United States are not introduced to the sport until their adult years and were first introduced to curling by watching it on TV. Additionally, it was reported by the Triangle Curling Club in Durham, North Carolina that in the year following the 2022 Winter Olympics, participation in the club's learn-to-curl program increased by 185 percent from the previous year. While this trend may change as new adult curlers subsequently introduce their children to the sport, it appears that the current best opportunities for the continued growth of the sport should focus on an adult population and capitalize on nationally and internationally televised events. Not only did a majority of survey respondents indicate that they were first introduced to curling by watching it on TV, but 43 percent said they watch curling on TV as often as they can.

A review of survey respondent's characteristics highlights some challenges for the continued growth of the sport. From a gender perspective, it was encouraging to see that while a majority of respondents were male (60.6%) there was a substantial number of female curlers in the sample (39.4%). While this may suggest that women are represented at curling clubs across the U.S. and that new women curlers are finding opportunities to play, further research is needed to determine how welcoming and inclusive curling clubs are to women.

Curlers in the U.S. are white, wealthy, and male

Of greater concern was the dominance of white affluent curlers in the study sample which is consistent with previous research (Conti, 2022). With 95 percent of respondents indicating that they were white and almost 70 percent earning over \$100,000 annually, this suggests that curling in the U.S. could be viewed as a sport for elite white participants. A factor contributing to this trend could be that almost all of the curling clubs in the U.S. are private and require a membership fee to join. Unlike more established curling nations like Scotland, Sweden, and Canada where many curling facilities are publicly owned, curling participation in the U.S. typically requires financial means. While the development of public curling facilities operated by community parks and recreation departments may not be feasible in most States, potential shared-use partnerships between parks and recreation and private clubs could create access opportunities for a more diverse population of participants and have been proven effective with other sports (Kanters, Bocarro, Moore, Floyd, Carlton, 2014).

A growing number of adults believe they can learn and compete

Although access and opportunity are certainly key factors in the growth of any sport, an equally important factor is the perspective participant's perception of their ability to learn the sport and then be successful in it (Yu, & Song, 2022). Curling has been identified as an ideal sport for most

adults since it can be easily adjusted for novices and can cater to most physical challenges without compromising the integrity of the game (Leipert et al., 2011). The recent success of U.S. curling at an International level followed by significant increases in participation at U.S. curling clubs suggests that a growing number of adults believe they could learn and compete in the sport. Findings from our survey support this notion. While the most

frequently cited reasons for curling were social connections and physical activity, almost 60% of respondents indicated that it's a sport they can play at their age. Therefore, while it may appear to be counterproductive to promote curling as a sport that anyone can learn quickly and compete in, this may be an ideal marketing strategy targeted at an aging U.S. population that is looking for opportunities to be more active.

The findings also indicate that most curling participants are still working full time, married, have at least a Bachelors degree, and curl two to three times a week. Therefore, evening and weekend curling opportunities will likely cater to

Evening and weekend curling events work best

most participants. It also appears to be important to offer both recreational and competitive leagues to provide opportunities for new curlers to engage in a less competitive environment but maintain a sufficient number of competitive leagues as curlers progress in their skills.

From a diversity, equity, and inclusion (DEI) perspective it is clear from these findings that curling in the U.S. has some work to do to make it more diverse. While findings from DEI survey questions suggest that participants believe their clubs have an overall welcoming and inclusive atmosphere, the heavy dominance of white and affluent respondents indicates that we don't know how prospective curlers from low-income or racial minority populations would feel. The results of a multivariate analysis of DEI items also indicate that males reported higher levels of agreement on DEI items than females further suggesting that these findings may be biased by an overly homogeneous population of white

Emphasize ways to attract more diverse participants

respondents. It was interesting to learn that participants who only curled once per week reported lower agreement on belongingness items than curlers who participated more frequently. Although all groups of respondents reported high levels of agreement with

the DEI statements, responses from curlers with less than a year of participation had a lower level of agreement with all DEI statements. This suggests that curling clubs could do a better job of creating a welcoming environment for new curlers.

In summary, the sport of curling has experienced remarkable growth in the past 20 years. While success at an international level has certainly been a factor contributing to this

success, the sustained growth of the sport is more likely a function of its ease of entry and accelerated capacity to compete with others. As with any sport, continued growth and diversification of participants will be dependent on access, opportunity, and a welcoming and inclusive culture. It does appear that many clubs, particularly those in southern States offer several opportunities for prospective curlers to participate in an introduction to the sport. However, without an intentional effort to create an inclusive framework in all aspects of the curling club, stand-alone learn-to-curl programs will likely continue to attract the same profile of participants. Cultivating an inclusive environment to create a safe and open environment for new curlers requires a multipronged approach that includes education, open communication, policies and procedures for managing discriminatory behavior, and club priority for creating an inclusive environment (Hugh, et.al., 2017).

It is also important to recognize that while learn-to-curl opportunities are a critical first step to attracting new people to the sport, there also needs to be opportunities for new curlers to continue participation through recreational and competitive league play. The sport of curling clearly represents a great opportunity for adults to engage in sports to facilitate their need for physical activity and social connections. However, as with any sport, initial sport introduction opportunities need to include a pathway for progressive involvement and opportunities for ongoing participation.

Curling needs to include a pathway for progressive involvement and opportunities for ongoing participation

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