

## RESEARCH ARTICLE

# Unveiling the urban sports landscape: Profiling participants, motives, and policy implications

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## Abstract

### Background

The lack of knowledge regarding urban sports poses pressing challenges for governments and sports organisations to deal with in light of its increasing popularity. To develop targeted policy strategies, more insight is needed into the features of urban sports. Therefore, this research aims to establish a profile of urban sports participants in terms of characteristics, behaviours in sports participation, and motives for sports participation.

### Methods

Data was gathered during a large-scale research project on sports participation in the Belgian city of Bruges. A total of 3,951 residents between 6 and 75 years old participated in an online survey. Descriptive statistics and binomial logistic regression analyses were used to examine the differences between urban and traditional sports participants.

### Results

Based on a binomial regression model, the sports level and location significantly predict urban sports participation. The physical motives for sports participation are significantly less important for urban sports participants compared to the group of traditional sports participants. Urban sports participants value the fun and relaxation motives for sports participation significantly more than traditional sports participants.

### Conclusions

This paper aimed to establish a comprehensive profile of urban sports participants and juxtaposed it to that of traditional sports participants. While existing literature often portrays urban sports participants as a relatively homogeneous group, our findings reveal a surprising heterogeneity. Consequently, given its increasing popularity, urban sports present a valuable avenue for governments and sports organisations to engage with a diverse range of sports participants.

**Competing interests:** On behalf of all authors I disclose any competing interests that could be perceived to bias this work.

## Introduction

Since sport is regarded as an important driver of social and economic well-being, it is high on the agenda of local governments and political bodies [1–3]. Specifically, governments—mainly in Western European countries—strive to promote and facilitate sports participation among the non-sporting population and to prevent the interest of sports participants from being lost [4]. By increasing sports participation, governments target societal benefits such as the facilitation of social inclusion and improved physical health and mental health, among other things [5,6]. The Social Return on Investment (SROI) quantifies these aspired societal benefits of sports sector investments. For instance, in England, the SROI ratio was calculated to be 1.91, indicating that every pound invested in sport yielded £1.91 in social benefits [7]. Similarly, in Flanders (Belgium), the SROI ratio in sports is estimated at around 3.5, underscoring the societal value linked to sports participation [8].

However, despite policy efforts to increase sports participation, participation rates have stagnated in recent years [9–11]. At the same time, the existing sports participation is subject to diversification, changing socio-cultural contexts, and social transformation [12]. One of the most notable trends in contemporary sports is the rising popularity of less organised and informal activities. These informal sports have garnered significant interest and now surpass club-organised sports participation rates, which had been the dominant mode for decades [2,13–17]. Moreover, sports behaviour appears to be highly sensitive to societal trends and changes. For example, the recent Covid-19 pandemic had a global impact on sports participation and physical activity. The literature indicates not only a decrease in sports participation but also a significant shift in the organisational setting of sports [3,18,19]. In essence, due to the Covid-19 pandemic, people were obliged to practise sports in an informal and non-organised setting and were therefore forced to use their infrastructure at home or public outdoor urban infrastructure. The Covid-19 pandemic accelerated an existing trend towards, what in the literature has been described as, sport-light, informal, or less-organised sports [17,19].

Alongside and within this trend towards more informal sports settings, since the 1960s and 1970s, there has been the emerging popularity of so-called action sports and lifestyle sports, such as skateboarding, windsurfing, snowboarding, BMX, etc. Action sports and lifestyle sports originated by participants embracing fun, freedom, and fitness and rejecting the traditional and organised aspects of sports [20–24]. In essence, action and lifestyle sports have become more popular and visible over the past five decades as they are experiencing enormous growth in commercialisation with media exposure and sponsorship, and are increasingly part of marketing strategies [23–25]. A prime example of a well-known brand that uses action sports in its promotion is Red Bull. This includes organising major sports events with spectacular tricks in snowboarding, skateboarding, and cliff diving, as well as establishing sponsorship contracts with star athletes in Formula 1, professional cycling, athletics, etc [26–28]. In addition, major events are arising from these action sports blurring the boundaries between entertainment festivals and sporting events [23,29]. This emerging popularity of action and lifestyle sports is also recognised by international sports organisations and institutions. For instance, the International Olympic Committee (IOC) introduced five new action sports, i.e. surfing, skateboarding, 3x3 basketball, sports climbing and BMX freestyle, at the Olympic Games in Tokyo 2020 and has even more action sports scheduled at the Olympics in 2024 and 2028 [30–32].

Consistent with the increasing popularity towards action sports and lifestyle sports is the growing popularity of activities that can be categorised as ‘urban sports’. Specifically, urban sports are defined as free and non-organised sports performed in public spaces, often characterised by a less competitive and more social environment compared to traditional sports [33,34]. Typical urban sports are skateboarding, BMX, step, parkour/freerunning, 3x3 basket,

calisthenics, etc. [35]. However, an unequivocal definition of urban sports does not exist and any non-organised sports activity performed in an urban (sport-specific) public space can be regarded as an urban sports activity. For example, football or basketball on a public square or skateboarding in a public park, also referred to as street sports, are also considered urban sports activities [30,33–38]. Additionally, a less demarcated characteristic of urban sports is the so-called ‘urban culture’ [34,36]. Urban culture is described by Van der Meijde and colleagues (2022) as a term for the close-knit community to which participants in urban sports belong, but also for the ‘show’ element that is typically an important feature of urban sports [34]. According to Van der Meijde and colleagues, this creative part and the urge to push boundaries are the most important distinguishing characteristics of urban sports compared to more traditional sports activities where competition thrives [30,33,34].

In essence, urban sports fall under the broad scope of non-organised or informal sports and can be considered action or lifestyle sports. However, since general informal sports activities, action sports, or lifestyle sports do not necessarily have to be performed in the public spaces of cities, the category of urban sports activities is mainly relevant for city governments and policy-makers. More specifically, despite the absence of participation numbers in urban sports—partly due to the lack of a uniform definition—local governments acknowledge the growing popularity of these activities and increasingly integrate urban sports into their sports policy strategies [30,35,39–44]. For example, in Paris, where parkour originated in the early 1990s, the sport has seen high participation rates, leading the local government to adapt its sport policy strategies by constructing dedicated parkour parks and integrating parkour-friendly features into public spaces [45,46]. Similarly, in Barcelona, the widespread popularity of skateboarding has prompted the city to develop multiple dedicated skateparks and incorporate skateboarding-friendly elements into urban planning, enhancing public spaces for both residents and tourists [47,48].

In sum, policymakers consider urban sports to be highly valuable for cities and their inhabitants. These sports are perceived as catalysts for healthy lifestyles and cooperation due to their recreational, non-competitive, and community-oriented nature [35]. Furthermore, the instrumentalisation of urban sports for societal benefits is deemed particularly effective for several vulnerable groups, such as individuals living in poverty and people with a migration background [22,35,36,49]. Urban sports are especially considered successful in reaching social groups that are generally believed to be difficult to engage, owing to their low cost of participation and equipment, and the accessible locations near cheaper, smaller housing [33,35,50]. Therefore, local governments instrumentalise urban sports to promote integration and well-being, and to increase participation in the welfare state of relatively underrepresented groups [51]. Additionally, urban culture is considered to create new communities of young people, enhancing the city’s image and generating economic value by making the city more attractive [22,34–36,49]. This institutionalisation and formalisation of urban sports within the sport landscape is often referred to as ‘sportisation’ [52,53]. ‘Sportisation’ specifically refers to the process of incorporating ‘play-like’ activities into the structure of sports, transforming them into more competitive, regularised, and rationalised endeavours [54,55]. Urban sports are undergoing this organisational development, adopting rules and structures [52,53]. For example, Larsen (2022) delineated the evolution of parkour in Denmark from its origins as a self-organised and play-centric pursuit to a structured discipline marked by weekly training sessions, formal associations, and dedicated sports facilities [52,53].

Yet, despite this ‘sportisation’ of urban sports, literature is scarce and many questions remain unanswered. The lack of knowledge regarding urban sports poses pressing challenges for local governments to deal with in light of its increasing popularity. More specifically, in order to develop targeted policies to promote and facilitate urban sports, more insight is needed into the profile, preferences and main drivers of those who participate in urban sports.

Therefore, this research aims to investigate (i) the demographic profiles, (ii) the behavioural patterns, and (iii) motivational factors in urban sports, juxtaposed against those prevalent among participants in traditional sports. To examine the difference between the urban sports participant and the traditional sports participant, we draw on data gathered during a larger sports participation study in the city of Bruges (Belgium) [56]. In the following section, we discuss the research context in more depth.

## Material and methods

### Research context

This paper focuses on Belgium, specifically the city of Bruges. Belgium is a rather small country in Western Europe with approximately 11.5 million inhabitants and a strong welfare state [57]. It is a federal state comprising three regions and three communities, divided by language: the Flemish, French, and German-speaking. These communities are each independently responsible for matters such as healthcare, education and culture. Also, sport policy in Belgium falls under the jurisdiction of the three communities separately. Consequently, unlike other federal states, Belgium does not have a national sports policy [57].

Bruges, located in the province of West Flanders, has a population of 118,861 [56]. This study in particular focusses on Bruges, since all data was collected from Bruges citizens. More detailed information on the data collection process is provided in the following section.

### Data collection

The data used in this paper were collected as part of a larger research project on sports participation within the population of the city of Bruges in Flanders. The goal of this study was to acquire insight into the sports and physical activity behaviour of residents in Bruges. For a detailed methodology of the broader research project on sports participation in Bruges, we refer to the work of Scheerder and Huyghe (2023) [56]. The data collection method relevant to this paper is described below.

A total of 25,449 inhabitants of Bruges aged 6 to 75 years were sampled out of an anonymised city register and were contacted by letter to participate in an online survey concerning their participation in sports and physical activity. The inhabitants of Bruges were randomly selected, based on seven demographic characteristics (gender, age, level of education, employment status, nationality, postal code, and family type) to improve representativeness. Qualtrics XM software was used for the survey. The data collection took place from the 6<sup>th</sup> of June 2022 until the 24<sup>th</sup> of July 2022. After data collection, weight coefficients were calculated and applied to ensure representativeness with respect to gender, age, and level of education [56]. Ultimately, we obtained a weighted dataset of 3,951 individuals aged 6 to 75 years, representative of the city of Bruges in terms of gender, age and level of education. All data was submitted as part of the paper (S1 File). Before participating in the survey, participants signed a written informed consent, minors were obliged to have consent from their parents, who in that case had to sign the informed consent.

Ethical guidelines were followed and ethical approval for the data collection was given on 25<sup>th</sup> of April 2022 by the Sociaal-Maatschappelijke Ethische Commissie (SMEC) of the KU Leuven (G-2022-4993-R2(AMD)). An informed consent was signed by all participants.

### Variables

The full survey contained twelve themes of which three were used in this paper: (i) socio-demographic characteristics, (ii) sports participation, and (iii) motives to participate in sports.

Table 1. Independent variables of sports participation criteria.

Variables	Categories	Description
Gender	Men	/
	Women	
Age	6–12 years old	/
	13–18 years old	
	19–30 years old	
	31–45 years old	
	46–65 years old	
	66–75 years old	
Level of education	Higher education	Higher professional education or university
	Middle education	Secondary education
	Lower education	No education or primary education
	Still in education	Students
Practised sports	/	Survey participants were asked to rank their three most practised sports activities. After that, the participants were asked to also list other sports they practised in the past year.
Frequency of sports participation	Less than once a week (1–27 times per year)	Frequency of sports participation was represented as the number of times per year the participants practised their three main sports.
	Once a week (27–52 times per year)	
	More than once a week (more than 52 times per year)	
Time per sports session	Less than one hour per sports session (1–59 min per sports session)	Time per sports session was represented as the average time (in minutes) per sports session.
	One hour or more per sports session (60 min or more per sports session)	
Level of sports participation	In a recreational way only	Level of sports participation was examined by asking the respondents if they practise their sports activities in a 'competitive' way, in a 'recreational' way or in a 'competitive and recreational' way. Resulting in three categories for the level at which the sports are practised. Because only 2.4% of the Bruges sportive population practised sports on a competitive level only, these three categories were recoded into two categories.
	In a competitive and recreational way	
Organisational setting of the sports activities	Organised sports activities only	Organisational setting of the sports activities was queried for each sports activity separately. Participants had thirteen answer options and multiple answer options could be chosen. These were recoded into two variables.
	Non- or self-organised sports activities	
Location of sports activities	In the public space	Location of sports activities was queried for each sports activity separately. Thirteen answer options were possible and multiple answer options could be chosen. These thirteen options were recoded in two new variables. Respondents were allocated as 'in the public space' if they practised their sports in a public park on the street on a public square and/or in the forest/outdoors/nature.
	Never in the public space	
Sports companionship	At least sometimes alone	Sports companionship was measured by asking in which companions the participants usually practise their sports activities. There were seven answer options with different categories of companions, multiple answer options could be chosen.

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Data concerning the latter two themes were only collected among participants who practised sports in the past year.

**Independent variables.** Table 1 shows all the independent variables utilised in this research, except for the motives for sports participation. Socio-demographic characteristics including gender, age, and level of education were considered. In addition, the survey contained detailed questions concerning sports participation, encompassing variables such as (i) practised sports, (ii) frequency of sports participation, (iii) time per sports session, (iv) level of sports participation, (v) organisational setting of sports activities, (vi) location of the sports activities, (vii) sports companionship, and (viii) participants' motives to participate in sports.

**Table 2. Summary of exploratory factor analysis results for the sixteen motives to participate in sports (N = 2,642).**

Motives to participate in sports	Physical motives	Social motives	Satisfaction and recognition motives	Fun and relaxation motives
My health is improving	<b>0.812</b>			
My body becomes more beautiful	<b>0.755</b>			
My physical condition is improving	<b>0.754</b>			
I lose weight	<b>0.714</b>			
I get to know new people		<b>0.737</b>		
I am with my friends		<b>0.717</b>		
It makes me part of society		<b>0.707</b>		
Others stimulated me		<b>0.620</b>		
It is an opportunity to network		<b>0.562</b>	0.486	
Others look up to me			<b>0.674</b>	
I earn money			<b>0.597</b>	
I feel the kick			<b>0.591</b>	0.539
It is a compensation for my hard work-life			<b>0.548</b>	
I can compete			<b>0.540</b>	0.452
I have fun				<b>0.768</b>
I feel less tension, stress, sadness, or aggression	0.401			<b>0.509</b>
<b>Eigenvalues</b>	2.644	2.481	2.333	1.961
<b>% of variance</b>	16.524	15.506	14.578	12.256
$\alpha$	0.782	0.760	0.678	0.471

Only factor loadings over 0.40 are shown.

The highest factor loading per motive appears in bold.

Dependent variables: Urban sports participants and non-urban sports participants.

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While the operationalisation of the former seven categories is straightforward, we elaborate on the participants' motives. These motives are derived from a scale developed by De Bourdeaudhuij et al. (2005), subsequently updated and validated in Dutch and international literature [58–62]. Based on the above, the current study incorporated sixteen motives for sport participation scored on a Likert scale of 1–7, ranging from 'not applicable to me at all' to 'very applicable to me'.

To streamline variables, a Principal Component Analysis (PCA) with orthogonal rotation (varimax) was conducted on the sixteen items. According to Field's (2009), The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (KMO = 0.786) was 'good'. All individual KMO values are higher than 0.690, which is well above the acceptable limit of 0.500 [63]. Given the significant result of Bartlett's test of sphericity ( $p < 0.001$ ), there were sufficient relationships between the variables which makes a factor analysis appropriate. An analysis to obtain eigenvalues for each component showed four components with an eigenvalue higher than one. These four components explained in total 58.86% of the variance. Since the selection of four components was supported by the scree plot, four components were retained for the final analysis.

Table 2 displays the sixteen motives with their rotated factor loadings per cluster, leading to four components: (i) physical motives, (ii) social motives, (iii) satisfaction and recognition motives, and (iv) fun and relaxation motives. Reliability analysis indicated good scores for physical ( $\alpha = 0.78$ ), social ( $\alpha = 0.76$ ) and satisfaction and recognition motives ( $\alpha = 0.68$ ), while fun and relaxation motives showed relatively lower reliability ( $\alpha = 0.47$ ). Four new variables of clustered motives were created by calculating the average score of the corresponding motives.

Each motive was allocated to the cluster with their highest rotated factor loading which is shown in bold in [Table 2](#).

#### **Dependent variables: Urban sports participants and non-urban sports participants.**

To measure urban sports participation, a new variable was created, as direct inquiry on urban sports participation was absent in the survey. Given the lack of definition for urban sports, as aforementioned, two distinct conceptualisations were employed in this paper.

Firstly, urban sports were identified based on specific sports types. Sixteen sports, drawn from non-exhaustive lists in literature, were classified as urban sports. These sports include 3x3 basket, BMX, breaking, calisthenics, parkour/freerunning, inline/stuntstep, pétanque, skateboard, tricking, bootcamp, boulder, headis, inlineskating, slacklining, tai chi, and urban roundnet (spikeball) [35,64].

Secondly, a broader definition of urban sports was adopted. Individuals engaging in sports activities within non-organised settings and public spaces were categorised as urban sports participants. For example, under this definition, a person playing football with friends in a public park would be considered an urban sports participant.

### **Data analysis**

SPSS 28.0.1.1 was used for statistical analysis. Initially, descriptive statistics were calculated, and Chi-squares were conducted to test for significant differences between sports participants and non-sports participants, as well as between sports participants in general and urban sports participants.

Subsequently, three binomial regression analyses were conducted. The first regression aimed to get insight into the differences in general population characteristics between the sporting and the non-sporting population in Bruges. The next regressions examined the differences between urban sports participants and (more) traditional (non-urban) sports participants, utilising the two abovementioned definitions of urban sports.

These two binomial regression analyses to examine the differences between urban sports participants and non-urban sports participants contained three blocks. The first block consisted of socio-demographic characteristics (gender, age, educational level), the second block contained sports participation (frequency, time per sports session, level, setting, location, companionship) and the third block included the four motivations to practise sports (physical motives, social motives, satisfaction and recognition motives, and fun and relaxation motives).

In the analysis where urban sports participants were defined by the setting and location of their sports activities, the setting and the location variables were excluded to avoid linearity, as these criteria were integral to the dependent variable's definition.

## **Results**

### **Descriptive statistics**

**Total population.** [Table 3](#) presents the descriptive statistics. The weighted dataset contains 3,951 Bruges citizens, with 74.7% reporting sports participation in the past year. Women constitute 50.8% of the total dataset, while men represent 49.2%. Nearly one-third of respondents (31.2%) have a high educational level, and 20.8% are currently in education.

**Sports population.** In the sports-active population, men (51.1%) are slightly more represented than women (48.9%). The highly educated individuals constitute 33.4% of the sports-active population.

The majority of sports participants (69.1%) engage in sports more than once a week, and over half (50.9%) have sports sessions lasting one hour or more. Most participants practise their sports exclusively in a recreational way (70.3%) and in a non-organised setting (73.9%).

Table 3. Descriptive statistics of the variables.

	Total population (N = 3,951)	Sports population (N = 2,950)	Urban sports population (based on specific sports) (N = 171)	Urban sports population (based on location and setting) (N = 755)
<b>Gender (%)</b>				
Men	49.2	51.1	60.8*	53.5
Women	50.8	48.9	39.2*	46.5
<b>Age (%)</b>				
6-12y	8.5	10.6	12.9	9.1
13-18y	7.9	9.6	14.0	10.7
19-30y	16.8	19.9	24.6	23.9**
31-45y	21.4	23.1	23.4	22.7
46-65y	33.2	28.2	12.9**	24.6*
66-75y	12.1	8.6	12.3	8.9
<b>Educational level (%)</b>				
High	31.2	33.4	28.5	31.2
Medium	28.8	26.7	22.7	25.4
Low	19.3	14.3	15.7	17.2*
Still in education	20.8	25.6	33.1*	26.3
<b>Sports frequency (%)</b>				
Less than once a week	-	14.3	11.8	13.1
Once a week	-	13.7	15.3	7.9**
More than once a week	-	69.1	72.3	78.9**
Missing	-	2.9	/	/
<b>Time per sports session (%)</b>				
Less than one hour per session	-	46.0	36.7**	48.2
One hour or more per session	-	50.9	63.3**	51.8
Missing	-	3.0	/	/
<b>Sports level (%)</b>				
Always recreational	-	70.3	58.2**	69.7
Recreational and/or competitive	-	26.7	41.8**	30.3
Missing	-	2.9	/	/
<b>Sports setting (%)</b>				
Organised only	-	23.1	16.6*	0.0**
Non- /self-organised	-	73.9	83.4*	100.0**
Missing	-	2.9	/	/
<b>Sports location (%)</b>				
In public space	-	25.6	52.1**	100.0**
Never in public space	-	71.4	47.9**	0.0**
Missing	-	2.9	/	/
<b>Sports companionship (%)</b>				
At least sometimes alone	-	39.4	36.3	39.8
Always with companions	-	57.7	63.7	60.2
Missing	-	2.9	/	/
<b>Motives mean (SD)</b>				
Physical motives	-	4.74 (1.28)	4.51 (1.24)	4.81 (2.22)
Social motives	-	3.26 (1.29)	3.60 (1.09)	3.41 (3.31)
Satisfaction and recognition motives	-	2.69 (1.18)	2.91 (1.18)	2.85 (1.21)
Fun and relaxation motives	-	5.52 (1.17)	5.75 (1.03)	5.61 (1.10)

\*p&lt;0.05

\*\*p&lt;0.01.

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A little more than a quarter (25.6%) practice sports in public spaces, and 39.4% of the participants sometimes do so without companionship.

Among the motivational categories, fun and relaxation motives have the highest mean score (5.52), followed by physical motives (4.74), social motives (3.26), and satisfaction and recognition motives (2.69).

**Urban sports population (based on specific sports).** Compared to the overall sports population, urban sports participants—defined by specific sports—are significantly more frequently men (60.8%) and tend to be younger (12.9% aged 6–12 years, 14.0% aged 13–18 years, 24.6% aged 19–30 years). The age group of 46–65 years is significantly underrepresented among urban sports participants.

Urban sports practitioners are significantly more often students (33.1%) and have longer sports sessions (63.3% more than one hour per session). They are also more likely to engage in competitive activities (41.8% competitive and/or recreational) and practise their sports more in public spaces (52.1%) compared to non-urban sports participants. Additionally, urban sports participants significantly more often practise in non-organised settings (83.4%).

**Urban sports population (defined by setting and location of sports participation).** The urban sports participants, defined by the setting and location of their sports activities, show less significant differences in sports participation criteria. However, they practise sports significantly more frequently, with 78.9% participating ‘more than once a week’ and only 7.9% ‘once a week’.

Concerning socio-demographic characteristics, the age group of 19–30 years (23.9%) and individuals with lower educational levels (17.2%) are significantly more represented in the urban sports population, while the age group of 46–65 years (24.6%) is less represented.

## Differences between urban sports participants and (more) traditional sports participants

**Urban sports population (based on specific sports).** Table 4 shows the results of the binomial regression analysis comparing urban sports participants to sports participants who do not engage in urban sports, based on specific sports practices in the past year.

The first model, with general population characteristics, explains a small portion of the variance (Nagelkerke  $R^2 = 0.035$ ). Men ( $\exp(\beta) = 1.461$ ) are significantly more likely to participate in urban sports compared to women. Participants aged 46–65 years are significantly less likely to engage in urban sports compared to the youngest age group (6–12 years). However, the low Nagelkerke  $R^2$  indicated limited predictive value from these characteristics alone.

In the second model, shown in Table 4, which includes sports participation criteria, the explanatory power increases (Nagelkerke  $R^2 = 0.106$ ). The age group of 46–65 years remains significantly less likely to participate in urban sports ( $\exp(\beta) = 0.316$ ) than the youngest group, while other general characteristics lose significance.

Sports participation characteristics reveal that urban sports participants are significantly more likely to have sessions lasting one hour or more ( $\exp(\beta) = 1.456$ ) and to engage competitively or recreationally ( $\exp(\beta) = 1.638$ ) rather than solely recreationally. The location of sports activities also shows significant differences: urban sports participants are much more likely to practice in public spaces ( $\exp(\beta) = 3.272$ ) compared to non-urban sports participants. With a Wald statistic of 44.765, the sports location is the most significant predictor of urban sports participation.

In the third model, including motives for sports participation, the Nagelkerke  $R^2$  further increases to 0.119. The age group of 46–65 years continues to be significantly less likely to participate in urban sports ( $\exp(\beta) = 0.354$ ) compared to the youngest group. Other general

**Table 4. Binomial logistic regression analysis of urban sports participants and (more traditional) sports participants (N = 2,635).**

	Model 1: (general population characteristics)			Model 2: (sports participation criteria)			Model 3: (motives for sports participation)		
	$\beta$ (S.E.)	Wald	Exp( $\beta$ )	$\beta$ (S.E.)	Wald	Exp( $\beta$ )	$\beta$ (S.E.)	Wald	Exp( $\beta$ )
<b>Gender (women = ref)</b>									
Men	0.379* (0.168)	5.078	1.461*	0.240 (0.177)	1.845	1.272	0.225 (0.178)	1.596	1.253
<b>Age (6-12y = ref)</b>									
13-18y	0.114 (0.320)	0.127	1.121	-0.095 (0.335)	0.080	0.909	0.028 (0.343)	0.007	1.028
19-30y	0.016 (0.378)	0.002	1.016	-0.182 (0.398)	0.210	0.833	0.071 (0.416)	0.029	1.073
31-45y	-0.345 (0.452)	0.581	0.708	-0.402 (0.475)	0.716	0.669	-0.197 (0.490)	0.162	0.821
46-65y	-1.123*(0.475)	5.577	0.325*	-1.151*(0.498)	5.344	0.316*	-1.039*(0.513)	4.109	0.354*
66-75y	0.078 (0.490)	0.025	1.081	0.035 (0.514)	0.005	1.036	0.107 (0.528)	0.041	1.113
<b>Educational level (high education = ref)</b>									
Medium	-0.166 (0.233)	0.505	0.847	-0.142 (0.237)	0.358	0.868	-0.157 (0.240)	0.427	0.855
Low	0.228 (0.279)	0.664	1.256	0.058 (0.285)	0.041	1.059	0.072 (0.291)	0.062	1.075
Still in education	-0.031 (0.371)	0.007	0.970	-0.092 (0.381)	0.059	0.912	-0.149 (0.385)	0.149	0.862
<b>Frequency (less than once a week = ref)</b>		-							
Once a week	-	-	-	0.485 (0.321)	0.421	1.625	0.440 (0.324)	0.423	1.553
More than once a week	-	-	-	-0.174 (0.268)	2.286	0.840	-0.177 (0.272)	1.851	0.838
<b>Time per sports session (less than one hour per session = ref)</b>		-							
One hour or more per session	-	-	-	0.375*(0.182)	4.232	1.456*	0.343 (0.184)	3.466	1.409
<b>Level (only in a recreational way = ref)</b>		-							
In a competitive and a recreational way	-	-	-	0.493*(0.196)	6.301	1.638*	0.537*(0.219)	6.038	1.711*
<b>Organisational setting (only organised sports settings = ref)</b>		-							
At least sometimes non- or self-organised	-	-	-	0.338 (0.246)	1.887	1.402	0.341 (0.246)	1.922	1.406
<b>Location (never in public space)</b>		-							
In public space	-	-	-	1.185**(0.177)	44.765	3.272**	1.181**(0.178)	44.190	3.256**
<b>Companionship (at least sometimes alone)</b>		-							
Only in companionship	-	-	-	0.134 (0.185)	0.526	1.144	0.034 (0.189)	0.033	1.035
<b>Motives for sports participation</b>									
Physical motives	-	-	-	-	-	-	-0.170*(0.075)	5.096	0.844*
Social motives	-	-	-	-	-	-	0.146 (0.079)	3.394	1.157
Satisfaction and recognition motives	-	-	-	-	-	-	-0.164 (0.100)	2.693	0.849
Fun and relaxation motives	-	-	-	-	-	-	0.220*(0.089)	6.082	1.246*
<b>Model summary</b>									
Nagelkerke R <sup>2</sup>	0.035			0.106			0.119		
Chi-square	34.091**			104.268**			118.071**		
-2 Log likelihood	1171.096			1100.919			1087.116		
Cox & Snell R Square	0.013			0.039			0.044		

$\beta$  = correlation coefficient; S.E. = Standard Error; ref = reference category

Dependent variables: Sports participants practising urban sports (N = 160); sports participants practising other (non-urban) sports (N = 2,475).

\*p<0.05

\*\*p<0.01.

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population characteristics are insignificant. Differences in session duration no longer significantly contribute to variance. However, sports level and location remain significant predictors, with urban sports participants more likely to engage competitively (exp( $\beta$ ) = 1.711) and practice in public spaces (exp( $\beta$ ) = 3.256).

Motivational factors reveal that physical motives are significantly less important for urban sports participants (exp( $\beta$ ) = 0.844), while fun and relaxation motives are more valued (exp( $\beta$ ))

= 1.246). The sports location remains the highest contributor to the model (Wald = 44.190), followed by fun and relaxation motives (Wald = 6.082), sports level (Wald = 6.038), physical motives (Wald = 5.096), and the age group of 46–65 years (Wald = 4.109).

**Urban sports population (defined by setting and location of sports participation).** The results of the regression analysis using the broader definition of urban sports, based on sports location and the sports setting (N = 755), are not included in this paper. The model showed a Nagelkerke  $R^2$  of 0.050 after incorporating general population characteristics, sports participation criteria, and motives, indicating a low predictive value. Additionally, few significant factors for predicting urban sports participation were identified.

## Discussion

The results provide critical insights into the characteristics and motives of urban sports participants in Bruges, Belgium, highlighting significant disparities between urban and traditional sports participants across various demographics (Table 3). Urban sports are predominantly practised by younger individuals and more commonly by men compared to women [34–36,49,65,66]. Younger people appear to be drawn to the autonomy of urban sports, where the competition is more about personal progression, and the social aspect of building communities and meeting others [65].

Although the urban sports category generally includes a younger demographic, only the 46–65 age group is significantly underrepresented compared to the traditional sports participants (Table 3). Conversely, men are significantly more represented among urban sports participants (60.8%) compared to the overall sports population (51.1%).

Vossen and Van der Meijde (2024) offer an explanation for these findings, noting that women are less inclined to participate in urban sports due to the hierarchical environment often present, where the most skilled performers dominate [65]. This environment creates a greater barrier for women, who may feel more insecure about their urban sports skills and experience increased pressure from being observed while performing. Older individuals face similar barriers, struggling to achieve the skill level typically required in urban sports. This hierarchical environment also contributes to urban sports being more frequently practised in a competitive manner compared to all sports (Table 3). While not necessarily organised competitions, this hierarchy can be experienced as a form of competition by participants [65]. In sum, the demographic data from this study indicate that urban sports participants are more often men and generally younger compared to more traditional sports participants.

However, the binomial logistic regression model presented in Table 4, shows that factors like gender and educational level have limited predictive value for urban sports participants. Only the age group of 46–65 years contributes to the model's predictive value. This suggests that characteristics such as gender, age, and educational level do not primarily differentiate between urban and non-urban sports participants in our study.

Instead, urban sports participants are distinguished from traditional sports participants by the location and the level of their sports participation, as well as their motives for engaging in sports. This study examines two definitions of urban sports: one based on specific urban sports activities and another broader definition based on the sports' location and setting. Both the descriptive statistics and the binomial regression analysis reveal few differences between traditional sports participants and those defined as urban sports participants under the broader definition. This suggests that the trend towards more informal sports settings has blurred the lines between traditional and urban sports [2,13–17].

More specifically, this trend towards informality aligns with larger shifts in sports participation, where even traditional sports are increasingly practised in non-organised settings.

For instance, our results indicate that recreational cycling, running, and walking as the three most practised sports in the city of Bruges [67]. These activities are frequently conducted in public spaces and self- or non-organised settings, thus qualifying as urban sports under the broader definition. Consequently, defining urban sports solely based on location and setting proves to be insufficient to effectively distinguish between traditional and urban sports.

In contrast, the definition based on specific urban sports seems more suitable for creating a profile of urban sports participants and examining the differences between traditional and urban sports participants. Using this definition, the location of sports emerges as the most distinguishing factor between urban and non-urban sports participants. Our findings substantiate this distinction, with a significantly lower proportion (25.6%) of the total sports population engaging in sports in public locations in comparison to the urban sports population (52.1%). This aligns with the established literature that highlights public spaces as one of the fundamental features of urban sports [33,34]. Surprisingly, the other fundamental feature, a self- or non-organisational setting, does not significantly predict urban sports participation. Moreover, urban sports participants are more likely to engage at competitive or recreational levels compared to solely recreational levels, contradicting prior research that emphasises the social aspect and community in urban sports [33,34].

To reconcile these—at first glance—conflicting findings, we draw on two concepts: *sportisation* and *sportification*. As aforementioned, *sportisation* involves integrating play-like activities into sports organisations, making them more competitive, standardised, and regulated [54,55]. A prime example of *sportisation* is the evolution of parkour from a self-organised and play-like activity to a structured sports discipline with formal associations, and dedicated sports facilities [52,68].

On the other hand, *sportification* describes the process of non-organised sports evolving into a more institutionalised, formalised, and specialised forms by adding components to increase its appeal [69–74]. The process of *sportification* can be divided into three basic mechanisms: the institutionalisation of practices, the formalisation of standards, and the specialisation of roles [75,76]. The two concepts of *sportisation* and *sportification* are often used interchangeably and ambiguously in the literature, yet they are not the same but often closely intertwined. *Sportisation* involves the transformation of a ‘play-like’ activity into a sport by integrating it into organised sports structures [52–55]. Conversely, *sportification* refers to the evolution of non-organised sports into more institutionalised, formalised, and specialised forms [69–73,75,76]. These processes are often sequential, with *sportisation* preceding *sportification* as informal activities become organised sports.

In our study, we observed that urban sports in Flanders, including Bruges, undergo *sportisation* and *sportification* processes. External factors such as media and commercial developments fuel urban sports’ *sportisation* [23,26,27,77], with traditional sports organisations and institutions embracing urban sports to enhance their offerings. Traditional sports organisations and institutions use urban sports to enhance the survival, safety, and accessibility of their ‘sports branch’ [77]. For example, in Flanders, sports federations have begun organising training and competitions for urban sports activities, alongside the development of dedicated urban sports infrastructures [78]. A notable example is the Flemish Gym Federation (GymFed), which incorporated parkour/freerunning into its programme through various competitions, events, and challenges [68]. This integration illustrates the *sportisation* of parkour, as it becomes formally incorporated into the sports landscape of Flanders. Consequently, urban sports are becoming more competitive as they become integrated into traditional sports organisations, reflecting the dynamic nature of urban sports. Furthermore, this integration process implies *sportification*, as organising competitions—a core skill of traditional sport

entities—necessitates the establishment of rules and standardisation. This transition from informal to formalised roles and rules reflects the *sportification* process, which further solidifies the presence of urban sports within the traditional sports landscape.

Put differently, in Flanders, the traditional sports organisations and institutions—such as the Flemish sports administration and sports federations—acknowledge the popularity of urban sports and the shifting sports participation trends, incorporating urban sports to bolster their offerings, a process known as *sportisation*. However, the implementation of these urban sports aligns with the organisational principles of traditional sports organisations [68], mirroring traditional sports in terms of setting and competitiveness, a process referred to as *sportification* [77]. Because of these processes, urban sports are no longer necessarily practised in a self- or non-organised setting and cannot be categorised as less competitive compared to the more traditional sports. Yet, this shift towards competitiveness does not necessarily negate the social aspect and sense of community in urban sports. Nevertheless, further research is necessary to track the evolution of *sportisation* and *sportification* in urban sports.

Lastly, regarding motives for sports participation, two of the four motives significantly contribute to explaining the difference between urban and non-urban sports participants. Urban sports participants prioritise physical motives less and value the fun and relaxation aspects more than non-urban sports participants. This aligns with outlined urban sports' characteristics in literature, emphasising fun, freedom, and physicality while rejecting traditional sports' rigidity [20–24].

It is worth noting that some literature on urban sports also reports the social aspect as a significant motivator for urban sports participants [30,33,34], our study finds social motives to have no significant predictive value in urban sports participation.

In conclusion, our study aimed to construct a comprehensive profile of urban sports participants, yielding findings that diverge from the limited literature available. Specifically, we discovered that traditional sociodemographic characteristics like gender, age, and educational level fail to explain the differences between urban and traditional sports participants. Instead, nuances in sports engagement and underlying motives offer more insight into these differences. Notably, urban sports participants distinguish themselves through their preference for public spaces and non-organised settings.

The evolution towards competitiveness within urban sports hints at a widening appeal, attracting a more heterogeneous group of participants. This evolution stems from the traditionalisation of urban sports, emerging from the *sportisation* and *sportification* processes discussed earlier. The growing heterogeneous reach serves as a key argument for local governments and sports organisations to invest in urban sports. However, this evolution challenges assumptions of urban sports' inclusivity and attractiveness to young and vulnerable groups [30,33,34,36,37], suggesting a need for further examination and policy consideration.

## Conclusion

The dearth of knowledge concerning urban sports poses pressing challenges for local governments and sports organisations, especially considering its increasing popularity. Developing targeted policies to promote and support urban sports requires a deeper understanding of the characteristics, preferences, and motivations of urban sports participants. Hence, this study sought to compare urban and 'more traditional' sports participants in terms of demographic characteristics, sports participation behaviours, and motivational factors.

Initially rooted in informal, recreational pursuits driven by social and fun motives, urban sports have transitioned into more institutionalised forms characterised by rules and

competitive formats. This evolution reflects the simultaneous influence of two processes: *spor-tisation* and *sportification*. Rapid integration of urban sports disciplines into the Flemish sports landscape, marked by a surge in organised events and the assimilation of urban sports branches into traditional sports programmes, highlights the transformative nature of these processes.

In essence, these developments are blurring the lines between urban and traditional sports, resulting in limited distinctions between participants of both categories. Our study aimed to delineate a nuanced profile of urban sports participants and contrast it with that of traditional sports participants. While previous literature often depicted urban sports participants as relatively homogeneous, our findings suggest a significant degree of heterogeneity within this demographic. Ultimately, as urban sports continue to gain popularity, they offer local governments and sports organisations an effective avenue to engage with a diverse array of sports participants and potential enthusiasts.

### Practical implications

Firstly, our study challenges the presumption that urban sports are inherently more inclusive. The demographic characteristics of urban sports participants do not significantly differ from those of traditional sports participants. Consequently, integrating urban sports into policy programmes may not address the issue of social inclusion in sports participation, as it appears that the same, yet heterogeneous, groups in society are being reached.

Secondly, the increasing popularity and the heterogeneity of the urban sports participants present an opportunity for (local) governments and sports organisations. Urban sports can be an effective tool to reach a broad spectrum of people, engaging both current and prospective sports participants across various backgrounds and interests.

Thirdly, the rise in popularity of urban sports is closely linked to the trend towards informal sports participation. Governments should consider enhancing and facilitating informal sports settings to encourage those who do not engage with traditional sports organisations or clubs. Fourthly, many urban sports have evolved into more traditional and formalised activities. It is important to recognise that urban sports participants may not necessarily resist traditional sports and their formalised structures. Acknowledging the shift towards organised and competitive formats within urban sports is crucial for accurately understanding their development.

Lastly, the assumption that urban sports environments are less competitive than traditional sports is increasingly inaccurate. Urban sports are frequently practised in competitive contexts, with organised competitions occurring globally.

### Limitations and future research

Firstly, the data of this paper was gathered as part of a larger research project on sports participation in the city of Bruges, which did not include specific questions about urban sports. This limitation restricts the depth and specificity of the information available on urban sports participation. In addition, participants were not able to self-identify as urban sports participants, limiting the accuracy of participant categorisation.

Secondly, the sample had a limited presence of Bruges residents with a migration background and a low socio-economic status. This restriction hindered our ability to thoroughly explore demographic differences between urban and traditional sports participants. Therefore, the findings from this study may not be generalisable to a broader range of cities with more diverse populations. Future research should examine the differences between urban and traditional sports participants, focusing on migration background and socio-economic status.

Understanding these demographic factors can provide a more comprehensive view of urban sports participation.

Thirdly, we utilised two distinct definitions of urban sports based on recent literature to approximate urban sports participation. However, these definitions are neither exhaustive nor conclusive due to the lack of an unequivocal definition in the literature. This could have led to both the misclassification of non-urban sports participants as urban sports participants and the omission of true urban sports participants. Therefore, further research should aim to uncover the traits of various urban sports types rather than generalising the characteristics of urban sports as a whole. This nuanced understanding can help tailor interventions and support for diverse urban sport activities.

Lastly, this study did not gather information on potential barriers to sports participation, which may differ significantly between urban and traditional sports participants. Factors such as violence, weather, and lack of nearby infrastructure were not controlled for, which could influence the findings related to sports participation. Understanding these barriers is crucial to accurately assess and address the needs of both urban and traditional sports participants.

## Supporting information

**S1 File.**  
(XLS)

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## References

1. Eime R, Sawyer N, Harvey J, Casey M, Westerbeek H, Payne W. Integrating public health and sport management: Sport participation trends 2001–2010. *Sport Management Review*. 2015 Apr 1; 18 (2):207–17. Available from: <https://doi.org/10.1016/j.smr.2014.05.004>.
2. Scheerder J., Claes E., Vanreusel B. Sportief (en) innovatief in een veranderende samenleving. Een verkennende analyse van goed practises als inspiratie voor de clubsport van de toekomst. *Beleid & Management in Sport Studies*. KU Leuven/Departement Bewegingswetenschappen/Onderzoeksteam Sport in/for Society.; 2014 [cited 2023 Aug 4]. Available from: <https://gbiomed.kuleuven.be/english/research/50000737/research/policy-in-sports-physical-activity-research-group/bms-studies/studies/bms022.pdf>.
3. Nations United. The impact of COVID-19 on sport, physical activity and well-being and its effects on social development | DISD [Internet]. Available from: <https://www.un.org/development/desa/dspd/2020/05/covid-19-sport/>.

4. Research for CULT Committee—EU sports policy: assessment and possible ways forward | Think Tank | European Parliament [Internet]. Available from: [https://www.europarl.europa.eu/thinktank/en/document/IPOL\\_STU\(2021\)652251](https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2021)652251).
5. Coalter F. A wider social role for sport [Internet]. Routledge eBooks. 2007. Available from: <https://doi.org/10.4324/9780203014615>.
6. Eime R, Young J, Harvey J, Charity M, Payne W. A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity*. 2013 Jan 1; 10(1):98. Available from: <https://doi.org/10.1186/1479-5868-10-98>.
7. Davies L. E., Taylor P., Ramchandani G., & Christy E. (2019). Social return on investment (SROI) in sport: a model for measuring the value of participation in England. *International Journal of Sport Policy and Politics*, 11(4), 585–605. <https://doi.org/10.1080/19406940.2019.1596967>.
8. Vlaanderen Sport. Social return on investment (SROI) van sport en bewegen in Vlaanderen. Sport Vlaanderen. 2022. Available from: <https://publicaties.vlaanderen.be/view-file/49085>
9. Rakovac M, Pedisic Z. Physical activity and sport participation in the European Union. ResearchGate [Internet]. 2022 Jan 1; Available from: [https://www.researchgate.net/publication/369065541\\_Physical\\_activity\\_and\\_sport\\_participation\\_in\\_the\\_European\\_Union](https://www.researchgate.net/publication/369065541_Physical_activity_and_sport_participation_in_the_European_Union).
10. Scheerder J., Thibaut E. Studie over de Bewegingsactiviteiten in Vlaanderen (SBV) 1969–2019. Een halve eeuw sportparticipatie in cijfers. Beleid & Management in Sport Studies. KU Leuven/Departement Bewegingswetenschappen/Onderzoeksteam Sport in/for Society.; 2021 [cited 2023 Aug 4]. Available from: <https://gbiomed.kuleuven.be/english/research/50000737/research/policy-in-sports-physical-activity-research-group/bms-studies/studies/bms100-finaal.pdf>.
11. Scheerder J, Thibaut E. m.m.v. Willem A. & Derom I. Sportparticipatie in Vlaanderen. 2022 [cited 2023 Aug 4]. Available from: <https://media.sport.vlaanderen/m/3c0884e5fda45df0/original/Presentatie%20algemene%20resultaten%20Participatiesurvey%202020.pdf>.
12. Scheerder J. Tofsport in Vlaanderen. Groei, omvang en segmentatie van de Vlaamse recreatiesportmarkt. F&G Partners [Internet]. 2007 Jan 1; Available from: <https://lirias.kuleuven.be/handle/123456789/264241>.
13. Borgers J, Pilgaard M, Vanreusel B, Scheerder J. Can we consider changes in sports participation as institutional change? A conceptual framework. *International Review for the Sociology of Sport*. 2016 Apr 4; 53(1):84–100. Available from: <https://doi.org/10.1177/1012690216639598>.
14. Deelen I, Ettema D, Kamphuis CBM. Sports participation in sport clubs, gyms or public spaces: How users of different sports settings differ in their motivations, goals, and sports frequency. PLOS ONE. 2018 Oct 8; 13(10): e0205198. Available from: <https://doi.org/10.1371/journal.pone.0205198>.
15. Eime R, Charity M, Westerbeek H. The Sport Participation Pathway Model (SPPM): a conceptual model for participation and retention in community sport. *International Journal of Sport Policy and Politics* [Internet]. 2022 Feb 7; 14(2):291–304. Available from: <https://doi.org/10.1080/19406940.2022.2034913>.
16. Harris S, Nichols G, Taylor M. Bowling even more alone: trends towards individual participation in sport. *European Sport Management Quarterly*. 2017 Mar 23; 17(3):290–311. Available from: <https://doi.org/10.1080/16184742.2017.1282971>.
17. Neal S, Pang B, Parry KD, Rishbeth C. Informal sport and leisure, urban space and social inequalities: Editors' Introduction. *Leisure Studies*. 2023 Jan 11;1–12. Available from: <https://doi.org/10.1080/02614367.2022.2162109>.
18. Tak I, Rutten J, Van Goeverden W, Barendrecht M. Sports participation and injury related to the COVID-19 pandemic: will data support observations from clinicians and athletes? *BMJ Open Sport and Exercise Medicine*. 2022 Feb 1; 8(1):e001317. Available from: <https://doi.org/10.1136/bmjsem-2022-001317>.
19. Thibaut E, Constandt B, De Bosscher V, Willem A, Ricour M, Scheerder J. Sports participation during a lockdown. How COVID-19 changed the sports frequency and motivation of participants in club, event, and online sports. *Leisure Studies*. 2021 Dec 29; 41(4):457–70. Available from: <https://doi.org/10.1080/02614367.2021.2014941>.
20. Booth D, Thorpe H. Berkshire encyclopedia of extreme sports. 2007. Available from: <http://ci.nii.ac.jp/ncid/BA8226453X>.
21. Donnelly P. Sport as a site for “Popular” resistance. In: University of Toronto Press eBooks. 1988. p. 69–82. Available from: <https://doi.org/10.3138/9781442602861-007>.
22. Thorpe H, Ahmad N. Youth, action sports and political agency in the Middle East: Lessons from a grass-roots parkour group in Gaza. *International Review for the Sociology of Sport*. 2013 Jun 18; 50(6):678–704. Available from: <https://doi.org/10.1177/1012690213490521>.



23. Thorpe H, Wheaton B. 'Generation X Games', Action Sports and the Olympic Movement: Understanding the cultural Politics of incorporation. *Sociology*. 2011 Oct 1; 45(5):830–47. Available from: <https://doi.org/10.1177/0038038511413427>.
24. Wheaton B. Introducing the consumption and representation of lifestyle sports. *Sport in Society*. 2010 Sep 1; 13(7–8):1057–81. Available from: <https://doi.org/10.1080/17430431003779965>.
25. Wheaton B. Understanding lifestyle sport. Routledge eBooks. 2004. Available from: <https://doi.org/10.4324/9780203646069>.
26. Dilek C. Red Bull's accelerating sports marketing strategies [Internet]. Segmentify. 2023. Available from: <https://segmentify.com/blog/red-bulls-accelerating-marketing-strategies/>.
27. Shakeri S. Red Bull influence in sports: What makes it unique? Bleacher Report [Internet]. 2017 Oct 3; Available from: <https://bleacherreport.com/articles/34513-red-bull-influence-in-sports-what-makes-it-unique>.
28. Red Bull Athletes [Internet]. RedBull. [cited 2023 Aug 4]. Available from: <https://www.redbull.com/be-nl/athletes?filter.countryCode=BE>.
29. Rinehart RE. Chapter 7 ESPN's X games: Contests of opposition, resistance, co-option, and negotiation. In: *Research in the sociology of sport*. 2008. p. 175–95. Available from: [https://doi.org/10.1016/s1476-2854\(07\)00207-5](https://doi.org/10.1016/s1476-2854(07)00207-5).
30. De Bruijn M. Onderzoek urban sports Rotterdam: de kansen en uitdagingen voor gemeenten. *Allesoversport.nl*. 2021 Jan 11; Available from: <https://www.allesoversport.nl/thema/beleid/onderzoek-urban-sports-rotterdam-de-kansen-en-uitdagingen-voor-gemeenten/>.
31. Riding the Olympic wave: 3x3 basketball, BMX freestyle, breaking, skateboarding, sport climbing, surfing and much more: 17.03.2022–05.03.2023, The Olympic Museum, free entrance: press kit / The Olympic Museum [Internet]. Olympic World Library. Available from: [https://library.olympics.com/Default/doc/SYRACUSE/1997834/riding-the-olympic-wave-3x3-basketball-bmx-freestyle-breaking-skateboarding-sport-climbing-surfing-a?\\_lg=en-GB](https://library.olympics.com/Default/doc/SYRACUSE/1997834/riding-the-olympic-wave-3x3-basketball-bmx-freestyle-breaking-skateboarding-sport-climbing-surfing-a?_lg=en-GB).
32. ZOOM IN—URBAN SPORTS [Internet]. Olympic World Library. Available from: [https://library.olympics.com/default/urban-sports.aspx?\\_lg=en-GB](https://library.olympics.com/default/urban-sports.aspx?_lg=en-GB).
33. Bruggeling D., Batenburg-Eddes T. Onderzoek urban sports. 2020. Mulier Instituut. Available from: <https://www.mulierinstituut.nl/publicaties/25707/onderzoek-urban-sports/>.
34. Van der Meijde L., Bronkhorst A., & Pulles I. Kijk op urban sports. (2023). Mulier Instituut.
35. Hoyng J. Urban sport is cool en hot. *Allesoversport.nl* [Internet]. 2020 Jan 10; Available from: <https://www.allesoversport.nl/thema/beleid/urban-sport-is-cool-en-hot/>.
36. User S. Moev zet je school in beweging [Internet]. MOEV. Available from: <https://www.moev.be/urban-sports>.
37. Sport en bewegen in de openbare ruimte—Mulier Instituut. Mulier Instituut. Available from: <https://www.mulierinstituut.nl/publicaties/26297/sport-en-bewegen-in-de-openbare-ruimte/>.
38. Engell Z., Larsen S. H., & Elmoose-Østerlund K. Participation in street sports—a national study of participation patterns among youth and adults. (2023). *European Journal for Sport and Society*, 1-24. ISO 690.
39. Brugge. Het Brugs beleidsprogramma 2019–2024 [Internet]. 2019. Available from: <https://www.brugge.be/beleidsprogramma2019-2024>.
40. Leuven Stad. Beleidsplannen voor sport en beweging [Internet]. 2023. Available from: <https://www.leuven.be/sportbeleid>.
41. Sport London. Urban Sport—London Sport [Internet]. 2022. Available from: <https://londonsport.org/our-work/completed-projects/urban-sport/>.
42. A-stad. Welkom | antwerpen.be [Internet]. 2020. Available from: <https://www.antwerpen.be/info/6220c1c0d7e19758f0442acf/sportbeleidsplan>.
43. Gent Stad. Krachtlijnen Gents sportbeleid [Internet]. 2020. Available from: [https://stad.gent/sites/default/files/media/documents/41371-20200123\\_NO\\_Krachtlijnen%2520Gents%2520sportbeleid-79457b.pdf](https://stad.gent/sites/default/files/media/documents/41371-20200123_NO_Krachtlijnen%2520Gents%2520sportbeleid-79457b.pdf).
44. Hasselt heeft het. Groot(s) op mensenmaat: bestuursakkoord 2019–2024 [Internet]. 2019. Available from: [https://www.hasselt.be/sites/hasselt/files/documenten\\_stad\\_hasselt/bestuursakkoord\\_20190204\\_hasselt.pdf](https://www.hasselt.be/sites/hasselt/files/documenten_stad_hasselt/bestuursakkoord_20190204_hasselt.pdf).
45. Pagnon David & Faity Germain & Galo Maldonado & Yann Daout & Sidney Grospretre. What Makes Parkour Unique? A Narrative Review Across Miscellaneous Academic Fields. 2022. *Sports Medicine*. 52. 1–14. <https://doi.org/10.1007/s40279-022-01642-x> PMID: 35089536

46. Paris + sportive. l'action de la municipalité en faveur du sport de proximité. [Internet]. 2019. Available from: <https://www.paris.fr/pages/paris-sportive-l-action-de-la-municipalite-en-faveur-du-sport-de-proximite-6448>.
47. Camino X. Reinterpretando la ciudad: la cultura skater y las calles de Barcelona. 2008. *Apunts Educación Física y deportes*, (91), 54–65.
48. Ajuntament de Barcelona. Plan for Play in public spaces, 2030 horizon in Barcelona [Internet]. 2019. Available from: [https://bcnroc.ajuntament.barcelona.cat/jspui/bitstream/11703/116054/1/Play%20Plan\\_BCN\\_eng.pdf](https://bcnroc.ajuntament.barcelona.cat/jspui/bitstream/11703/116054/1/Play%20Plan_BCN_eng.pdf).
49. Camoletto RF, Sterchele D, Genova C. Managing alternative sports: new organisational spaces for the diffusion of Italian parkour. *Modern Italy*. 2015 Aug 1; 20(3):307–19. Available from: <https://doi.org/10.1080/13532944.2015.1065237>.
50. SELLERING M. Urban sports: hoe sportende jongeren zichzelf organiseren en gemeenten dat kunnen stimuleren, ondersteunen en faciliteren. 2021.
51. Spaaij R, Broerse J, Oxford S, Luguetti C, McLachlan F, McDonald B, et al. Sport, Refugees, and Forced Migration: A Critical Review of the literature. *Frontiers in Sports and Active Living*. 2019 Oct 11;1. Available from: <https://doi.org/10.3389/fspor.2019.00047>.
52. Larsen SH. The institutionalisation of Parkour in Denmark. A national case of how institutional isomorphism works and affect lifestyle sport. *International Journal of Sport Policy and Politics*. 2022 Feb 27; 14(3):401–17. Available from: <https://doi.org/10.1080/19406940.2022.2043928>.
53. Wheaton B O'Loughlin A. Informal sport, institutionalisation, and sport policy: challenging the sportization of parkour in England. *International Journal of Sport Policy and Politics*. 2017 Jan 2; 9(1):71–88. Available from: <https://doi.org/10.1080/19406940.2017.1291533>.
54. Stebbins RA, Elias N, Dunning E. Quest for excitement: sport and leisure in the civilizing process. *Canadian Journal of Sociology*. 1988 Jan 1; Available from: <https://doi.org/10.2307/3340872>.
55. Maguire J. *Global Sport: Identities, Societies, Civilizations*. Polity; 1999.
56. Scheerder J, Huyghe J, Onderzoek naar sport- en beweegparticipatie in Brugge. *Methodologie & representativiteit (deel 2)* [Internet]. *Beleid & Management in Sport Studies*. KU Leuven/Departement Bewegingswetenschappen/Onderzoeksteam Sport in/for Society.; 2023 May [cited 2023 Aug 4]. Available from: <https://gbiomed.kuleuven.be/english/research/50000737/research/pash/research-lines/sports-in-for-society/bms-studies/studies/bms122.pdf>.
57. D'Hoore N., Léonard P., Zeimers G., & Scheerder J. Belgium (Flanders). In Hallmann K., Heikinen S. & Vehmas H. (Eds), *Management of Sport Organizations at the Crossroad of Responsibility and Sustainability: Perceptions, Practices, and Prospects Around the World* (pp. 23–34). 2024. Cham: Springer Nature Switzerland.
58. De bourdeauhuij I., Lefevre J., Deforche B., Wijndaele K., Matton L., & Philippaers R. Physical activity and psychosocial correlates in normal weight and overweight 11 to 19 year olds. *Obesity Research*, 13(6), 1097–1105. (2005).
59. Scheerder J., Borgers J., Willem A. Sportdeelname in Vlaanderen. Trends en profielen. In: Lievens J., Siongers J., Waeye H. (Eds.), *Participatie in Vlaanderen 2. Eerste analyses van de Participatiesurvey 2014*, (209–249). (2015). Leuven/Den Haag: Acco.
60. Thibaut E., Scheerder J., Derom I., Willem A. Sportparticipatie en corona (2020–2022). Wie sport er (niet) mee? In: Scheerder J., Thibaut E. (Eds.), *Sport in Vlaanderen. Een beleidsanalyse vanuit wetenschappelijk perspectief.*, Chapt. 2, (55–76). (2023). Leuven: Acco.
61. Janssen M., Walravens R., Thibaut E., Scheerder J., Brombacher A., Vos S. Understanding Different Types of Recreational Runners and How They Use Running-Related Technology. (2020). *International Journal Of Environmental Research And Public Health*, 17 (7), Art.No. 2276.
62. Thibaut E., Vos S., Scheerder J. Hurdles for sport consumption? The determining factors of household sports expenditures. (2014). *Sport Management Review*, 17 (4), 444–454.
63. Field AP. *Discovering statistics using SPSS (and sex and drugs and rock “n” roll)* (3rd edition). London: Sage. 2009 Jan 1; Available from: <https://repository.tudelft.nl/view/MMP/uuid:3a9d01bb-83a9-4572-865a-87126ae60165/>.
64. Urban Sports (productverslag, Stichting Trudo Eindhoven). Rietveld, M.; 2008. Available from: <https://brochures.nhtv.nl/scriptiebank/documenten/Urban%20sports-Rietveld,%20M..pdf>.
65. Vossen L. & Van der Meijde L. Urban sportsbeoefenaars: een kwalitatief onderzoek naar motivaties voor deelname. (2024). Mulier Instituut.
66. Van der Meijde L., & Pulles I. De omvang van urban sports in beeld. (2023). Mulier Instituut.
67. Huyghe J, Scheerder J. Onderzoek naar sport- en beweegparticipatie in Brugge. Resultaten van de stadssurvey (deel 3) [Internet]. *Beleid & Management in Sport Studies*. KU Leuven/Departement Bewegingswetenschappen/Onderzoeksteam Sport in/for Society.; 2023 May [cited 2023 Aug 4].

Available from: <https://gbiomed.kuleuven.be/english/research/50000737/research/pash/research-lines/sports-in-for-society/bms-studies/studies/bms123.pdf>.

68. De Bock T, Scheerder J, Theeboom M, Schyvinck C, De Clerck T, Willem A. An organizational change perspective on the incorporation of parkour in a gymnastics federation. *Sport in Society* [Internet]. 2023 Jul 11;1–22. Available from: <https://doi.org/10.1080/17430437.2023.2228732>
69. Batuev M, Robinson L. What influences organisational evolution of modern sport: the case of skateboarding. *Sport, Business and Management*. 2018 Nov 12; 8(5):492–510. Available from: <https://doi.org/10.1108/sbm-10-2017-0052>
70. Cachay K. Versportlichung der Gesellschaft und Entsportung des Sport? System-theoretische Anmerkungen zu einem gesellschaftlichen Phänomen. 2018. Available from: <https://pub.uni-bielefeld.de/record/1940503>.
71. Crum B. The Sportification of the Society and the Internal Differentiation of Sport, in Proceedings of the First European Congress on Sport Management, 1st EASM Congress. Groningen: European Association of Sport Management. 1993 Sept.
72. Digel H. Die Versportlichung unserer Kultur und deren Folgen fuer den Sport—ein Beitrag zur Uneigentlichkeit des Sports. 1990. Available from: <https://www.bisp-surf.de/Record/PU199103048109>.
73. Digel H. Sport in a changing society. *Sociological Essays (Sport Science Studies 7)*. 1995 Jan 1; Available from: <https://tubiblio.ulb.tu-darmstadt.de/1959/>.
74. Heere B. Embracing the sportification of society: Defining e-sports through a polymorphic view on sport. *Sport Management Review*. 2018 Jan 1; 21(1):21–4. Available from: <https://doi.org/10.1016/j.smr.2017.07.002>.
75. Collinet C, Delalandre M, Schut PO, Lessard C. Physical practices and sportification: Between institutionalisation and standardisation. The example of three activities in France. *International Journal of the History of Sport*. 2013 May 1; 30(9):989–1007. Available from: <https://doi.org/10.1080/09523367.2013.782538>.
76. Yang Z, Bai Y, Wei M. The importance of creativity in the sportification of breakdance. *Frontiers in Education*. 2022 Mar 7;7. Available from: <https://doi.org/10.3389/educ.2022.855724>.
77. Batuev M. “Free sports”: organizational evolution from participatory activities to Olympic sports [Doctoral Thesis]. University of Stirling; 2015.
78. Thorpe H, Dumont G. The Professionalization of Action Sports: Mapping trends and future directions. *Sport in Society*. 2018 Feb 21; 22(10):1639–54. Available from: <https://doi.org/10.1080/17430437.2018.1440715>.