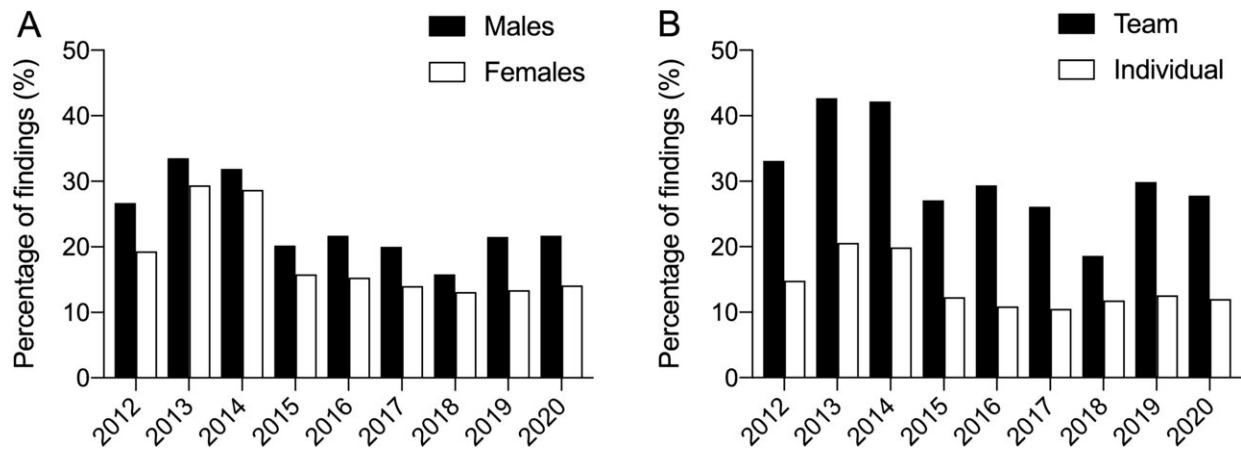


Study finds 'alarming' rates of nicotine in sports

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Positivity rate (%) of nicotine for males and females (A) and team and individual sports (B). Credit: *Sports Medicine* (2023). DOI: 10.1007/s40279-023-01819-y

High-performing athletes are often seen as the picture of health, but new Brock research is highlighting an eye-opening trend in sports that may suggest otherwise.

A study recently published in the journal *Sports Medicine* analyzed nearly 61,000 doping control tests, with one in five samples coming back positive for nicotine use.

Brock Professor of Kinesiology Toby Mündel, together with researchers Thomas Zandonai, of Miguel Hernández University of Elche in Alicante,

Spain, and Francesco Botrè, Director of Laboratorio Antidoping, Rome, Italy, published the results last week from their [longitudinal study](#), "Should We Be Concerned with Nicotine in Sport? Analysis from 60,802 Doping Control Tests in Italy."

The study analyzed [urine samples](#) from national and international sporting events that took place in Italy from 2012 to 2020.

"Tobacco use in the general population worldwide is 20%, so any sport with a prevalence higher than this should be alarming," Mündel says. "While this study does not break down samples by country, it does sample by sport. Canadians should know that baseball (55%), hockey (43%), football (42%) and basketball (29%) display two to four times the rates of nicotine use than the [general population](#)."

Nicotine is among the substances on the monitoring program of the World Anti-Doping Agency (WADA). The organization, headquartered in Montreal, determines if substances such as smoked and [smokeless tobacco](#), vaping and e-cigarettes, give athletes an unfair advantage, are detrimental to their health and go against the spirit of sports.

"Tobacco use has been associated with baseball since its inception," Mündel says. "Now almost 100 years later, despite the availability of health education, a third of college and major league baseball players remain users. This tells me that nicotine use is not because of a drive for performance but more likely the result of the social environment."

The study showed that samples from [team sports](#) had twice the rate of nicotine use than those in individual sports. Further, sports where a high level of skills and tactics are required also displayed higher nicotine use, such as golf, diving, fencing and wrestling.

"The biggest sample size we have is from [soccer players](#). While soccer

may be of less interest to Canadians, it's the world's most popular sport by a vast margin," Mündel says. "What we are seeing is that these athletes are not looking to enhance their performance but instead use nicotine as a tool for relaxation, recovery and team socialization.

"This is reinforced by the finding that athletes who require a high endurance or need to be aerobically fit, like marathon runners, cyclists, rowers and swimmers displayed much lower nicotine use than those more reliant on strength and power," Mündel says.

The research is particularly significant because it is the largest monitoring study of its kind and only the second in the world since the 2009 Ice Hockey World Championships, which initiated the monitoring of nicotine that led to WADA putting it on its monitoring program in 2012.

"Our results show an overall decline in nicotine use from 2012 to 2020, which mirrors the global trend, but there is still a concern because young adults and youth get 70% of their nicotine through vaping," Mündel says. "This means we really need to figure out user trends among athletes to proactively protect their current and future health because [nicotine](#), regardless of its delivery method, is not harmless or risk free."

More information: Thomas Zandonai et al, Should We be Concerned with Nicotine in Sport? Analysis from 60,802 Doping Control Tests in Italy, *Sports Medicine* (2023). [DOI: 10.1007/s40279-023-01819-y](https://doi.org/10.1007/s40279-023-01819-y)

Provided by Brock University

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