



Short Communication

COVID-19 stay-at-home order in Tyrol, Austria: sports and exercise behaviour in change?



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ABSTRACT

Objectives: The aim of the study was to investigate differences in the frequency and types of engagement in sports before, during and after the coronavirus disease 2019 (COVID-19) stay-at-home order in Tyrol, Austria.

Study design: A representative population survey was conducted.

Methods: A sample of Tyroleans (N = 511) was questioned by a market research institute via an online questionnaire or telephone survey.

Results: During the stay-at-home order, participants engaged less in sports than before and after the restrictions. However, within-group analyses revealed increasing sport participation in less active groups when comparing the pre- and post-COVID-19 period.

Conclusions: Despite the restrictions during the stay-at-home order, respondents did engage in sports and promoted their health. Nevertheless, it is still necessary to investigate the long-term effects of the COVID-19 crisis on sports and exercise behaviour as well as the extent to which sports policy measures may be able increase sports participation.

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Introduction and study objective

Since the outbreak of coronavirus disease 2019 (COVID-19) in China in early December 2019,¹ the virus has continued to spread and reached almost every country in the world. Global disease control represents a major challenge. Governments and local authorities have to take political decisions balancing different interests and weighing the benefits and costs of the measures. On the side of benefits, measures may reduce the infection rate, prevent overloading the healthcare system and—finally—save human lives.² On the side of costs, quarantine and isolation measures may lead to mental and social problems⁴ and have huge impacts on the global economy.³

The relationship between COVID-19 and sports and exercise behaviour has already been addressed in the literature, and the importance of exercising during the COVID-19 period was highlighted.⁵ However, only a few studies have considered changes in sport participation during stay-at-home orders or when other drastic regulations were established to prevent further spread of the virus.^{5–8} The extent to which a population's engagement in

sports changed when compared with the period before, during and after restrictions has not yet been investigated. The Austrian province of Tyrol represents an interesting case for such research: on the one hand, the population of this region exhibits above-average participation in sports;⁹ on the other hand, high infection rates have prompted policymakers to introduce drastic measures limiting people in everyday life and also in exercising. In contrast to other Austrian provinces, any kind of outdoor sports was prohibited in Tyrol until April 7, including jogging and hiking.⁵

The objective of this study was therefore threefold: first, to examine the change in sports and exercise behaviour over three periods, i.e. before the COVID-19 stay-at-home order (PRE-C19), during the COVID-19 stay-at-home order (DURING-C19) and after the COVID-19 stay-at-home order (POST-C19); second, to investigate whether or not the surveyed Tyroleans found the implemented COVID-19 (sports) restrictions appropriate; and third, to describe respondents' recommendations for future (sports) policies.

Data and findings

From April 27 to May 4, a representative stratified survey was conducted (N = 511) online as well as by telephone. The maximum

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fluctuation range of the overall results was $\pm 4\%$. Fifty-three percent of the respondents were women, and 47% were men. Most of the respondents (59%) were between 25 and 59 years of age. Twenty-one percent of the surveyed population lived in the state capital Innsbruck, and 79% lived in the various counties of Tyrol. More than half of the sample (57%) was employed; the others were either in education, retired, or working in the household. For better comparability, sports and exercise behaviour was measured using the questionnaire of the Eurobarometer 472 study,¹⁰ which had also been applied in a previous sports participation study carried out in Tyrol in autumn 2019.⁹ The perceived appropriateness of the COVID-19 regulations implemented by the government was measured using a Likert scale (ranging from 1 [strongly agree] to 5 [strongly disagree]), and suggestions for future (sports) policies were collected using open questions grouped by topic. The results of the present study and the previous studies are displayed in Table 1.

Within the study at hand, the participants were asked how often they engaged in sports or exercising in the PRE-C19, DURING-C19 and POST-C19 periods. This revealed interesting results: First, 19% of the respondents indicated that they had never or only seldom engaged in sports in the PRE-C19 period; this percentage more than doubled (41%) within the DURING-C19 period and fell again in the POST-C19 period (35%). Second, the majority of the respondents (58%) did engage in sports once to twice or three to four times a week in the PRE-C19 period; for the POST-C19 period, this figure was 47%, whereas the lowest value (36%) was registered for the DURING-C19 period. Third, remarkable results in terms of a change in sports participation between the PRE-C19 and POST-C19 period were found at an individual level: 30% of those who had previously exercised 5 times or more a week showed a reduced sports participation frequency in the POST-C19 period; for the category '3 to 4 times a week', the respective figure was 33%. On the contrary, among those who had previously engaged in sports only once or twice a week, one to three times a month or seldom, the percentage of people who became more active in the POST-C19 period was 35%, 45% and 44%, respectively. However, the ceiling and floor effect of the highest and lowest categories of physical activity must be considered here.

Before the restrictions, the respondents engaged in outdoor sports, such as biking (30%), walking (25%), hiking (24%), jogging (13%) or mountain biking (6%). During the quarantine measures, the respondents primarily went for a walk (32%). Other outdoor activities were prohibited and (thus) practised less frequently or not at all (hiking: 20%, jogging: 11%, mountain biking: 0%). In contrast, engagement in different forms of home training, such as fitness exercises (11%), aerobic/gymnastics (11%) or forms of home workout (6%), increased when compared with that in the PRE-C19 period. After the drastic restrictions were lifted, the survey participants increasingly engaged in outdoor sports, such as hiking (29%), walking (28%), biking (28%) or jogging (18%), whereas participation

in home training declined when compared with that in the DURING-C19 period.

In total, 65% of the respondents found that the overall regulations implemented in context of the COVID-19 crisis in Tyrol were appropriate. Fifty-seven percent of the respondents agreed with the measures on practicing sports; however, 18% did not support these measures. Answering the open question related to sports policy recommendations, 22% of the participants spoke out in favour of promoting mass sports and supporting small sports clubs in their POST-C19 activities. Moreover, 7% of the respondents stated that politicians should establish appropriate COVID-19 precautions and rules for practising sports (7%), whereas 12% wanted sports to continue as it was before the pandemic. However, the majority of the respondents (48%) did not answer the open questions.

Discussion and research directions

In summary, the surveyed Tyroleans engaged less in sports in the DURING-C19 period than in the PRE-C19 and POST-C19 periods. In the DURING-C19 period, the respondents switched to home training, largely avoided engaging in prohibited outdoor sports, but went for a walk. The retrospective assessment of sports participation frequency and practiced sports disciplines was in line with an earlier representative population survey.⁹ However, it was observed that in certain groups—namely, those with low engagement in sports—up to 45% of the respondents reported increased sports participation frequency in the POST-C19 period compared with that in the PRE-C19 period. Comparing the percentage of respondents with increased frequency of sports participation with that with decreased frequency of sports participation (Table 1, columns Increase vs Reduction) brought to light some remarkable results: In the groups of respondents who had engaged in sports only seldom or one to three times a month in the PRE-C19 period, we could identify a difference of 15 and 20 % points, respectively, i.e. more people increased their sports participation than decreasing their individual sports participation.

The theory of falling opportunity costs could be used for interpreting the results. On the one hand, we could argue that the increase in sports participation might be associated with the increase in leisure time; on the other hand, there might be a shift in preferences. However, lack of time is the most frequently mentioned reason for not engaging in sports.¹⁰ Furthermore, these first descriptive results raise the question if one of the most common aims of sports policy—namely, increasing sports participation in people who only rarely engage in sports—might by partly reached through a crisis, such as the COVID-19 pandemic. However, the reasons for this behaviour change are unclear. Perhaps, preferences have changed, and we can hope for a sustainable increase in sports participation. Both explanatory approaches are justified, and presumably, the underlying reasons are a mixture of both. However, whether this change will persist remains unclear.

Table 1

Frequency of exercising or playing sports (N = 511) in the PRE-C19 (before the stay-at-home order on March 16, 2020), DURING-C19 (between March 16 and April 7, 2020) and POST-C19 (from April 7, 2020 onward) period in comparison with the results of the Eurobarometer 472 study¹⁰ and the 2019 sports participation study in Tyrol.⁹

Frequency	Stay-at-home order in Tyrol			Reduction ^a	Increase ^b	EU 28 ¹⁰	Austria ¹⁰	Tyrol ⁹
	PRE-C19	DURING-C19	POST-C19					
5 times a week or more	7%	10%	13%	30%	0%	7%	4%	8%
3 to 4 times a week	27%	17%	24%	33%	19%	12%	12%	26%
1 to 2 times a week	31%	19%	23%	26%	35%	21%	22%	30%
1 to 3 times a month	16%	13%	14%	25%	45%	5%	9%	17%
Seldom	10%	20%	9%	29%	44%	9%	13%	11%
Never	9%	21%	16%	0%	2%	46%	40%	9%

^a Reduction: percentage of people indicating a lower category of sports participation in the POST-C19 compared with the PRE-C19 period.

^b Increase: percentage of people indicating a higher category of sports participation in the POST-C19 compared with the PRE-C19 period.

Although this study has some limitations (e.g. retrospective survey method, no inferential statistics), our observations raised several questions in the context of the persistence of behaviour changes and their reasons. This is an area where further research could be started.

Author statements

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Ethical approval

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Competing interests

None declared.

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