

# Changes in gaming activity from COVID-19 and its association with physical activity of Finnish high school students.

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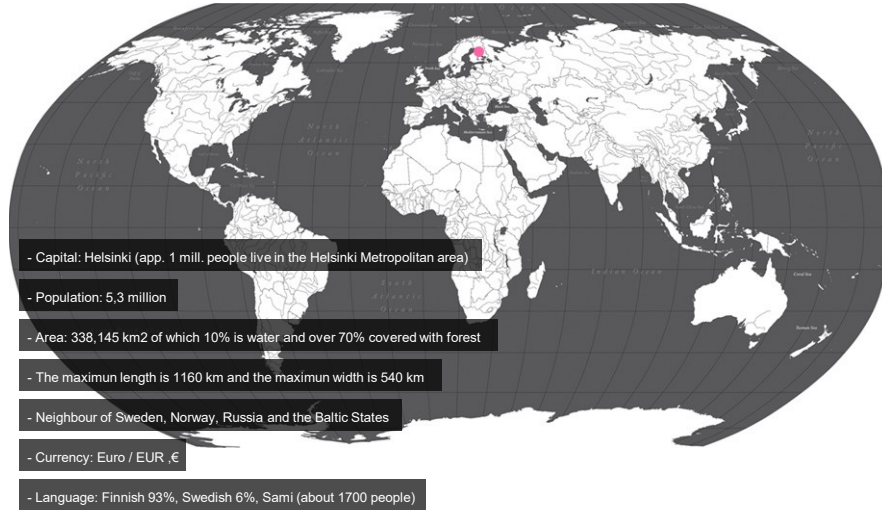
## Outline

- Introduction
- Physical Activity (PA) and Health
- COVID-19 impact on PA and Gaming Activity (GA)
- Cross-section Data collection 2020 Methods
- Descriptive Results
- Inferential Results
- Conclusions



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# Republic of Finland

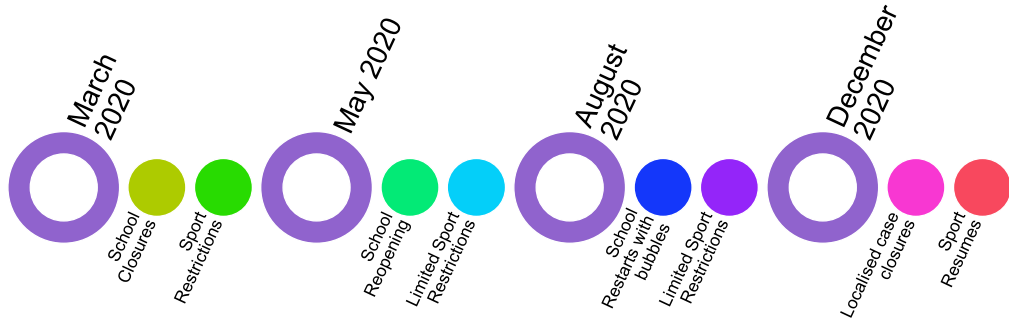


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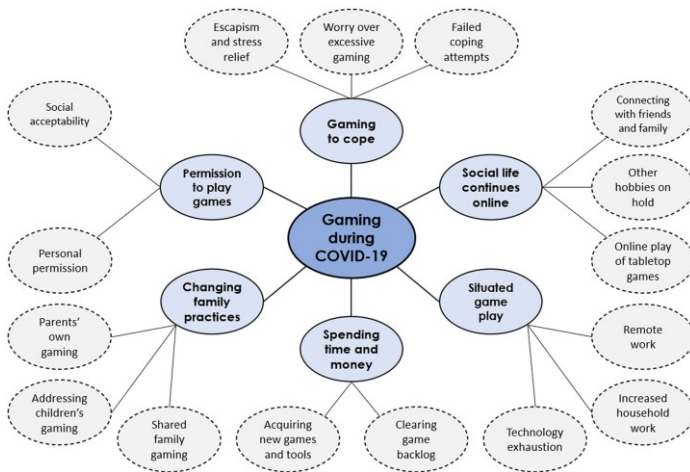
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# COVID-19 Restriction Patterns in Finland



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Meriläinen, 2022.  
<https://doi.org/10.1177/13548565221077582>

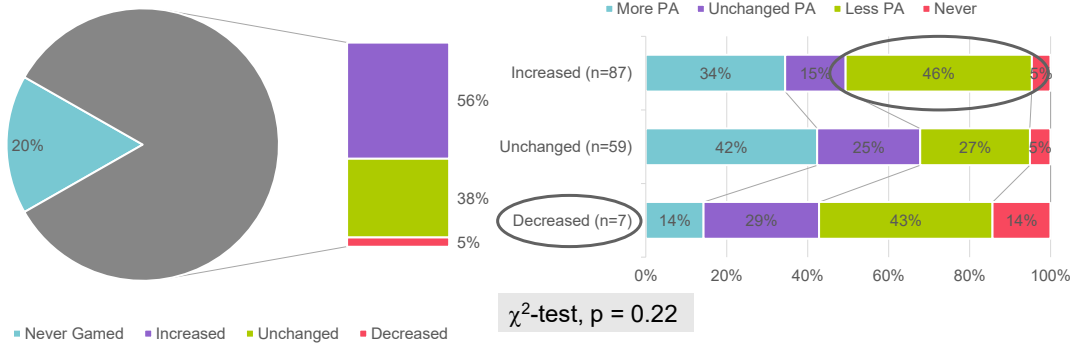
## COVID-19 Adult Gaming Themes

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# Gaming Activity in Sweden

Swedish 16y-24y (n=153)



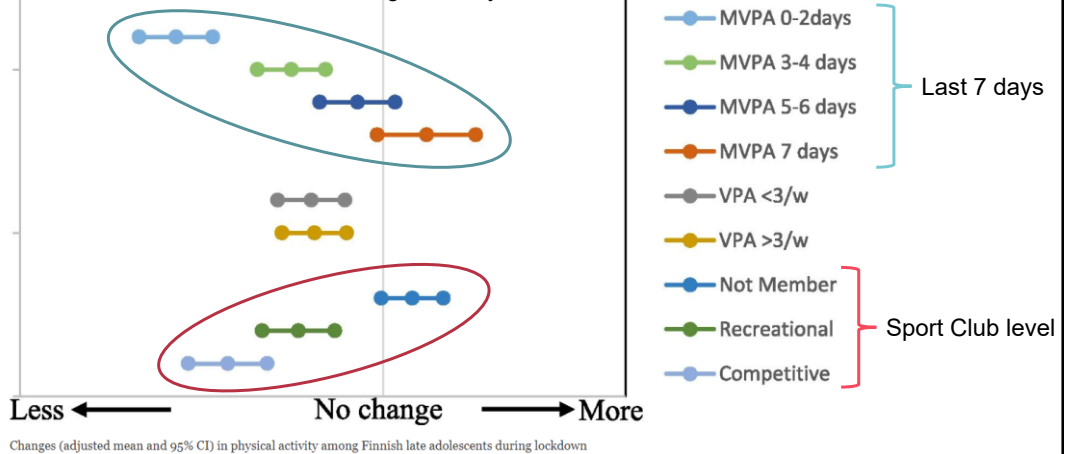
Claesdotter-Knutsson et al, 2022 <https://doi.org/10.2196/33059>



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# Perceived changes to PA during Spring 2020 lockdown

N=2408, female = 64%, mean age = 17.2y, SD = 0.63



Ng et al, 2021. <https://doi.org/10.1186/s12889-021-12263-w>



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## Aims of the study

- The aim of this study was to examine the change in gaming activities between spring and autumn 2020 and its association with PA levels among Finnish high school students.



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## Methods

- Repeated Cross sectional design
- National Representative Sample of High School (16-20y) students
- Probability Proportion to Size Sample, stratified by Region of Finland
- 1 class per recruited school
- Split survey design

|                        | Spring 2020  | Autumn 2020  |
|------------------------|--------------|--------------|
| Dates                  | April - June | Oct - Nov    |
| Students (n)           | 2461         | 4786         |
| Split Survey (n)       | 1680         | 2970         |
| Male %                 | 34.6         | 42.1         |
| 1 <sup>st</sup> Year % | 61.5         | 54.5         |
| Mean Age (SD)          | 17.2 y (.62) | 16.8 y (.59) |
| Disabilities %         | 16.3         | 16.8         |
| Urban %                | 68.9         | 58.7         |



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## Survey Items



- Digital gaming engagement
  1. role play (e.g. Zelda)
  2. adventure (e.g. Monkey Island)
  3. puzzle (e.g. Angry Birds)
  4. sport video (e.g. FIFA)
  5. strategy (e.g. Civilization)
  6. MMO (e.g. World of Warcraft)
  7. eSport games (e.g. Fortnite)
- None (1) vs Some (2,3,4,5)
- Frequency of moderate-to-vigorous PA in last 7 days of at least 60 minutes
- Grouped into
  1. No PA (0-2 days)
  2. Some PA (3-4 days)
  3. Regular PA (5-6 days)
  4. Daily PA (7 days)

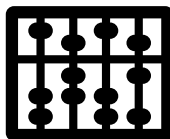


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## Analyses

### Change from Spring to Autumn

- Chi-square tests of independence
  - None or some vs A lot
  - Spring vs Autumn



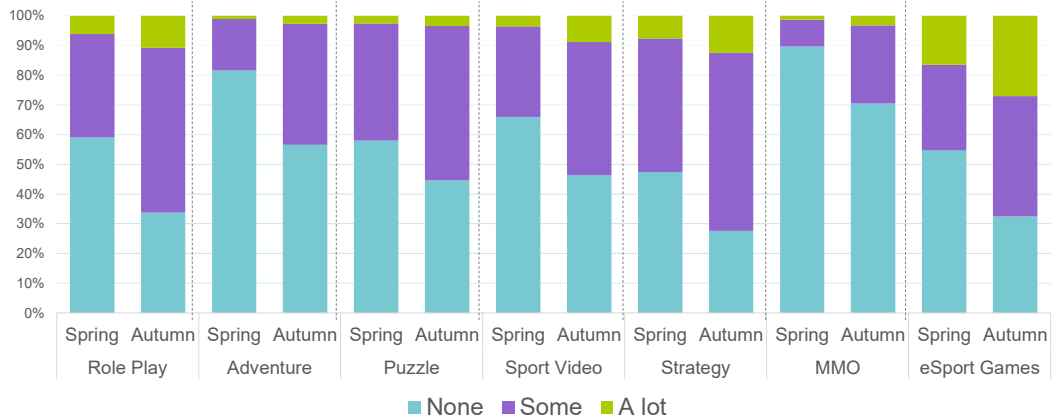
### Associations with PA

- Multinomial Logistic Regressions
- Reference categories
  - No PA (0-2 days)
  - Some gaming
- Covariates
  - Gender
  - Disability
  - Residence
- Stratified by Season



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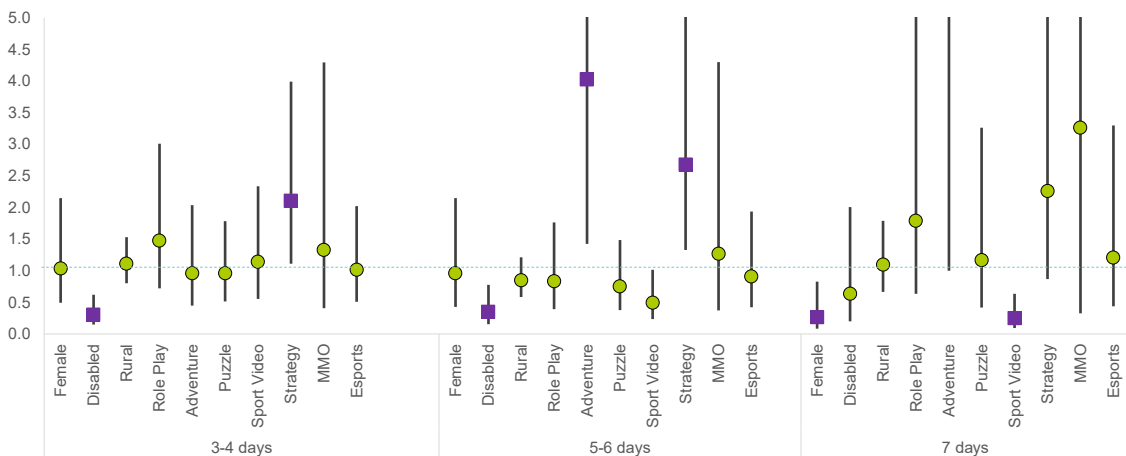
# Changes in Digital Gaming from Spring to Autumn



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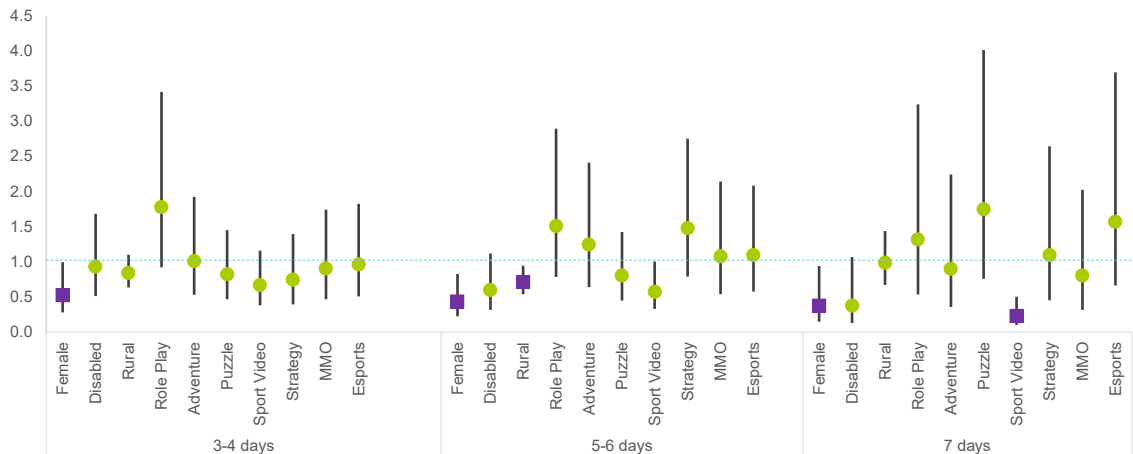
# Association with MVPA in Spring



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## Associations with MVPA in Autumn



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## Summary of Differences in Gaming activity Associations with MVPA between Spring and Autumn 2020

- In the Autumn, the associations were more consistent (i.e., narrower confidence intervals)
- Having not played strategy games in the spring was associated with some or regular PA, but not daily PA. These associations were not found in the autumn.
- Sport video game play was associated with daily PA in the Autumn

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## Conclusions

- WHO guidelines for PA for health suggests to limit sedentary behaviour, yet from this evidence, digital gaming activity has increased and most gaming activity is carried out in a sedentary position.
- Participating in sport video games were positively associated with daily MVPA, and may be part of a physical activity culture of an individual.
- Future studies are needed to understand the increased due to changes from COVID-19 as well as other “typical” seasonal effects as well as the connection with PA.



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## Acknowledgements



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Questions and comments are welcome!

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