

Exercise Frequency is Associated with Higher COVID-19 Titer Level.

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Background

- There is a need to understand how SARS-CoV-2 antibody levels evolve over time after infection and/or vaccination and what demographic and lifestyle factors may affect these levels
- This information could help provide insights into therapeutic approaches and booster vaccination for COVID-19

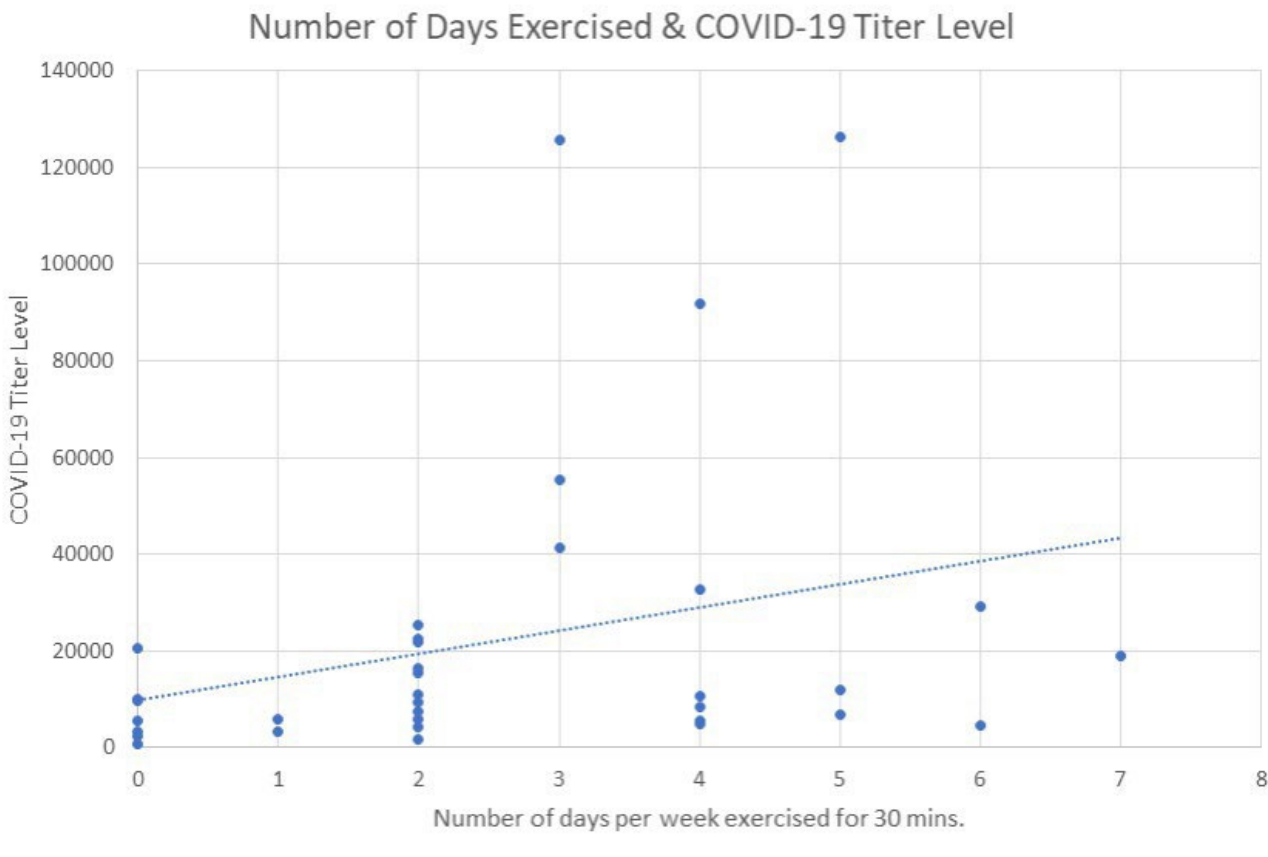
Objective

- Primary objective: to evaluate changes of COVID-19 titer levels over time
- Secondary objective: to evaluate potential demographic and lifestyle factors contributing to level of titers

Methods

- Previous COVID-19 titer levels were obtained independent of our study in February, 2021 and then again in August, 2021 by the laboratory department at Southern Hills Hospital. We were given access to the de-identified titer levels for our study
- Our study involved the creation and dissemination of a survey that contained 20 questions on basic demographic information, COVID-19 infection and vaccination information, and lifestyle factors
- Of the 131 participants, 38 responses were received for a response rate of 29%
- Analysis was performed comparing the data from the survey and the aforementioned titer levels

Results



COVID-19 Titer Levels, Infection Rates, and Lifestyle Factors		
Variables	Mean	Standard Deviation
2/21/21 Titer Level	61,091.8	34,351.3
8/21/21 Titer Level	22,206.9	31,427.03
Age (years)	47	9.8
Consumption of 1 or more non-diet soda beverages (average days per week)	0.65	1.338
Consumption of 1 or more fast/fried food meals (average days per week)	2.03	1.52
Consumption of 1 or more pastries i.e. donuts, cakes, cookies, other desserts (average days per week)	2.7	2.3
Consumption of 1 or more pieces of candy (average days per week)	3.2	2.3
Participation in regular exercise, defined as an average of 30 minutes per day, 2 or more days of the week (percent of “yes” responses)	0.7	0.46
Participation in 30 minutes or more of exercise (average number of days/week)	2.59	1.9
BMI	28.9	5.9

Results

- Increased days of exercise per week demonstrated a significantly positive correlation to the 8/21 COVID-19 titer levels (r = 0.296, p-value = 0.042).
- There was a positive correlation of those consuming one “unhealthy” diet category to another “unhealthy” diet category (ie. those consuming fast food is correlated to consuming pastries [r=0.496, p=0.001]).
- There was no significant correlation demonstrated with consumption of sodas, fast food, pastries, or candy to COVID-19 titer levels or exercise level (p=0.496, 0.426, 0.394, 0.109).

Discussion/Conclusion

- Of the studied lifestyle factors, the number of days of 30 minutes or more of exercise was shown to be the only lifestyle factor studied to have a significantly positive correlation on COVID-19 titer levels.
- Exercise more-so than diet may be encouraged for those seeking higher titer levels to COVID-19.
- Limitations include low sample size, survey validity, confounding factors for those that exercise more, and limited sample of those exercising 5 or more days per week.
- Further studies may look into the significance of exercise in boosting overall titer levels and immunity for other infections.

References

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