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The Effects of Wearing a Mask on an Exercise Regimen

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Background

- Implementation of masks has impacted everyone worldwide
- Properly wearing a mask requires covering both mouth and nose, putting a barrier between air and lungs
- Exercise relies on cardiopulmonary function, so this barrier could potentially exacerbate the already altered physiology due to exercise alone
- It is predicted that the addition of a mask will have negative implications on physiology
- If there is evidence that people do not workout as effectively while wearing a mask, it would be important to find other ways to keep people physically active.

Demographics

		SAMPLE SIZE	PERCENT
GENDER	Male	131	46.8
	Female	145	51.8
	Non-binary/Third Gender	4	1.4
RACE	White	194	69.3
	Black or African American	6	2.1
	Asian	61	21.8
	Native Hawaiian or Pacific Islander	2	0.7
	Other	15	5.4
	Prefer not to answer	2	0.7
ETHNICITY	Not of Hispanic, Latino, or Spanish Origin	250	89.3
	Mexican, Mexican Am., Chicano	6	2.1
	Puerto Rican	1	0.4
	Cuban	1	0.4
	Another Hispanic, Latino, or Spanish Origin	12	4.3
	Prefer not to answer	10	3.6
	RANGE	MEAN	STANDARD DEVIATION
AGE	18-65y/o	25.59	8.311
BMI	17-39kg/m ³	24.24	4.089

Methods

Survey Components

Developed Qualtrics online survey and administered through social media (Facebook/Instagram) and flyers at local gyms with a QR code

Responses were collected from June 1, 2021, to June 29, 2021. 280 total responses were collected from individuals who have exercised while wearing a mask between 18-65 years old.

All data was analyzed using SPSS. Bivariate Correlations, Frequencies, Descriptive Statistics, Mann-Whitney U, and Kruskal-Wallis tests were utilized

Multiple choice questions:

- Demographic information
- Types of masks worn
- Types of exercise performed
- Length of exercise
- How many days per week do they exercise
- The change in length/frequency of workouts
- Mask wearing habits while exercising

Questions ranked on a scale of 1-5:

- The overall opinion of masks
- The perceived effects of the mask on breathing, heart rate, body temperature, exertion, stamina, and quality of the workout

Discussion

- Results indicate a psychological aspect to masks and physiological perception
- Opinions of masks had a statistically significant impact on how the participant ranked their physiological perceptions on a scale of 1-5
- Those who strongly favor masks had lower physiological rankings compared to those who strongly dislike masks in all physiologic perception categories.
- Results also indicate adaption regarding wearing a mask and physiological perceptions.
- Exercising more days while masked had lower ratings of physiological perception for breathing, exertion, stamina, and quality of workout

Results

VARIABLE/ PHYSIOLOGICAL PERCEPTION	MEAN RANK			H	P
	More n=52	Fewer n=102	No Change n=97		
CHANGE IN DAYS EXERCISING/ WEEK (DF=2)					
BREATHING	104.11	130.92	132.57	6.354	0.042
EXERTION	101.63	128.70	136.23	8.360	0.015
STAMINA	103.56	135.77	127.76	7.236	0.027
QUALITY	102.02	136.44	127.88	8.228	0.016
DURATION OF MASK USE (DF=2)	Always on n= 116	Sometimes off n= 64	Usually off n= 71		
BREATHING	108.99	135.52	145.21	13.192	0.001
HEART RATE	113.17	131.59	141.92	7.824	0.020
TEMPERATURE	107.59	136.49	146.61	15.249	<0.001
EXERTION	106.23	138.40	147.12	17.370	<0.001
STAMINA	108.84	134.14	146.70	13.745	0.001
QUALITY	103.97	133.03	155.65	24.242	<0.001
MASK OPINION (DF=2)	<3 n=63	3 n=44	>3 n=144		
BREATHING	167.29	147.16	101.47	43.006	<0.001
HEART RATE	164.75	142.28	104.07	35.110	<0.001
TEMPERATURE	156.60	150.19	105.22	29.288	<0.001
EXERTION	156.04	141.19	108.22	22.515	<0.001
STAMINA	160.70	147.90	104.13	33.126	<0.001
QUALITY	163.17	146.91	103.35	35.838	<0.001

Kruskal-Wallis test. Variable/Physiological Perception column is the variable (in bold) that was compared to each of the 6 physiologic perceptions due to mask wearing with the corresponding findings in column 2, 3, and 4. Legend: Degrees of freedom (DF), sample size (n), P-value (P), Kruskal-Wallis H (H)

All other findings were not of statistical significance

Conclusion

- Masks alone seemed to have little impact on overall physiology
- The physiological changes that were perceived by the participants was deeply rooted in psychological opinions of masks
- For this reason, exercising while masked appears to be of little to no risk to the healthy population.
- Physicians should continue to recommend exercise to their healthy patients to improve patient outcomes

Acknowledgements