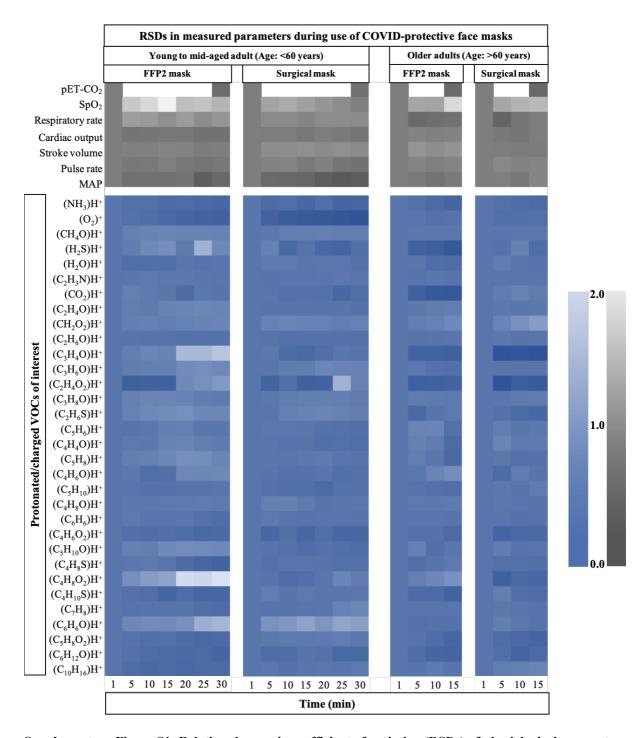
Effects of COVID-19 protective face-masks and wearing durations onto respiratory-hemodynamic physiology and exhaled breath constituents

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Supplementary information

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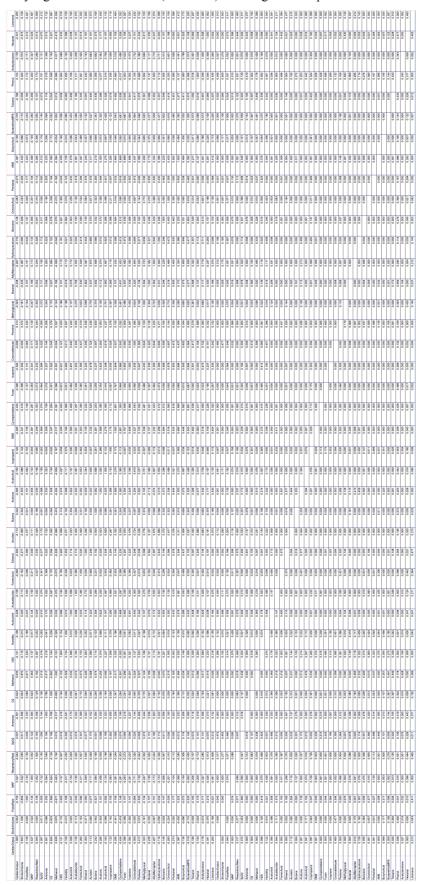


Supplementary Figure S1: Relative changes in coefficient of variation (RSDs) of physiological parameters and of exhaled alveolar VOCs during the use of COVID-protective face masks by young to mid-aged and older adults. Y-axis represents the RSDs of physiological parameters viz. pET-CO2, SpO2, respiratory rate, cardiac output, stroke volume, pulse rate, mean arterial pressure (MAP) and the protonated/charged VOCs of interest. X-axis indicates time in minute. VOCs were tentatively identified according to their mass/charge ratio. For each individual, RSDs of VOCs were normalised onto corresponding values from the first minute. Respiratory-, hemodynamic parameters and SpO2 are normalized likewise. The normalised RSDs from every 5th minute is presented here. The RSDs of pET-CO2 are presented from immediately before and after mask use and are placed at the first and final minute of heatmaps. Light and dark colours symbolise relatively higher and lower RSDs of measured parameters, respectively.

Supplementary Table S1: FFP2 mask driven inter-VOC correlations (with respect to physiological parameters) along with corresponding *p*-values. Observed positive and negative correlation factors are presented. Statistically significant correlations (1 - tailed) are assigned with *p*-value ≤ 0.005 .

| -0.039 | -0.209 | 0.196 | 0.406 | 0.003 | 0.082 | -0.485 | 0.305 | 0.548 | 0.358 | 0.362 | 0.392 | 0.759 | 0.378 | 0.601 | 0.517 | 0.546 | 0.483 | 0.520 | 0.226 | 0.166 | 0.071 | 0.513 | 0.523 | 0.064 | 0.342 | 0.423 | 1.000 | 0.326 | 0.011 | 0.000 | 0.488 | 0.000 | 0.000 | 0.000 | 0.245 | 0000 | 0.000 | 0.000 | 0,000 | 0.000 | 0.000 | 0.000 | 0.005 | 0.000 | 0.184 | 0.027 | 0000 | 0.000 | 0000 | 0.000 | 0.000 | 0.000 | |
|--------------------------|-----------|---------------|---------------|--------|--------|--------|--------|---------|-----------------------|--------|--------|----------|----------|--------|---------------|--------|--------------|-------------|--------|--------------|--------|--------|----------------|--------------|--------|-------------|--------|-------------|---------|-------|-------|-------|-------|---------|-------------------------|---------|---------|--------|----------|----------------|-------|-----------------|-------|-------------------|-----------|--------------|-----------|---------|-----------|---------------|---------------------|-------|--------|
| 0.150 | -0.109 | 0.335 | 960'0 | 0.134 | 0.028 | -0.343 | 0.258 | 0.426 | 0.250 | 0.315 | 0.196 | 0.494 | 0.213 | 0.319 | 0.323 | 0.349 | 0.343 | 0.320 | 0.129 | 910'0 | 0.282 | 0.479 | 0.458 | 0.308 | 0.513 | 0.357 | 0.512 | 0.040 | 0000 | 0.006 | 650.0 | 0.004 | 0000 | 0000 | 0000 | 0.000 | 0.007 | 0.000 | 9000 | 0000 | 0.000 | 0.000 | 0.440 | 0.000 | 0.359 | 0.000 | 0000 | 0.000 | 0000 | 0000 | 0.003 | | 0.000 |
| 0.366 | Ш | 0.062 | 0.122 | 0.147 | -0.027 | -0.188 | 0.258 | 0.360 | 0.069 | 0.153 | 0.371 | 0.350 | 0.279 | 0.274 | 0.282 | 0.301 | 0.304 | 0.640 | 0.172 | 0.187 | 0.096 | 0.503 | 0.301 | 0.202 | 0.282 | 1,000 | 0.423 | 0000 | 0.237 | 0.293 | 0.044 | 0.376 | 0.015 | 0000 | 0.000 | 0.000 | 0000 | 0.000 | 0.001 | 0.001 | 0.001 | 0.00 | 0.000 | 0.000 | 900.0 | 0.014 | 0000 | 0.000 | 0000 | 0.000 | 0000 | 0.000 | 0000 |
| nerol Acety 0.295 | 0.282 | -0.008 | -0.083 | -0.035 | -0.092 | -0.082 | 0.331 | 0.300 | 0.289 | 0.505 | 0.288 | 0.294 | 0.056 | 0.160 | 0.098 | 0.142 | 0.262 | 0.430 | 0.401 | 0.004 | 0.262 | 0.664 | 0.089 | 0.192 | 0.158 | 0.412 | 0.300 | 0.000 | 0.462 | 0.246 | 0.344 | 0.000 | 0.172 | 0.000 | 0000 | 0.477 | 0.000 | 0.000 | 0.258 | 0.031 | 0.018 | 0.090 | 0.000 | 0.000 | 0.434 | 0.001 | 0000 | 0.000 | 6000 | 0.033 | 0.000 | 0.003 | 0.000 |
| Toluene Phe | 0.075 | 0.255 | 0.010 | 0.187 | 0.016 | 0.049 | 0.377 | 0.647 | 0.437 | 0.421 | 0.197 | 0.421 | 0.249 | 0.396 | 0.461 | 0.441 | 0.433 | 0.337 | 0.354 | 0.123 | 0.610 | 0.556 | 0.540 | 0.499 | 1,000 | 0.282 | 0.342 | 0.122 | 0.001 | 0.302 | 0.015 | 0.215 | 0.287 | 0.474 | 0000 | 0000 | 0.011 | 0.000 | 0.002 | 0000 | 0000 | 0000 | 0.094 | 00000 | 0.417 | 0.000 | 0000 | 0000 | 0000 | W 0.00 | 0.000 | 0.000 | 0000 |
| -0.103 Tolue | | 990 | 126 | 331 | 500.00 | 121 | 242 | 222 | 254 | 363 | 27.2 | 201 | 314 | 138 | 243 | 200 | 201 | 589 | 280 | 108 | 909 | 375 | 279 | 000 | 180 | 202 | 064 | 116 | 222 | 409 | 000 | 239 | MO). | 340 | 80 00 | 000 | 100 | .010 | .000 | 2005 | 003 | 010 | 366 | 000 | 200 | 901. | 000 | 000 | 000 | 000: | 003 | 000 | 153 |
| Butanethi | 9 | 9 9 | 9 | 0 | 0 9 | 9 0 | 0 0 | 9 | 0 0 | 0 | 0 0 | 0 | 0 0 | | 0 0 | 0 | 0 0 | 0 0 | 2 0 | 0 | 9 9 | 0 | w 0 | | - 8 | 9 1 | 9 8 | 0 0 | . 9 | 0 0 | 0 | 0 0 | 0 0 | 9 0 | 0 0 | 0 0 | | 0 0 | 0 0 | 0 0 | | 0 0 | 0 | 0 0 | 0 | 0 0 | 0 | 0 0 | Ů | 0 | 00 | 0 | 0 |
| ButyricAcid 0.154 | 0.03 | 0.13 | 0.15 | 0.20 | 900 | 0.11 | 0.122 | 0.37 | 0.56 | 0.32 | 92'0 | 0.47 | 0.58 | 0,63 | 0.55 | 0.58 | 990 | 0.47 | 0.21 | 0.48 | 0.33 | 0.38 | 0.57 | 0.27 | 0.37 | 0.00 | 0.47 | 0.09 | 90'0 | 0.38 | 000 | 0.05 | 60.0 | 0000 | 0.0 | 0000 | 000 | 0.00 | 0.00 | 0.0 | 0000 | 0.00 | 0.00 | 0.00 | 000 | 0.00 | 0.00 | 0.00 | | 0000 | 0.00 | 0.00 | 80 |
| AMS 0.127 | 1 1 | 0.389 | 0.191 | 0.140 | 0.162 | -0.278 | 0.249 | 0.590 | 0.184 | 0.233 | 0.201 | 0.522 | 0.239 | 0.788 | 0.781 | 0.785 | 0.532 | 0.346 | 0.170 | 0.006 | 0.272 | 0.428 | 1,000 | 0.241 | 0.540 | 0.301 | 0.623 | 0.070 | 0.000 | 0.445 | 0.062 | 0.002 | 0,001 | 0.000 | 0.000 | 0.000 | 0.010 | 0.008 | 0.003 | 0000 | 0.000 | 0.000 | 0.073 | 0.000 | 0.499 | 0.471 | 0.000 | 0.000 | 0.000 | 0.000 | 0.161 | 0.000 | 0000 |
| Pentanal 0.304 | -0.038 | 0.460 | 0.017 | 0.034 | 0.001 | -0.224 | 0.512 | 0.467 | 0.549 | 655'0 | 0.236 | 0.541 | 0.154 | 0.318 | 0.366 | 0.349 | 0.493 | 0.600 | 0.622 | -0.078 | 0.305 | 1.000 | 0.428 | 0.375 | 0.556 | 0.503 | 0.513 | 0.000 | 0.000 | 0.122 | 0.347 | 0.000 | 0.004 | 0000 | 0000 | 0.000 | 0.003 | 0.000 | 0.093 | 0000 | 0.000 | 0.000 | 0.001 | 0000 | 0.037 | 0.182 | 0.000 | 0.000 | 0000 | 0.000 | 0.000 | 0.000 | 0.000 |
| rotonic/kcid 0.060 | 4.113 | 0.234 | -0.101 | 0.228 | 0.181 | -0.204 | 0.159 | 0.468 | 0.515 | 0.590 | 0.518 | 0.313 | 0.445 | 0.238 | 0.288 | 0.256 | 0.397 | 0.768 | 0.513 | 0.252 | 0.465 | 0.654 | 0.312 | 0.550 | 0.426 | 0.490 | 0.361 | 0.246 | 0.003 | 0.134 | 0.004 | 0.000 | 9000 | 0.032 | 0000 | 0.000 | 0000 | 0.000 | 0.000 | 0.003 | 0.00 | 0.001 | 0.084 | 0000 | 0000 | 0.002 | П | 0.000 | 0000 | 00000 | 0.000 | 0000 | 0000 |
| -0.074 | -0.141 | 0.089 | 0.130 | 0.024 | 0.026 | 0.212 | 0.205 | 0.499 | 0.338 | 0.452 | 0.235 | 0.146 | 0.202 | 0.175 | 0.218 | 0.195 | 0.363 | 0.224 | 0.329 | -0.161 | 1,000 | 0.305 | 0.272 | 0.605 | 0.610 | 0.095 | 0.071 | 0.196 | 0.126 | 0.108 | 0.389 | 0.080 | 0.007 | 0.083 | 0.000 | 0.000 | 0.007 | 0.064 | 0.009 | 0.021 | 0.001 | 0.000 | 0.116 | 0.004 | 0.476 | 0.031 | 0.000 | 0.000 | 0000 | 0.000 | 0.001 | 0.000 | 0.204 |
| -0.108 | 0.125 | 0.313 | 0.071 | 0.328 | 0.193 | -0.191 | 990'0- | 060'0- | 0.374 | -0.069 | 0.824 | 0.135 | 0.004 | 0.083 | 0.032 | 0.060 | 0.054 | 0.369 | -0.064 | 1,000 | -0.161 | -0.078 | 0.006 | 0.108 | -0.123 | 0.187 | 0.566 | 0.106 | 0000 | 0.766 | 0000 | 0.038 | 0.013 | 0.025 | 0.150 | 0.000 | 0000 | 0.059 | 0.000 | 0.170 | 0.275 | 0.243 | 0.201 | 0.000 | 0000 | 0.031 | 0.002 | 0.182 | 0000 | 0.077 | 0.480 | 0.425 | 0.027 |
| -0.183 | 0.113 | 0.380 | 0.003 | 0.370 | 0.157 | -0.061 | -0.071 | -0.060 | 0.473 | -0.033 | 0.788 | -0.028 | 0.819 | 0.028 | 9000 | 0.018 | 0.012 | 0.382 | 1000 | 0.875 | 0.006 | 0.154 | 0.000 | 0.211 | 0.018 | 0.156 | 0.078 | 0.016 | 0000 | 0.290 | 0000 | 0.422 | 0.278 | 0.385 | 0.283 | 0.000 | 0000 | 0.375 | 0.000 | 0.374 | 0.351 | 0.416 | 0.249 | 0.000 | | 0.000 | 0.000 | 0.037 | 0000 | 0.417 | 0.434 | 0.359 | 0.184 |
| anal Allythe | -0.153 | 0.148 | 0.104 | -0.008 | -0.069 | 0.000 | 0.325 | 0.317 | 0.808 | 0.776 | 0.302 | 0.130 | 0.066 | 0.094 | 0.212 | 0.175 | 0.310 | 0.563 | 1.000 | -0.064 | 0.329 | 0.622 | 0.170 | 0.260 | 0.354 | 0.172 | 0.226 | 0.312 | 0.042 | 0.045 | 0.461 | 0.217 | 0.499 | 0600 | 0000 | 0.005 | 0.001 | 0.000 | 0.018 | 0.138 | 0.001 | 0.0021 | 0.000 | 0000 | 0.448 | 0.230 | 0000 | 0.000 | 0.007 | 0.000 | 0.000 | 0.068 | 0.004 |
| 9 oxal Buta 0.100 | | | | 0.201 | 0.026 | 0.219 | 0.420 | 0.463 | 0.482 | 0.536 | 0.234 | 0.365 | 0.492 | 0.253 | 0.250 | 0.252 | 0.371 | 1,000 | 0.553 | 0.369 | 0.224 | 0.600 | 0.346 | 0.289 | 0.337 | 0.640 | 0.520 | 0.123 | 0.240 | 0.051 | 6000 | 0.000 | 9000 | 1000 | 0000 | 00000 | 0000 | 0.000 | 0.000 | 0.001 | 0000 | 0.002 | 0.007 | 0000 | 0000 | 0.000 | 0000 | 0000 | 0000 | 0.000 | 0000 | 0000 | 0.000 |
| 0.096 Methylg | Ш | 0.074 | 2,177 | 0.064 | 3,227 | 2,114 | 0.036 | 0.268 | 0.030 | 3,239 | 3,172 | 7.257 | 0.045 | 7927 | 0.283 | 346 | 3.351 | 3,211 | 0.414 | 0.073 | 0.103 | 0.270 | 0,125 | 0.030 | 0.114 | 7.281 | 0.223 | 0.134 | 0.196 | 0.067 | 992.0 | 3.247 | 2900 | 0000 | 0.001 | 384 | 2010 | 0.001 | 9000 | 0.001 | 000 | 0000 | | 0000 | 0.249 | 3,201 | 700 | 0.001 | 700 | 0.094 | 0000 | 0.440 | 9000 |
| 0.036 Pente | Ш | 185 | 100 | 108 | 200 | 203 | 168 | 203 | 373 | 323 | 398 | 435 | 272 | 199 | 648 | 1991 | 000 | 37.1 | 310 | 054 | 363 | 683 | 532 | 201 | 433 | 304 | 480 | 341 | 910 | 003 | 220 | 130 | 600 | 000 | 00 100 | 000 | 000 | 000 | 100 | 000 | 000 | 000 | 000 | 000 | 949 | 287 | 000 | 000 | 00 1 | 40 00 | 100 | 000 | 000 |
| Outonalds | Ĥ | 8 6 | 35 52 | 91 | 9 8 | 9 | 28 00 | 0 | 8 8 | 35 | 8 8 | 32 | 34 | 8 | 2 2 | 8 | 19 99 | 28 | 75 | 9 | 8 8 | 8 | 98 98 | 8 | 4 4 | 6 | 9 4 | 99 | 8 | 56 00 | *** | 0 0 | 20 00 | 3 8 3 | 8 8 | 8 8 | 8 8 8 | 8 8 | 8 8 | 8 8 | 8 | 8 | 8 | 20 12 | * | 43 | 10 | 8 8 | 8 8 | 2 8 | 8 8 | 8 | 8 |
| 8 | | 9 9 | 0 0 | 0.0 | 0 0 | 0 | 0.0 | 0 | 2 0 | 20 | 0 0 | 14 | 20 00 | 000 | 20 00 | 1,0 | 91 0 | 2 | 78 0.1 | 00 | 6 6 | 8 | 0.0 | 0.3 | 98 12 | 8.0 | 91 | 0.0 | 00 | 10 00 | 20 00 | 20 00 | 00 0 | 00 | 0 0 | 000 | 30 0 | 00 00 | 00 00 | 00 00 | 00 | 00 00 | 00 | 00 00 | 15 | 10 07 | 00 | 00 00 | 00 0 | 3 00 | 91 | 00 | 00 |
| Furan | Ш | 0.0 | 0.2 | 0.1 | 0.0 | 0.2 | 0.213 | | 0.5 | 0.3 | 0.3 | 0.5 | 0.2 | 0.0 | 0.0 | 0.8 | 0.0 | 0.3 | 2 0.2 | 0.0 | 0.0 | 9.0 | 0.0 | 0.2 | 0.0 | 2 0.2 | 0.0 | 0.1 | 0.0 | 7 0.3 | 000 | 0.0 | 000 | 00 | 00 00 | 0.0 | 0.0 | 0.0 | 00 00 | 0.0 | | 0.0 | 0.0 | 00 00 | 0.3 | 0.0 | 000 | 0.0 | 000 | 3 00 | 0.0 | 0.0 | 0.0 |
| yclopentadiene 0.054 | ľ | | | | 0.275 | 0.26 | 0.187 | 0.473 | 0.051 | 0.23 | 0.16 | 0.56 | 0.26 | 0.895 | 1.00 | 0.97 | 0.66 | 0.25 | 0.21 | 0.03 | 0.21 | 0.39 | 0.78 | 0.24 | 0.46 | 0.28 | 0.51 | 0.23 | 000 | 0.47 | 0.00 | 0.00 | 0.00 | 000 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.000 | 0000 | 0.00 | 0.00 | 0.47 | 0.35 | 0.00 | 0.00 | .000 | 000 | 0.00 | 0.00 | 000 |
| DMS Cycl | -0.140 | 0.379 | 0.333 | 0.147 | 0.200 | -0.268 | 0.151 | 0.493 | 0.475 | 0.238 | 0.227 | 0.652 | 0.320 | 1.000 | 0.895 | 0.830 | 0.661 | 0.253 | 0.094 | 0.083 | 0.175 | 0.318 | 0.783 | 0.126 | 0.399 | 0.274 | 0.601 | 0.027 | 0.00 | 0.373 | 0.043 | 0.001 | 0.001 | 0000 | 0.000 | 0.000 | 0.004 | 0.000 | 0.000 | 0000 | 0.000 | 0.000 | 0.001 | 0.001 | 0.374 | 0.170 | 0.003 | 0.000 | 0000 | 0000 | 0.031 | 0.000 | 0.000 |
| dpopanol -0.05p | -0.125 | 0.052 | 0.162 | -0.171 | -0.029 | -0.209 | 0.544 | 0.503 | 0.580 | 0.319 | 0.297 | 0.402 | 0.029 | 0.247 | 0.163 | 0.234 | 0.196 | 0.273 | 0.580 | 0.025 | 0.264 | 0.243 | 0.272 | 0.025 | 0.098 | 0.189 | 0.378 | 0.246 | 0.273 | 0.372 | 0.023 | 0.370 | 0.007 | 0000 | 0,000 | 0.296 | 0.001 | 0000 | 0.368 | 0.002 | 0.002 | 0.003 | 900'0 | 0.001 | 0.299 | 0.388 | 0.002 | 0.002 | 1100 | 0.129 | 0.000 | 0.000 | 0000 |
| DeticAcid II | -0.032 | 0.151 | 0.076 | 0.411 | 0.260 | -0.191 | -0.007 | 0.167 | 0.701 | 0.141 | 0.648 | 0.297 | 1,000 | 0.320 | 0.269 | 0.287 | 0.272 | 0.482 | 0.066 | 0.804 | 0.202 | 0.114 | 0.239 | 0.314 | 0.249 | 0.279 | 0.375 | 0.061 | 0.039 | 0.390 | 0000 | 0.121 | 0.013 | 0.063 | 0.006 | 0.000 | 0000 | 0.000 | 0.368 | 00000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.00 | 0000 | 0000 | 0.003 | 0000 | 0.002 | 0.258 | 0.006 | 0.000 |
| Cetone A | ш | 0.313 | 0.271 | 0.099 | 0.234 | -0.454 | 0.249 | 655.0 | 0.283 | 0.325 | 0.285 | 1.000 | 0.297 | 0.652 | 0.561 | 0.625 | 0.435 | 0.365 | 0.130 | 0.135 | 0.146 | 0.541 | 0.522 | 0.201 | 0.421 | 0.390 | 0.759 | 0.380 | 0.000 | 0.085 | 0.126 | 0.003 | 0.000 | 0000 | 0.000 | 0.000 | 0000 | 0000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.375 | 0.059 | 0.000 | 0.000 | 0000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Butene A | 0.063 | 0.041 | 0.107 | -0.165 | 0.340 | 0.000 | 0.008 | 0.403 | 0.188 | 0.284 | 1,000 | 0.376 | 0.019 | 0.317 | 0.249 | 0.334 | 0.478 | 0.234 | 0.332 | -0.070 | 0.235 | 0.274 | 0.207 | 0.094 | 0.278 | 0.260 | 0.360 | 0,440 | 0.319 | 0.416 | 0.007 | 0.029 | 0.189 | 0000 | 0.000 | 0.384 | 0000 | 0000 | 0.411 | 0000 | 0.000 | 0.000 | 0.000 | 0000 | 0.288 | 0.208 | 0.063 | 0.001 | 0.001 | 0.001 | 0.000 | 0.011 | 0000 |
| crolein -0.043 | | 0.213 | 0.069 | 0.207 | 0.024 | -0.142 | 0.140 | 0.265 | 0.489 | 0.258 | 1,000 | 0.295 | 0.848 | 0.227 | 0.160 | 0.206 | 0.346 | 0.614 | 0.265 | 0.824 | 0.211 | 0.236 | 0.201 | 0.273 | 0.197 | 0.371 | 0.392 | 0.309 | 900'0 | 0.274 | 0.008 | 0.117 | 690'0 | 0000 | 0.002 | 0.000 | 800 | 0.000 | 0.000 | 0.004 | 0.003 | 0.009 | 0.022 | 0.000 | 0000 | 0.000 | 0000 | 0.003 | 0000 | 0.011 | 0.000 | 0.007 | 0.000 |
| Ethanol A | -0.178 | 0.349 | -0.107 | -0.042 | -0.057 | -0.074 | 0.203 | 0.417 | 0.780 | 1,000 | 0.28 | 0.325 | 0.541 | 0.238 | 0.236 | 0.215 | 0.323 | 905.0 | 0.776 | -0.069 | 0.452 | 0.669 | 0.233 | 0.353 | 0.421 | 0.153 | 0.352 | 0.171 | 0000 | 0.023 | 0.313 | 0.009 | 0.196 | 6000 | 00000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0000 | 9000 | 0.003 | 00000 | 0380 | 0.212 | 0000 | 00000 | 0000 | 0.000 | 0.000 | 00000 | 0.000 |
| icAcid B | 0.153 | 0.076 | 0.164 | 0.528 | 0.287 | -0.156 | 0.172 | 0.318 | 1,000 | 0.255 | 0.489 | 0.293 | 0.701 | 0.475 | 0.542 | 0.498 | 0.373 | 0.491 | 0.221 | 0.374 | 0.338 | 0.280 | 0.468 | 0.462 | 0.516 | 0.345 | 0.358 | 0.141 | 0.191 | 0.026 | 0000 | 0.243 | 0.006 | 0.380 | 0000 | 0000 | 0000 | 0.000 | 0.000 | 0000 | 0.000 | 0000 | 0.364 | 0.000 | 0000 | 0000 | 0000 | 0.000 | 0000 | 0000 | 0.000 | 0.000 | 0.000 |
| deyhde Forn | | | | | 0.170 | 0.150 | 0.352 | 0.390 | 0.215 | 0.790 | 0.108 | -0.012 | 0.180 | 990'0- | 0.051 | 0.00 | 0.276 | 0.452 | 0.805 | -0.249 | 0.478 | 695.0 | 0.184 | 0.354 | 0.437 | 650.0 | 0.090 | 0.288 | 0.000 | 0.002 | 0.268 | 0.365 | 0.041 | 0.115 | 0.000 | 9000 | 0.108 | 0.446 | 0.269 | 0.299 | 960.0 | 0.001 | 0.010 | 0.000 | 0.138 | 0.002 | 0000 | 0.000 | 0.049 | 0.000 | 0.000 | 9000 | 0.245 |
| Acetonitrii Acetak | -0.164 | 0.248 | 0.133 | 0.062 | 0.00 | -0.203 | 0.297 | 1,000 | 0.316 | 0.417 | 0.246 | 0.559 | 0.167 | 0,493 | 0.473 | 0,497 | 0.503 | 0,463 | 0.317 | 90.090 | 0.499 | 0,467 | 0.590 | 0.232 | 0.647 | 0.360 | 0.548 | 0.337 | 0.002 | 0.293 | 0.275 | 0.018 | 6000 | 0000 | 0000 | 0000 | 0.002 | 0.000 | 0.000 | 0000 | 0000 | 0000 | 0.001 | 0000 | 0.283 | 0.150 | 0000 | 0000 | 0000 | 0,000 | 0000 | 0.000 | 0.00 |
| Humidity Acet | -0.150 | 0.130 | 0.282 | -0.171 | 0.034 | 0.602 | 0.086 | 0.296 | 0.104 | 0.203 | 0.304 | 0.665 | 0.139 | 0.408 | 0.282 | 0.378 | 0.354 | 0.296 | 0.116 | 0.169 | 0.114 | 0.342 | 0.285 | -0.036 | 0.006 | 0.312 | 90910 | 0.448 | 990'0 | 0.000 | 0.023 | 0.000 | 0.000 | 60 100 | 0.116 | 0.380 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.385 | 0.026 | 0.032 | 0.000 | 1000 | 0.474 | 0000 | 0.000 | 0.000 |
| HZS Hum 0.203 | 0.043 | 0.230 | 0.048 | 0.067 | 0.035 | 0.134 | 1,000 | 0.297 | 0.352 | 0.397 | 0.140 | \vdash | 0.544 | - | Н. | - | - | | | 0.086 | | 0.512 | 0.249 | 0.242 | 0.377 | 0.258 | 0.305 | 0.009 | 0.003 | 0.209 | 0.218 | 0.015 | 650'0 | 0.159 | 0000 | 0.023 | 0.052 | 0.002 | 0.048 | 0.040 | 900'0 | 0.027 | 0.340 | 0.000 | 0.205 | 0.159 | 0000 | 0.000 | 9,000 | 0.000 | 0.000 | 0.001 | 0.000 |
| Methanol HZ 0.223 | 0.440 | 0.191 | 0.175 | 0.011 | 0.583 | 1.000 | 0.134 | 0.203 | 0.156 | 0.074 | 0.142 | 0.454 | 0.191 | 0.268 | 0.245 | 0.245 | 0.203 | 0.219 | 0.000 | 0.191 | 0.212 | 0.224 | 0.278 | 0.157 | 0.049 | 0.166 | 0.486 | 0.006 | 0.013 | 0.000 | 0.447 | 0.000 | 0,000 | 0000 | 0.009 | 0.036 | 0.049 | 0.000 | 0.013 | 0.001 | 0000 | 0.002 | 0.062 | 0.006 | 0.278 | 0.007 | 9000 | 0.004 | 160.0 | 0.287 | 0.172 | 0000 | 0000 |
| 0.096 Metha | | | | | | | | | | | | | | | - | 0.229 | - | - | 1068 | . 152 | 1134 | 1961 | 1243 | 1901 | 1,068 | 1315 | 5621 | 1132 | 000 | 145 | 0.173 | 000 | 0001 | 000 | 1365 | 1243 | 0.117 | 0001 | 1121 | 1001 | 5001 | 1,004 | 1247 | 0.000 | 1422 | 1090 | 000 | 7000 | 100 | 218 | 0000 | 1004 | 0001 |
| Ammonia 02 | 438 | 906 | 067 | 378 | 00 00 | 583 | .036 | 101 | 287 | .067 | 340 | 234 | 260 | 300 | | | | | 990 | 183 | 920 | 100 | 285 | | | | | | | | | | | | | | | | 370 | 010 | 220 | 332 | 900 | 383 | 760 | 384 | 210 | 486 | 245 | 428 | 0.143 | 374 | 14 |
| Ammon -c | D47 | 010 | 690 | 000 | 378 | 011 | 007 -0 | 002 | 00 803 | 042 | 165 0 | 0 680 | 411 0 | 147 | 208 | 181 | 166 | 201 | 900 | 328 | 00 00 | 0 960 | 140 | 331 | 187 0 | 147 | 000 | 280 | 462 | 000 | | | | - 1 - 1 | | | - 1 - 1 | | | | | | | | 11 | | | | 1 1 | | 0.944 | | |
| 8p02 | 0 | 90 9 | 9 9 | 1. | 0 0 | 0.0 | 0 0 | 0 0 | 903 | 00 | 0 0 0 | 0 | 0 0 | 0 0 | 158 | 175 | 9 9 | 040 | 0. 0. | 0.0 | 0 0 | 117 0 | 91 | 0 92 | 0 0 | 22 | 90 | 0 961 | 912 | 0 90 | 9 1 | 145 0 | 121 | 000 | 0 0 | 128 0. | 134 | 001 00 | 0 00 | 000 | 001 | 000 | 000 | 15 0 | 0 888 | 0 0 | 0 22 | 122 0 | 0 0 | . 0 99 | 0.142 0 | 33 0 | 00 |
| 2 | 1 1 | | | 1 1 | - 1 | | | 1 1 | - 1 | 1 1 | | 1 1 | | | | | - 1 | | | | - 1 | | | | | 1 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MAP Resp | 0.03 | 0.07 | 0.21 | -0.37 | 0.00 | 0.32 | 0.07 | 90.0- | 0.25 | -0.17 | 0.05 | 0.11 | 60.0 | -0.02 | 0.00 | -0.02 | 0.23 | -0.14 | -0.14 | 0.09 | 0.10 | 0.10 | -0.01 | -0.02 | 0.06 | -0.04 | 0.14 | 0.37 | 0.20 | | | | | | | | | | | | | | | | | | | | | | 0.269 | | |
| PulseRate MV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0.462 | | |
| StrokeVolume 0.711 | 1.000 | -0.280 | 0.129 | -0.043 | -0.434 | 0.440 | 0.040 | 0.164 | 0.153 | -0.176 | 0.125 | -0.246 | -0.000 | -0.140 | -0.200 | -0.154 | -0.112 | 0.043 | -0.150 | 0.125 | -0.16 | -0.038 | -0.184 | -0.136 | -0.07 | 0.314 | -0.209 | 0.000 | 0.000 | 0.367 | 0.296 | 0.000 | 0.000 | 0.000 | 0.007 | 0.033 | 0.074 | 0.002 | 0.359 | 0.061 | 0.009 | 0.035 | 0.034 | 0.311 | 0.096 | 0.007 | 0.096 | 0.320 | 0.431 | 0.193 | 0.000 | 0.105 | 0.000 |
| CardiacOutput StrokeVol. | 0.711 | 0.448 | 0.023 | -0.048 | 0.282 | 0.223 | 0.203 | 0.036 | 0.048 | 0.082 | 0.043 | 0.026 | -0.141 | 0.166 | 0.054 | 0.111 | 9000 | 0.100 | -0.042 | -0.108 | -0.074 | 0.334 | 0.127 | -0.103 | 0.101 | 0.396 | -0.039 | 0000 | 0.000 | 0.377 | 0.290 | 0.132 | 0.005 | 0.448 | 0.288 | 0.141 | 0.309 | 0.380 | 0.051 | 0.027 | 0.139 | 0.099 | 0.134 | 0.123 | 910.0 | 0.106 | 0.246 | 0.000 | 0.083 | 0.122 | 0.000 | 0.040 | 0.326 |
| dacOutput | okeVolume | itseRate D | spirator/Rate | 8 | monia | pranol | S | etonini | etaldeyhde micAcid | and | rolein | econe | eticAcid | 2 | clopentadiene | eusod | ptonaldehyde | thy(g)yaxal | tanal | droxyacetone | rzene | itansi | #S vricAcid | 1anethold/99 | luene | etylacetone | nous | relacoutput | IseRate | Q) | 20 | mona | shand | midity | etoritrii etaldeyhde | micAcid | rolein | econe | eticAcid | format affects | un. | drende transfer | rtene | Phylopoxal and | Mercaptan | droxyacetone | MonicAcid | ettenal | tyricAcid | Union Company | enol 1tylacetone | iguax | conomi |

Supplementary Table S2: Surgical mask driven inter-VOC correlations (with respect to physiological parameters) along with corresponding *p*-values. Observed positive and negative correlation factors are presented. Statistically significant correlations (1 – tailed) are assigned with p-value ≤ 0.005 .



Supplementary Table S3: Results from pairwise-multiple comparisons of relative changes (in %) between groups. Statistical significances are tested by means of repeated measurement-ANOVA on ranks (p-value \leq 0.005). From all pairwise-multiple comparisons, statistically significant difference along with corresponding p-values are listed with respect to % of changes caused by "FFP2 mask on older adults (FFP2_15min_O)". Statistically significant (p-value \leq 0.005) correlations are assigned in bold.

| SpO ₂ | Vs. | P-value | Sig. |
|------------------|--|----------------------------|-------------------|
| FFP2_15min_O | FFP2_15min_A | < 0.001 | Yes |
| | FFP2_30min_A Surg_15min_A Surg_30min_A | <0.001 <0.001 <0.001 | Yes Yes Yes |
| | Surg_15min_O | < 0.001 | Yes |

| pET-CO2 | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | Surg_30min_A | <0.001 | Yes |
| | FFP2_30min_A | <0.001 | Yes |
| | Surg_15min_O | <0.001 | Yes |

| RR | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | < 0.001 | Yes |
| | FFP2_30min_A | 0.003 | Yes |
| | Surg_15min_A | 0.212 | No |
| | Surg_30min_A | 0.149 | No |
| | Surg_15min_O | 0.365 | No |

| СО | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | 0.002 | Yes |
| | FFP2_30min_A | 0.35 | No |
| | Surg_15min_A | 0.004 | Yes |
| | Surg_30min_A | 1.471 | No |
| | Surg_15min_O | 0.005 | Yes |

| MAP | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | 0.003 | Yes |
| | FFP2_30min_A | 1.25 | No |
| | Surg_15min_A | 0.005 | Yes |
| | Surg 30min A | 0.007 | No |
| | Surg_15min_O | 0.001 | Yes |

| Exhaled O ₂ | Vs. | P-value | Sig. |
|------------------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | < 0.001 | Yes |
| | FFP2_30min_A | 0.266 | No |
| | Surg_15min_A | 0.002 | Yes |
| | Surg_30min_A | < 0.001 | Yes |
| | Surg_15min_O | 1.567 | No |

| Exhaled H ₂ O | Vs. | P-value | Sig. |
|--------------------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | < 0.001 | Yes |
| | FFP2_30min_A | 0.37 | No |
| | Surg_15min_A | < 0.001 | Yes |
| | Surg_30min_A | 0.005 | Yes |
| | Surg_15min_O | 0.001 | Yes |

| Isoprene | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | <0.001 | Yes |
| | FFP2 30min A | 0.002 | Yes |
| | Surg_15min_A | 1.453 | No |
| | Surg 30min A | 0.005 | Yes |
| | Surg 15min O | 0.001 | Yes |

| Acetone | Vs. | P-value | Sig. |
|--------------|--|------------------------------------|------------------------|
| FFP2_15min_O | FFP2_15min_A | 0.063 | No |
| | FFP2_30min_A Surg_15min_A Surg_30min_A Surg_15min_O | <0.001 1.055 <0.001 1.121 | Yes No Yes No |

| DMS | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | 0.003 | Yes |
| | FFP2_30min_A | < 0.001 | Yes |
| | Surg_15min_A | 0.75 | No |
| | Surg 30min A | 0.004 | Yes |
| İ | Surg_15min_O | 0.368 | No |

| Acetic acid | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | 2.003 | No |
| | FFP2_30min_A | 1.301 | No |
| | Surg_15min_A | 0.001 | Yes |
| | FFP2_30min_A | < 0.001 | Yes |
| | Surg_15min_O | 0.554 | No |

| Acetaldehyde | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | 1.81 | No |
| | FFP2_30min_A | 2.065 | No |
| | Surg_15min_A | 0.05 | No |
| | Surg_30min_A | 0.021 | No |
| | Surg_15min_O | 0.001 | Yes |

| Limonene | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | < 0.001 | Yes |
| | FFP2_30min_A | 0.005 | Yes |
| | Surg_15min_A | 0.004 | Yes |
| | Surg_30min_A | 0.001 | Yes |
| | Surg_15min_O | 1.331 | No |

| Ethanol | Vs. | P-value | Sig. |
|--------------|--------------|---------|------|
| FFP2_15min_O | FFP2_15min_A | 0.006 | No |
| | FFP2_30min_A | 0.001 | Yes |
| | Surg_15min_A | 0.031 | No |
| | Surg_30min_A | 0.4 | No |
| | Surg_15min_O | 0.003 | Yes |