

Table S1 Values of manual and automatic estimates of endothelial parameters for each of the images in our data set. We include the automatic estimates from the NAVIS software and from the segmentation algorithm proposed in this paper.

| image size | | ground truth | | | | NAVIS | | | | proposed method | | | | | |
|-------------|-------------|--------------|---------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------|--------------|
| x (px) | y (px) | cells | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | F -measure |
| 378 | 476 | 65 | 1541 | 33.3 | 56.9 | 1634 | 29.3 | 56.5 | 1553 | 27.6 | 52.3 | 1553 | 27.6 | 52.3 | 0.99 |
| 491 | 416 | 71 | 1396 | 25.8 | 66.2 | 1523 | 36.7 | 50.0 | 1368 | 27.0 | 55.2 | 1368 | 27.0 | 55.2 | 0.93 |
| 353 | 354 | 52 | 1760 | 43.2 | 40.4 | 1949 | 42.2 | 43.1 | 1831 | 41.6 | 30.2 | 1831 | 41.6 | 30.2 | 0.94 |
| 390 | 553 | 85 | 1799 | 30.0 | 44.7 | 1862 | 31.5 | 36.5 | 1845 | 29.7 | 41.1 | 1845 | 29.7 | 41.1 | 0.92 |
| 351 | 415 | 78 | 2152 | 23.9 | 57.7 | 2196 | 26.6 | 57.0 | 2169 | 23.8 | 58.1 | 2169 | 23.8 | 58.1 | 0.98 |
| 349 | 456 | 91 | 2215 | 27.5 | 62.6 | 2193 | 29.1 | 64.0 | 2367 | 30.9 | 54.3 | 2367 | 30.9 | 54.3 | 0.91 |
| 411 | 448 | 97 | 2285 | 35.0 | 41.2 | 2359 | 36.0 | 36.4 | 2174 | 38.7 | 40.2 | 2174 | 38.7 | 40.2 | 0.86 |
| 538 | 476 | 59 | 958 | 16.8 | 59.3 | 1890 | 67.7 | 22.5 | 1014 | 38.1 | 40.4 | 1014 | 38.1 | 40.4 | 0.85 |
| 561 | 553 | 63 | 883 | 18.1 | 69.8 | 2059 | 64.4 | 35.7 | 897 | 25.0 | 62.1 | 897 | 25.0 | 62.1 | 0.90 |
| 491 | 516 | 53 | 848 | 22.0 | 58.5 | 2222 | 67.3 | 29.5 | 830 | 24.9 | 64.7 | 830 | 24.9 | 64.7 | 0.91 |
| 420 | 466 | 83 | 1760 | 28.4 | 62.7 | 1974 | 38.9 | 44.2 | 1870 | 33.1 | 52.3 | 1870 | 33.1 | 52.3 | 0.95 |
| 403 | 525 | 65 | 1204 | 29.0 | 53.8 | 1668 | 47.1 | 34.2 | 1274 | 33.8 | 42.6 | 1274 | 33.8 | 42.6 | 0.89 |
| 346 | 475 | 123 | 3033 | 34.5 | 45.5 | 3073 | 37.4 | 39.5 | 3094 | 31.0 | 43.0 | 3094 | 31.0 | 43.0 | 0.92 |
| 351 | 476 | 84 | 2068 | 34.9 | 52.4 | 2230 | 35.0 | 49.5 | 2064 | 32.1 | 49.4 | 2064 | 32.1 | 49.4 | 0.97 |
| 408 | 463 | 64 | 1481 | 30.9 | 40.6 | 1441 | 36.4 | 33.3 | 1531 | 26.5 | 41.2 | 1531 | 26.5 | 41.2 | 0.95 |
| 431 | 476 | 74 | 1485 | 26.7 | 54.1 | 1522 | 30.8 | 51.3 | 1465 | 25.2 | 46.5 | 1465 | 25.2 | 46.5 | 1.00 |
| 445 | 476 | 84 | 1540 | 33.4 | 50.0 | 1982 | 44.3 | 45.5 | 1635 | 34.2 | 39.0 | 1635 | 34.2 | 39.0 | 0.89 |
| 420 | 448 | 111 | 2264 | 35.4 | 57.7 | 2248 | 41.9 | 55.0 | 2346 | 30.9 | 56.8 | 2346 | 30.9 | 56.8 | 0.94 |
| 349 | 471 | 58 | 1653 | 31.1 | 44.8 | 1950 | 41.0 | 42.1 | 1737 | 37.5 | 42.6 | 1737 | 37.5 | 42.6 | 0.90 |
| 441 | 456 | 80 | 1608 | 31.9 | 48.8 | 1746 | 34.6 | 55.6 | 1618 | 30.2 | 43.0 | 1618 | 30.2 | 43.0 | 0.93 |
| 543 | 415 | 73 | 1381 | 29.4 | 57.5 | 1649 | 43.0 | 52.3 | 1464 | 32.9 | 41.6 | 1464 | 32.9 | 41.6 | 0.90 |
| 498 | 476 | 64 | 1112 | 30.7 | 60.9 | 1404 | 48.4 | 31.7 | 1116 | 25.6 | 58.1 | 1116 | 25.6 | 58.1 | 0.94 |
| 403 | 468 | 78 | 1693 | 30.4 | 52.6 | 1723 | 32.7 | 48.7 | 1746 | 32.0 | 46.8 | 1746 | 32.0 | 46.8 | 0.95 |
| 438 | 476 | 82 | 1615 | 31.0 | 45.1 | 1761 | 41.0 | 45.7 | 1559 | 31.1 | 40.8 | 1559 | 31.1 | 40.8 | 0.93 |
| 455 | 470 | 67 | 1276 | 27.1 | 52.2 | 1412 | 34.0 | 52.0 | 1296 | 24.2 | 54.0 | 1296 | 24.2 | 54.0 | 0.99 |
| 525 | 476 | 54 | 1034 | 26.3 | 66.7 | 1730 | 58.8 | 34.7 | 1085 | 28.6 | 63.2 | 1085 | 28.6 | 63.2 | 0.97 |
| 538 | 476 | 57 | 937 | 23.5 | 43.9 | 1666 | 60.9 | 35.8 | 989 | 27.9 | 53.3 | 989 | 27.9 | 53.3 | 0.96 |
| 535 | 470 | 64 | 1050 | 24.0 | 73.4 | 1087 | 42.5 | 64.2 | 1074 | 25.8 | 61.9 | 1074 | 25.8 | 61.9 | 0.99 |
| 575 | 476 | 42 | 699 | 18.0 | 59.5 | 2016 | 83.4 | 23.4 | 708 | 32.1 | 50.0 | 708 | 32.1 | 50.0 | 0.90 |
| 638 | 533 | 55 | 677 | 22.0 | 56.4 | 2398 | 63.5 | 21.7 | 694 | 26.9 | 38.5 | 694 | 26.9 | 38.5 | 0.89 |
| 496 | 373 | 63 | 1421 | 25.4 | 54.0 | 1490 | 30.4 | 50.7 | 1493 | 29.0 | 51.6 | 1493 | 29.0 | 51.6 | 0.98 |
| 490 | 416 | 70 | 1452 | 21.1 | 61.4 | 1471 | 21.7 | 65.7 | 1441 | 20.0 | 61.5 | 1441 | 20.0 | 61.5 | 0.99 |
| 493 | 353 | 95 | 2252 | 21.8 | 55.8 | 2312 | 29.9 | 56.3 | 2209 | 24.0 | 57.0 | 2209 | 24.0 | 57.0 | 0.97 |
| 393 | 425 | 103 | 2526 | 34.6 | 59.2 | 2763 | 37.8 | 46.2 | 2625 | 39.6 | 37.2 | 2625 | 39.6 | 37.2 | 0.84 |
| 421 | 420 | 102 | 2316 | 31.4 | 59.8 | 2382 | 38.6 | 56.3 | 2371 | 31.1 | 56.0 | 2371 | 31.1 | 56.0 | 0.98 |
| 485 | 473 | 104 | 1788 | 22.7 | 55.8 | 1884 | 28.7 | 57.3 | 1816 | 23.4 | 53.4 | 1816 | 23.4 | 53.4 | 0.95 |
| 511 | 476 | 81 | 1400 | 27.8 | 56.8 | 1514 | 32.1 | 54.4 | 1404 | 25.6 | 53.0 | 1404 | 25.6 | 53.0 | 0.98 |
| 521 | 501 | 51 | 786 | 21.6 | 64.7 | 1912 | 80.7 | 27.6 | 772 | 24.3 | 67.4 | 772 | 24.3 | 67.4 | 0.93 |
| 369 | 476 | 74 | 1645 | 32.4 | 56.8 | 1735 | 32.6 | 50.0 | 1664 | 26.7 | 48.6 | 1664 | 26.7 | 48.6 | 0.89 |
| 353 | 476 | 48 | 1179 | 27.0 | 58.3 | 1512 | 48.2 | 37.3 | 1285 | 26.7 | 51.2 | 1285 | 26.7 | 51.2 | 0.94 |
| 349 | 476 | 72 | 1579 | 35.9 | 51.4 | 1768 | 48.8 | 47.9 | 1458 | 35.2 | 46.6 | 1458 | 35.2 | 46.6 | 0.83 |

(continues)

Table S1 (continued).

| image size | | ground truth | | | | NAVIS | | | | proposed method | | | | | |
|-------------|-------------|--------------|---------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------|--------------|
| x (px) | y (px) | cells | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | density (mm^{-2}) | polymegathism (%) | pleomorphism (%) | F -measure |
| 433 | 516 | 63 | 1257 | 28.4 | 52.4 | 1787 | 49.7 | 28.1 | 1303 | 32.7 | 41.2 | 1303 | 32.7 | 41.2 | 0.91 |
| 520 | 476 | 53 | 863 | 24.1 | 62.3 | 1978 | 81.7 | 30.3 | 926 | 34.8 | 51.9 | 926 | 34.8 | 51.9 | 0.89 |
| 456 | 476 | 33 | 653 | 24.9 | 48.5 | 2108 | 81.8 | 22.2 | 636 | 27.7 | 40.0 | 636 | 27.7 | 40.0 | 0.83 |
| 610 | 543 | 41 | 526 | 16.2 | 63.4 | 2000 | 98.9 | 26.9 | 561 | 32.2 | 42.1 | 561 | 32.2 | 42.1 | 0.79 |
| 583 | 555 | 35 | 456 | 23.6 | 60.0 | 2399 | 80.6 | 30.8 | 530 | 45.8 | 39.5 | 530 | 45.8 | 39.5 | 0.86 |
| 763 | 525 | 39 | 554 | 30.3 | 43.6 | 2008 | 74.8 | 29.0 | 457 | 49.5 | 21.3 | 457 | 49.5 | 21.3 | 0.63 |
| 491 | 476 | 40 | 633 | 32.5 | 55.0 | 1836 | 67.0 | 28.7 | 571 | 24.2 | 50.0 | 571 | 24.2 | 50.0 | 0.86 |
| 595 | 555 | 44 | 546 | 21.1 | 40.9 | 2276 | 86.3 | 29.4 | 496 | 56.8 | 23.8 | 496 | 56.8 | 23.8 | 0.43 |
| 324 | 385 | 76 | 2404 | 27.9 | 55.3 | 2633 | 35.4 | 43.0 | 2534 | 32.6 | 39.2 | 2534 | 32.6 | 39.2 | 0.85 |
| 476 | 476 | 65 | 1216 | 25.1 | 52.3 | 1408 | 37.8 | 39.0 | 1250 | 26.1 | 51.5 | 1250 | 26.1 | 51.5 | 0.93 |
| 405 | 520 | 71 | 1335 | 28.3 | 62.0 | 1403 | 33.6 | 55.2 | 1379 | 32.0 | 53.6 | 1379 | 32.0 | 53.6 | 0.94 |