Stability of OCT and OCTA in the intensive therapy unit setting

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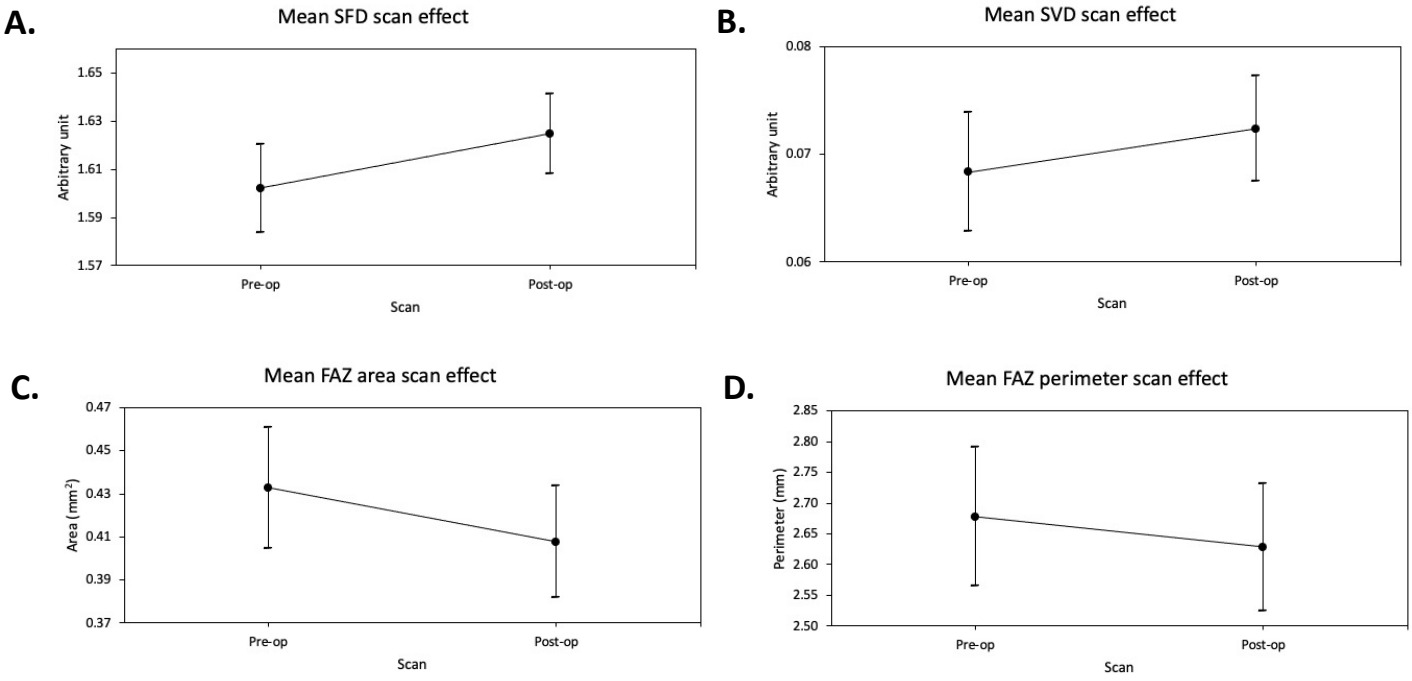
Superficial vascular plexus



Intermediate capillary plexus

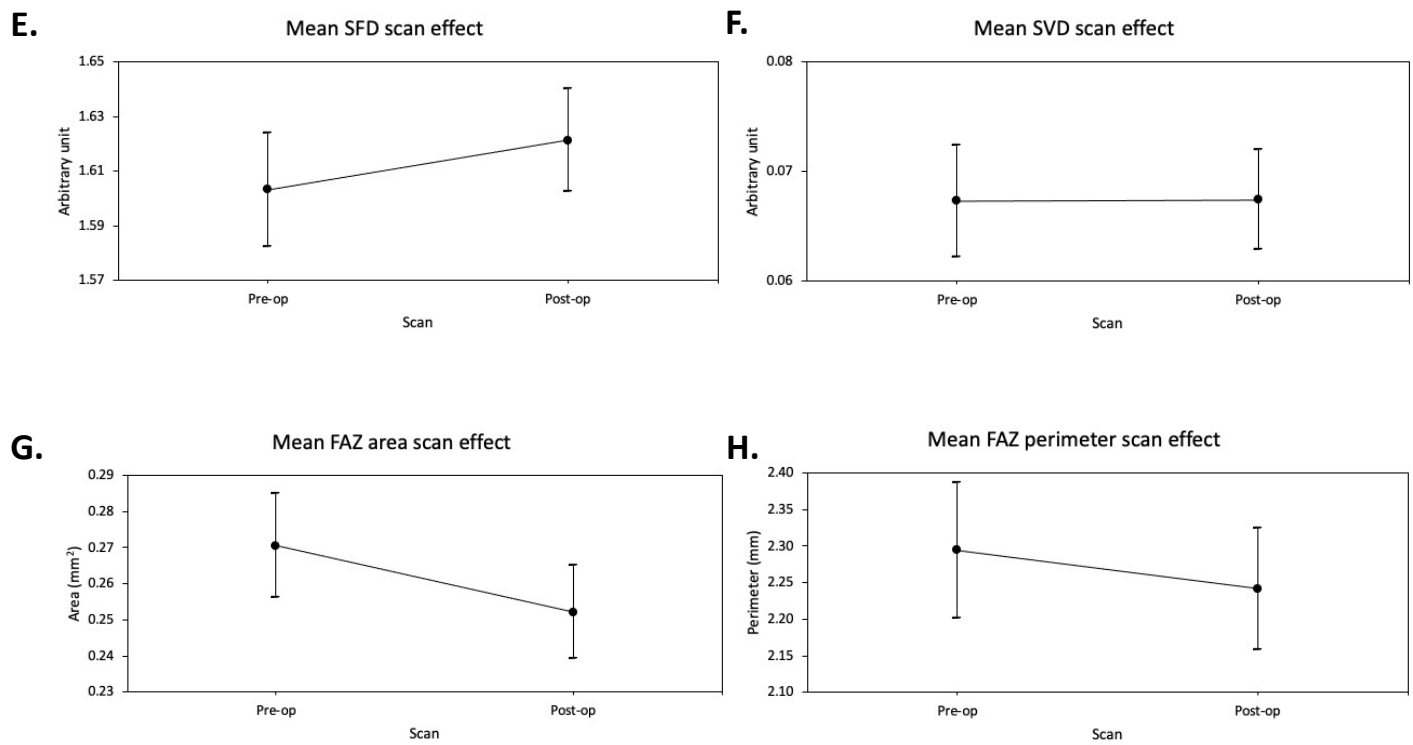


Figure S1. Superficial vascular plexus and intermediate capillary plexus patient timepoint effect mean graphs.
Mean difference between scan time points for each measure, with no evidence of a systematic difference between timepoints. Error bars show the 95% confidence interval upper and lower limits. **A.** Mean difference in skeletal fractal dimension (SFD) of the superficial vascular plexus (SVP) between scans. **B.** Mean difference in skeletal vessel density (SVD) of the SVP between scans. **C.** Mean difference in foveal avascular zone (FAZ) area (measured in mm^2) of the SVP between scans. **D.** Mean difference in FAZ perimeter (measured in mm) of the SVP between scans. **E.** Mean difference in SFD of the intermediate capillary plexus (ICP) between scans. **F.** Mean difference in SVD of the ICP between scans. **G.** Mean difference in the FAZ area (measured in mm^2) of the ICP between scans. **H.** Mean difference in the FAZ perimeter (measured in mm) of the ICP between scans. Abbreviations. SVP: superficial vascular plexus; SFD: skeletal fractal dimensions; SVD: skeletal vessel density; FAZ: foveal avascular zone; ICP: intermediate capillary plexus.

Retinal nerve fibre layer

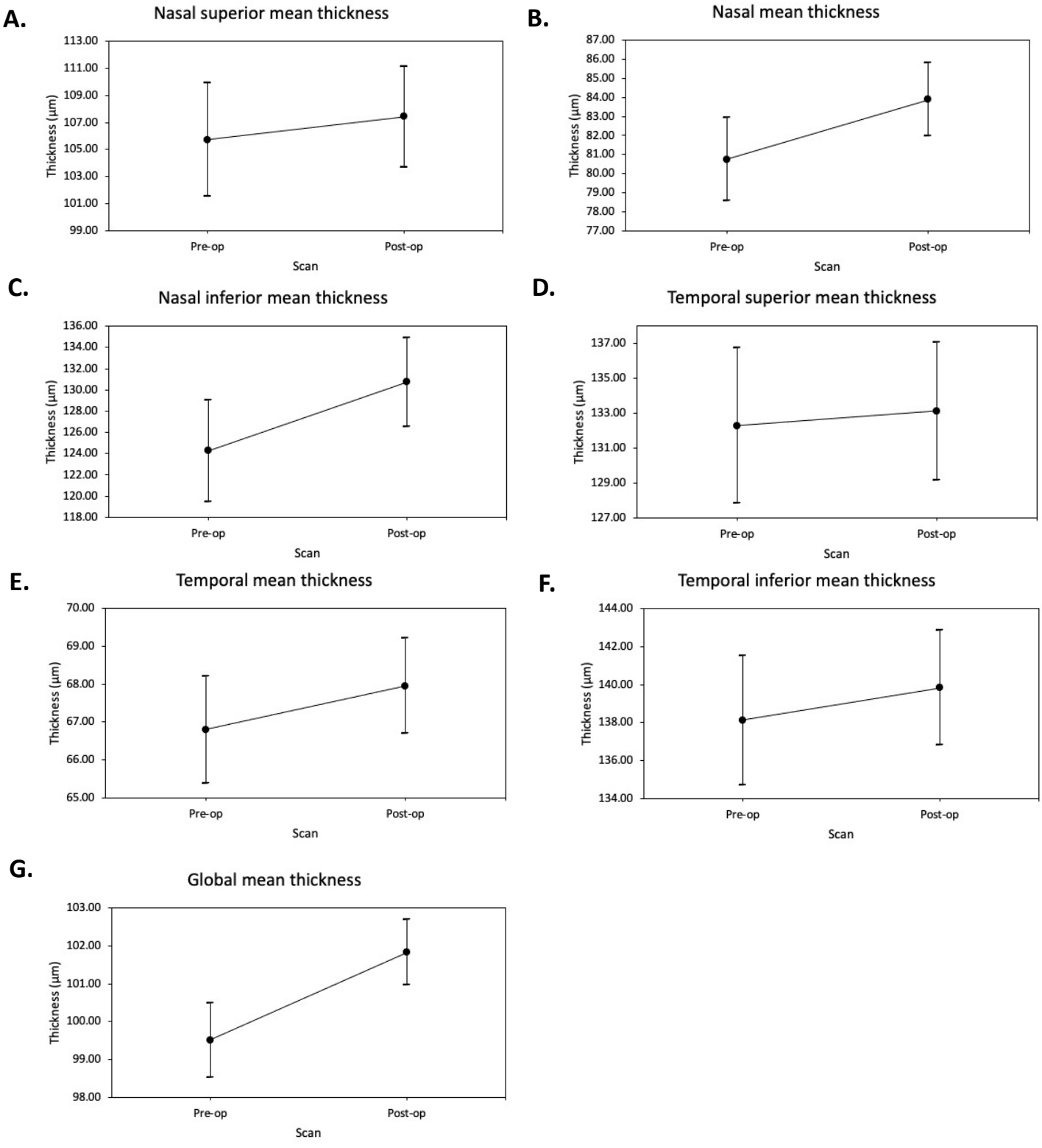


Figure S2. Retinal nerve fibre layer thickness - timepoint effect mean graphs.
These graphs show the mean patient difference between each scan timepoint taken measuring the retinal nerve fibre layer (RNFL) thickness, in all 7 segments. All thicknesses are measured in *µm*. Error bars show the 95% confidence interval upper and lower limits.
A. Mean difference in RNFL nasal superior thickness between timepoints. **B.** Mean difference in RNFL nasal thickness between scans. **C.** Mean difference in RNFL nasal inferior thickness between timepoints. **D.** Mean difference in RNFL temporal superior thickness between timepoints. **E.** Mean difference in RNFL temporal thickness between timepoints. **F.** Mean difference in RNFL temporal inferior thickness between timepoints. **G.** Mean difference in RNFL global thickness between timepoints.

Ganglion cell layer

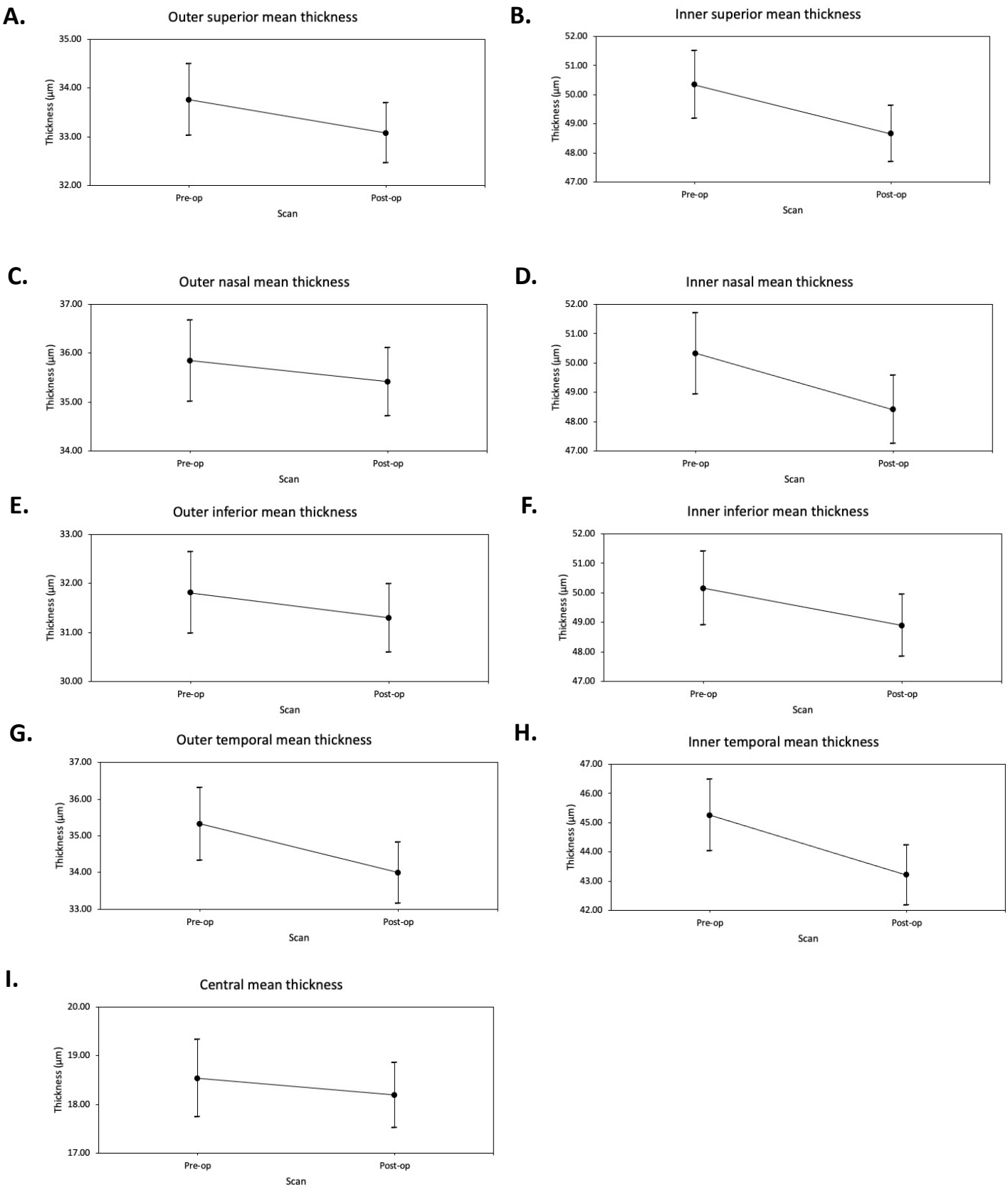


Figure S3. Ganglion cell layer thickness - timepoint effect mean graphs.
Mean patient difference between each scan taken measuring the ganglion cell layer (GCL) thickness, in all 9 segments. All thicknesses are measured in *µm*. Error bars show the 95% confidence interval upper and lower limits.
A. Mean difference in GCL outer superior thickness between timepoints. **B.** Mean difference in GCL inner superior thickness between timepoints. **C.** Mean difference in GCL outer nasal thickness between timepoints. **D.** Mean difference in GCL inner nasal thickness between timepoints. **E.** Mean difference in GCL outer inferior thickness between timepoints. **F.** Mean difference in GCL inner inferior thickness between timepoints. **G.** Mean difference in GCL outer temporal thickness between timepoints. **H.** Mean difference in GCL inner temporal thickness between timepoints. **I.** Mean difference in GCL central thickness between timepoints.

Table S1a. Extent of scan completion in participants. Abbreviations. OCT: optical coherence tomography; OCTA: optical coherence tomography angiography; OD: right eye; RNF: retinal nerve fibre layer.

Participant	Pre-op scans	24-48 hours post-op scans	7 day post-op scans	Comments
O1	Well-tolerated, all scans obtained. Not dilated.	Well-tolerated, all scans obtained. Dilated.	Well-tolerated, all scans obtained. Dilated.	Uncomplicated post-op course.
O2	Well-tolerated, all scans obtained.	Difficulty obtaining scans due to fatigue causing poor fixation. Dilated.	Well-tolerated, all scans obtained with patient supine with pillows supporting their head. Dilated.	Uncomplicated post-op course.
O3	Well-tolerated, all scans obtained.	OCT scans obtained but unable to collect OCTA scans due to fatigue. Dilated.	Well-tolerated, all scans obtained with patient semi-recumbent.	Uncomplicated post-op course.
O4	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained with patient supine in bed with pillows supporting their head. Not dilated.	Well-tolerated, all scans obtained with patient semi-recumbent.	Uncomplicated post-op course.
O5	Well-tolerated, all scans obtained.	Only OD OCTA obtained due to patient experiencing pain. Dilated.	Well-tolerated, all scans obtained with patient semi-recumbent. Not dilated.	Uncomplicated post-op course.
O6	Well-tolerated, all scans obtained.	Some difficulty obtaining scans. Patient sitting in a chair with head unsupported.	Well-tolerated, all scans obtained with patient seated in a chair.	Uncomplicated post-op course.
O7	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	Unable to image as patient was discharged.	Uncomplicated post-op course.
O8	Well-tolerated, all scans obtained with patient semi-recumbent.	Well-tolerated, all scans obtained with patient semi-recumbent. Dilated.	Unable to image as patient was discharged.	Uncomplicated post-op course.
O9	Well-tolerated, all scans obtained but poor fixation.	Only OCT macula and RNFL obtained, due to patient experiencing pain and fatigue. Patient was seated. Dilated.	Only macula scan obtained. Dilated.	Uncomplicated post-op course.
O10	Well-tolerated, all scans obtained but poor fixation.	No scans obtained due to patient fatigue.	No scans obtained.	Uncomplicated post-op course.
O11	Well-tolerated, all scans obtained.	All scans obtained with patient supine in bed with the head supported by pillows. Dilated.	Well-tolerated, all scans obtained with patient seated in a chair. Not dilated.	Uncomplicated post-op course.
O12	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	Well-tolerated, all scans obtained. Not dilated.	Uncomplicated post-op course.
O13	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Dilated.	NA	Uncomplicated post-op course.
O14	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	NA	Uncomplicated post-op course.
O15	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	NA	Uncomplicated post-op course.
O16	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	NA	Uncomplicated post-op course.
O17	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	NA	Uncomplicated post-op course.
O18	Well-tolerated, all scans obtained.	Well-tolerated, all scans obtained. Not dilated.	NA	Uncomplicated post-op course.

Table S1b. Haemodynamic parameters of participants. Abbreviations. BP: blood pressure; HR: heart rate; pO_2: partial pressure of oxygen; FiO_2: fraction of inspired oxygen

Participant	24-48 hour post-op scans				7 day post-op scans		
	BP (mmHg)	HR (bpm)	pO_2 (kPa)	FiO_2	BP (mmHg)	HR (bpm)	SaO_2 (%)
O1	133/56	66	9.7	0.28	118/47	85	96
O2	119/63	79	11.5	0.40	138/88	97	97
O3	101/62	88	9.6	0.28	117/85	82	95
O4	116/61	82	11.4	0.28	132/84	84	95
O5	122/66	83	9.0	0.70	124/64	63	93
O6	133/57	70	12.2	0.24	135/79	91	96
O7	114/53	53	13.8	0.24	NA	NA	NA
O8	126/58	72	9.9	0.36	NA	NA	NA
O9	124/68	65	11.3	0.50	144/76	101	95
O10	115/57	73	12.3	0.24	NA	NA	NA
O11	120/68	80	11.7	0.25	127/84	70	95
O12	126/68	69	12.1	0.28	118/64	70	95
O13	108/67	83	10.6	0.50	NA	NA	NA
O14	102/59	75	5.3	0.26	NA	NA	NA
O15	130/75	78	10.7	0.36	NA	NA	NA
O16	118/53	80	9.9	0.28	NA	NA	NA
O17	147/93	108	10.3	0.28	NA	NA	NA
O18	124/85	73	4.8	0.21	NA	NA	NA

Table S2. Mean difference between timepoints (1, pre-op; 2 and 3, 24 h and 7 days post-op) of the retinal nerve fibre layer and ganglion cell layer thicknesses (measured in μm).

Retinal layer	Segment	Timepoint	Mean thickness (μm)	95% confidence interval (μm)
Retinal nerve fibre layer	Nasal superior	1 2 and 3	105.715 107.432	101.513 to 109.917 103.705 to 111.158
	Nasal	1 2 and 3	80.744 83.885	78.568 to 82.920 81.956 to 85.815
	Nasal inferior	1 2 and 3	124.249 130.711	119.495 to 129.003 126.495 to 134.927
	Temporal superior	1 2 and 3	132.284 133.115	127.823 to 136.746 129.158 to 137.072
	Temporal	1 2 and 3	66.802 67.953	65.389 to 68.215 66.700 to 69.206
	Temporal inferior	1 2 and 3	138.120 139.837	134.725 to 141.514 136.826 to 142.847
	Global	1 2 and 3	99.510 101.821	98.535 to 100.486 100.956 to 102.687
Ganglion cell layer	Outer superior	1 2 and 3	33.757 33.071	33.025 to 34.490 32.455 to 33.687
	Inner superior	1 2 and 3	50.339 48.656	49.179 to 51.499 47.681 to 49.631
	Outer nasal	1 2 and 3	35.844 35.418	35.012 to 36.676 34.718 to 36.117
	Inner nasal	1 2 and 3	50.318 48.405	48.941 to 51.696 47.247 to 49.563
	Outer inferior	1 2 and 3	31.812 31.297	30.979 to 32.645 30.597 to 31.998
	Inner inferior	1 2 and 3	50.155 48.889	48.904 to 51.406 47.837 to 49.941
	Outer temporal	1 2 and 3	35.323 33.994	34.335 to 36.311 33.163 to 34.825
	Inner temporal	1 2 and 3	45.250 43.209	44.025 to 46.475 42.179 to 44.239
	Central	1 2 and 3	18.537 18.188	17.736 to 19.338 17.515 to 18.861

Table S3. Summary of vessel layer densities, including standard deviation (SD). N refers to number of scans included for each eye – left (OS) and right (OD). Timepoints: 1, pre-op; 2, 24 h and 7 days post-op. Abbreviations. FAZ: foveal avascular zone.

Vessel Layer	Measure	Scan	OS			OD		
			N	Mean	SD	N	Mean	SD
Superficial vascular plexus	Skeletal fractal dimension	1	18	1.588	0.084	17	1.613	0.054
		2	16	1.623	0.061	15	1.638	0.042
		3	6	1.583	0.076	6	1.647	0.031
	Skeletal density	1	18	0.065	0.025	17	0.070	0.019
		2	16	0.072	0.021	15	0.077	0.019
		3	6	0.058	0.022	6	0.080	0.015
	FAZ area (mm^2)	1	17	0.472	0.212	17	0.421	0.167
		2	15	0.415	0.147	15	0.375	0.122
		3	4	0.385	0.028	6	0.412	0.104
	FAZ perimeter (mm)	1	17	2.759	0.650	17	2.649	0.440
		2	15	2.651	0.583	15	2.475	0.440
		3	4	2.593	0.169	6	2.830	0.527
Intermediate capillary plexus	Skeletal fractal dimension	1	18	1.589	0.086	17	1.619	0.046
		2	16	1.612	0.083	15	1.634	0.034
		3	6	1.587	0.060	6	1.647	0.025
	Skeletal density	1	18	0.064	0.023	17	0.070	0.012
		2	16	0.066	0.021	15	0.071	0.014
		3	6	0.055	0.016	6	0.076	0.012
	FAZ area (mm^2)	1	15	0.285	0.121	16	0.261	0.135
		2	14	0.250	0.107	14	0.234	0.111
		3	4	0.277	0.072	6	0.271	0.092
	FAZ perimeter (mm)	1	15	2.368	0.486	16	2.191	0.535
		2	14	2.252	0.610	14	2.102	0.526
		3	4	2.638	0.516	6	2.367	0.410

Table S4. Summary of retinal structural layer thicknesses. N refers to number of scans included for each eye – left (OS) and right (OD). Timepoints: 1, pre-op; 2, 24 h and 7 days post-op.

Retinal Layer	Segment	Scan	OS			OD		
			N	Mean	SD	N	Mean	SD
Retinal nerve fibre layer	Nasal superior	1	18	107	30	17	98	21
		2	16	108	31	15	102	22
		3	7	128	30	6	113	17
	Nasal	1	18	78	12	17	83	12
		2	16	83	16	15	87	16
		3	7	81	17	6	83	15
	Nasal inferior	1	18	121	32	17	125	26
		2	16	134	43	15	128	30
		3	7	134	46	6	130	35
	Temporal inferior	1	18	140	22	17	133	24
		2	16	141	26	15	138	28
		3	7	152	29	6	138	36
	Temporal	1	18	66	11	17	67	14
		2	16	66	11	15	68	15
		3	7	71	11	6	76	13
	Temporal superior	1	18	128	24	17	133	21
		2	16	129	24	15	133	29
		3	7	138	16	6	151	14
	Global	1	18	98	13	17	99	13
		2	16	101	14	15	101	14
		3	7	107	13	6	106	14
Ganglion cell layer	Outer superior	1	18	32.8	5.8	17	33.9	4.9
		2	17	33.1	4.3	16	34.0	4.6
		3	8	31.4	5.2	8	34.6	4.0
	Inner superior	1	18	49.8	5.0	17	50.2	6.7
		2	17	47.8	4.5	16	49.3	6.8
		3	8	47.8	9.1	8	51.5	4.5
	Outer nasal	1	18	36.3	5.0	17	34.4	6.0
		2	17	35.8	4.6	16	34.9	5.7
		3	8	36.6	6.9	8	36.5	5.0
	Inner nasal	1	18	49.7	5.8	17	50.5	5.6
		2	17	46.7	6.2	16	49.7	6.8
		3	8	48.4	6.8	8	50.5	6.2
	Outer inferior	1	18	31.4	4.3	17	31.1	5.4
		2	17	31.2	4.5	16	31.4	5.4
		3	8	31.1	6.6	8	33.8	4.4
	Inner inferior	1	18	50.1	5.0	17	49.9	5.5
		2	17	48.8	4.6	16	48.6	8.4
		3	8	50.6	4.8	8	48.6	5.6
	Outer temporal	1	18	34.4	5.2	17	35.2	5.8
		2	17	33.3	4.6	16	34.3	6.7
		3	8	34.1	5.4	8	37.0	5.3
	Inner temporal	1	18	45.4	4.5	17	44.7	6.0
		2	17	43.8	5.7	16	42.8	7.0
		3	8	43.3	6.3	8	43.5	3.5
	Central	1	18	19.0	5.4	17	18.1	5.3
		2	17	18.5	4.5	16	18.8	5.5
		3	8	17.1	3.0	8	17.3	2.7