Supplementary Table 1. Decreasing vessel density (VD) and vessel length density (VLD) with increasing diabetic retinopathy severity.

	Vessel Density (VD)					Vessel Length Density (VLD)				
	No DR (n=64)	Mild NPDR (n=107)	Moderate NPDR (n=84)	Severe NPDR (n=48)	PDR (n=93)	No DR (n=64)	Mild NPDR (n=107)	Moderate NPDR (n=84)	Severe PDR (n=48)	PDR (n=93)
VD SCP (%)	36.85±2.93	35.45±3.31	34.14±3.38	32.52±3.52	30.93±3.75	18.49±1.62	17.59±1.83	16.80±1.83	15.79±1.84	15.31±2.24
VD ICP (%)	35.78±2.94	33.12±2.96	31.96±2.90	31.26±3.75	30.23±3.14	18.58±1.64	16.85±1.65	16.20±1.67	15.82±2.10	15.12±1.63
VD DCP (%)	37.52±3.60	34.18±3.20	33.74±3.22	33.18±4.17	31.02±3.23	19.72±2.20	17.54±1.86	17.22±1.90	16.80±2.26	15.65±1.86
p-values for pairwise comparisons with No DR										
SCP		1	<0.001	<0.001	<0.001		0.503	<0.001	<0.001	<0.001
ICP		<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
DCP		<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
p-values for pairwise comparisons with mild NPDR										
SCP			0.008	<0.001	<0.001			0.003	<0.001	<0.001
ICP			0.199	0.051	<0.001			0.157	0.031	<0.001
DCP			1.000	0.241	<0.001			1.000	0.058	<0.001
p-values for pairwise comparisons with moderate NPDR										
SCP				0.066	<0.001				0.019	<0.001
ICP				1	0.002				1	<0.001
DCP				1	<0.001				0.873	<0.001
p-values for pairwise comparisons with severe NPDR										
SCP					0.157					0.322
ICP					0.177					0.077
DCP					0.022					0.054

Mixed models correcting for correlation of two eyes, CST, Age, SSI, SE and duration of DM. P value is Bonferonni adjusted with significance being <0.05. SCP; superficial capillary plexus, ICP; intermediate capillary plexus, DCP; deep capillary plexus, VD; vessel density, VLD; vessel length density

Supplementary Table 2: Vessel density and vessel length density in eyes with early DR

	No DR (n=64)	Very Mild NPDR (H/MA<5) (n=36)	Mild NPDR (H/MA≥5) (n=71)	P-value No DR vs Very Mild NPDR	P-value No DR vs Mild NPDR	P-value Very Mild vs Mild NPDR
VD SCP (%)	36.85±2.93	35.86±2.83	35.86±3.52	1.00	0.29	0.94
VLD SCP (%)	18.49±1.62	17.82±1.46	17.47±1.99	1.00	0.14	0.89
VD ICP (%)	35.78±2.94	33.54±2.84	32.91±3.01	<0.001	<0.001	1.00
VLD ICP (%)	18.58±1.64	17.17±1.66	16.94±1.63	<0.001	<0.001	1.00
VD DCP (%)	37.52±3.60	35.70±2.83	33.70±2.83	0.009	<0.001	0.15
VLD DCP (%)	19.72±2.20	18.06±2.15	17.27±1.65	0.003	<0.001	0.13

[a] Mixed models correcting for correlation between two eyes, CST, Age, SE, SSI and duration of DM. P value is Bonferonni adjusted with significance being <0.05.

[b] NPDR; nonproliferative diabetic retinopathy, DR; Diabetic retinopathy SCP; superficial capillary plexus, ICP; intermediate capillary plexus, DCP; deep capillary plexus, VD; vessel density, VLD; vessel length density, H/MA; hemorrhages microaneurysms

Supplementary Table 3. Changes in FAZ area with increasing DR severity.

	FAZ area					FAZ acircularity				
	No DR (n=64)	Mild NPDR (n=107)	Moderate NPDR (n=84)	Severe NPDR (n=48)	PDR (n=93)	No DR (n=64)	Mild NPDR (n=107)	Moderate NPDR (n=84)	Severe PDR (n=48)	PDR (n=93)
Measurements	0.26±0.11	0.28±0.12	0.30±0.13	0.30±0.15	0.33±0.16	1.16±0.05	1.18±0.08	1.19±0.07	1.22±0.09	1.21±0.16
p-values for pairwise comparison with No DR		1.00	0.32	0.16	0.02		1	1	0.32	0.05
p-values for pairwise comparison with mild NPDR			1	1	0.194			1	1	0.322
p-values for pairwise comparison with moderate NDPR				1	1				1	0.65
p-values for pairwise comparison with severe NPDR					1					1

Mixed models correcting for correlation of two eyes, CST, Age, SSI, SE and duration of DM. P value is Bonferonni adjusted with significance being <0.05. SCP.
Overall for FAZ without pairwise comparison p=0.016

Supplementary Table 4. Sensitivity analysis evaluating the effects of FAZ area on vessel density measurements.

	Vessel Density whole image (%) (Vascularized area/total area)*					Vessel Density whole image excluding FAZ (%) (Vascularized area/(total area - FAZ))**				
	No DR (n=64)	Mild NPDR (n=107)	Moderate NPDR (n=84)	Severe NPDR (n=48)	PDR (n=93)	No DR (n=64)	Mild NPDR (n=107)	Moderate NPDR (n=84)	Severe PDR (n=48)	PDR (n=93)
SCP	36.85±2.93	35.45±3.31	34.14±3.38	32.52±3.52	30.93±3.75	38.02±2.87	36.57±3.32	35.31±3.29	33.62±3.58	32.30±3.68
ICP	35.78±2.94	33.12±2.96	31.96±2.90	31.26±3.75	30.23±3.14	36.90±3.01	34.18±3.06	33.08±2.96	32.20±3.96	31.36±3.18
DCP	37.52±3.60	34.18±3.20	33.74±3.22	33.18±4.17	31.02±3.23	38.47±3.61	35.26±3.20	34.91±3.20	34.22±4.37	32.11±3.42
p-values for pairwise comparisons with No DR										
SCP		1	0.001	<0.001	<0.001		1	0.001	<0.001	<0.001
ICP		<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
DCP		<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
p-values for pairwise comparisons with mild NPDR										
SCP			0.021	<0.001	<0.001			0.024	<0.001	<0.001
ICP			0.093	0.004	<0.001			0.131	0.007	<0.001
DCP			1.000	0.117	<0.001			1	0.187	<0.001
p-values for pairwise comparisons with moderate NPDR										
SCP				0.181	<0.001				0.182	<0.001
ICP				1	<0.001				1	<0.001
DCP				0.765	<0.001				0.866	<0.001
p-values for pairwise comparisons with severe NPDR										
SCP					0.292					0.287
ICP					0.419					0.426
DCP					0.105					0.104

*Mixed models correcting for correlation of two eyes, CST, Age, SSI, SE, **FAZ area** and duration of DM.
** Mixed models correcting for correlation of two eyes, CST, Age, SSI, SE, and duration of DM.
P value is Bonferonni adjusted with significance being <0.05. SCP; superficial capillary plexus, ICP; intermediate capillary plexus, DCP; deep capillary plexus, VD; vessel density, VLD; vessel length density

Supplementary Table 5: Vascular layer correlation for individual retinopathy severity levels.

	SCP vs ICP	SCP vs DCP	ICP vs DCP
Overall	r 0.44, p<0.01	r 0.33, p<0.01	r 0.66, p<0.01
No DR	r 0.33, p=0.01	r <0.01, p=1.00	r 0.48, p<0.01
Mild NPDR	r 0.22, p=0.03	r 0.21, p=0.04	r 0.50, p<0.01
Moderate NPDR	r 0.25, p=0.02	r 0.19, p=0.08	r 0.59, p<0.01
Severe NPDR	r 0.26, p=0.07	r 0.02, p=0.89	r 0.44, p<0.01
PDR untreated	r 0.33, p=0.04	r 0.14, p=0.40	r 0.60, p<0.01
PDR treated	r 0.24, p=0.08	r 0.04, p=0.76	r 0.62, p<0.01

SCP; superficial capillary plexus, ICP; intermediate capillary plexus, DCP; deep capillary plexus; DR; diabetic retinopathy, NPDR; non-proliferative diabetic retinopathy, PDR; proliferative diabetic retinopathy