

Supplemental Material

Table S1. Computational microvascular model parameters of PAD patients and controls for skeletal calf muscle compartments.

Variable	Muscle group	Control	PAD	Pooled	P-Value
k^t (1/s)	AM	2.80 (2.36, 3.24)	11.50 (7.52, 15.49)	8.39 (5.63, 11.16)	0.018
	LM	2.45 (2.08, 2.81)	7.46 (3.83, 11.09)	5.67 (3.28, 8.05)	0.042
	DM	3.26 (2.95, 3.57)	6.76 (6.10, 7.42)	5.51 (4.89, 6.13)	<0.001
	SM	2.42 (2.15, 2.69)	6.00 (5.33, 6.67)	4.72 (4.09, 5.35)	<0.001
	GM	1.34 (1.09, 1.58)	3.71 (2.15, 5.26)	2.86 (1.83, 3.89)	0.026
K_{tissue} (m^2)	AM	1.81 (1.81, 1.81)	5.46 (4.95, 5.96)	4.15 (3.58, 4.72)	<0.001
	LM	1.81 (1.81, 1.81)	3.63 (3.35, 3.92)	2.98 (2.69, 3.28)	<0.001
	DM	1.81 (1.81, 1.81)	4.07 (3.65, 4.50)	3.27 (2.87, 3.66)	<0.001
	SM	1.81 (1.81, 1.81)	3.69 (3.40, 3.98)	3.02 (2.72, 3.33)	<0.001
	GM	1.81 (1.81, 1.81)	4.71 (4.00, 5.42)	3.68 (3.09, 4.26)	<0.001
ϕ	AM	0.61 (0.61, 0.62)	0.43 (0.39, 0.46)	0.49 (0.46, 0.53)	<0.001
	LM	0.61 (0.59, 0.62)	0.56 (0.54, 0.57)	0.57 (0.56, 0.59)	<0.001
	DM	0.67 (0.65, 0.70)	0.48 (0.44, 0.53)	0.55 (0.51, 0.59)	<0.001
	SM	0.63 (0.62, 0.64)	0.44 (0.41, 0.48)	0.51 (0.48, 0.54)	<0.001
	GM	0.83 (0.77, 0.88)	0.43 (0.39, 0.47)	0.57 (0.51, 0.63)	<0.001
OFC (1/Pa s)	AM	12.62 (10.22, 15.02)	8.05 (6.72, 9.39)	9.68 (8.38, 10.99)	0.001
	LM	13.60 (11.74, 15.46)	12.96 (10.93, 15.00)	13.19 (11.76, 14.63)	0.67
	DM	13.85 (12.19, 15.51)	11.31 (9.42, 13.19)	12.21 (10.86, 13.57)	0.07
	SM	13.88 (12.38, 15.38)	11.88 (9.96, 13.79)	12.59 (11.26, 13.93)	0.15
	GM	12.92 (11.36, 14.48)	11.29 (10.04, 12.55)	11.87 (10.90, 12.85)	0.11
p_v (mmHg)	AM	49.33 (48.81, 49.85)	51.22 (49.75, 52.69)	50.54 (49.57, 51.52)	0.06
	LM	49.00 (48.07, 49.93)	52.51 (50.72, 54.30)	51.26 (50.00, 52.51)	0.006
	DM	49.16 (48.82, 49.50)	57.79 (55.01, 58.56)	54.06 (52.57, 55.56)	<0.001
	SM	49.23 (48.55, 49.92)	50.64 (49.60, 51.69)	50.14 (49.42, 50.86)	0.06
	GM	49.32 (48.63, 50.01)	51.50 (50.43, 52.56)	50.72 (49.95, 51.49)	0.005

All values are expressed as medians and interquartile ranges (IQRs). P-values were calculated with the Kruskal-Wallis rank test. Control group: $n = 20$; PAD group: $n = 36$. Leg muscle groups: AM: anterior muscle, LM: lateral muscle, DM: deep posterior muscle, SM: soleus muscle, GM: gastrocnemius muscle. k^t , transfer rate constant; K_{tissue} , interstitial permeability; ϕ , porosity (values in the range from 0 to 1); OFC, outflow filtration coefficient; p_v , microvascular pressure. PAD: peripheral artery disease. Pooled: includes both PAD patients and controls.

Table S2. Computational microvascular model parameters of non-diabetic and diabetic study participants for skeletal calf muscle compartments.

Variable	Muscle group	Non-diabetics	Diabetics	P-value
k^i (1/s)	AM	8.57 (4.38, 12.77)	8.07 (5.74, 10.40)	0.86
	LM	5.85 (2.34, 9.36)	5.34 (2.71, 7.97)	0.84
	DM	5.12 (4.36, 5.88)	6.21 (5.10, 7.31)	0.10
	SM	4.46 (3.66, 5.26)	5.20 (4.09, 6.30)	0.27
	GM	3.00 (1.38, 4.61)	2.62 (2.14, 3.10)	0.73
K_{tissue} (m^2)	AM	3.58 (2.92, 4.23)	5.19 (4.21, 6.17)	0.005
	LM	2.70 (2.35, 3.05)	3.50 (3.00, 4.00)	0.009
	DM	2.89 (2.46, 3.31)	3.95 (3.17, 4.73)	0.009
	SM	2.77 (2.40, 3.13)	3.48 (2.97, 4.00)	0.023
	GM	3.55 (2.81, 4.29)	3.90 (2.86, 4.93)	0.58
φ	AM	0.50 (0.46, 0.54)	0.48 (0.41, 0.54)	0.44
	LM	0.58 (0.56, 0.59)	0.57 (0.55, 0.60)	0.70
	DM	0.55 (0.51, 0.60)	0.54 (0.47, 0.61)	0.80
	SM	0.52 (0.48, 0.56)	0.49 (0.44, 0.55)	0.39
	GM	0.62 (0.54, 0.69)	0.48 (0.38, 0.58)	0.026
OFC (1/Pa s)	AM	9.96 (8.20, 11.72)	9.19 (7.16, 11.22)	0.58
	LM	12.64 (11.22, 14.06)	14.18 (10.91, 17.46)	0.31
	DM	11.87 (10.66, 13.08)	12.83 (9.52, 16.14)	0.50
	SM	12.58 (11.08, 14.08)	12.62 (9.81, 15.42)	0.98
	GM	12.06 (10.91, 13.22)	11.53 (9.62, 13.45)	0.61
p_v (mmHg)	AM	50.00 (49.07, 50.93)	51.52 (49.28, 53.76)	0.14
	LM	51.15 (49.77, 52.52)	51.46 (48.75, 54.17)	0.82
	DM	52.55 (51.00, 54.09)	56.80 (53.85, 59.75)	0.005
	SM	49.65 (48.75, 50.56)	51.01 (49.79, 52.23)	0.07
	GM	50.55 (49.77, 51.32)	51.03 (49.28, 52.77)	0.56

All values are medians and interquartile range (IQR). P-values were calculated with the Kruskal-Wallis rank test. Non-diabetics group: $n = 36$; diabetics group: $n = 20$. Leg muscle groups: AM: anterior muscle, LM: lateral muscle, DM: deep posterior muscle, SM: soleus muscle, GM: gastrocnemius muscle. k^i , transfer rate constant; K_{tissue} , interstitial permeability; φ , porosity (values in the range from 0 to 1); OFC, outflow filtration coefficient; p_v , microvascular pressure; PAD: peripheral artery disease.

Table S3. Computational microvascular model parameters of PAD treadmill completers and non-completers for skeletal calf muscle compartments.

Variable	Muscle group	Completers	Non-Completers	P-value
k^t (1/s)	AM	10.03 (2.63, 17.43)	13.15 (10.18, 16.11)	0.44
	LM	6.57 (2.71, 10.42)	8.45 (1.60, 15.31)	0.61
	DM	5.54 (4.65, 6.44)	8.12 (7.70, 8.53)	<0.001
	SM	4.71 (3.98, 5.44)	7.44 (6.76, 8.12)	<0.001
	GM	3.89 (0.81, 6.98)	3.50 (3.38, 3.63)	0.80
K_{tissue} (m^2)	AM	4.82 (4.18, 5.47)	6.16 (5.47, 6.86)	0.005
	LM	3.27 (2.79, 3.75)	4.04 (3.88, 4.20)	0.004
	DM	3.75 (2.99, 4.50)	4.44 (4.09, 4.79)	0.10
	SM	3.35 (2.98, 3.73)	4.08 (3.67, 4.48)	0.009
	GM	3.41 (2.58, 4.23)	6.17 (5.45, 6.89)	<0.001
ϕ	AM	0.49 (0.44, 0.53)	0.36 (0.33, 0.40)	<0.001
	LM	0.58 (0.56, 0.60)	0.53 (0.51, 0.55)	<0.001
	DM	0.57 (0.53, 0.62)	0.38 (0.34, 0.42)	<0.001
	SM	0.50 (0.46, 0.55)	0.38 (0.35, 0.40)	<0.001
	GM	0.51 (0.46, 0.56)	0.34 (0.31, 0.36)	<0.001
OFC (1/Pa s)	AM	7.16 (4.95, 9.38)	9.05 (7.56, 10.54)	0.16
	LM	15.40 (13.56, 17.24)	10.25 (6.68, 13.81)	0.008
	DM	13.15 (11.03, 15.27)	9.24 (6.09, 12.39)	0.033
	SM	15.42 (13.97, 16.88)	7.92 (5.18, 10.65)	<0.001
	GM	13.71 (12.26, 15.16)	8.59 (7.41, 9.77)	<0.001
p_v (mmHg)	AM	49.90 (47.52, 52.27)	52.69 (51.10, 54.29)	0.05
	LM	51.48 (48.76, 54.20)	53.66 (51.22, 56.11)	0.22
	DM	54.62 (51.92, 57.32)	59.21 (57.35, 61.07)	0.007
	SM	49.74 (47.94, 51.54)	51.65 (50.73, 52.57)	0.06
	GM	50.01 (48.37, 51.66)	53.16 (52.26, 54.06)	0.002

All values are medians and interquartile range (IQR). P-values were calculated with the Kruskal-Wallis rank test. Completers PAD group: $n = 19$; Non-completers PAD group: $n = 17$. Leg muscle groups: AM: anterior muscle, LM: lateral muscle, DM: deep posterior muscle, SM: soleus muscle, GM: gastrocnemius muscle. k^t , transfer rate constant; K_{tissue} , interstitial permeability; ϕ , porosity (values in the range from 0 to 1); OFC, outflow filtration coefficient; p_v , microvascular pressure; PAD: peripheral artery disease.