

Supplemental Table 1. Participant characteristics of those with complete data on leg muscle ATPmax.

	CKD (n=40)	Control (n=19)
Age (years), mean (SD)	62 (14)	60 (8)
Female, No (%)	22 (55)	6 (32)
Black, No (%)	2 (11)	5 (13)
Diabetes, No (%)	12 (30)	6 (32)
BMI (kg/m ²), mean (SD)	28.7 (6)	27.2 (5)
Waist to hip ratio, mean (SD)	0.95 (0.09)	0.93 (0.08)
Systolic BP (mmHg), mean (SD)	127 (17)	128 (11)
eGFR _{cr-cysc} (ml/min per 1.73m ²), median [IQR]	36 [23, 54]	102 [83, 109]
Albumin (g/dL), mean (SD)	3.9 (0.3)	4 (0.4)
Albuminuria (mg/gm), median [IQR]	287 [51, 968]	3 [0, 9]
Bicarbonate (mmol/L), mean (SD)	21.9 (3)	22.8 (2)
Hemoglobin (gm/dL), mean (SD)	12.5 (2)	14.3 (2)
hsCRP, median [IQR]	0.18 [0.07, 0.45]	0.06 [0.04, 0.13]
Leg muscle strength (Newtons), mean (SD)	78 (23)	104 (38)
Leg muscle size (mm ²), mean (SD)	1165 (249)	1244 (235)

Supplemental Table 2. Association of kidney function by eGFR_{cr-cysc} with whole muscle ATP_{max} expressed as percent change in ATP_{max}*muscle size.

	Unadjusted	Model 1	Model 2
	β (95% CI)	β (95% CI)	β (95% CI)
GFR _{cr-cysc} (per 10ml/mi per 1.73m ²)	5.9 (2.8, 9.1)	5.2 (2.2, 8.3)	4.6 (1.4, 8)
Age (per 1year)		0.12 (-0.51, 0.75)	0.24 (-0.43, 0.91)
Female		-24 (-38.8, -5.5)	-22.2 (-39.8, 0.48)
BMI		0.23 (-1.9, 2.4)	0.59 (-1.61, 2.84)
Diabetes			-14.5 (-31.4, 6.7)
Muscle strength (Newton)			0.12 (-0.3,0.55)

Supplemental Table 3. Participant characteristics of those with completed hand muscle ischemia data for resting oxygen uptake and resting ATPflux.

	CKD (n=37)	Control (n=9)
Age (years), mean (SD)	63 (15)	58 (10)
Female, No (%)	22 (59)	5 (56)
Black, No (%)	4 (11)	3 (33)
Diabetes, No (%)	11 (30)	1 (11)
BMI (kg/m ²), mean (SD)	28.7 (6)	27 (6)
Waist to hip ratio, mean (SD)	0.93 (0.08)	0.87 (0.09)
Systolic BP (mmHg), mean (SD)	124 (17)	122 (10)
eGFR _{cr-cysc} (ml/min per 1.73m ²), median [IQR]	38 [25, 53]	102 [83, 102]
Albuminuria (mg/gm), median [IQR]	236 [51, 541]	4 [3, 9]
Bicarbonate (mmol/L), mean (SD)	22.3 (3)	23.6 (2)
Hemoglobin (gm/dL), mean (SD)	12.6 (2)	13.5 (2)
hsCRP, median [IQR]	0.2 [0.07, 0.49]	0.11 [0.04, 0.25]
Hand muscle strength (Newtons), mean (SD)	24 (12)	38 (17)
Hand muscle size (mm ²), mean (SD)	190 (29)	223 (60)

Supplemental table 4. Correlation of (A) leg muscle (TA) and (B) hand muscle (FDI) ATPmax with anthropometrics and muscle characteristics in the overall cohort. Abbreviations: MVC – maximal voluntary contraction, CSA – cross-sectional area. Specific force is defined by Maximal voluntary contraction/Cross-sectional area.

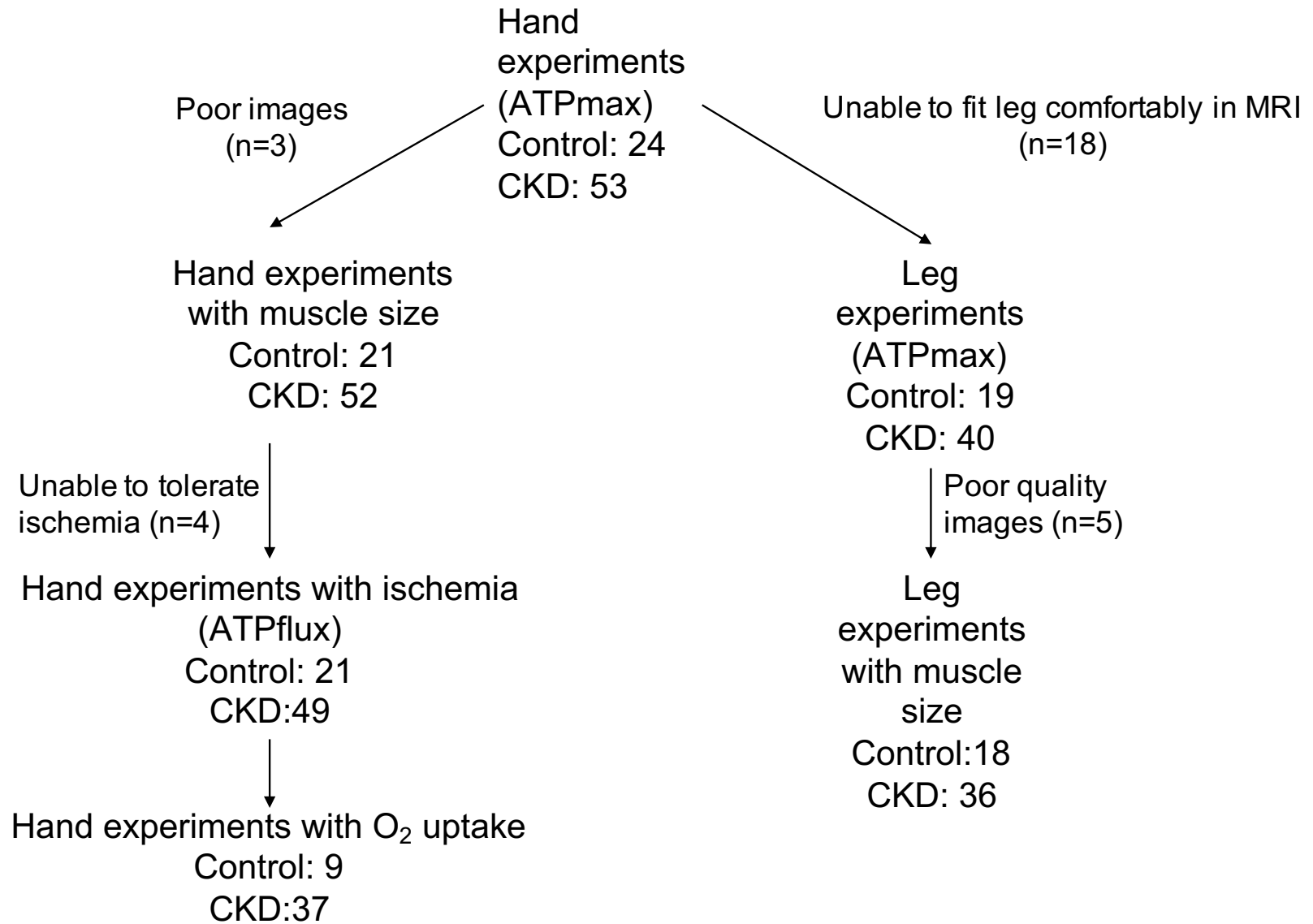
A	TA ATPmax	TA MVC	Muscle CSA	TA specific force	Height (m)	Weight (lbs)	BMI
TA ATPmax	1						
TA MVC	0.2775	1					
Muscle CSA	0.3105	0.4155	1				
TA specific force	0.1069	0.7757	-0.215	1			
Height (m)	0.122	0.3858	0.5304	0.0851	1		
Weight (lbs)	-0.2106	0.1793	0.4715	-0.0922	0.422	1	
BMI	-0.3116	-0.0557	0.2244	-0.1746	-0.0842	0.8627	1

B	FDI ATPmax	FDI MVC	Muscle CSA	FDI specific force	Height (m)	Weight (lbs)	BMI
FDI ATPmax	1						
FDI MVC	0.1146	1					
Muscle CSA	0.01	0.2762	1				
FDI specific force	0.0887	0.9248	-0.0653	1			
Height (m)	0.0112	0.269	0.2478	0.2052	1		
Weight (lbs)	0.0285	0.065	-0.02	0.0955	0.422	1	
BMI	0.0138	-0.0716	-0.1609	-0.0058	-0.0842	0.8627	1

Supplemental table 5. Association of leg (A) and hand (B) muscle whole muscle ATPmax with 6-minute walk distance. Beta represents change in 6-minute walk distance per 1 unit of ATPmax*CSA. Mean of TA muscle ATPmax*CSA is 826 $\pm$ 325mM/sec * mm². Mean of FDI muscle ATPmax*CSA is 177 $\pm$ 61(mM/sec) * mm².

A.	Unadjusted	Model 1
	β (95% CI)	β (95% CI)
TA ATPmax*CSA ((mM/sec) * mm ²))	0.61 (0.29, 0.93)	0.44 (0.10, 0.78)
Age (per 1year)		-9.9 (-19, -0.75)
Female		71 (-153, 296)
BMI		-21.6 (-42, -0.74)
Diabetes		39 (-197, 276)
Muscle strength (Newtons)		2.9 (-0.18, 5.9)
B.	Unadjusted	Model 1
	β (95% CI)	β (95% CI)
FDI ATPmax*CSA ((mM/sec) * mm ²))	2.69 (1.37, 4)	2.58 (0.10, 0.78)
Age (per 1year)		-7.9 (-17.1, 1.33)
Female		-71.4 (-295, 152)
BMI		-26.2 (-45, -7.5)
Diabetes		-29.8 (-261.6, 202)
Muscle strength (Newtons)		0.61 (-3.5, 4.7)

Supplemental figure 1. Participant flow diagram.



Supplemental figure 2. Association of whole muscle ATPmax of the leg (left panel) and hand muscle (right panel) with physical performance. There was no evidence of heterogeneity by CKD status (P-for-interaction=0.27 and 0.12 for leg and hand muscle respectively).

