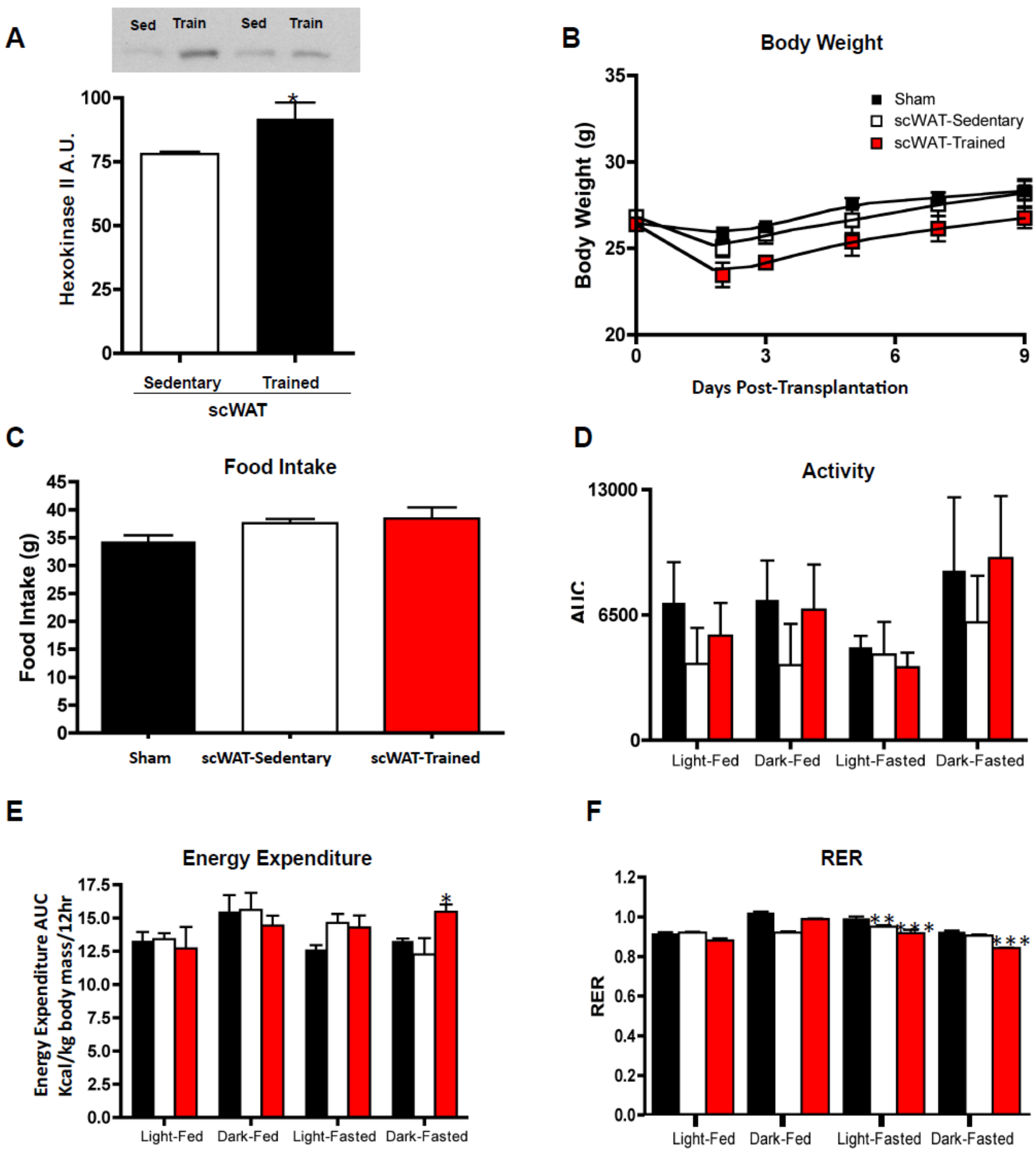
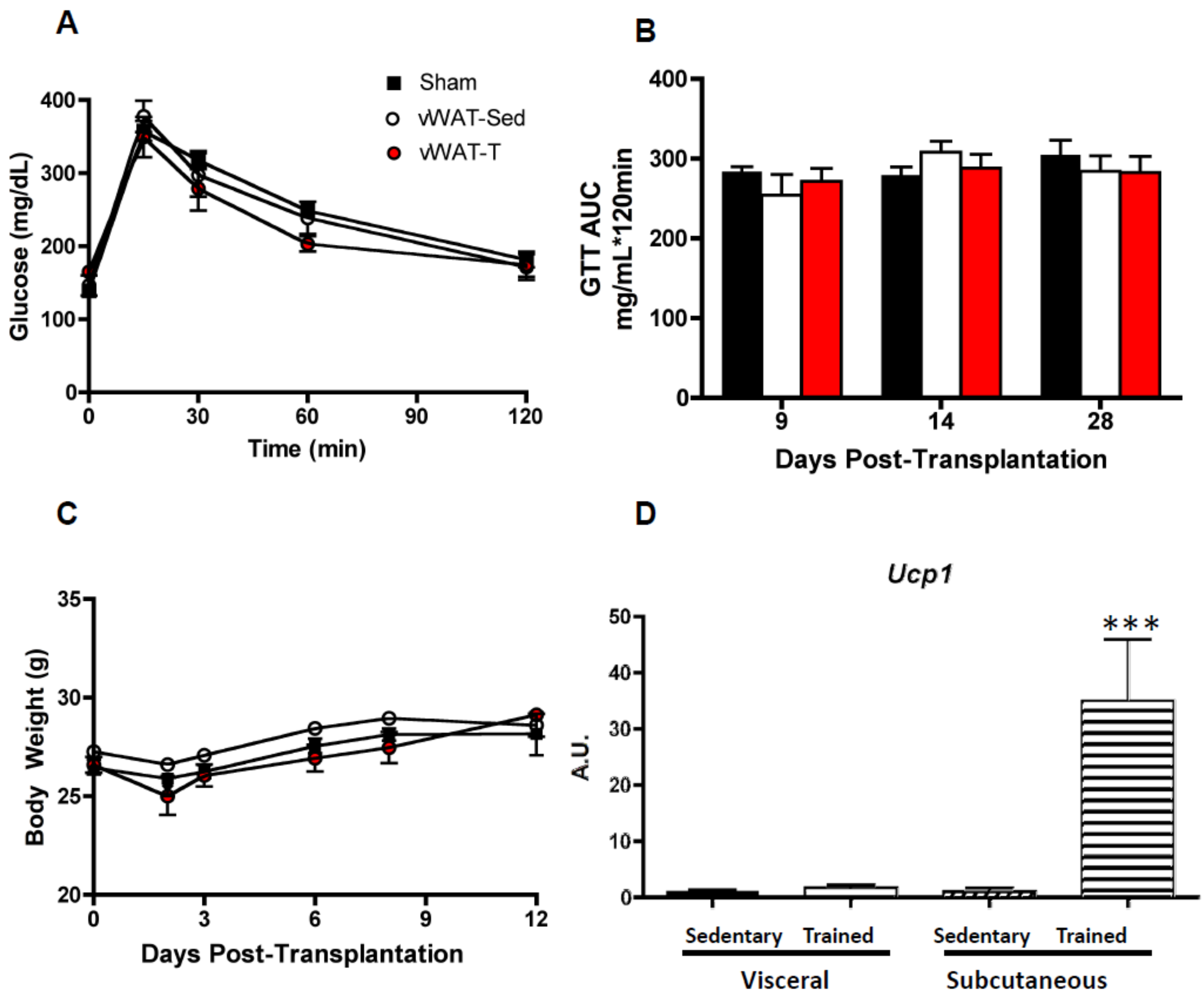
SUPPLEMENTARY DATA

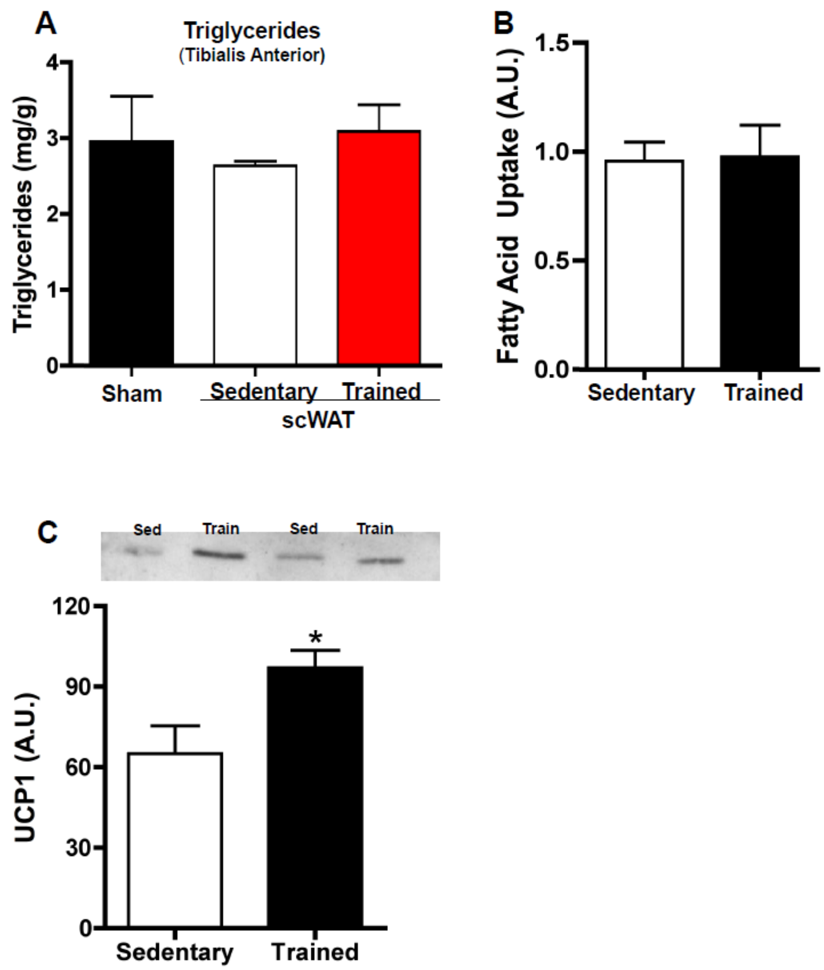
Supplementary Figure 1. Transplantation of scWAT from sedentary or trained mice did not affect body weight, but increased energy expenditure. A, Western blotting of HKII in triceps muscle of mice after 11 days of training. Data are means ± s.e.m. (n=5/group, *P<0.05). **B-C.** Body weight (**B**) and total food intake over 9 days (**C**) did not differ between groups after transplantation of scWAT from either group. **D-F,** At 9 days post-transplantation mice were housed in metabolic cages for 48 hours. Data are expressed as AUC for (**D**) Activity, (**E**) Total energy expenditure and absolute value for (**F**) RER. Asterisks represent differences between Sham mice and all transplanted groups (*P<0.05; **P<0.01).



Supplementary Figure 2. Transplantation of visceral adipose tissue from sedentary or trained mice has no effect on glucose metabolism or body weight. A-C, Mice were transplanted with 1.0g visceral adipose tissue from trained or sedentary mice, or were Shamoperated. For glucose tolerance tests (GTT), mice were injected with 2g glucose/kg bw, intraperitoneal (i.p.). (**A**) GTT at 9 days post-transplantation for mice receiving 1.0g visceral adipose tissue from trained and sedentary 12-week old mice, and (**B**) Glucose area under the curve (AUC) at 9, 14, and 28 days post-transplantation., (**C**) Body weight of mice transplanted with visceral adipose tissue. **D**, *Ucp1* mRNA of vWAT and scWAT from sedentary and trained mice. Only scWAT has an increase in *Ucp1* in response to training. Data are means ± s.e.m. Asterisks represent statistically significant differences between mice receiving scWAT from trained and sedentary mice and Sham-operated mice (n=5-10/group; ****P*<0.001).



Supplementary Figure 3. Skeletal muscle triglycerides are not different after transplantation of scWAT from sedentary or trained mice; fatty acid uptake not changed in adipocytes from trained scWAT. A, Skeletal muscle (tibialis anterior) triglyceride 9 days 2 post-transplantation. Data are expressed as means ± s.e.m. (n=4-6/group). **B-C,** Stromal vascular fraction of scWAT was isolated, cultured, and differentiated into adipocytes. Twelve days postdifferentiation (**B**) fatty acid uptake was measured. Data are means ± s.e.m. (n=6; *P<0.05). Western blotting of UCP1 (**C**) in differentiated adipocytes. Data are means ± s.e.m. (n=5/group, *P<0.05).



SUPPLEMENTARY DATA

Supplementary Table 1. Primer sequences. Primer sequences used for mouse scWAT RT-qPCR.

Gene		Mouse (5' to 3')
Ucp1	Forward	CTTTGCCTCACTCAGGATTGG
	Reverse	ACTGCCACACCTCCAGTCATT
Prdm16	Forward	GACATTCCAATCCCACCAGA
	Reverse	CACCTCTGTATCCGTCAGCA

Supplementary Table 2. Serum Concentrations of Hormones and Adipokines. Mice were sham-operated (Sham) or transplanted with 0.85g sedentary or exercise-trained scWAT, 9-days post-transplantation. Data are means ± s.e.m. (n=12/group). Asterisks indicate statistical significance compared to Sham (**P*<0.05, ***P*<0.01).

	Sham	scWAT-Sed	scWAT-Train
Basal Glucose (mg/dL)	103 ± 6.3	107 ± 4.8	77 ± 3.3*
Basal Insulin (ng/mL)	1.03 ± 0.19	0.66 ± 0.35	0.41 ± 0.28*
Cholesterol (mg/dL)	73.5 ± 2.7	69.8 ± 4.6	48.9 ± 5.1**
Adiponectin (µg/mL)	8161 ± 392	7464 ± 1031	6777 ± 347
Leptin (ng/mL)	3.0 ± 0.4	1.4 ± 0.3*	1.9 ± 0.4*
Triglycerides (mg/dL)	65.0 ± 5.4	46.9 ± 4.3*	43.2 ± 2.8*
IL-6 (pg/mL)	6.7 ± 1.1	10.3 ± 1.6	10.5 ± 1.4
TNF-α (pg/mL)	17.6 ± 3.7	16.4 ± 4.8	21.7 ± 3.0
FFA(mEq/dL)	60 ± 10	50 ± 10	50 ± 10
Norepinphrine (ng/mL)	2.2 ± 0.3	2.7 ± 0.6	3.6 ± 0.5
FGF21 (pg/mL)	54 ± 15	109 ± 20	227 ± 66*

SUPPLEMENTARY DATA

Supplementary Table 3. Microarray Data of Selected Genes in scWAT from Trained and Sedentary Mice. Mice were sedentary or exercise-trained for 11 days. Data are means ± s.e.m. (n=7). Asterisks indicate statistical significance compared to Sham.

	Sedentary	Exercise-Trained	P value
Prdm16	842±98	1079±58*	0.037
Otopetrin	1593±368	3891±491*	0.0001
Cpt1b	1031±229	5308±695*	5.14×10^{-9}
Cidea	6793±1484	22470±2637*	2.21×10^{-7}
Ucp1	2380±1288	34906±5248*	1.75×10^{-9}
Cox7a1	1640±556	10927±1599*	4.09×10^{-8}
Cox8b	11479±2354	37446±3415*	3.83×10^{-10}
Ntrk3	1290±160	1758±138*	0.02
Cpn2	264±40	639±65*	8.86×10^{-8}
Dio2	374±52	1250±187*	6.38×10^{-6}
Elovl6	375±23	476±42*	0.03
Adrb3	17665±3213	25117±1831*	0.04
S100b	308±74	616±128*	0.037
Gpd2	1743±233	4166±583*	0.0001
Pgc1α	493±75	1437±129*	2.94×10^{-10}
Err-γ	625±58	696±35	0.29
Elovl3	1100±72	1290±39*	0.02
Acaa2	6024±585	11632±1192*	2.42×10^{-5}
Ppar-α	281±81	1443±302*	0.0002
Acss1	132±47	111±37	0.73
Ppar-γ	7199±1063	7631±544	0.71
Fgf21	212±37	283±43	0.21
Adiponectin	96±24	128±42	0.52
Fabp4	97156±2295	90930±2471	0.07
Lhx8	612±120	759±30	0.23
Zic1	29±10	37±12	0.62
Citrate Synthase	10848±614	15680±1015*	4.6×10^{-5}
Leptin	11041±2334*	3411±549	0.001
Pgc1β	1920±195	3878±464*	9.85×10^{-5}
Irs-1	5859±510	8478±371*	3.3×10^{-5}
Irs-2	912±84	1081±104	0.21
CD137	1382±177	1165±116	0.31
Tbx1	579±37	864±108*	0.01
Tmem26	528±88	412±29	0.21
Vegfa	1245±82	1792±107*	5.5×10^{-5}
Pdgf	1940±135	2529±96*	.0003
Angptl2	185±25	264±30*	.039
Pepck	31678±3294	47008±1719*	3.7×10^{-5}
Pdk4	6559±896	25898±3357*	2.6×10^{-8}
Tfam	918±28	1138±49*	0.0001
CoxIV	39435±1393	50584±2733*	0.0003