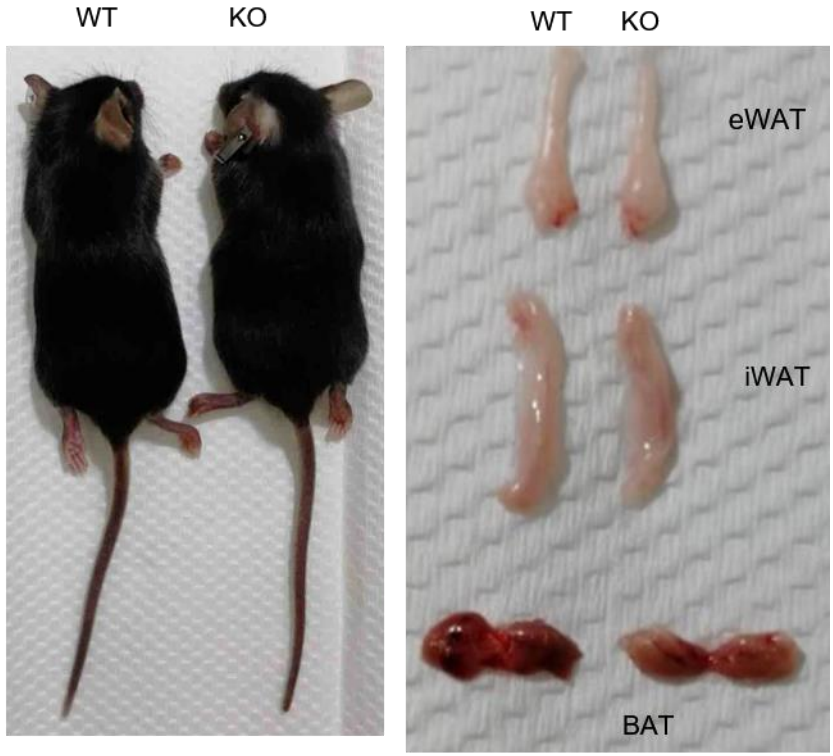
Figure S1

A


WT
KO
WT
KO
eWAT
iWAT
BAT

B

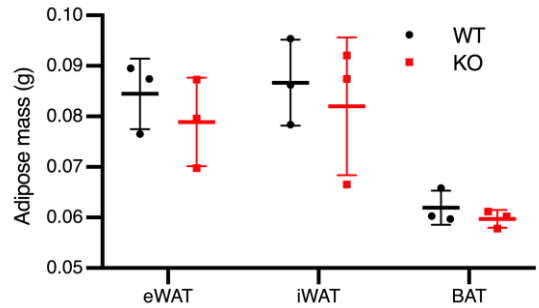

Adipose mass (g)
0.10
0.09
0.08
0.07
0.06
0.05
WT
KO
eWAT
iWAT
BAT

Figure S2

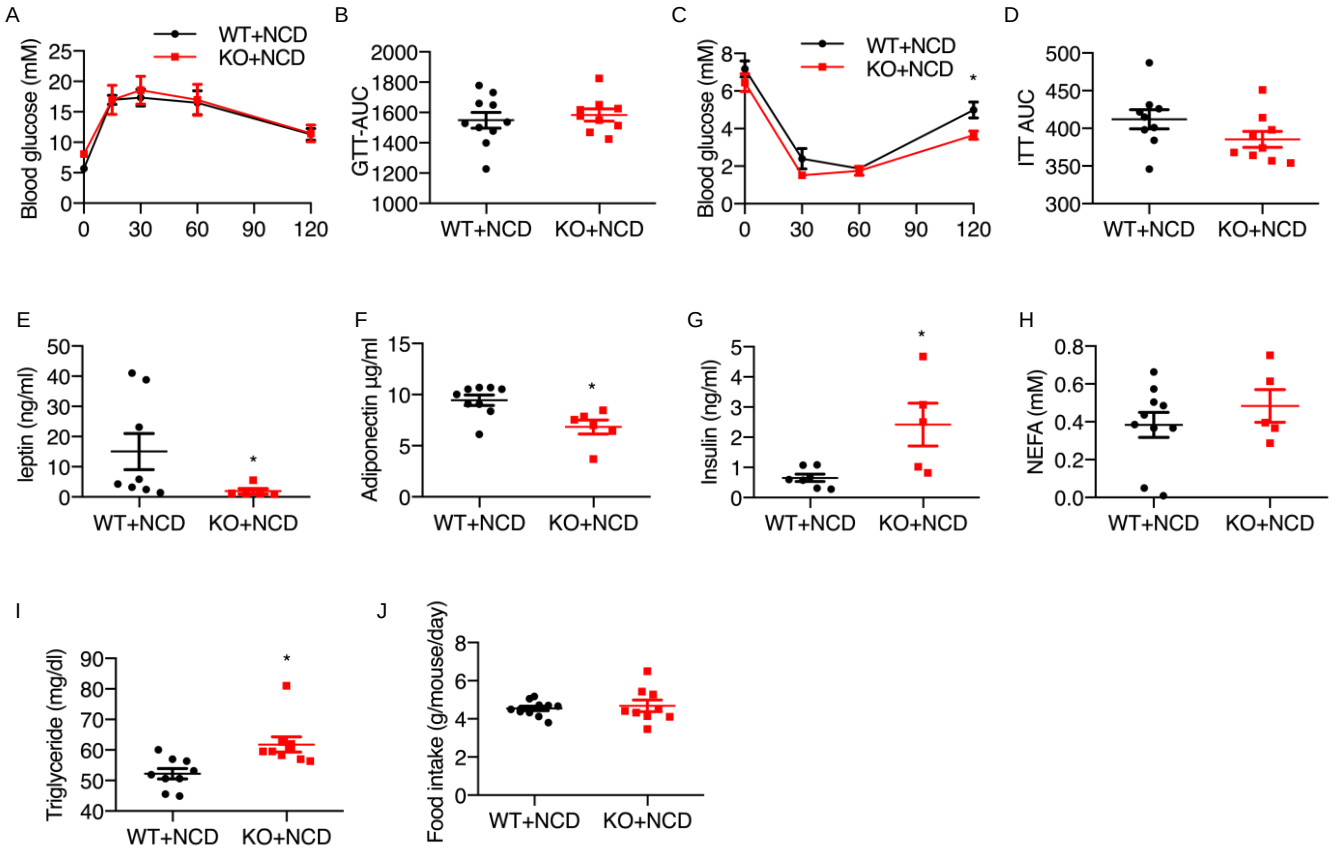
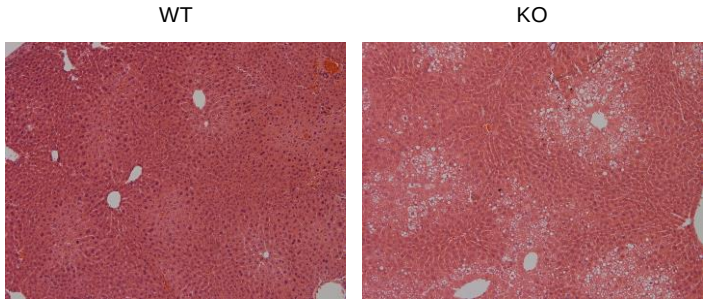

A
WT+NCD
KO+NCD
Blood glucose (mM)
0
5
10
15
20
25
0
30
60
90
120
B
GTT-AUC
1000
1200
1400
1600
1800
2000
WT+NCD
KO+NCD
C
WT+NCD
KO+NCD
Blood glucose (mM)
0
2
4
6
8
0
30
60
90
120
*
D
ITT AUC
300
350
400
450
500
WT+NCD
KO+NCD
E
leptin (ng/ml)
0
10
20
30
40
50
*
WT+NCD
KO+NCD
F
Adiponectin µg/ml
0
5
10
15
*
WT+NCD
KO+NCD
G
Insulin (ng/ml)
0
1
2
3
4
5
*
WT+NCD
KO+NCD
H
NEFA (mM)
0.0
0.2
0.4
0.6
0.8
WT+NCD
KO+NCD
I
Triglyceride (mg/dl)
40
50
60
70
80
90
*
WT+NCD
KO+NCD
J
Food intake (g/mouse/day)
0
2
4
6
8
WT+NCD
KO+NCD

Figure S3

A


WT
KO

B

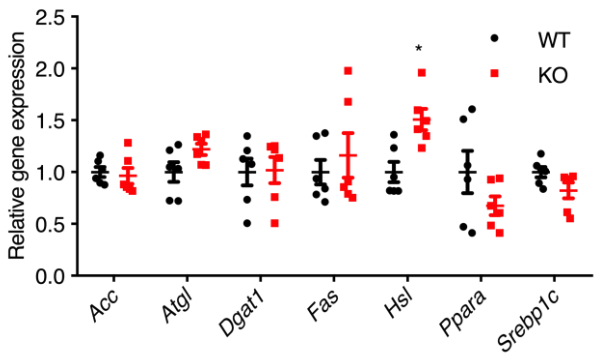
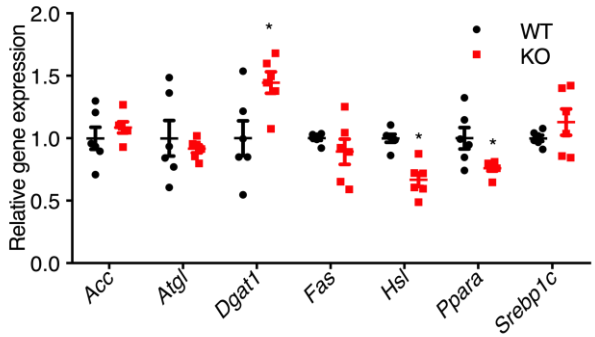

Relative gene expression
2.5
2.0
1.5
1.0
0.5
0.0
WT
KO
*
Acc
Atgl
Dgat1
Fas
Hsl
Ppara
Srebp1c

Figure S4

A


Relative gene expression
2.0
1.5
1.0
0.5
0.0
WT
KO
*
*
*
Acc
Atgl
Dgat1
Fas
Hsl
Ppara
Srebp1c

B

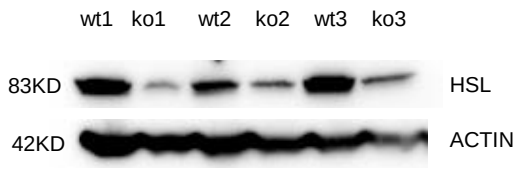

wt1
ko1
wt2
ko2
wt3
ko3
83KD
HSL
42KD
ACTIN

Figure S5

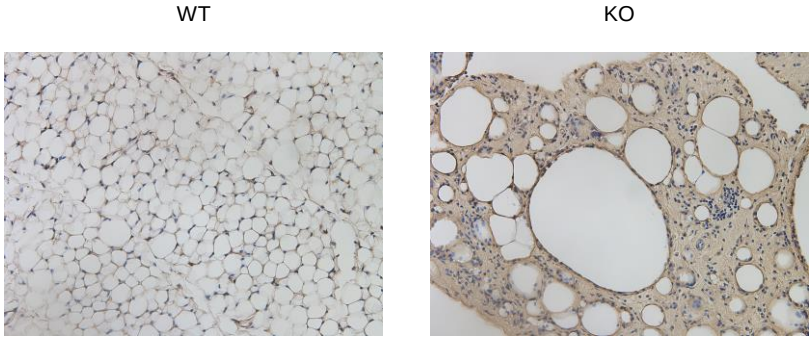


Figure S6

A

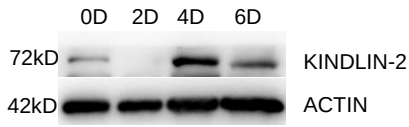
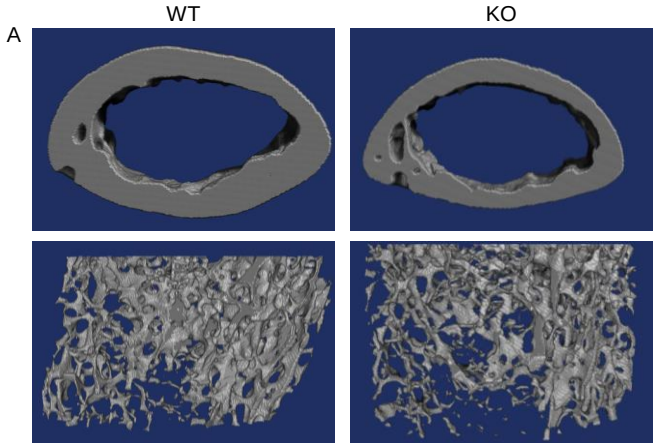
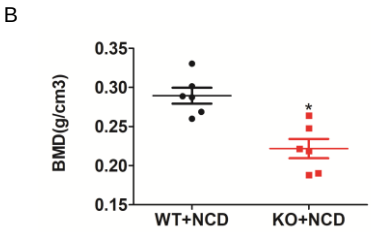
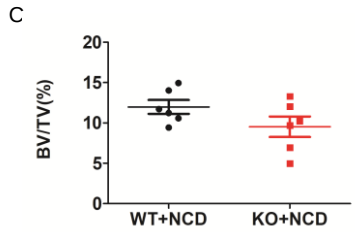
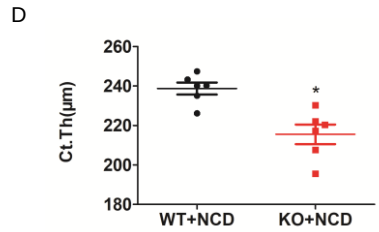


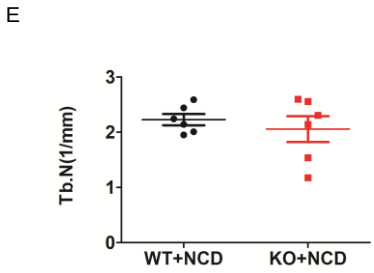
Figure S7

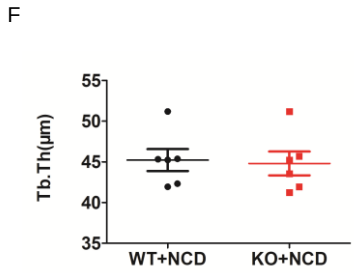

A
WT
KO


B
BMD(g/cm3)
0.35
0.30
0.25
0.20
0.15
*
WT+NCD
KO+NCD


C
BV/TV(%)
20
15
10
5
0
WT+NCD
KO+NCD


D
Ct.Th(μm)
260
240
220
200
180
*
WT+NCD
KO+NCD


E
Tb.N(1/mm)
3
2
1
0
WT+NCD
KO+NCD


F
Tb.Th(μm)
55
50
45
40
35
WT+NCD
KO+NCD

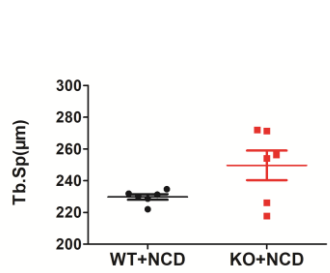

G
Tb.Sp(μm)
300
280
260
240
220
200
WT+NCD
KO+NCD

Figure legends

Figure S1. Normal fat mass in 3-week-old KO mice. (A) Photographs of representative 3-week-old male WT and KO mice (left panel). Representative images of eWAT, iWAT, and BAT depots (right panel). (B) The weights of eWAT, iWAT, and BAT adipose tissues, N = 3 mice per group.

Figure S2. Insulin sensitivity and glucose tolerance in normal chow diet KO mice. (A) Intraperitoneal glucose tolerance test (GTT) of WT and KO mice after 18 weeks of the NCD (N =9 mice per group). (B) Area under the curve (AUC) for GTT. (C) Intraperitoneal insulin sensitivity test of WT and KO mice after 18 weeks on the NCD (N =9 mice per group). (D) Area under the curve (AUC) for ITT. (E) leptin (N =8 mice per group), (F) adiponectin (N =9 mice for WT group, N=6 mice for KO group), (G) insulin (N =7 mice for WT group, N=5 mice for KO group), (H) NEFA (N =10 mice for WT group, N=5 mice for KO group), (I) TG (N =8 mice per group), (J) Food intake (N =9 mice per group) levels in WT and KO mice after 18 weeks on the NCD (N =10 mice per group). *P<0.05, **P<0.01 for KO vs WT by Student's t-test.

Figure S3. Hepatic steatosis in KO livers after 18 weeks normal chow diet feeding. (A) Representative H&E sections of WT and KO liver. (original magnification ×200). (B) Metabolism gene change in WT and KO mice on NCD. (N = 6 mice per group). *P<0.05 for KO vs WT by Student's t-test.

Figure S4. Evaluation of lipogenesis and reduction of lipolysis in HFD KO liver. (A) Transcripts related to lipogenesis and lipolysis (N = 6 mice per group). (B). Western blot of hepatic lipolysis proteins. *P <0.05 for KO vs WT by Student's t-test.

Figure S5. Immunohistochemistry staining of F4/80 proteins in iWAT from NCD WT and KO mice. Sections of WT and KO iWAT stained with antibodies against F4/80 antibody. (original magnification ×200)

Figure S6 Kindlin-2 expression during adipogenesis progress. A representative Western blot of Kindlin-2 during adipogenesis, examined using an antibody that recognizes Kindlin-2.

Figure S7. Deleting Kindlin-2 in adipocyte causes bone mass reduction. (A) Three-dimensional (3D) reconstruction from microcomputerized tomography (μCT) scans of femurs from 4-month-old male mice. (B-G) Bone histomorphometric analyses (N = 6 mice per group). *P<0.05, **P<0.01 for KO vs WT by Student's t-test.

Supplementary Table 1: Real-time Polymerase Chain Reaction (PCR)

Primers

Name	Forward primer	Reverse primer
Cebpα	CCGTGGTGGTTTCTCCTTGA	TCATTTTTCTCTCACGGGGCCA
Pparγ	TTCGCTGATGCACTGCCTAT	GGAATGCGAGTGGTCTTCCA
Kindlin2	TGGACGGGATAAGGATGCCA	TGACATCGAGTTTTTCCACCAAC
Acc	GGAATGCGAGTGGTCTTCCA	TACCCGACGCATGGTTTTCA
Hsl	TGCCCAGGATTGGATGGTTT	GTGAGAACGCTGAGGCTTTG
Pparγ	TGCAGCCTCAGCCAAGTTGAA	TTCCCGAACTTGACCAGCCA
Atgl	GGAGGAATGGCCTACTGAACC	ATCCTCTTCCTGGGGGACAA
Dgat1	TAGAAGAGGACGAGGTGCGA	TCAGGATCAGCATCACCACAC
Fas	TTGGCCTACACCCAGAGCTA	TTGTGGTAGAAGGACACGGC
Sreb1c	TATTCGGCATGTCACTAGCAT	GATGAGCTGGAGCATGTCTGT
Acot1	CCCCGAGGTAAAAGGACCTG	TCTCAGGATAGTCACAGGGGG
Acox1	GCCGTCGAGAAATCGAGAACT	TGCCCAAGTGAAGGTCCAAA
Acsm3	CAATGGAAGGTTCTGGCTGGA	TGCTCATGTCATTCTGAACAAGC
Acsl	CCGCGACTCCTTAAATAGCA	TATGCAGAATTCTCCTCCGCTG
Adrb3	GTCCACCGCTCAACAGGTTT	TGGGGCAACCAGTCAAGAAG
Cpt1β	ACTACTTCTGTTTGCCTGCCA	AGATGGTTTTGGGCCGTCAC
Fabp3	GACGGGAAACTCATCCTGACTC	GGTCACGCCTCCTTCTCATAA
Pdk4	CAACGCACTTGCTCCCTCTC	GGCATTTTCTGAACCAAAGTCC
Acly	TTCCTCCTTAATGCCAGCGG	ACTTGGGACTGAATCTTGGGG

Ap2	TGAAATCACCGCAGACGACA	ACACATTCCACCACCAGCTT
Cideα	ACAGAAATGGACACCGGGTA	TGACATTGAGACAGCCGAGG
Cs	CTCAATTCAGGACGGGTGGT	AGGAATAGCGAGGGTCAGTCT
Ucp1	TTGCCTCACTCAGGATTGGC	GCAGGTGTTTCTCTCCCTGAA
Cd36	GCAGTGATTTGACTTGTGGC	TTTCAGAAGGCAGTACACAGAAG
C/ebpβ	CGCCGCCTTATAAACCTCCC	AGTCGGGCTCGTAGTAGAAGT
Pgc1α	TCTCAGTAAGGGGCTGGTTG	AGCAGCACACTGTATGTCACTC