

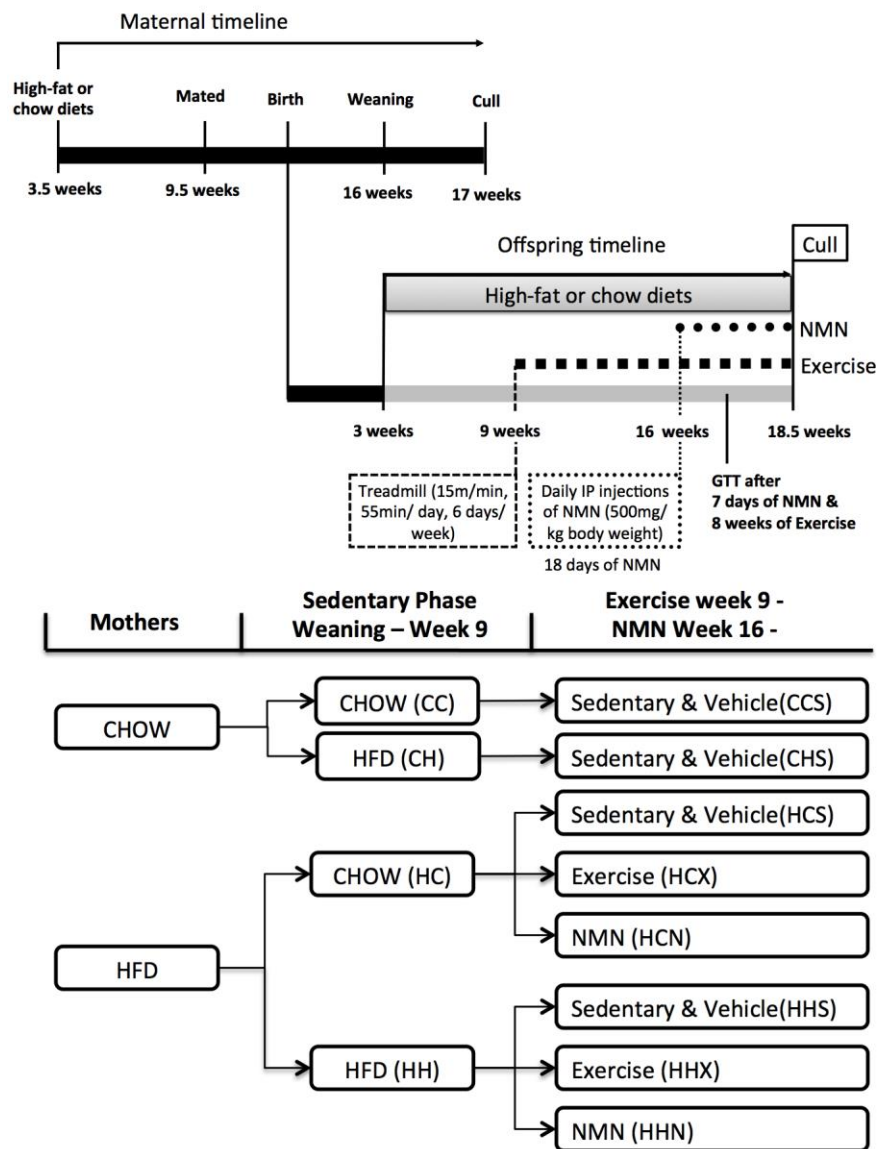
Nicotinamide mononucleotide (NMN) supplementation ameliorates the impact of maternal obesity in mice: comparison with exercise

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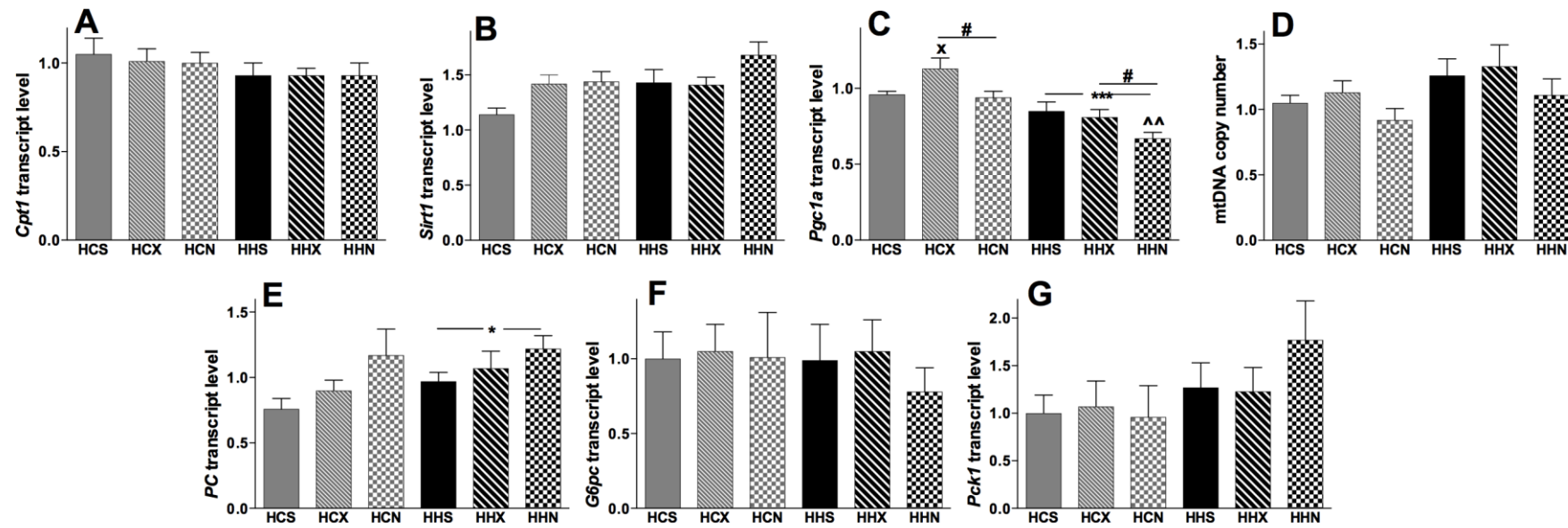
Supplementary Figure S1: Experimental Timeline. Top part shows the detail timeline of the experiment and bottom section representing the group distribution. First letter indicates maternal diet from 5 weeks prior to mating until weaning, chow (C) or HFD (H); second letter indicates offspring post-weaning diet (C or H); third letter indicates type of intervention – sedentary (S), treadmill exercise (X) or daily NMN injection (N).

	CHOW	HFD	Significance
Final Body Weight (g)	22.8±0.5	28.7±0.5	***
Glucose mM	6.3±0.1	7.6±0.1	***
Liver (mg)	778.6±23.5	947.0±14.2	
Heart (mg)	111.1±2.3	126.6±0.8	***
Quadriceps (mg)	241.2±1.4	286.0±1.5	***
Gonadal WAT (mg)	126.6±12.8	815.9±38.8	***
Liver % BW	3.4±0.1	3.3±0.1	
Heart % BW	0.49±0.01	0.44±0.01	
Quadriceps % BW	1.05±0.01	1.00±0.01	
Gonadal WAT % BW	0.6±0.1	2.8±0.1	***

Supplementary Table S2 Final body weight and dissected organ weights at 17 weeks of age.

Dissected tissue weight, as net mass and % body weight and basal glucose concentration of chow and HFD fed mothers. Data are shown as mean±SEM; n = 8 for organ mass data; 9–11 for body weight and blood glucose. Data were analysed using Student's t-test. Significant differences are presented as

*** P<0.001 diet effect



Supplementary Figure S3: Effect of NMN and exercise on mitochondrial DNA copy number and expression of genes involved in mitochondrial biogenesis, fat transport and gluconeogenesis in liver. Data are shown as mean±SEM, n = 9-10 per group. Data are presented as fold changes compared to the CCS group. The first letter represents maternal and second letter represents post-weaning diet; chow (C) or HFD (H); the third letter represents intervention; sedentary (S), exercise (X) or NMN (N). To investigate the effects of post-weaning diets and intervention (exercise and NMN) on mRNA expression of *Cpt1* (A), *Sirt1* (B), *Pgc1a* (C), mtDNA (D), *PC* (E), *G6pc* (F) and *Pck1* (G) of the offspring of obese mothers consuming chow or HFD, HC, HCX, HCN and HH, HHX, HHN were compared by separate two-way ANOVAs. The significant effects are:

* $P < 0.05$, *** $P < 0.001$ overall post-weaning diet effect

$P < 0.01$ overall intervention effect

^x $P < 0.05$ simple main effect of exercise

^{^^} $P < 0.01$ simple main effect of NMN

Gene	Forward	Reverse
<i>Sirt 1</i>	TGTAAGTTACTGCAGGAGTGTAAG	GCATAGATACCGTCTCTTGATCTGAA
<i>Pgc1a</i>	TATGGAGTGACATAGAGTGTGCT	CCACTTCAATCCACCCAGAAAG
<i>Pparg</i>	TCGCTGATGCACTGCCTATG	GAGAGGTCCACAGAGCTGATT
<i>Fasn</i>	AAGCCGTTGGGAGTGAAAGT	CAATCTGGATGGCAGTGAGG
<i>Cd36</i>	TGGCCTTACTTGGGATTGG	CCAGTGTATATGTAGGCTCATCCA
<i>MPC1</i>	GTGCTGCAGCCTTTCTCAC	GTTCCCAACAAAGGCATCAC
<i>Acc1</i>	GCCTCCGTCAGCTCAGATAC	ATTCTGGCTGGAGAAGCCACA
<i>Acc2</i>	CATACACAGAGCTGGTGTGGACT	CACCATGCCCACCTCGTTAC
<i>Cpt1a</i>	CAGAGGATGGACACTGTAAAGG	CGGCACTTCTTGATCAAGCC
<i>Hadh</i>	TTGCGCTCCATGTCCTCCTC	GACTCTCCTCAATTCCCTTC
<i>Gapdh</i>	AGGTCGGTGTGAACGGATTTG	TGTAGACCATGTAGTTGAGGT
<i>Ywhaz</i>	GAAAATGAAGGGTGACTACTAC	CTGATTTCAAATGCTTCTTG
<i>Pck1</i>	GGTATTGAACTGACAGACTC	CCAGTTGTTGACCAAAGG
<i>G6pc</i>	GTCGTGGCTGGAGTCTTG	CGGAGGCTGGCATTGTAG

Supplementary Table S4: Primer sequences of all target genes for RT-PCR