*P* HF < 0.0001

 WG = 0.008

 Time < 0.0001

 Time x HF x WG = 0.0023



**Supplementary Figure 1:** Template for Seahorse XFe 96 mitochondria respirometry analysis

**Supplementary Figure 2:** Serum concentrations of **(a)** Ghrelin, **(b)** Glucagon, **(c)** Leptin, **(d)** PAI-1 and **(e)** Resistin in C57BL/6 mice fed either a control (C) or high fat-high sucrose (HFS) diet supplemented with 10% wheat germ (WG) for 12 weeks. Results were obtained using the Bio-Plex MAGPIX Multiplex Reader and as part of the Bio-Rad kit (product # 171F7001M; Bio-Rad Laboratories, CA, USA) described in the methods section. Data = mean ± SE, n=9/group.

*P* values for significant main effects are shown in each panel. When the interaction HFS × WG was significant (*P*<0.05, two-way ANOVA), different letters indicate differences between groups as determined by the post-hoc testing. Dietary treatments: control (C), control + 10% wheat germ (C+WG), high fat-high sucrose (HFS), and high fat-high sucrose + 10% wheat germ (HFS+WG); PAI-1=plasminogen activator inhibitor 1.

**Supplementary Table 1:** Diet Composition (g/kg)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | C | C+WG | HFS |  | HFS+WG |
| **Wheat Germ (WG)**1 | -- | 100 | -- |  | 100 |
| **Carbohydrates** |  |  |  |  |  |
| *Total* | 722.1 | 724.77 | 372.26 |  | 374.93 |
| *Cornstarch* | 466 | 412.9 | 0 |  | 0 |
| *Sucrose* | 100 | 100 | 270 |  | 270 |
| *Dextrinized Cornstarch* | 155 | 155 | 100 |  | 46.9 |
| *WG1* | -- | 53.1 | -- |  | 53.1 |
| **Protein** |  |  |  |  |  |
| *Total* | 140 | 140 | 180 |  | 180 |
| *Casein* | 140 | 116.6 | 180 |  | 156.6 |
| *WG1* | -- | 23.4 | -- |  | 23.4 |
| **Fat** |  |  |  |  |  |
| *Total* | 40 | 40 | 350 |  | 350 |
| *Soybean Oil* | 40 | 33.35 | 40 |  | 33.35 |
| *Lard* | 0 | 0 | 310 |  | 310 |
| *WG1* | -- | 6.65 | -- |  | 6.65 |
| **Fiber** |  |  |  |  |  |
| *Total* | 50 | 50 | 50 |  | 50 |
| *Cellulose* | 50 | 45.84 | 50 |  | 45.84 |
| *WG1* | -- | 4.16 | -- |  | 4.16 |
| **Vitamin Mix**2 | 10 | 10 | 10 |  | 10 |
| **Mineral Mix**3 |  |  |  |  |  |
| *Total* | 35 | 35 | 35 |  | 35 |
| *Calcium* | 25.9 | 25.7 | 25.9 |  | 25.7 |
| *Calcium from WG1* | -- | 0.06 | -- |  | 0.06 |
| *Sodium Phosphate* | 5.6 | 3.8 | 4.8 |  | 3.02 |
| *Potassium Phosphate* | 2.4 | 1.65 | 2.06 |  | 1.3 |
| *Phosphorous from WG1* | -- | 0.8 | -- |  | 0.8 |
| *Sucrose* | 1.1 | 3.76 | 2.3 |  | 4.92 |
| *Kcal/g* | 3.8 | 3.8 | 5.4 |  | 5.4 |

1Wheat germ composition (Shawnee Mills, OK, USA) was analyzed by NP Analytical Laboratory (St. Louis, MO, USA): carbohydrates, 53.1%; protein, 23.4%; fat, 6.65%; fiber, 4.16%; calcium, 0.06%; and phosphorus, 0.08%.

2Harlan-Teklad Laboratories (TD 94047, WI, USA).

3Complete mineral mix (TD94049, Harlan-Teklad Laboratories) was used for the control diet (C) and a calcium and phosphorus deficient mineral mix (TD 98057, Harlan-Teklad Laboratories) was used for the C+WG and the HFS diets.

C=Control; C+WG= Control + 10% Wheat Germ; HFS=High Fat-High Sugar; HFS+WG=High Fat-High Sugar + 10% Wheat Germ

**Supplementary Table 2:** Oligonucleotide Primers for RT-PCR

|  |  |
| --- | --- |
| Target gene | Primer Sequence |
| *Pgc1α* | F 5’ AAC-CAC-ACC-CAC-AGG-ATC-AGA 3’R 5’ TCT-TCG-CTT-TAT-TGC-TCC-ATG-A 3’ |
| *Pgc1β* | F 5’ GAG-GGC-TCC-GGC-ACT-TC 3’R 5’ CGT-ACT-TGC-TTT-TCC-CAG-ATG-A 3’ |
| *Sod1* | F 5’ GCC-CGG-CGG-ATG-AAG-A 3’R 5’ CGT-CCT-TTC-CAG-CAG-TCA-CA 3’ |
| *Sod2* | F 5’ CTC-TGG-CCA-AGG-GGA-GAT-GTT 3’R 5’ GTC-CCC-CAC-CAT-TGA-ACT-TC 3’ |
| *Sod3* | F 5’ CAG-ACA-AAG-GAG-CGC-AAG-AAG 3’R 5’ TGA-GGC-TTA-AGT-GGT-CTT-GCA 3’ |