SUPPLEMENTARY DATA

Fat analysis by MRI

A volume coil with 72-mm inner diameter and a homogeneous RF field of 100 mm along the axis of the magnetic field was used for radiofrequency pulses. Two sets of multi-slice spin-echo sequence (TR=500 ms, TE=14 ms) were used to acquire 20 axial slices per set with 2.00mm slice thickness and 2.50mm interslice distance. The field of view was selected with 8 x 8 cm^2, and matrix size was 256x128 (interpolated to 256 x 256), five averages, corresponding to an image acquisition time of 5 min 20 sec. During the MRI scanning, rats were anesthetized with isofluorane (5% for induction, 1–2% for maintenance) mixed with compressed air (1liter/min) and delivered through a nasal mask. Once anesthetized, animals were placed in a head-holder to assure reproducible positioning inside the magnet. Respiration rate was monitored and kept throughout the experimental period around 60–80 breaths per min.

Axial sections for the analysis of subcutaneous fat were selected from the liver to the bladder. On average, 32 sections per animal served for calculations. Regions of interest for each of the fat samples were manually defined in each slice of the images (Paravision 4.0 software; Bruker BioSpin, Ettlingen, Germany), and pixel areas were measured. The subcutaneous surface area per slice was multiplied by the inter-slice distance to yield the corresponding fat volume. Subcutaneous volumes were normalized to the total volume of the calculation slices.

Non-alcoholic steatohepatitis scoring system:

Histological changes were assessed by a modification of the scoring system for grading and staging for non-alcoholic steatohepatitis described by Brunt et al (27): (1) Macrovesicular steatosis was graded 0–3, based on percent of hepatocytes in the specimen involved (0 = none, 1 = up to 33%, 2 = up to 66%, 3 > 66%). (2) Microvesicular steatosis was graded 0–3 based on the same grading as macrovesicular steatosis. (3) Lobular inflammation was graded 0–3 based on the inflammatory foci with a 20 x ocular (none = 0, 1–2 = 1, 3–4 = 2,>4 foci = 3).

Supplementary Table 1. Metabolic changes in the short treatment experiment.

	HFrD; n=8	HFrD & Ang 1-7; n=9	Normal Chow; n=6	Normal Chow & Ang1-7; n=7
Body weight baseline, gr ±SE	506.5±16.8	509.7±11.45	485.6±9.6	480.7±9.6
Body weight post 4 wks, gr ±SE	523.5±19.8	522.7±11.2	501.6±9.7	484.8±8.8
Weight change	17±3.9	13±3.3	16±4.2	4.14±3.4*
Fasting glucose, mmol/l	3.86±0.08	3.8±0.07	4±0.16	4.4±0.4
Insulin, pmol/l	184±13.9$^{\&}$	120.8±15.9*	138.9±25.7	120.2±38.2
HOMA IR	5.26±0.08$^{\#\&}$	3.4±0.08*	4.12±0.03	3.9±0.11
Triglycerides, mmol/l	3.11±0.45$^{\#}$	2.43±0.32$^{*\#}$	0.98±0.05	1.02±0.3
AUC –IPGTT mmol/l	2016.8±57.7	1483.8±232.6*	1621±224.9	1853.12±116.8

Mean (+/- SD) animal weight and weight changes during the treatments period in four different groups: control (n=6), control Ang1-7 treated (n=7), fructose (n=8) and fructose Ang1-7 treated group (n=9). * $p<0.05$ in fructose vs. fructose Ang 1-7 treated rats. # $p<0.05$ in fructose vs control & $p<0.05$ in fructose vs. control 1-7.