

**Table S2.** Results of the Intravenous Glucose Tolerance Test trials and the surrogate markers.

Study	IVGTT (Si)		AUC OGTT		HOMA-IR		Fasting insulin	
	Baseline	End of intervention	Baseline	End of intervention	Baseline	End of intervention	Baseline	End of intervention
<b>Alemzadeh, 1998</b>	Diazoxide= 0.77±0.18 (min <sup>-1</sup> uU <sup>-1</sup> mL x 10 <sup>4</sup> ) (SE)	Diazoxide= 1.07±0.21 (min <sup>-1</sup> uU <sup>-1</sup> mL x 10 <sup>4</sup> ) (SE), PC= 38.96%					Diazoxide= 168±14 pmol/l (SE)	Diazoxide=108±13 pmol/l (SE)**, PC= -35.71%
<b>Osterberg, 2015</b>	VSL#3 probiotic=5.9±1.3 [(mU L <sup>-1</sup> min <sup>-1</sup> )] (SE)	VSL#3 probiotic=5.5±0.9 [(mU L <sup>-1</sup> min <sup>-1</sup> )] (SE), PC= -6.78%					VSL#3 probiotic= 6.1±1.5 mIU ml <sup>-1</sup> (SE)	VSL#3 probiotic= 5.9±1.4 mIU ml <sup>-1</sup> (SE), PC= -3.28%
<b>Jans, 2012</b>	High Monounsaturated Fatty Acid (HMUFA)=3.04±0.28 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE),	HMUFA=2.69±0.30 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE), PC= -11.51%			HMUFA=2.26±0.21 (SE),	HMUFA=2.27±0.30 (SE), PC= 0.44%		
	Low Fat High Complexed Carbohydrate (LFHCC)=3.02±0.66 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE),	LFHCC=3.21±0.43 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE), PC= 6.29%			LFHCC=2.88±0.57 (SE),	LFHCC=2.70± 0.70 (SE), PC= -6.25%		
	Low Fat High Complexed Carbohydrate n-3 PUFA (LFHCC n-3)=2.71±0.30 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE),	LFHCCn-3=2.99±0.31 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE), PC= 10.33%			LFHCCn-3=2.20±0.45 (SE),	LFHCCn-3=2.03±0.26 (SE), PC= -7.73%		
	High Saturated Fatty Acid (HSFA)=3.47±0.73 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE)	HSFA=3.25±0.41 (Mu/L <sup>-1</sup> min <sup>-1</sup> 10 <sup>-4</sup> ) (SE), PC= -6.34%			HSFA=2.18±0.27 (SE)	HSFA=2.40±0.37 (SE), PC= 10.09%		
<b>Ard, 2004 W</b>	Group A (advice only)=2.2± 1.13 (mg kg <sup>-1</sup> min <sup>-1</sup> ) (SD),	Group A=2.2± 1.12 (mg kg <sup>-1</sup> min <sup>-1</sup> ) (SD), PC= 0%					Group A= 16.65±9.05 μU/ml (SD),	Group A=18.41±12.55 μU/ml (SD), PC= 10.57%
	Group B (established protocol) = 2.32± 0.65 (mg kg <sup>-1</sup> min <sup>-1</sup> ) (SD),	Group B=2.97±1.74 (mg kg <sup>-1</sup> min <sup>-1</sup> ) (SD), PC= 28.02%					Group B=14.14±5.23 μU/ml (SD)	Group B= 10 ± 3.35 μU/ml (SD)**, PC= -30.56%
	Group C (established protocol + DASH diet)=1.96± 0.94 (mg kg <sup>-1</sup> min <sup>-1</sup> ) (SD)	Group C=2.95±1.62 (mg kg <sup>-1</sup> min <sup>-1</sup> ) (SD)**, PC= 50.51%					Group C=15.65± 7.99 μU/ml (SD)	Group C=13.76±8.84 μU/ml (SD), PC= -12.08%
<b>%Davy, 2002</b>	Oat=1.8±0.3 (×10 <sup>-4</sup> /min <sup>-1</sup> /μU <sup>-1</sup> /mL <sup>-1</sup> ) (SE)	Oat=1.8±0.3 (×10 <sup>-4</sup> /min <sup>-1</sup> /μU <sup>-1</sup> /mL <sup>-1</sup> ) (SE), PC= 0%					Oat= 93.8±15.4 pmol/L (SE)	Oat= 88.4±12.5 pmol/L (SE), PC= -5.76%
<b>Kolehmainen, 2012</b>	Bilberries (BB)=2.31±1.00 ((mU/L)- 1 x min-1) (SD)	BB=2.42±1.32 ((mU/L)-1 x min-1) (SD), PC= 4.76%	BB=14.5±10.2 mU/l (SD)	BB=14.4±8.1 mU/l (SD), PC= -0.68%			BB=14.5±10.2 mU/l (SD)	BB=14.4±8.1 mU/l (SD), PC= -0.69%
<b>Larson-Meyer, 2006</b>	Calorie Restriction (CR)=3.3±0.5 (10 <sup>-4</sup> mU 1 <sup>-1</sup> min <sup>-1</sup> ) (SE),	CR=4.2±1.0 (10 <sup>-4</sup> mU 1 <sup>-1</sup> min <sup>-1</sup> ) (SE)**, PC=27.27%					CR= 9.4±1.5μu/ml (SE)	CR= 6.6±0.9 μu/ml (SE)**, PC= -29.79%
	Calorie Restriction + Exercise (CREX)=3.4±0.4 (10 <sup>-4</sup> mU 1 <sup>-1</sup> min <sup>-1</sup> ) (SE),	CREX=5.3±0.8 (10 <sup>-4</sup> mU 1 <sup>-1</sup> min <sup>-1</sup> ) (SE)**, 55.88%					CREX= 9.8±1.0 μu/ml (SE)	CREX= 7.0±0.7 μu/ml (SE)**, PC= -28.57%
	Low-calorie diet (LCD)=3.1±0.6 (10 <sup>-4</sup> mU 1 <sup>-1</sup> min <sup>-1</sup> ) (SE),	LCD=4.7±0.9 (10 <sup>-4</sup> mU 1 <sup>-1</sup> min <sup>-1</sup> ) (SE)**, PC=51.61%					LCD= 11.0±0.9 μu/ml (SE)	LCD= 9.4±1.3 μu/ml (SE)**, PC= -14.55%

Tierney, 2011	HMUFA (high-monounsaturated fatty acid )=2.89±0.17 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE),	HMUFA=2.89±0.16 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE), PC= 0%			HMUFA= 9.86±0.51 ulU ml <sup>-1</sup> (SE),	HMUFA= 9.20±0.56 ulU ml <sup>-1</sup> (SE), PC= -6.6%
	LFHCC (low-fat, high complex carbohydrate)=2.75±0.18 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE),	LFHCC=2.79±0.17 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE), PC= 1.45%			LFHCC= 10.31±0.52 ulU ml <sup>-1</sup> (SE),	LFHCC= 10.22±0.57 ulU ml <sup>-1</sup> (SE), PC= -0.87%
	LFHCC n-3=2.58±0.19 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE),	LFHCC n-3=2.53±0.18 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE), PC= -1.94%			LFHCC n-3= 10.22±0.55 ulU ml <sup>-1</sup> (SE),	LFHCC n-3= 9.60±0.60 ulU ml <sup>-1</sup> (SE), PC= -6.06%
	HSFA(high-saturated fatty acid)=3.09±0.19 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE)	HSFA=2.89±0.18 (mul <sup>-1</sup> ) <sup>-1</sup> min <sup>-1</sup> (SE), PC= -6.47%			HSFA= 9.83±0.54 ulU ml <sup>-1</sup> (SE)	HSFA= 10.05±0.59 ulU ml <sup>-1</sup> (SE), PC= 2.23%
Brady, 2004	High n-6 group=2.04± 0.37 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SE)	High n-6 group=1.73± 0.26 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SE), PC= -15.2%	High n-6 group=2.24± 0.27 (SE)	High n-6 group=2.28± 0.28 (SE), PC= 17.9%		
Fava, 2013	HM/HGI (high monounsaturated fat/high glycaemic index) =3.49±2.85 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD),	HM/HGI=3.02±1.28 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD), PC= -13.47%			HM/HGI=59.8±21.1 qmol l <sup>-1</sup> (SD)	HM/HGI=61.5±25.4 qmol l <sup>-1</sup> (SD), PC=2.84%
	HM/LGI (high monounsaturated fat/low glycaemic index) =3.78±2.17 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD),	HM/LGI=3.13±1.97 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD), PC= -17.2%			HM/LGI=67.8±25.2 qmol l <sup>-1</sup> (SD)	HM/LGI=68.1±32.1 qmol l <sup>-1</sup> (SD), PC= 0.44%
	HC/HGI (high carbohydrate/high glycaemic index)=2.75±1.55 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD),	HC/HGI=2.93±1.48 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD), PC= 6.55%			HC/HGI=79.0±35.2 qmol l <sup>-1</sup> (SD),	HC/HGI=67.9±29.4 qmol l <sup>-1</sup> (SD)**, PC= 14%
	HC/LGI (high carbohydrate/low glycaemic index)=2.86±1.1 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD),	HC/LGI=3.45±2.12 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD), PC= 20.63%			HC/LGI=73.3±37.7 qmol l <sup>-1</sup> (SD),	HC/LGI=70.6±35.4 qmol l <sup>-1</sup> (SD), PC=3.68%
	HS (high saturated fat)=3.58±1.67 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD)	HS=3.21±1.38 (μU min <sup>-1</sup> mL <sup>-1</sup> × 10 <sup>-4</sup> ) (SD), PC= -10.34%			HS=77.6±93.8 qmol l <sup>-1</sup> (SD)	HS=72.8±80.4 qmol l <sup>-1</sup> (SD), PC= -6.18%
Giacco, 2013	Whole grain=2.97±0.2(10 <sup>4</sup> min <sup>-1</sup> /(μU/ml)) (SE)	Whole grain= 3.05±0.19 (10 <sup>4</sup> min <sup>-1</sup> /(μU/ml)) (SE), PC= 2.69%			Whole grain=93.8±52.8 qmol l <sup>-1</sup> (SD)	Whole grain= 103.5±55.6 qmol l <sup>-1</sup> (SD), PC= 10.34%
Juntunen, 2003	Run in period=4.6±2 (10 <sup>-4</sup> min <sup>-1</sup> X μU <sup>-1</sup> XmL <sup>-1</sup> ) (SD)	Rye Bread (RB) period=4.1±2.1(10 <sup>-4</sup> min <sup>-1</sup> X μU <sup>-1</sup> XmL <sup>-1</sup> ) (SD), PC= -10.87%			Beginning of RB period=59.3±28.3 pmol/L (SD),	End of RB period=52.4±30.3 pmol/L (SD), PC= -11.63% End of WB period= 49.0±20.3 pmol/L (SD), PC= -16.80%

		Wheat Bread (WB)period=3.9±1.8 (10 <sup>-4</sup> min <sup>-1</sup> X μU <sup>-1</sup> XmL <sup>-1</sup> ) (SD), PC= -15.22%					Beginning of WB period=58.9± 25.8 pmol/L (SD)	
<b>Kien, 2013</b>	Men HPA=5.48±0.77 (x10 <sup>-4</sup> mL μU <sup>-1</sup> min <sup>-1</sup> ) (SE), Women HPA=3.96±0.70 (x10 <sup>-4</sup> mL μU <sup>-1</sup> min <sup>-1</sup> ) (SE)	Men HOA=5.31±1.05 (x10 <sup>-4</sup> mL μU <sup>-1</sup> min <sup>-1</sup> ) (SE), PC= -3.1% Women HOA=6.46±1.38 (x10 <sup>-4</sup> mL μU <sup>-1</sup> min <sup>-1</sup> ) (SE)**, PC= 63.13%					Men Baseline=69±4.8 pmol/L (SE), Women baseline=73.8±4.1 pmol/L (SE)	Men HOA=66.4 ±4.9 pmol/L (SE), PC=-3.76% Men HPA=61±6.1 pmol/L (SE), PC= -11.59% Women HPA=91.5±21.8 pmol/L (SE), PC= 23.98% Women HOA=65±5 pmol/L (SE)**, PC= 11.92%
<b>Douglas, 2006</b>	Baseline=1.9±1.7 (SD)	MUFA= 1.9±1.6 (x10 <sup>-4</sup> min <sup>-1</sup> /ulU/mL) (SD), PC= 0% LOW CHO=2.1±1.9 (x10 <sup>-4</sup> min <sup>-1</sup> /ulU/mL) (SD), PC= 10.53% STD=1.9±1.7 (x10 <sup>-4</sup> min <sup>-1</sup> /ulU/mL) (SD), PC= 0% MUFA=3.9±0.6[x 10 <sup>-4</sup> min <sup>-1</sup> /(μU/ml)] (SE)**, PC= CHO=3.5±0.4[x 10 <sup>-4</sup> min <sup>-1</sup> /(μU/ml)] (SE), PC = 11.42% SAT=3.3±0.5[x 10 <sup>-4</sup> min <sup>-1</sup> /(μU/ml)] (SE), PC= - 15.38%					Baseline=20.6±7.8 μIU/mL (SD)	MUFA=17.8±7.5 μIU/mL (SD), PC= -13.59% LOW CHO=14.3± 8.2 μIU/mL (SD)**, PC= - 30.58% STD=17.5±7.2 μIU/mL (SD), PC= -15.04%
<b>Paniagua, 2007</b>								MUFA=60.7±12.4 pmol/l (SE) CHO=75.2±12.3 pmol/l (SE)**, PC= -19.28% SAT=64.1±9.6 pmol/l (SE), PC= -14.76%
<b>Davis, 2012</b>	Nutrition=1.4±0.9 (10 <sup>-4</sup> min <sup>-1</sup> μU mL <sup>-1</sup> ) (SD)	Nutrition= 1.6±0.2 (10 <sup>-4</sup> min <sup>-1</sup> μU mL <sup>-1</sup> ) (SD)**, PC= 14.29%					Nutrition= 19.1±9.5 μU mL <sup>-1</sup> (SD)	Nutrition= 16.1±2.0 μU mL <sup>-1</sup> (SD)**, PC= -15.7%
<b>Davis, 2009</b>	Nutrition (N)= 1.6±0.9(10 <sup>-4</sup> /min/μU/ml) (SD), Nutrition + strength training (NS)= 1.5±0.9(10 <sup>-4</sup> /min/μU/ml) (SD)	N=1.8±0.8(10 <sup>-4</sup> /min/μU/ml) (SD), PC= 12.5% NS = 1.5±0.8(10 <sup>-4</sup> /min/μU/ml) (SD), PC= 0%	N= 459.3±319.5 nmol/min/l (SD), NS= 405.0±279.1 nmol/min/l (SD)	N= 368.3±386.6 nmol/min/l (SD), PC= - 19.81% NS= 302.6 ±159.8 nmol/min/l (SD), PC= - 25.28%	N= 6.1±4.2 (SD), NS= 7.1±2.5 (SD),	N= 5.5±3.3 (SD), PC= -9.84% NS= 6.1±3.0 (SD), PC= -14.08		

\*\*p≤0.05, SD= Standard deviation, SE= Standard error of the mean. PC= Proportional change between baseline and intervention %, IVGTT (Si)= Intravenous Glucose Tolerance Test, HOMA-IR=Homeostatic Model Assessment for Insulin Resistance, AUC OGTT= Area Under the Curve-Oral Glucose Tolerance Test.