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| Supplementary Data 2. Clinical trials evaluating *Curcuma longa* treatment on glucose/insulin regulation and serum lipid profiles | | | | | |
| Trials | Subjects1 | Composition of treatments | Treatment protocols of curcuminoid (C) preparations | Outcomes | Ref● |
| Soni + Kuttan (1992) | Healthy adults | Turmeric powder | 500mg/d (n=10); 7d  No controls | C vs baseline: ↓TBARS, ↓TC, ↑HDL  NE: TG | 1 |
| Ramirez-Bosca et al. (2000) | Healthy adults | Alcohol extract of turmeric | 20mg/d C (n=12); 30d  No controls | C vs baseline:  ↑HDL, ↓LDL, ↑ApoA, ↓ApoB, ↓ApoB/ApoA | 2 |
| Baum L et al. (2007) | Elderly adults | Curcuminoid powder (given as capsule or mixed with food) | 4g/d C (n=11), 1g/d C (n=8), placebo (n=10); 1mo, 6mo | C doses/lengths vs baselines:  NE: TC, HDL, LDL, TG  Placebo (vs baseline): NE: TC, HDL, LDL, TG | 3● |
| Tang et al. (2008) | Healthy adults | Turmeric powder | Crossover study, 2.8gd C (n=11), placebo (n=11); 4wk | C vs placebo:  NE: FBG, TC, TG | 4 |
| Alwi et al. (2008) | ACS | Turmeric extract | 180mg/d C (n=15), 90mg/d (n=14), 45mg/d (n=15), placebo (n=26); 2mo | C doses vs baselines:  NE: TC, TG, LDL, HDL  Placebo (vs baseline):  NE: LDL, TC, HDL, TG | 5● |
| Usharani et al. (2008) | T2DM | NCB-02 curcuminoids preparation  2Ratio=72%:18.1%:9.4% | 600mg/d C (n=23), 10mg/d atorvastatin (n=23), placebo (n=21); 8wk | C vs baseline: ↑endothelial function, ↓ET-1, ↓IL-6, ↓TNF-alpha, ↓MDA  NE: FBG, HbA1C, TC, TG, LDL, HDL  Atorvastatin vs baseline: ↓TC, ↓TG, ↓LDL, ↑endothelial function, ↓ET-1, ↓IL-6, ↓TNF-alpha, ↓MDA  NE: FBG, HbA1C, HDL | 6● |
| Appendino et al. (2010) | T2DM | Meriva® (curcuminoid-phosphatidyl  choline phytosome complex)  Ratio=75%:15%:10% | 200mg/d C (n=25), control (best management protocol) (n=25); 4wk | C vs baseline: ↓foot microangiopathy, ↓edema, ↑transcutaneous PO2, ↑venoarterial response,  ↑Karnovsky Performance Scale Index  Control vs baseline: NE: all measurements | 7 |
| Wickenberg et al. (2010) | Healthy adults | Turmeric powder | Crossover study OGTT, 6g C (n=14), placebo (n=14) | C vs placebo: ↑SI  NE: PBG, GI | 8 |
| Khajehdehi et al. (2011) | T2DM, nephropathy | Turmeric powder | 66mg/d C (n=20), placebo (n=20); 2mo | C vs baseline: ↓proteinuria, ↓IL-8, ↓TGF-beta  NE: TGF-alpha, SBP, DBP, FBG, TC, TG, LDL, HDL  Placebo vs baseline: NE: all measurements | 9● |
| Campos-Cervantes et al. (2011) | Obese males | Curcuminoids | 500mg/d C (n=20), 750mg/d C (n=20), placebo (n=20); 12wk | 500mg C vs baseline: ↓TBARS, ↓oxLDL, ↓oxProtein, ↑adiponectin  750mg C vs baseline: ↓oxProtein  NE: TBARS, oxLDL, adiponectin  Placebo vs baseline: NE: all measurements | 10 |
| Pungcharoenkul + Thongnopnua (2011) | Healthy adults | GPO Curmin® curcuminoids | 500mg/d C (n=10), 6g/d C (n=9), 200IU/d Vit E (n=5); 7d | 500mg C vs baseline: ↓TC, ↓TG  NE: ORAC, alpha-T  6g C vs baseline: ↓TC  NE: TG, ORAC, alpha-T  Vit E vs baseline: ↑ORAC, ↑alpha-T  NE: TC, TG | 11● |
| Steigerwalt et al. (2012) | T2DM  (with retinopathy+ microangiopathy) | Meriva® (curcuminoid-phosphatidyl  choline phytosome complex)  Ratio=75%:15%:10% | 200mg/d C  (n=38),  Control (best management protocol) (n=39); 4wk | C vs baseline: ↑microcirculation, ↓foot edema, ↓retinal edema, ↑retinal systolic flow, ↑visual acuity  Control vs baseline: NE: all measurements | 12 |
| DiSilvestro et al. (2012) | Healthy adults | Longvida® (lipidated curcuminoids) | 80md/d C (n=19), placebo (n=19); 4wk | C vs baseline: ↓TG, ↑NO, ↓sICAM, ↑CAT, ↓ALT, ↓salivary amylase activity, ↑salivary antioxidant status, ↓plasma beta amyloid protein  NE: TC, HDL, LDL, CRP, SOD, ceruloplasmin  Placebo vs baseline: NE: all measurements | 13 |
| Nieman et al. (2012) | Obese females | Turmeric powder | Crossover study 2.8g/d C (n=30), placebo (n=30); 4wk | C vs placebo:  NE: FBG, SBP, % body fat, CRP, plasma IL-6, IL-8, IL-10 ,TNF-alpha, F2-isoprostanes, oxLDL, metabolomic clusters | 14 |
| Cheungsamarn et al (2012) | Prediabetes | Ethanol extract of turmeric (w/o oleoresin)  Ratio: 60.5%:28%:11.5% | 1.5g/d C (n=97),  placebo (n=114); 9mo | C vs placebo: ↓FBG, ↓HbA1C, ↓OGTT, ↑HOMA-ß, ↓C-peptide, ↓HOMA-IR, ↑serum adiponectin, ↓newly diagnosed diabetics | 15● |
| Mohammadi et al. (2013) | Obese | C3 Complex®  (curcuminoids + piperine) | Crossover study  1g/d C + 10mg/d piperine (n=15), placebo (n=15); 1mo | C vs placebo: ↓TG  NE: TC, LDL, HDL, CRP, anthropometric measures | 16● |
| Na et al. (2013) | T2DM | Alcohol extract of turmeric  Ratio=36.1%:18.9%:42.9% | 300mg/d C (n=50), placebo (n=50); 3mo | C vs placebo: ↓FBG, ↓HbA1C, ↓HOMA-IR, ↓FFA, ↓TG, ↑LPL, ↓serum palmitic/stearic/oleic/linoleic acids  NE: TC, LDL, HDL, Apo A-1, Apo B | 17 |
| Sahebkar et al. (2013) | Obese | C3 Complex®  (curcuminoids + piperine) | Crossover study  1g/d curcuminoids + 10mg/d piperine (n=15), placebo (n=15); 1mo | C vs placebo: ↓serum pro-oxidant/anti-oxidant balance  NE: Hsp27, oxLDL, BMI | 18 |
| Cheungsamarn et al. (2014) | T2DM | Ethanol extract of turmeric w/o oleoresins | 1.5g C (n=107), placebo (n=106); 6mo | C vs placebo: ↓PWV,  ↑adiponectin,  ↓ leptin, ↓HOMA-IR, ↓TG, ↓uric acid, ↓abdominal obesity, ↓arterial stiffness  NE: BMI, TC, LDL, HDL, FBG, HbA1C | 19● |
| Ismael et al. (2014) | Obese children | Curcuminoids  Ratio: 76%: 19%:5% | 1g/d C (n=14), placebo (n=11); 4wk | C vs placebo: ↓preperitoneal visceral fat, ↓HOMA-IR  NE: serum fetuin, serum resistin, BW | 20 |
| Franco-Robles et al. (2014) | Nondiabetic obese males | Curcuminoid powder | 500mg/d C (n=20), 750mg/d C (n=20), no placebo; 12wk | 500mg/d vs baseline: ↓LDL, ↑serum creatinine, ↑BDNF (wk 6), ↓TBARS, ↓oxLDL, ↓serum protein carbonyls  750mg/d vs baseline: ↑serum creatinine, ↓serum protein carbonyls  NE: LDL, TBARS, oxLDL, BDNF | 21 |
| Ganjali et al. (2014) | Obese | C3 Complex®  (curcuminoids + piperine) | Crossover study  1g/d C (n=30), placebo (n=30); 4wk | C vs placebo: ↓VEGF, ↓IL-4, ↓IL-1beta  NE: IL-1-alpha, IL-2, IL-6, IL-8, IL-10, IFN-gamma, EGF, MCP-1, TNF-alpha | 22 |
| Moohebati et al. (2014) | Obese dyslipidemic | C3 Complex®  (curcuminoids + piperine) | Crossover study  1g/d C (n=12), placebo (n=9); 4wks | C vs placebo:  NE: sdLDL | 23 |
| Na et al. (2014) | T2DM | Alcohol extract of turmeric  Ratio=36.1%:18.9%:42.9% | 300mg/d C (n=50), placebo (n=50); 3mo | C vs placebo: ↓A-FABP, ↓CRP, ↓TNF-alpha, ↓IL-6, ↑SOD | 24● |
| Neerati et al. (2014) | T2DM | Curcumin-475 capsules | 475mg/d C + 5mg/d glyburide (n=8), 5mg/d glyburide (n=8); 10d | C + glyburide vs glyburide: ↑glyburide AUMCtot, ↓TG, ↓LDL, ↓VLDL, ↑HDL, ↓PBG  Similar efficacy for TC | 25 |
| Panahi et al. (2014) | MetS | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine(n=50), 10mg/d piperine placebo (n=50); 8wk | C vs placebo: ↓TC, ↓TG, ↓Lp(a), ↓non-HDL-C  NE: sdLDL, LDL, HDL | 26● |
| Yang et al. (2014) | MetS | Turmeric extract (95% curcuminoids) | 1890mg/d C (n=30), placebo (n=29); 3mo | C vs placebo: ↑HDL  NE: FBG, TC, TG, LDL, VLDL, HbA1C | 27● |
| Amin et al. (2015) | Male MetS | Turmeric powder | 2.4g/d turmeric (n=63), placebo (n=63); 8 wk | C vs placebo: ↓TC, ↓LDL, ↓CRP  NE: TG, FBG, LDL, HDL, SBP, DBP | 28● |
| Di Pierro et al. (2015) | MetS | Curcuminoid/phosphatidylserine phytosome complex + piperine | 1.6g/d C + 400mg/d phosphatidylserine + 16mg/d piperine (n=22), 400mg/d phosphatidylserine control (n=22); 30d | C vs control: ↓BMI, ↓BW, ↓ waist circumference, ↓body fat | 29● |
| Panahi et al. (2015)  Analysis of data from ref. 26 | MetS | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), 10mg/d piperine placebo (n=50), 8wk | C vs placebo: ↓CRP, ↑SOD, ↓MDA, ↓FBG  Males: ↓HbA1C  Females: NE HbA1C | 30 |
| Mirzabeigi et al. (2015) | CAD | C3 Complex®  (95% curcuminoids) | 2g/d C (n=17), placebo (n=16); 8wk | C vs placebo: NE: TC, LDL, HDL, TG, FBG, CRP, serum creatinine | 31 |
| Selvi et al. (2015) | T2DM | Turmeric powder (46mg curcuminoids/2g) | 46mg/d C powder + 1g/d metformin (n=30), 1g/d metformin control (n=30); 4wk | C + metformin vs metformin: ↑plasma total antioxidant status, ↓LDL, ↓LDL/HDL  NE: FBG, PBG, HbA1C, SI, HOMA-IR, plasma MDA, protein carbonylation, CRP | 32● |
| Panahi et al. (2016)  Analysis of data from ref. 26 | MetS | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), 10mg/d piperine placebo (n=50), 8wk | C vs placebo: ↑serum adiponectin, ↓serum leptin | 33 |
| Panahi et al. (2016)  Analysis of data from ref. 26 | MetS | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), 10mg/d piperine placebo (n=50), 8wk | C vs placebo: ↓TNF-alpha, ↓TGF-beta, ↓IL-6, ↓MCP-1 | 34 |
| Rahimi et al. (2016) | T2DM | SinaCurcumin®  Nano micelles of curcuminoids | 80mg/d C (n=35), placebo (n=35); 3mo | C vs placebo: ↓eAG, ↓HbA1C, ↓LDL, ↓BMI  NE: FBG, TC, TG, HDL | 35● |
| Tariq et al. (2016) | Mild hyper-cholesterolemic males | Powder of *Curcuma zedoaria* Roscoe. | Tea preparations of 1g/400ml water/d (n=10), 2g/400ml/d (n=10), 4g/400ml/d (n=10); 2mo | All doses vs baseline: ↓TC, ↓TG, ↓LDL, ↑HDL  NE: ALT, AST | 36 |
| Ismail et al. (2016) | Obese children, adults | Turmeric extract  (95% curcuminoids) | 500mg/d C (n=30), placebo (n=28); 4wk | C vs baseline:  Children + adults: ↑SI, ↓serum leptin  NE: FBG, serum adiponectin  Placebo: NE for all measurements | 37 |
| Ismail et al. (2016)  Analysis of data from ref. 37 | Obese children, adults | Turmeric extract  (95% curcuminoids) | 500mg/d C (n=30), placebo (n=28); 4wk | C vs baseline:  Children and adults: ↓MIF, ↓MCP-1  Placebo: NE for all measurements | 38 |
| Kocher et al. (2016) | Slightly hyperlipidemic adults | Curcuminoid micelles (AQ UANOVA AG)  Ratio: 82%:16%:2% | Crossover study (n=42), 294mg/d C, placebo; 6wk | C vs placebo: ↑plasma curcuminoids  NE: TC, TG, LDL, CRP, IL-6, FBG, SI, HOMA-IR, serum iron, serum ferritin, serum transferrin, BMI, AST, ALT | 39 |
| Jimenez-0sorio et al. (2016) | CKD  (nondiabetic+ diabetic with proteinuria) | Turmeric powder (80mg curcuminoids/g) | 320mg/d C (n=52), placebo (n=49); 8wk | C vs placebo:  NE: proteinuria, FBG, lipid profile, eGFR, MDA, erythrocyte antioxidant enzymes | 40● |
| Santos-Parker et al. (2017) | Healthy older adults | Longvida® (solid lipid particles) | 400mg/d C (n=20), placebo (n=19); 12wk | C vs placebo: ↑FBFAch, ↑FMD, ↓oxidative stress-mediated suppression of EDD  NE: arterial stiffness, TC, TG, HDL, LDL, FBG, CRP, DBP, SBP, BMI | 41 |
| Ghazimoradi et al. (2017) | MetS | Curcuminoid powder, curcuminoid-phosphatidylcholine complex (200mg C/g) | 1g/d C (n=37), 1g/d phospholipid-C (n=36), placebo (n=36); 6wk | C vs baseline: ↑PAB  Phospholipid-C vs baseline: NE: PAB  Placebo vs baseline: NE: PAB | 42 |
| Mohammadi et al. (2017)  Analysis of data from ref. 42 | MetS | Curcuminoid powder, curcuminoid-phospholipidated complex (200mg C/g) | 1g/d C (n=37), 1g/d phospholipid-C (n=36), placebo (n=36); 6wk | Each group vs baseline: NE: serum Vit E | 43 |
| Selmanovic et al. (2017) | MetS | Curcuminoid powder | 400mg/d C (n=50), control (n=50); 12mo | C vs baseline: ↓ultrasound-determined steatosis morphology of liver  Control vs baseline: NE: steatosis | 44 |
| Panahi et al. (2017) | T2DM | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), placebo (n=50); 12wk | C vs placebo: ↓BMI, ↓TC, ↓nonHDL-C, ↓Lp(a), ↑HDL  NE: LDL, TG | 45 |
| Panahi et al. (2017)  Analysis of data from ref. 45 | T2DM | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), placebo (n=50); 12wk | C vs placebo: ↓TNF-alpha, ↓leptin, ↑adiponectin  Males: ↑ghrelin  Females: NE ghrelin | 46 |
| Panahi et al. (2017)  Analysis of data from ref. 45 | T2DM | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), placebo (n=50); 12wk | C vs placebo: ↓ BMI, ↑SOD, ↑TAC, ↓ MDA | 47 |
| Javandoost et al. (2018)  Analysis of data from ref. 42 | MetS | Curcuminoid powder, curcuminoid-phosphatidylcholine complex (200mg C/g) | 1g/d curcumin (n=36), 1g/d phospholipid-C (n=37), placebo (n=36); 6wk | C vs baseline: ↓TG  NE: FBG, HDL, TC, CETP  Phospholipid-C vs baseline: ↓TC, ↓CETP  NE: FBG,TG, HDL  Placebo vs baseline:  ↓TC, ↓TG, ↓LDL NE: FBG, CETP | 48 |
| Mohammedi et al. (2018)  Analysis of data from ref. 42 | MetS | Curcuminoid powder, curcuminoid-phosphatidylcholine complex (200mg C/g) | 1g/d (n=37), 1g/d phospholipid-C (n=36), placebo (n=36); 6wk | C or phospholipid-C vs placebo:  NE: Hsp27, % total body fat, BW, BMI | 49 |
| Panahi et al. (2018)  Analysis of data from ref. 45 | T2DM | C3 Complex®  (curcuminoids + piperine) | 1g/d C + 10mg/d piperine (n=50), placebo (n=50); 12wk | C vs placebo: ↓FBG, ↓HbA1C, ↓BMI, ↓BW, ↓AST, ↓ALT, ↓C-peptide  NE: HOMA-IR, HOMA-ß, SI, CRP, creatine, HSI | 50 |
| Safarian et al. (2018)  Analysis of data from ref. 42 | MetS | Curcuminoid powder, curcuminoid-phosphatidylcholine complex (200mg C/g) | 1g/d C (n=37), 1g/d phospholipid-C (n=36), placebo (n=36); 6wk | Phospholipid-C vs placebo: ↑serum Cu, ↑serum Zn/Cu  ↑serum Zn  C vs placebo:  NE: serum Cu, serum Zn/Cu | 51 |
| Saberi-Karimian et al. (2018)  Analysis of data from ref. 42 | MetS | Curcuminoid powder, curcuminoid-phosphatidylcholine complex (200mg C/g) | 1g/d C (n=37), 1g/d phospholipid-C (n=36), placebo (n=36); 6wk | Phospholipid-C or C vs placebo: ↓severe anxiety  NE: BMI, FBG, CRP, SBP, DBP, HDL, LDL, TC, TG, Lp(a) | 52● |
| Ferguson et al. (2018) | Hypercholesterolemic adults | Meriva® (curcuminoid-phosphatidyl  choline phytosome complex)  Ratio=75%:15%:10% | 200mg/d C (n=18), 200mg/d C + dietary phytosterols (n=17), placebo (n=18), placebo + dietary phytosterols (n=17); 4wk | C vs placebo: ↓FBG, ↓TC, ↓LDL  NE: HDL, TG  C + dietary phytosterol vs placebo: ↓TC, ↓LDL  NE: HDL, TG, FBG | 53 |
| Thota et al. (2018) | Healthy adults | Meriva® (curcuminoid-phosphatidyl  choline phytosome complex)  Ratio=75%:15%:10% | Acute crossover study (n=16)  180mg C, placebo, 180mg C + fish oil, fish oil placebo; 0-120 min post-meal | C vs placebo: ↓SIAUC,  ↓PBGAUC  NE: TG  C + fish oil vs fish oil:  NE: SIAUC, PBGAUC, TG | 54 |
| Thota et al. (2019) | IFG/IGT | Meriva® (curcuminoid-phosphatidyl  choline phytosome complex)  Ratio=75%:15%:10% | 180mg/d curcumin + corn oil (n=15), placebo + corn oil (n=16), 180mg/d C + fish oil (n=16), placebo + fish oil (n=17); 12 wk | C + corn oil vs placebo + corn oil:  ↓HOMA-IR, ↓FI, ↓TG, ↓AIP  NE: FBG, HbA1c, serum fructosamine, TC, LDL, HDL, CRP  C + fish oil vs placebo + fish oil:  NE: FBG, FI, HOMA-IR, HbA1c, serum fructosamine, TC, LDL, HDL, CRP | 55 |
| Cicero et al. (2019) | Overweight adults, IFG | Curserin®  (Curcuminoids + phosphatidylserine + phosphatidylcholine + piperine) | 400mg/d C (n=40), placebo (n=40); 8wk | C vs placebo: ↓ FI, ↓ TG, ↓ AST, ↓ ALT, ↓ HOMA-IR, ↓ FLI,  ↓serum cortisol  NE: BMI, SBP, DBP, LDL, HIS, FBG, TC, HDL | 56 |
| Asadi et al. (2019) | T2DM + DSPN | SinaCurcumin®  Nano micelle of curcuminoids  Ratio: 72%:25%:3% | 80mg/d C (n=40), placebo (n=40); 8wk | C vs placebo:  ↓FBG, ↓HbA1C, ↓WC, ↓ neuropathy score, ↑reflexes  NE: BMI, BW | 57 |
| Campbell et al. (2019) | Obese males | CurQfen®  (curcuminoids infused into fenugreek fiber)  Ratio: 81.8%:15.3%: 2.8% | 500mg/d C (n=10), placebo (n=10); 12wk | C vs placebo:  ↓ plasma homocysteine, ↑HDL  NE: FBG, SI, leptin, adiponectin, TAC, endothelial function, SBP, DBP | 58 |
| Adibian et al. (2019) | T2DM | Curcuminoids (440mg/500mg) + turmeric oil (38mg/500mg)  Ratio: 79%:19%:2% | 1.5g/d C (n=21), placebo (n=23); 10wk | C vs placebo: ↓CRP, ↑adiponectin, ↓FBG, ↓HOMA-IR  NE: TG, LDL, HDL, BMI, HbA1C | 59 |
| Adab et al. (2019) | T2DM | Turmeric powder | 2.1g/d C (n=39), placebo (n=36); 8wk | C vs placebo: ↓TG, ↓TC, ↓BMI  NE: FBG, SI, HOMA-IR, HDL, LDL, ApoA1, ApoB, CRP, TAC | 60 |
| Ferguson et al. (2019) | Hypocholesterolemic adults | Meriva® (curcuminoid-phosphatidyl  choline phytosome complex)  Ratio=75%:15%:10% | 228mg/d C as bread slices (n=18), placebo (n=18); 4wk | C vs placebo:  NE: TC, TG, LDL, HDL | 61 |
| Hodaei et al. (2019)  Analysis of data from ref. 59 | T2DM | Curcuminoids + turmeric oil  Ratio: 79%:19%:2% | 1.5g/d C (n=21), placebo (n=23); 10wk | C vs placebo: ↓BW, ↓BMI, ↓WC, ↓FBG  NW: HBA1C, SI, MDA, HOMA-IR, pancreatic ß cell function | 62 |

1T2DM=type 2 diabetes mellitus, MetS=metabolic syndrome

2Ratio=curcumin: demethoxycurcumin: bisdemethoxycurcumin.

●Trials of sufficient quality to be included in systematic reviews and meta-analyses.

Abbreviations: A-FABP=serum adipocyte-fatty acid binding protein, ACS=acute coronary syndrome, AIP=atherogenic index of plasma, alpha-T=plasma alpha tocopherol, ALP=serum alkaline phosphatase, ALT=serum alanine aminotransaminase, ApoA=serum apolipoprotein A, ApoB=serum apolipoprotein B, AST=serum aspartate aminotransferase, AUMC=area under the moment curve, BDNF=serum brain derived neurotropic factor, BMI=body mass index, BW=body weight, CAT=plasma catalase activity, CETP=cholesteroyl ester transfer protein, CKD=chronic kidney disease, Cr=creatinine, CRP=serum C-reactive protein, DBP=diastolic blood pressure, DSPN=diabetic sensorimotor polyneuropathy, eAG=estimated average blood glucose, EDD=endothelial-dependent dilation, EGF=epidermal growth factor, eGFR=estimated glomular filtration rate, ET-1=endothelin-1, FBFAch=forearm blood flow response to incremental intrabrachial artery infusion of acetycholine, FBG=fasting blood glucose, FFA=blood free fatty acids, FI=fasting serum insulin, FLI=fatty liver index, FMD=brachial artery flow-mediated dilation, GI=glycemic index, GOT=glutamic oxaloacetic transaminase, GPT=glutamate pyruvate transaminase, HbA1C=glycated hemoglobin, HDL=serum high density lipoprotein cholesterol, HOMA-IR=homeostasis model of assessment of insulin resistance, HOMA-ß=homeostasis model of assessment of insulin resistance-estimated ß-cell function, HSI=hepatic steatotic index, Hsp27=serum heat shock protein 27, IL=interleukin, IFG=impaired fasting glucose, IFN=interferon, LDL=serum low density lipoprotein cholesterol, Lp(a)=lipoprotein a, LPL=serum lipoprotein lipase activity, MCP=serum monocyte chemoattractant protein, MDA=malondialdehyde, MIF=serum macrophage migration inhibitory factor, MPO=plasma myeloperoxidase, NAFLD=non-alcoholic fatty liver disease, NE=no statistically significant effect, NO=plasma nitric oxide, OGTT=oral glucose tolerance test, ORAC=plasma oxygen radical absorbance capacity, oxLDL=serum oxidized low density lipoprotein cholesterol, PAB= serum prooxidant/antioxidant balance, PWV= pulse wave velocities from brachial and dorsalis pedis arteries, SBP=systolic blood pressure, sdLDL=serum small dense low-density lipoprotein, SI=serum insulin, sICAM=soluble intercellular adhesion molecule, SOD=serum superoxide dismutase, TAC=serum total antioxidant capacity, TBARS= serum thiobarbituric acid-reactive substances, TC=serum total cholesterol, TG=serum triglycerides, TGF=transforming growth factor, TNF=tumor necrosis factor, VEGF=vascular endothelial growth factor

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