



Figure S1: Study protocol

**Table S1: Inclusion and exclusion criteria**

**Inclusion criteria were:**

- Overweight and Obesity (BMI Range 25-40 kg/m<sup>2</sup>)
- Men and woman in the age range of 50 - 75 years
- Non-smoker
- Stable weight

**Exclusion criteria are (reason for exclusion):**

- Current participation in other research clinical studies
- Vegetarianism (likely to have very high nitrate intake)
- Weight change more than 3.0kg in the last 2 months (important influence on systemic metabolism and vascular function).
- Active cancer and any diagnosis of malignant cancer in the last 5 years (systemic effects on study outcomes).
- Diagnosis of chronic and acute metabolic and inflammatory conditions interfering with the study outcome (systemic effects on study outcomes). For example flu, Crohn's Disease, rheumatoid arthritis.
- Previous diagnosis of type 1 or type-2 diabetes treated with insulin (modification of regulation of intermediate metabolism). Type 2 diabetic patients treated with oral hypoglycaemic agents and/or diet only will be included in the study.
- Weight loss medications (sibutramine, orlistat, rimonabant) and history of bariatric surgery (weight loss related changes in systemic metabolism).
- Drugs: corticosteroids, sildenafil, aspirin, NSAIDs, diuretics, antacids, anticoagulants, nitrate-derived agents, anti-cholinergic, (all drugs may have either an effect on NO production or insulin sensitivity via different mechanisms).
- Subjects on hormonal therapies (oestrogens, thyroxine, progesterone), anti-hypertensive (Ca<sup>++</sup> channel blockers, beta-blockers, ACE inhibitors), statins and any other antidiabetic agent, and psychiatric drugs (antidepressants, sedatives, anti-psychotics) will be excluded if dose has been started/changed in the previous three months. (make sure that these disorders are under strict control to avoid interference with the study outcomes).
- Severe haematological (risk for the participant and effects on the study outcomes).
- Major surgical operations interfering with the study outcomes (systemic effects on study outcomes).
- Alcohol intake >21 units/week for men and >14 units/week women
- Blood donations in the previous 3 months.