**Supplemental Digital Content 1**

Supplementary methods: detailed description of biochemical assays

**Supplementary methods**

**Detailed methodology of biological assays**

***Vitamin C.*** The Ascorbate Assay utilizes the condensation reaction of dehydroascorbic acid (DHA) with o-Phenylenediamine (OPDA) to form a fluorescent product.

***Superoxide Dismutase.*** Superoxide dismutase (SOD) activity was determined using the Beauchamps and Fridovich’s method (1), slightly modified by Oberley and Spitz (3). SOD activity was determined by the degree of inhibition of the reaction between superoxide radicals, produced by a hypoxanthine-xanthine oxidase system, and nitroblue tetrazolium.

***Catalase.*** Plasma catalase activity was determined by the method of Johansson and Borg (2) using hydrogen peroxide as a substrate, and formaldehyde as a standard. Catalase activity was determined by the formation rate of formaldehyde induced by the reaction of methanol and hydrogen peroxide using catalase as enzyme.

***Advanced oxidation protein products (AOPP).*** AOPP was measured by spectrophotometry and were calibrated with chloramine-T solution that absorbs at 340 nm in the presence of potassium iodide. The absorbance of the reaction mixture was immediately read at 340 nm against a blank containing PBS, potassium iodide and acetic acid. AOPP concentrations were expressed as micromoles per litre of chloramine-T equivalents.

**References**

1. Beauchamp C, Fridovich I. Superoxide dismutase: Improved assays and an assay applicable to acrylamide gels. *Anal Biochem*. 1971;44(1):276-87.

2. Johansson LH, Borg LA. A spectrophotometric method for determination of catalase activity in small tissue samples. *Analytical biochemistry*. 1988;174:331-6.

3. Oberley L, Spitz D. Assay of superoxide dismutase activity in tumor tissue. *Methods Enzymol*. 1984;105:457-64.