Antioxidant-rich coffee reduces DNA damage, elevates glutathione status and contributes to weight control: results from an intervention study

Epidemiological and experimental evidence increasingly suggests coffee consumption to be correlated to prevention or delay of degenerative diseases connected with oxidative cellular stress. In an intervention study comprising 33 healthy volunteers, we examined DNA-protective and antioxidative effects exerted in vivo by daily ingestion of 750 mL of freshly brewed coffee rich in both green coffee bean constituents as well as roast products. The study design encompassed an initial 4 wk of wash-out, followed by 4 wk of coffee intake and 4 wk of second wash-out. At the start and after each study phase blood samples were taken to monitor biomarkers of oxidative stress response. In addition, body weight/composition and intake of energy/nutrients were recorded. In the coffee ingestion period, the primary endpoint, oxidative DNA damage as measured by the Comet assay (± FPG), was markedly reduced (p<0.001). Glutathione level (p<0.05) and GSR-activity (p<0.01) were elevated. Body weight (p<0.01)/body fat (p<0.05) and energy (p<0.001/nutrient (p<0.001-0.05) intake were
reduced. Our results allow to conclude that daily consumption of 3-4 cups of brew from a special Arabica coffee exerts health beneficial effects, as evidenced by reduced oxidative damage, body fat mass and energy/nutrient uptake.