



Health Effects Of 3-Day Fruit/Vegetable Juice Fasting

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Background

- ◆ Vegetable/fruit juice fast ("cleanse") has become increasingly popular.
- ◆ Fruit and vegetables contain phenolic compounds, which are known for their antioxidative, immunomodulatory and antigenotoxic effects.
- ◆ Fruit and vegetables are also rich in oligosaccharides, the prebiotics that exert a profound effect on the human bowel flora.
- ◆ Intermittent fasting may help weight management.

Objective

This clinical trial determine whether a 3-day fruit/vegetable juice only fast can increase beneficial gut bacteria, promote weight loss, and improve general well-being.

Materials and Methods

Inclusion Criteria

1. Age 18-50 years of age.
2. In general good health

Procedure

- ◆ Run-in phase (-2 weeks): Prior to intervention, subjects were asked to limit consumption of fruits and vegetable. Vitamins and antibiotic used are limited as well.
- ◆ Intervention phase (Day 1 – 3): Subjects were asked to consume fruit/vegetable juice only for 3 days
- ◆ Follow-up phase (Day 4 – 17): Subjects resumed their usual diet with continued restriction of fruit and vegetables, vitamins and antibiotics

Methods

- ◆ Abundance of stool bacteria was determined by bacterial 16S rDNA sequencing using MiSeq (Illumina, San Diego, CA)
- ◆ Urinary malondialdehyde (MDA) was determined by high performance liquid chromatography (HPLC)
- ◆ Urinary creatinine was determined by colorimetric assay
- ◆ Plasma nitric oxide was determined using ozone-chemiluminescence technology (Sievers Nitric Oxide Analyzer NOA 280i)

Results

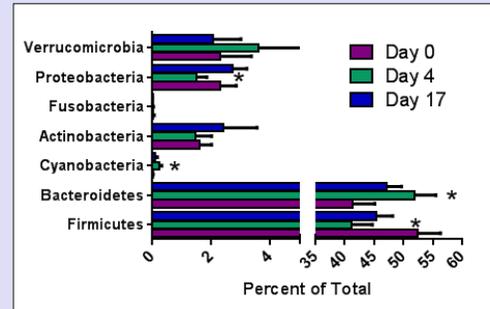


FIGURE 1: Effect of 3-Day Juice Fast on stool microflora. (means±SD; N=20)

- ◆ 3-day juice fast significantly increased *Bacteroides/Firmicutes* ratio and *Cyanobacteria* and decreased *Proteobacteria* abundance

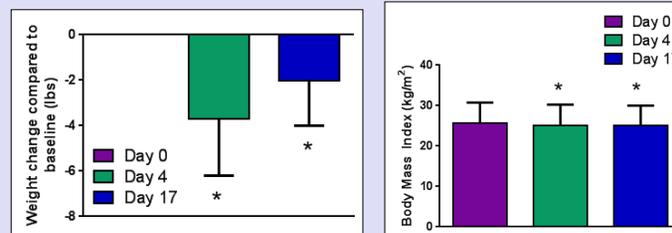


FIGURE 2: Effect of 3-Day Juice Fast on Weight and BMI. (means±SD; N=20)

- ◆ 3-day juice fast significantly decreases body weight and BMI for at least 2 weeks studied.

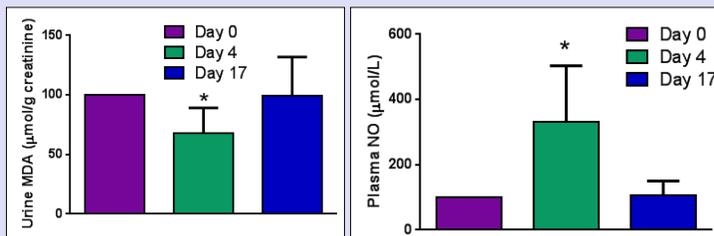


FIGURE 3: Effect of 3-Day Juice Fast on Urine MDA and Plasma NO.

- ◆ In short term, 3-day juice fast significantly decreased urine MDA and increased Plasma NO transiently. Urine MDA and Plasma NO levels resumed to baseline levels 2 weeks after the intervention. (means±SD; N=20)

Results (Cont.)

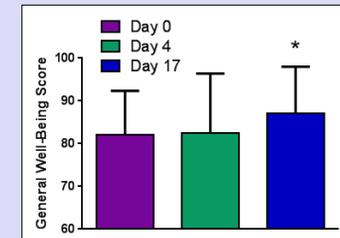


FIGURE 4: Effect of 3-Day Juice Fast on General Well-Being. (Means±SD; N=20)

- ◆ General well-being score did not change significantly at the completion of a 3-day juice fast.
- ◆ 2 weeks after the juice fast, general well-being scores increased significantly from baseline.

Conclusion

- ◆ 20 subjects completed the study.
- ◆ 3-day juice fast significantly decreased body weight and BMI for at least 2 weeks.
- ◆ 3-day juice fast significantly decreased urine MDA, a biomarker for lipid peroxidation, after 3 days and returned to baseline level after 2 weeks.
- ◆ 3-day juice fast significantly increased plasma nitric oxide, which returned to baseline level after 2 weeks.
- ◆ 3-day juice fast significantly increased stool abundance of *Bacteroidetes* and *Cyanobacteria* and decreased *Firmicutes* and *Proteobacteria*.
- ◆ 3-day juice fast improved general well-being after 2 weeks.