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■ **A Clinical Evaluation Comparing the Bioavailability of Two Buffered Vitamin C Supplements in Healthy, Non-smoking Males**

Kirenia Labiste CRC, Samantha Feldman MS, RD, Diane R. Krieger, M.D, Douglas Kalman PhD. Nutrition & Endocrinology, Miami Research Associates, Miami, FL

**Purpose:** To determine and compare the relative bioavailability of vitamin C (AA) from Comfort C® (with Bioperine®) and Ester-C® in healthy, nonsmoking, young males.

**Methods:** Five males ( $32.0 \pm 6.2$  years) received a single, 1 gram dose of AA from 2 different AA products in random order, EACH dose preceded by at least 7 days of a low AA diet. Blood was drawn pre-ingestion and 30, 60, 90, 120, 210 and 240 minutes post-ingestion for serum AA analysis by HPLC. Average urine concentrations of AA were determined by twenty-four hour collection and HPLC analysis.

**Results:** Weight adjusted AA concentration changes from baseline were significantly higher with Comfort C than Ester-C at 60 minutes ( $4.33 \pm 1.47$  ug/ml vs  $1.68 \pm 0.90$ ;  $p=0.043$ ). Peak AA concentrations tended to be the same between the two products. Urinary AA concentrations did not differ between treatments.

**Conclusions:** Although there were no differences in the overall absorption between the AA products over the 4-hour test period, with Comfort C displaying a faster rate of absorption than Ester-C. ■

Study presented at Experimental Biology in April 2008



This study was conducted using the previous product name, Comfort C. The formulation remains the same but the product name is now Fast-C.

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Bioperine® is a registered trademark of Sabinsa Corporation.

Ester-C® is a registered trademark of Oxyal Laboratories, Inc.



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### **A Clinical Evaluation Comparing The Bioavailability Of Three Vitamin C Supplements In Healthy Non-Smoking Males**

Ilka Morales, Samantha Feldman MS, RD, Diane R. Krieger, M.D., Douglas Kalman PhD. Nutrition & Endocrinology, Miami Research Associates, Miami, FL

**Purpose:** To determine and compare the relative bioavailability of vitamin C from two formulations of Comfort C® (with 4.06 mg and 5.36 mg Bioperine®) and Ester-C® in healthy, non-smoking, young males.

**Methods:** Ten males ( $29.7 \pm 13.6$ ) received 3 different vitamin C products in random order preceded by at least 7 days of a low vitamin C diet. Blood was drawn pre-ingestion and 30, 60, 90, 120, 210 and 240 minutes, and 24 hours post-ingestion for serum vitamin C assay. Twenty-four hour post-test urine concentrations of vitamin C and dihydroascorbic acid were determined.

**Results:** Vitamin C concentrations were slightly higher with both formulations of Comfort C than Ester-C with significant differences between products at the 30 and 60 minute time points (30 minutes:  $p < 0.001$ , 0.006 and 60 minutes:  $p = 0.024$ , 0.018 respectively).

**Conclusions:** There were no differences in the overall absorption of the 3 vitamin C products over the 24-hour test period although Comfort C had a faster rate of absorption than Ester-C. ■

Study presented at the American College of Nutrition in October 2009



This study was conducted using the previous product name, Comfort C. The formulation remains the same but the product name is now Fast-C.

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