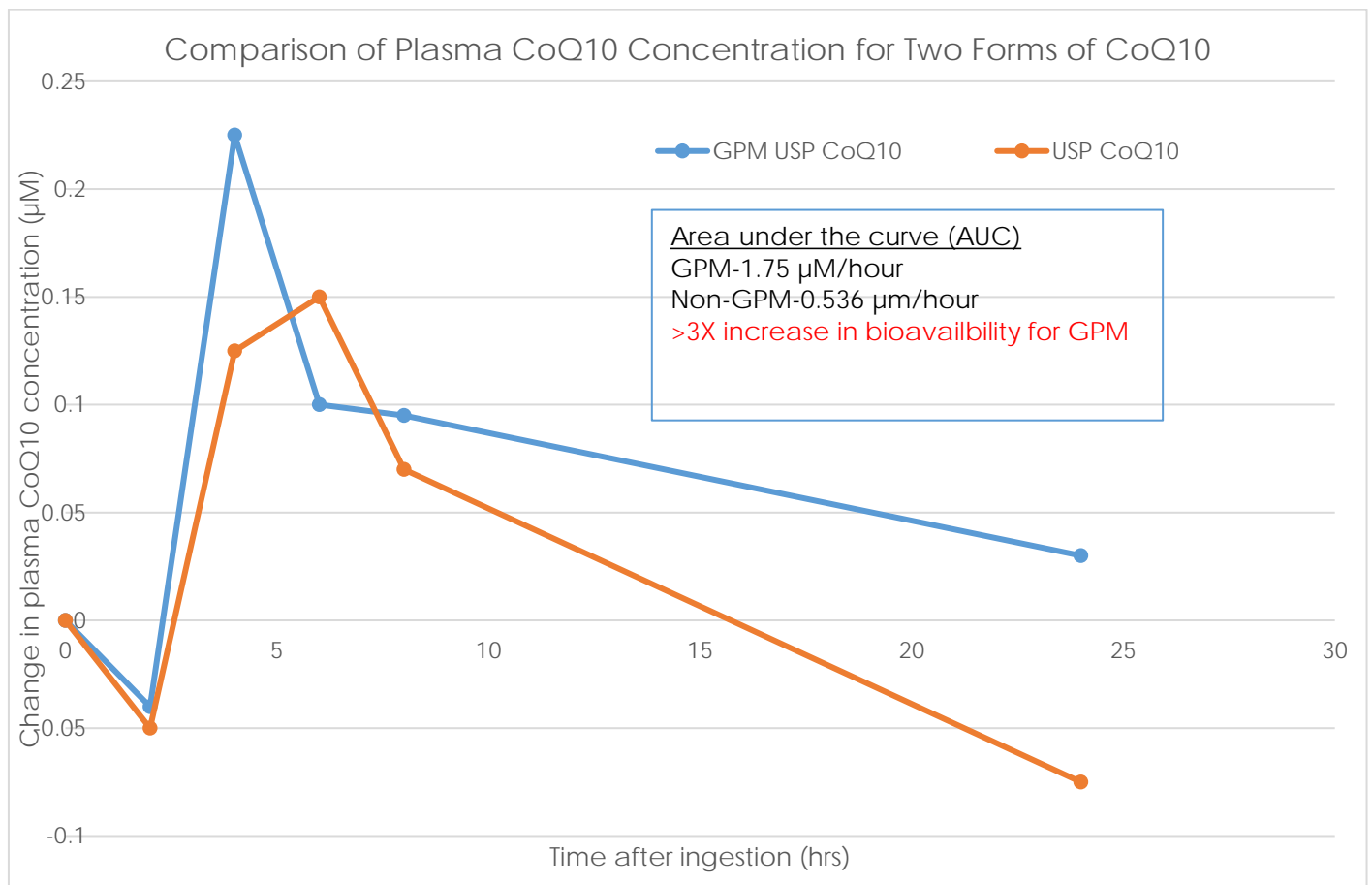


GPM AND NON-GPM COENZYME Q10  
COMPARATIVE HUMAN BIOAVAILABILITY

To compare GPM Coenzyme Q10 to non-fermented Coenzyme Q10, a crossover study was conducted with eighteen healthy subjects, 9 males and 9 females, aged 19-53 years old. After an overnight fast and a baseline blood measurement, each subject blindly and in a random order ingested either USP Coenzyme Q10 or a fermented (GPM) USP Coenzyme Q10. Both were supplied in 3 capsules totaling 100 mg of Coenzyme Q10. Consecutive blood samples were taken at 2, 4, 6, 8 and 24 hours later. The subjects returned one week later to consume the other form and the process was repeated.

Blood samples were analyzed using HPLC with UV/Vis detection and Coenzyme CoQ10 concentration was determined in micromolar ( $\mu\text{M}$ ) units from a standard curve. A graph of the average difference in plasma CoQ10 from the baseline vs. time is shown for the two forms in the accompanying figure.



GPM CoQ10 provides a greater change in plasma CoQ10 levels than non-GPM at 4 and 8 hours (80 and 36% respectively). At 6 hours non-GPM CoQ10 levels are 50% higher than GPM. GPM CoQ10 provides the greatest increase in plasma CoQ10 and this maximum occurs earlier than with non-GPM (4 vs 6 hours). The GPM CoQ10 had levels above baseline for the 24 hours of the study, whereas non-GPM levels went below baseline in approximately 16 hours.

The area under the curve (AUC) was evaluated to determine bioavailability, the greater the area, the greater the bioavailability. Using the difference from baseline, GPM has an AUC of 1.75  $\mu\text{M}/\text{hour}$  and non-GPM is 0.536  $\mu\text{M}/\text{hour}$ , over a 3x increase in bioavailability.

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