

CLINICAL RESEARCH ABSTRACT

# Bioavailability of Epicatechin after Consumption of Grape Seed Extract in Humans

NATALIE EICH<sup>1</sup>, ERIK SCHNEIDER<sup>1</sup>, JOHN CUOMO<sup>1</sup>, ALEXANDER RABOVSKY<sup>1</sup>  
JOSEPH A. VITA<sup>2</sup>, JOSEPH PALMISANO<sup>2</sup>, MONIKA HOLBROOK<sup>2</sup>

1) USANA Health Sciences, Inc., 3838 Parkway Blvd, Salt Lake City, UT, 84120

2) Boston University School of Medicine, 715 Albany St, Boston, MA, 02118

**D**iets rich in plant foods have been associated with a decreased risk for specific disease processes and certain chronic diseases. In addition to essential macronutrients and micronutrients, the flavonoids in a variety of plant foods may have health-enhancing properties. Grape seed extract (GSE) is a common supplement known to be rich in the flavan-3-ol epicatechin and procyanidin oligomers. However, the bioavailability and biological effects of grape seed extract flavonoids are poorly understood. To begin to address these issues, we developed a method based on LC-MS detection to determine the physiological levels of epicatechin and catechin. This method allows for the determination of epicatechin in plasma at concentrations as low as 1 ng/mL.

We next evaluated the absorption of epicatechin from one (1) gram grape seed extract taken orally in capsule form. By 2 h after ingestion, plasma epicatechin increased from an undetectable amount to 172 ng/mL ( $p=0.001$ ). Consistent with the antioxidant properties of epicatechin, within three hours a significant (25%) increase in plasma antioxidant reserve occurred ( $p<0.05$ ). The data support the concept that consumption of grape seed extract can result in significant increases in plasma epicatechin concentrations as well as an increase in plasma antioxidant reserve.