

Pauly D, C Pepine. D-Ribose as a supplement for cardiac energy metabolism. *J Cardiovasc Pharmacol Ther* 2000;5(4):249-258.

Metabolic support for the heart has been an attractive concept since the pioneering work of Sodi-Pallares et al. four decades ago.* Recently, interest has increased in the use of over-the-counter supplements and naturally occurring nutraceuticals for enhancement of cardiac and skeletal muscle performance. These include amino acids such as creatine, L-carnitine, and L-arginine, as well as vitamins and cofactors such as alpha-tocopherol and coenzyme Q. Like these other molecules, D-ribose is a naturally occurring compound. It is the sugar moiety of ATP and has also received interest as a metabolic supplement for the heart. The general hypothesis is that under certain pathologic cardiac conditions, nucleotides (particularly ATP, ADP, and AMP) are degraded and lost from the heart. The heart's ability to resynthesize ATP is then limited by the supply of D-ribose, which is a necessary component of the adenine nucleotide structure. In support of this hypothesis, recent reports have used D-ribose to increase tolerance to myocardial ischemia. Its use in patients with stable coronary artery disease improves time to exercise-induced angina and electrocardiographic changes. In conjunction with thallium imaging or dobutamine stress echocardiography, D-ribose supplementation has been used to enhance detection of hibernating myocardium. In this article, we review the biochemical basis for using supplemental D-ribose as metabolic support for the heart and discuss the experimental evidence for its benefit.

