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Metabolic cardiology: the missing link in cardiovascular disease.

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Abstract

The importance of supporting energy production in heart cells and the preservation of the mitochondria in these cells will be the focus of a new frontier in cardiovascular prevention, treatment, and management. Many physicians are not trained to look at heart disease in terms of cellular biochemistry; therefore, the challenge in any metabolic cardiology discussion is in taking the conversation from the "bench to the bedside." An understanding of the vital role that adenosine triphosphate (ATP) plays in the heart is critical for any physician or clinician considering therapeutic options that support ATP production and turnover in jeopardized cardiac muscle cells. Metabolic therapies that help cardiomyocytes meet their absolute need for ATP fulfill a major clinical challenge of preserving pulsatile cardiac function while maintaining cell and tissue viability. D-ribose, L-carnitine, and **coenzyme Q10** work in synergy to help the ischemic or hypoxic heart preserve its energy charge. This article introduces how ATP, diastolic heart function, and metabolic support help maintain cardiac energy by preserving ATP substrates. Part 2 will investigate an in-depth biochemical discussion of congestive heart failure with physiologic, pathophysiologic, and treatment considerations.

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