



February 9, 2011 – Grand Rapids, MI

## Nerve

On Monday, I talked about the heart as a muscle. Today I want to talk about how your heart cells can act like nerve cells too. Because of the way the muscle cells attach end to end, they can send signals from one cell to another very quickly. But heart muscle also has the ability to stimulate itself to contract; that feature is called automaticity.

Here's one of the coolest experiments I've ever seen: a single cardiac muscle cell was excised from a rodent heart and put in a Petri dish with a medium that contained nutrients. The heart cell started beating. The researchers put another heart cell in close proximity to the first, and it also started beating. Within a minute or two, both cells were beating at exactly the same rate.

While automaticity is a great feature, the heart is also controlled by the nervous system. It's an amazing process. A stimulating nerve and a relaxation nerve both meet at the nerve bundle called the sino-atrial node or SA node for short. They both send signals—one to speed up and one to slow down. Whichever sends the most signals will determine whether your heart rate is faster or slower. That balance is called tone. Just like exercise can train the muscle feature of your heart cells, it can train the nerve-cell feature of your heart as well. That's why regular exercise is so important.

Sometimes, your heart's ability to keep a normal rhythm is affected and can result in arrhythmias. I'm going to talk about that in Saturday's message and what lifestyle changes you can make, including supplementation, to deal with it if it happens.

What are you prepared to do today?

*Dr. Chet*

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