

# Omega-3 fatty acids may help heal a broken heart

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Procedures like angioplasty, stenting and bypass surgery may save lives, but they also cause excessive inflammation and scarring, which ultimately can lead to permanent disability and even death. A new research report appearing in *The FASEB Journal*, shows that naturally derived compounds from polyunsaturated fatty acids (omega-3s) may reduce the inflammation associated with these procedures to help arteries more fully and completely heal.

"Our study suggests that biologically active, naturally occurring compounds derived from omega-3 PUFAs reduce inflammation and improve the healing of blood vessels after injury," said Michael S. Conte, M.D., a researcher involved in the work from Division of Vascular and Endovascular Surgery and the Heart and Vascular Center at the University of California, in San Francisco, CA. "They suggest a new opportunity to improve the long-term results of cardiovascular procedures such as bypass surgery and angioplasty by the therapeutic application of this class of agents or their dietary precursors."

To make this discovery, Conte and colleagues studied the effects of the compounds (resolvin or RvD) first in cultured vascular cells taken from patients who had undergone bypass operations, and then in rabbits who were treated with a balloon angioplasty procedure in the arteries of the hind limb. In the human cells, treatment with RvD dramatically reduced features that are associated with the typical vascular injury response—[inflammation](#), [cell migration](#), and [cell growth in vascular smooth muscle cells](#). The potency of these compounds corresponds to concentrations that have been measured in the blood of human subjects taking high dose [fish oil supplements](#) for short periods of time. In rabbits, researchers treated the artery with RvD at the time of the [balloon angioplasty](#) procedure by infusing the drug directly into the vessel, and found that this one-time treatment reduced inflammation and

subsequent scarring of the vessel after one month.

"If successful in further studies, this finding could be a huge benefit to patients undergoing these procedures," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "What's even better, is that these potentially lifesaving compounds are already available in any fish market or grocery store."

**More information:** Takuya Miyahara, Sara Runge, Anuran Chatterjee, Mian Chen, Giorgio Mottola, Jonathan M. Fitzgerald, Charles N. Serhan, and Michael S. Conte. D-series resolvin attenuates vascular smooth muscle cell activation and neointimal hyperplasia following vascular injury. *FASEB J* June 2013 27:2220-2232; [doi:10.1096/fj.12-225615](https://doi.org/10.1096/fj.12-225615)

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