

Hybrid heart valve is strong, durable in early tests

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A hybrid heart valve created from thin and highly elastic mesh embedded within layers of human cells was strong and durable in a study presented at the American Heart Association's Scientific Sessions 2013.

Researchers created a three-dimensional cell culture by coating a scaffold of nickel-titanium alloy (Nitinol), used for devices that require flexibility and motion, with layers of smooth muscle, [connective tissue](#) and lining cells. The valves performed well in a heart simulator, opening and closing under various pressures and remaining stable and strong throughout the tests.

A durable, regenerating hybrid heart valve would be an important advance because previous attempts to create tissue-engineered heart valves from patients' cells have been unsatisfactory. All the prior methods entail significant limitations due to structural vulnerability, short-term functionality and mechanical properties of the tissue-engineered valves.

Provided by American Heart Association

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