



Southern Illinois University System

### Application

- Penile prosthesis

### Inventors

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### Contact

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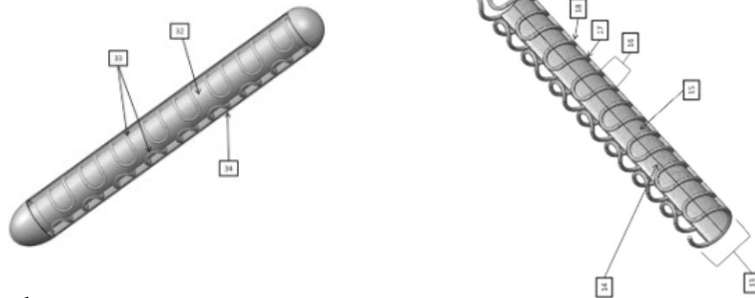
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## Penile Prosthesis

Erectile dysfunction (ED) is a multifactorial disease that affects approximately 30 million American men and is continuing to increase along with the upsurge in diabetes, hypertension and cardiovascular disease. When first line and second line medications or direct injections fail, surgical implantation of a penile prosthesis offers a permanent solution. Two broad classes of penile prostheses are typically used, the inflatable prosthesis and the semi-rigid prosthesis. The inflatable penile prosthesis relies on a closed system of reservoirs, pumps, valves and hydraulic pressure being more complex and prone to mechanical failure. The semi-rigid prosthesis is simpler and more reliable but appears constantly erect, exerts more force on the surrounding tissues, and has an increased risk for erosion.

### Invention

SIU researchers have developed a penile prosthesis is disclosed that can alternate between an erect and flaccid state based on the shape memory properties of an exoskeleton that is responsive to increases and decreases in temperature. The exoskeleton consists of a shape memory alloy, such as nitinol, which in the erect configuration can radially expand and resist axial loads and buckling forces. The shape memory alloy is temperature-tuned to undergo a change to an erect state under external application of heat and can revert to a flaccid state with cooling below resting penile temperature.



### Key Advantages

- Simple system which is easier to implant and less prone to failure
- System response is highly tunable based on temperature

### Status

U.S. patent #9,204,966 was granted on December 8, 2015. The technology is available for license.

*Other opportunities related to this technology, included but not limited to sponsored and/or collaborative research, may be available. Please reach out to the designated contact identified at left for more information.*