

# Spiders, Goats & Wound Care?

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Spider webs were used by ancient Greeks to close wounds. Over the centuries, many civilizations have attempted to duplicate the healing properties recognized in spider silk. In the 21st century, at least one company has attempted to achieve this. They have developed a product – with potential wound care applications – that is a recombinant spider silk extracted from the milk of transgenic goats that is then spun into fibres.

If the material lives up to its promise it has great potential in the wound-care market because spider silk is thinner than traditional fibres and offers greater strength and flexibility. Its impact could be felt in three areas:

### 1) Microsutures

The microsutures may be the first product available due to the simplicity of microsuture design. Attributes desirable to microsutures used in surgeries requiring minimal scar tissue formation, such as in ophthalmic, neurological and reconstructive procedures, include strength and flexibility with knot security, and fineness. The new microsutures could significantly increase positive patient outcomes due to increased flexibility



and reduced incidence of slipping knots and fibre breakdown.

### 2) Surgical Meshes

Surgical meshes are important to wound care in that they strengthen areas of surgical repair, reducing the incidence of recurrence, and are key in treating patients with hernias. The development of a stronger and thinner surgical mesh would allow surgeons to benefit from greater ease of use and reduced healing time due to the less invasive profile of this new technology.

lack of any appropriate medical synthetic materials currently available that are sufficiently elastic and can withstand the tremendous sheer and abrasion forces to which ligaments such as the ACL are subject. This new technology may provide a suitable fibre as it is extremely strong and has the elastic properties that are required in ligaments. This would eliminate the need for surgeons to replace ligaments with segments of ligament from other locations, such as the hamstring, saving the patient from the resulting

*If the recombinant spider silk lives up to its promise, it will have great potential in the international wound-care market.*

### 3) Artificial Ligaments

The third concept, which is the most complex due to braiding, is the development of artificial ligaments. This three-dimensional design idea stemmed from the

weakness in donor ligaments.

The potential impact on wound healing of products developed using recombinant spider silk technology is something ‘future watchers’ will want to follow. ☺

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