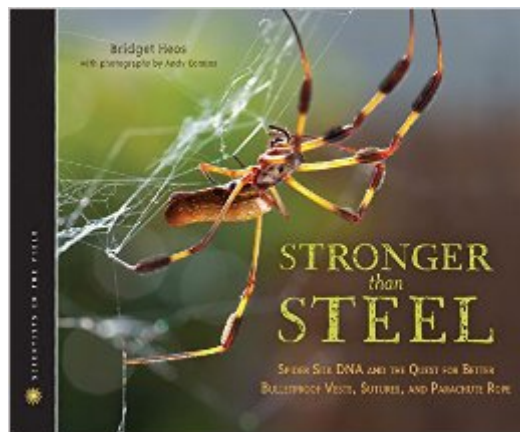


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# Stronger Than Steel: Spider Silk DNA And The Quest For Better Bulletproof Vests, Sutures, And Parachute Rope (Scientists In The Field Series)



## Synopsis

In *Stronger Than Steel*, readers enter Randy Lewis' lab where they come face to face with golden orb weaver spiders, and transgenic alfalfa, silkworm silk, and goats, whose milk contains the proteins to spin spider silk--and to weave a nearly indestructible fiber. Learn how this amazing material might someday be used to repair or replace human ligaments and bones, improve body armor, strengthen parachute rope, and even tether an airplane to an aircraft carrier! Readers explore rapid advancements in the application of genetic medicine and their potential to save and improve lives while considering the crucial ethical concerns of genetic research. A timely addition to the acclaimed *Scientists in the Field* series.

## Book Information

Lexile Measure: 860L (What's this?)

Series: *Scientists in the Field Series*

Hardcover: 80 pages

Publisher: HMH Books for Young Readers (February 26, 2013)

Language: English

ISBN-10: 0547681267

ISBN-13: 978-0547681269

Product Dimensions: 11 x 0.5 x 9 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: 4.9 out of 5 stars [See all reviews](#) (7 customer reviews)

Best Sellers Rank: #147,395 in Books (See Top 100 in Books) [#37 in Books > Children's Books > Science, Nature & How It Works > Inventions & Inventors](#) [#73 in Books > Children's Books > Education & Reference > Science Studies > Nature > Flowers & Plants](#) [#102 in Books > Children's Books > Education & Reference > Science Studies > Biology](#)

Age Range: 10 - 12 years

Grade Level: 5 - 7

## Customer Reviews

This sophisticated science book is all about transgenics, a process whereby genes from one species are isolated, modified and then injected into a different species so transgenes can be developed. The objective of this type of science is to find new ways to solve health issues in humans and other animals as well as in the foods we eat. Readers will be fascinated by orb spiders as they spin silk that is stronger than Kevlar (the material used to make bullet-proof vests) and is

more flexible than nylon, even in extremely low temperatures. This silk has the potential to be so valuable with so many uses such as bioengineered ligaments and tendons, surgical sutures, parachute rope, bulletproof vests and even space suits. Author Bridget Heos focuses the book on the research of Dr. Randy Lewis, who conducted experiments at the University of Wyoming and currently is a professor at the Utah State University. Since spider silk has so many coveted properties, the focus on the research involves figuring out the best and fastest way to reproduce it. We learn that Orb spiders cannot go to work together in the same space to produce silk, because they would eat each other! Randy's team is experimenting with spider silk by injecting the gene into goats, so their milk produces silk. The gene does not change the appearance, health or behavior of the goats, only the properties of their milk. There is also research being done on growing silk through alfalfa, the flowering plant, which is a major crop in Wyoming. Essentially the plant is infected with bacteria that contain the spider gene, and then the spider alfalfa grows as sprouts. Dr.

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