

# Spider Silk

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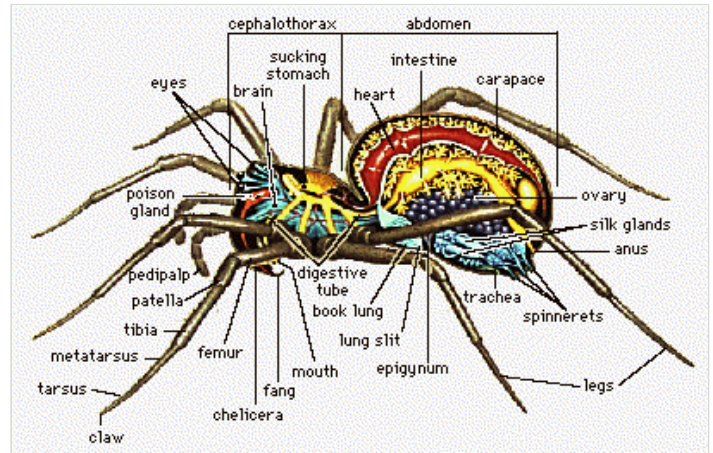
## Names

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There are usually three pairs of spinnerets but this can vary between 1 and 4 pairs depending on the species. The substance exits through the spigots which are mobile, finger-like protrusions and the resulting silk

## What does spider silk do?

Spider silk is one of the strongest materials in the world and therefore has a variety of uses. In nature, spiders use their silk mainly for catching their prey given that the elasticity of the silk traps the prey and prevents it from rebounding off of the web. Additionally, spiders use their silk as draglines to hold themselves up and connect themselves to the web. Lastly, spiders can disperse their young by releasing silk that they are attached to and having it be carried away by the wind as a way of transportation. Spider silk is useful for more than the needs of spiders, as humans have a variety of uses for it as well. Scientists have been working on generating spider silk in labs. <http://www.chm.bris.ac.uk/motm/spider/page4.htm>  
<http://www.popularmechanics.com/science/health/g741/6-spider-silk-superpowers/>

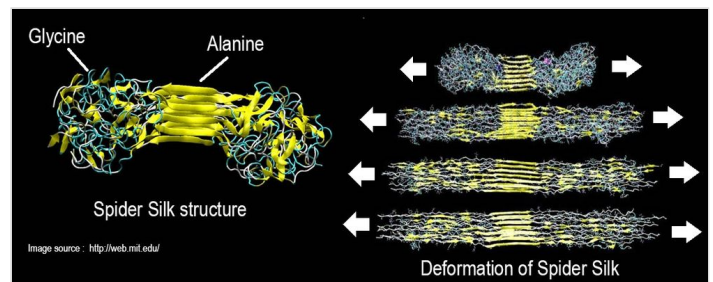


## Article

### The Elaborate Structure of Spider Silk

Spider Silk has reportedly "attracted human interest" for thousands of years. More recently, the structure of the material has been investigated. Spider silk is made of proteins. It has a strength similar to that of steel, and elasticity similar to rubber- making it useful.

Römer, Lin, and Thomas Scheibel. "The Elaborate Structure of Spider Silk: Structure and Function of a Natural High Performance Fiber." *Prion*, Landes Bioscience, Oct. 2008, [www.ncbi.nlm.nih.gov/pmc/articles/PMC2658765/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2658765/).



## Why is it important?

Spider silk today can be synthesized or genetically engineered. The spider silk is used for many uses, one of them is bandages.

There are several companies that are working on making spider silk to be used for many purposes like in the military. As spider silk is being made it could be used for stronger purposes in the future. Some of the potential uses of this artificially generated spider silk include bulletproof clothing, artificial skin, bandages, airbags, artificial ligaments, sutures, and many more.

Sources:

<http://www.chm.bris.ac.uk/motm/spider/page2.htm>

<https://www.scientificamerican.com/article/why-is-spider-silk-so-str/>

## **Where is this protein found?**

Spider Silk is several proteins made by spiders and is found in their glands. These glands are located on the lower side of the abdomen which contain a watery fluid known as 'dope'. This fluid then gets passed through to the spinneret through many tiny tubes where water recovery and solidification begins. Fluid from different glands can lead to the same spinneret so silk with specific properties required for a particular function can be produced.

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