

Yarn created from skin cells can be woven into human textiles

February 7 2020, by Bob Yirka



Credit: CC0 Public Domain

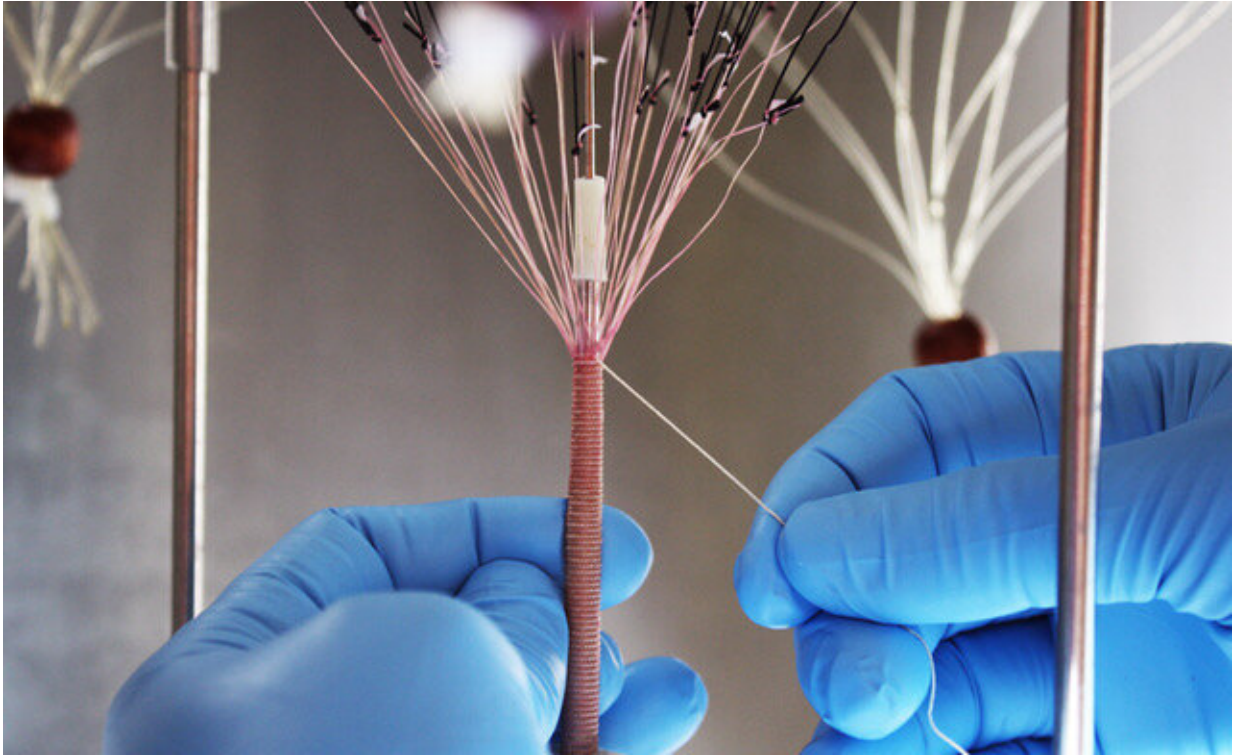
A team of researchers from France, Columbia and the U.S. has developed a type of yarn from human skin cells that can be woven into human textiles. In their paper published in the journal *Acta*

Biomaterialia, the group describes the process they used and applications for the materials they produced.

Medical textiles are [materials](#) that can be used to heal skin and other [body parts](#). They can also replace parts of damaged organs. But not all patients have the same reactions to all textiles, because the materials are often treated as foreign agents by the immune system. So scientists continue to look for ways to create textiles that the [human body](#) will accept. In this new effort, the researchers have created textiles out of human fibroblasts—cells that normally assist with the production of collagen and other fibers. The body will not reject them because they are natural human cells.

The researchers have created a variety of textiles out of the material for use in a wide variety of applications. The researchers first grew skin cell fibroblasts into sheets of material. The sheets were then fashioned into desired shapes. In many instances, they were cut into strings for applications such as suturing wounds. The strings could also be twisted or knotted to create braids or used like yarn for knitting or crochet applications. One notable advantage of the new technique is that it does not require the use of scaffolds to create parts of organs—they can simply be fashioned in ways similar to knitting a hat or scarf.

The new material has already been tested on animals, and the researchers are ready to start testing on [human patients](#). They suggest it could be used to create pouches, valves or tubes, in addition to serving as a suture material for skin or organs after surgery. As an example, they created a tube out of the material and grafted it onto an artery in a test sheep. They also sutured open wounds in rats. The researchers claim the new material works as well as others currently in use.



The researchers use extracellular matrix sheets to make yarn -- a bit like that used to make clothing fabric. Credit: Nicolas L'Heureux

More information: Laure Magnan et al. Human Textiles: a cell-synthesized yarn as a truly "bio" material for tissue engineering applications., *Acta Biomaterialia* (2020). [DOI: 10.1016/j.actbio.2020.01.037](https://doi.org/10.1016/j.actbio.2020.01.037)

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