

Cotton Candy, a Medical Wonder?

**Author: Brega Ecaterina
Ling. cons: L. Plamadeala**

This article is about candy cotton, a product which we all enjoy due to its very sweet taste and which begins to gain popularity in the medical field as well.

If you've ever been to a carnival, circus, amusement park, fair or any other type of large outdoor event with vendors selling a variety of trinkets, you've most likely had the chance to sample an odd delicious candy known as cotton candy also called candy floss. Cotton candy is one of those amazing foods that seem like magic until you know the secret.

The cotton candy invention was more than 100 years ago, in 1897 by two candy makers from Nashville, Tennessee, USA by the names of William Morrison and John C. Wharton [1; 98]. Traditionally, candy cotton is pink in color. However, it is also available in other colors such as orange, white, yellow, and blue or purple [2]. Eating cotton candy is often considered only one part of its allure; the second part is the act of watching it being produced in a machine. Candy cotton, unlike normal sugary confections, is purely sugar. What appears to be a large serving of cotton candy is really only a small amount of sugar -- the rest is air, which gives cotton candy its special appearance [3]. Cotton candy made one of its first world debuts in 1900 at the Paris Exposition and then again in 1904 at the St. Louis World Fair [1; 99].

Eating too much cotton candy isn't particularly good for your health — but cotton candy itself could provide a big breakthrough for medical technology.

During all this time no one thought that the innocent-looking cotton candy could actually prove one day to be the solution of one of medicine's greatest problems – how to create small and intricate blood vessels, absolutely needed for complicated surgeries such as transplants. Now, researchers in

New York believe they may have found a way of turning the candy into veins.

In a preliminary paper published in the journal *Soft Matter*, researchers Dr. Jason Spector, from the New York -Presbyterian Hospital/Weill Cornell Medical Center, and colleague Leon Bellan, from the Cornell University, present their newest theory – namely that cotton candy may prove to be invaluable in engineering-replacement tissues in the lab, as well as in creating microscopic blood vessel networks in artificially-grown bones, skin, muscles, or even fat, used in breast reconstructive surgery. Although their idea may seem a bit insane, preliminary results show that it works. To show that blood could flow easily through the material, the researchers pumped rat blood with fluorescent labels through the network. The researchers are now working on creating casts using a biodegradable resin mixed with cells of a particular tissue, and coating the cast's channels with blood vessel cells. As the cells grow, the biodegradable resin should gradually disappear to leave an artificial tissue sample with its own blood vessel network.

When such tissues are implanted into the body, the surgeon could plumb it into the body's own blood system, ensuring that even large implants remain healthy [4].

Cotton candy has worked well so far, and the researchers were able to get rat blood to flow through the laboratory tissues successfully. Although they say that they may change to a different material in their future research, they plan to use cotton candy as long as possible.

Candy cotton is indeed an incredible medical wonder, isn't it?!

Bibliography:

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2. Sparks T., *Cotton Candy Express*, 1997, p.5.
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