

# Laying a fairytale to rest with human hair

February 9 2011, By Colin Smith

---

A team of engineers from Imperial College London have developed a contraption made of human hair, enabling presenters from the world's longest running children's television program to test the theory behind a fairytale.

The producers from the children's television program Blue Peter approached Imperial's Dr. Andrew Phillips, asking him and senior technician Ron Millward to help them to build a rig that would enable them to test the strength of [hair](#). The TV show wanted to see if hair could support the weight of a human, as it did in the fairytale "Rapunzel". In the fairytale, Rapunzel throws her extremely long hair out of her window, enabling a prince to use it like rope and climb into her room at the top of a tower to attempt a rescue.

Dr. Andrew Phillips, from the Department of Civil and Environmental Engineering at the College, said: "Part of the reason for working with Blue Peter on this project is that we wanted to show a young audience that our bodies manufacture really incredible materials like hair, which has some amazing properties. For instance, hair can be as strong as aluminium and a full head of hair could support up to 12 tonnes in weight."

In the CBBC video clip, [watch the demonstration](#) and see what happens to the Blue Peter presenter when some of the strands are snipped off.

The main problem that the team had to overcome when they were building the wooden rig was finding a way to fix the strands of hair

securely. The team borrowed an old technique, normally used to make ropes, which involved them splaying the hair out and then gluing it into conical holes that were bored into the rig. They then hammered blocks of wood called ‘bungs’ into the conical holes, ensuring that the hair was held in place securely.

The team also plaited the hair, which reinforced its strength and ensured that the weight was distributed evenly across the rig . The researchers also carried out tests in the lab, using lead weights, to ensure that the device would not fall apart during the demonstration on TV.

Dr. Phillips, whose research focuses on developing computer programs that model how the human body works, added: “This project provided us with a wonderful opportunity to demonstrate to children how fascinating engineering can be. It is not every day that a fairytale provides the impetus for a project that helps a young audience to see how engineering can be used to solve problems and explain things.”

After Dr. Phillips’s team built the harness, it was driven to the Blue Peter studios in BBC Television Center, where presenter Andy Akinwolere was suspended in the harness one metre above the ground.

At the end of the TV experiment, the Imperial researchers were awarded Blue Peter badges for their efforts.

Provided by Imperial College London

Citation: Laying a fairytale to rest with human hair (2011, February 9) retrieved 25 April 2024 from <https://phys.org/news/2011-02-fairytale-rest-human-hair.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.