AntiOrdinary A1 beanie helmet

SOFT BEANIE-STYLE SKI HELMET HARDENS ON IMPACT

SPORT & FITNESS

Engineers have developed a comfortable, soft helmet for skiers using non-Newtonian materials traditionally used in products such as back protectors.

Downhill skiers and snowboarders are known for their love of fashion. So much so that many chose to wear beanie hats instead of helmets. However, it is also well-known that helmets can save lives in a skiing accident. Now, biomedical engineer Rob Joseph and product engineer Brodie Robinson, of the Queensland University of Technology, have developed winter headgear that is both stylish and functional. The pair have created the ANTI Ordinary A1, a soft, beanie-style helmet.

The helmet has an inner layer made of 70 to 90 percent Merino wool, and an outer layer of 100 percent acrylic. The wools inner layer is moisture-wicking and non-allergenic, while the outer layer allows for strength, washability and durability. Sandwiched between the two layers is a blend of non-Newtonian fluids. The fluids are made up of particles that flow easily when moving slowly, but rapidly jam tight against each other when under stress or pressure. As a result, the material is normally flexible and liquid-like, but instantly hardens under impact.

Although a bit heavier than conventional ski helmets, at about 750 grams (1.7 pounds), the weight is distributed evenly around the head. The creators of the ANTI A1 plan to fund development of the helmet through a Kickstarter campaign launching on January 14th, 2019. Anyone interested can pre-register to be a backer via their website. The headpiece A1 joins a number of innovations aimed at winter sports enthusiasts. Some recently covered by Springwise include snow gear designed to aid in an avalanche and a water bottle that uses friction to melt snow for drinking.

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Website: www.antiordinary.co
Contact: www.facebook.com/antiordinaryA1

Takeaway:

Once perfected, the technology used for the A1 could be adapted for use in medical devices, such as headwear for people at risk of falls. Similar devices using non-Newtonian fluids are already used to protect extreme athletes when they wipe out. What other uses are there for a soft helmet?