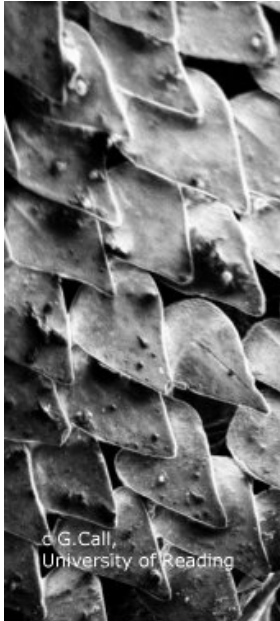
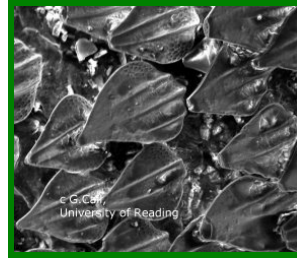


Shark Skin

Biomimetic Principle

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- Shark skin is very rough, in fact so rough that dried shark skin can be used as sanding paper.
- The skin is covered by little V-shaped bumps, made from the same material as sharks' teeth.
- The rough surface has been shown to reduce friction when the shark glides through water, which is why sharks are surprisingly quick and efficient swimmers.

Fabrics modelled on sharkskin designed to reduce drag by channelling the water along grooves in the fabric. These grooves allow the water to spiral in microscopic vortices, a hydrodynamic advantage.

After looking at shark skin, NASA pioneered the use of longitudinal riblets, ridges perpendicular to surface, to reduce drag on flat surfaces of ships and aircraft. Riblets were used successfully to reduce drag on the 'Stars and Stripes' America's Cup yacht and were thought to offer such an advantage that riblets were banned from competition for subsequent events. Shark skin itself is far more complex than simple longitudinal riblets

Further Information: Papers:

Applications

- Reduced drag on flat surfaces of ships and aircraft
- Fabrics modelled on sharkskin reduce drag

Current Commercial Development

Speedo have developed a swimsuit for competitions which is based on the sharkskin effect. And it works: At the Sydney Olympics 27 out of 33 gold medals in swimming were won by swimmers wearing the new suit.

Website: <http://www.speedo.com>