

Study: Sharks have mammal-like muscles

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University of British Columbia scientists say some sharks have swimming muscles that only work at relatively high temperatures -- much as do mammals' muscles.

Robert Shadwick and colleagues studied salmon sharks, which spend their lives in the chilly waters of the North Pacific. The scientists discovered that unlike most other fish, the sharks rely on heat generated within their muscles to maintain their constant swimming.

They discovered that "red muscles" -- which power the sharks' constant swimming and are found at the body's core -- had a temperature of up to 26 degrees Celsius, some 20 degrees warmer than the sea water.

The researchers say their discovery shows how specialized the sharks are for their predatory lifestyle. The red swimming muscles rely on heat produced during muscular contraction to work efficiently. If their temperature were allowed to drop to that of the surrounding water, the sharks would not be able to swim.

In contrast, the salmon's 'white muscles' -- which are used for bursts of speed -- work well across a range of temperatures, the researchers added.

The study is detailed in the current issue of the journal *Nature*.

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