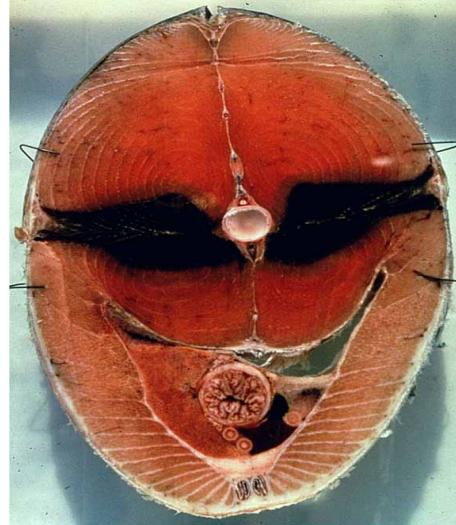


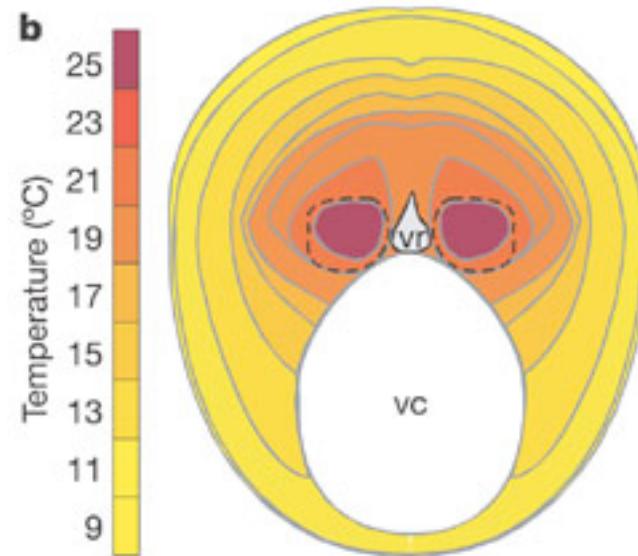
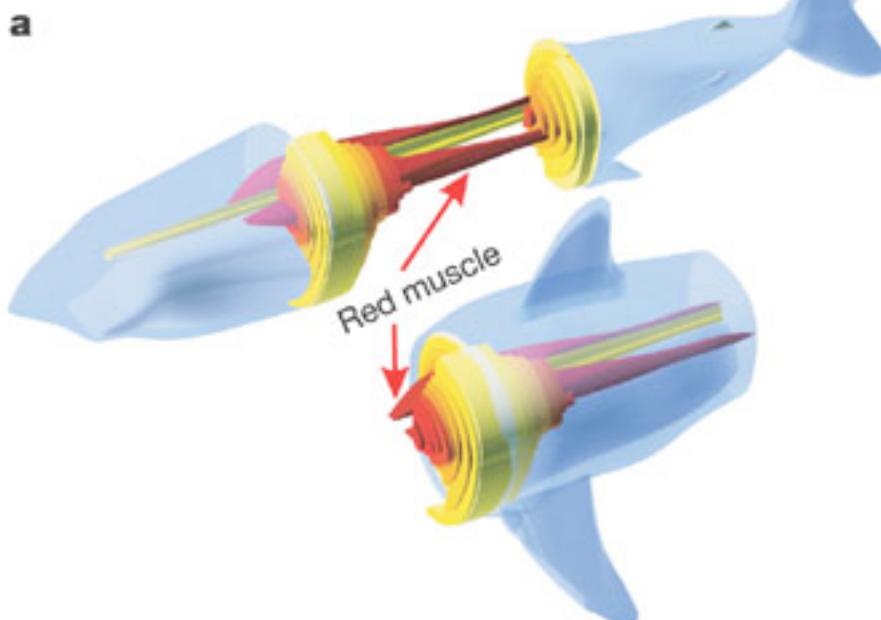
LETTERS

Mammal-like muscles power swimming in a cold-water shark

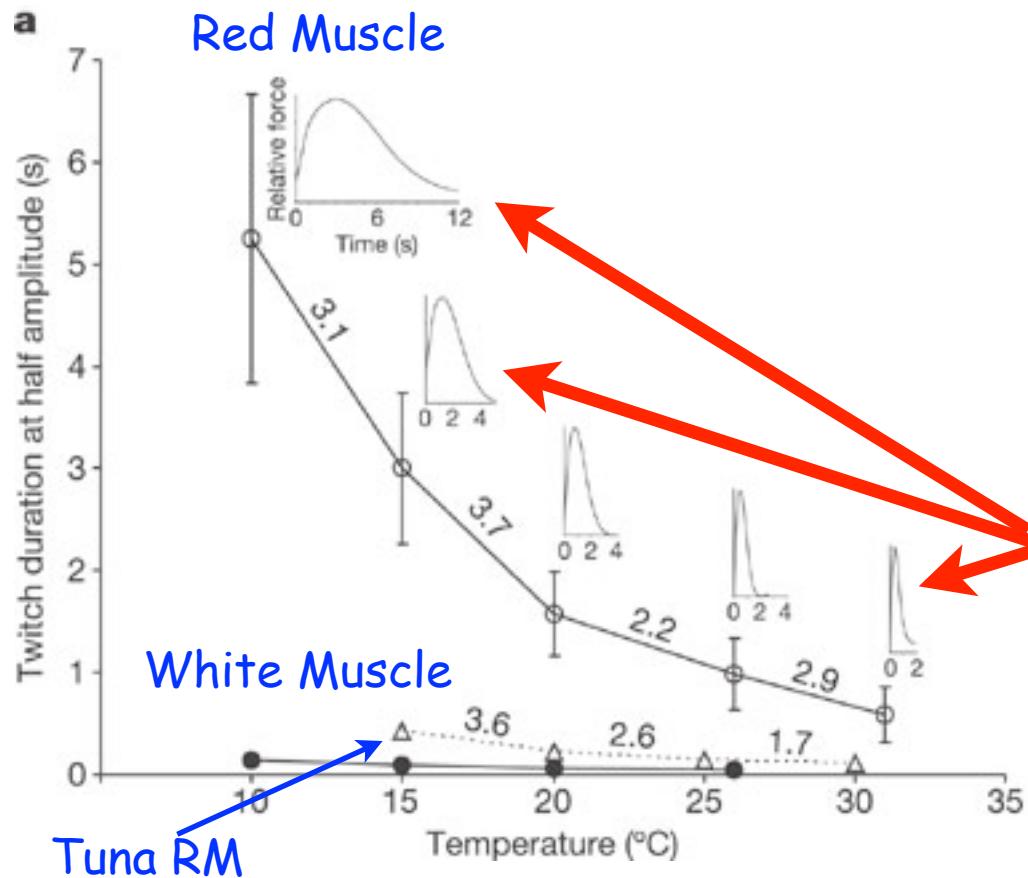
Diego Bernal^{1,2}, Jeanine M. Donley³, Robert E. Shadwick^{2†} & Douglas A. Syme⁴



These lamnid sharks live in very cold water
Used temperature probes to measure muscle T immediately
Core (Red Muscle) is up at 26C! 16-20C higher than ambient!



Muscle twitch duration at different temperatures

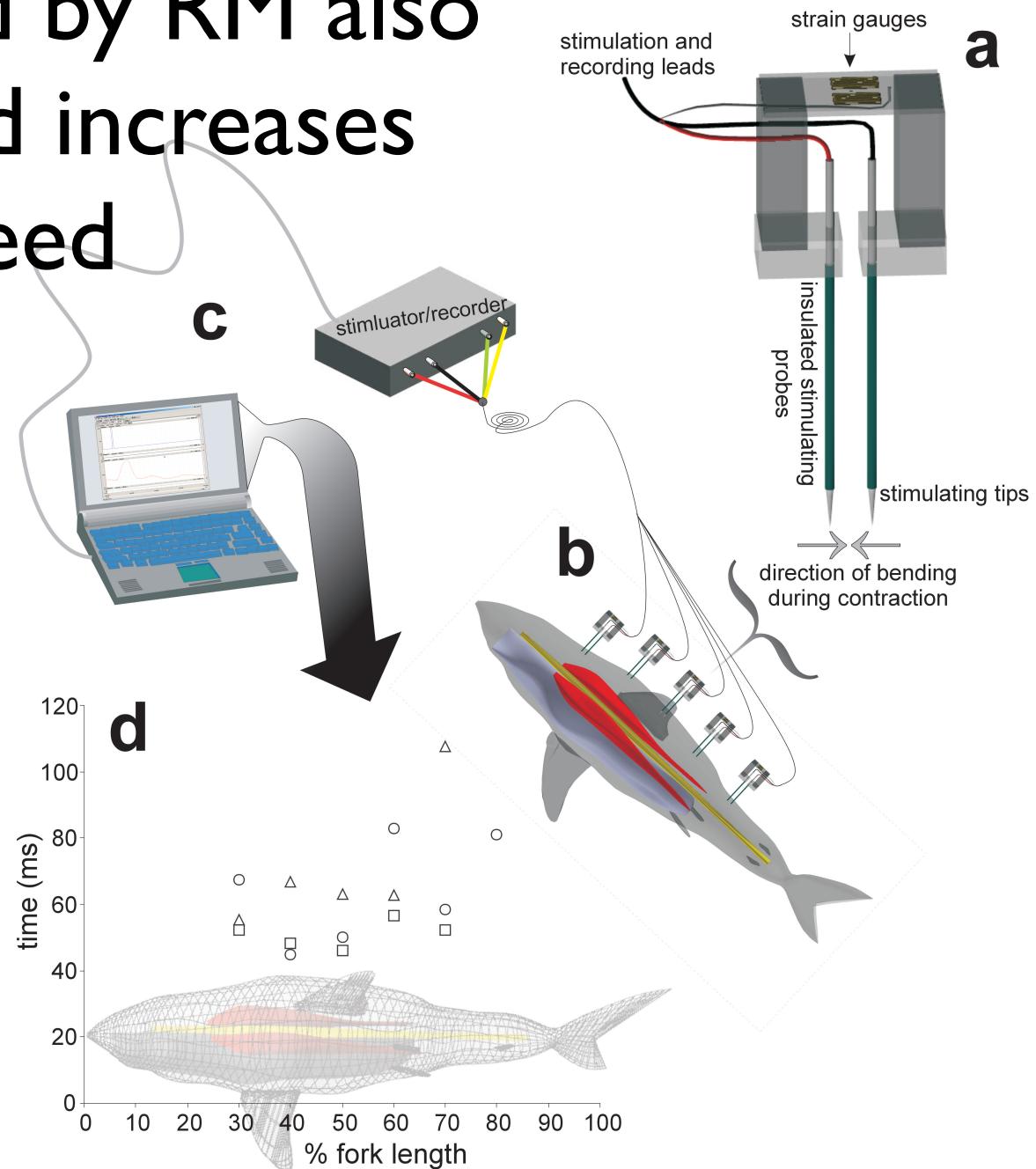


Used portable stimulator to make measurements *in situ*

WM twitch duration does not change with Temperature

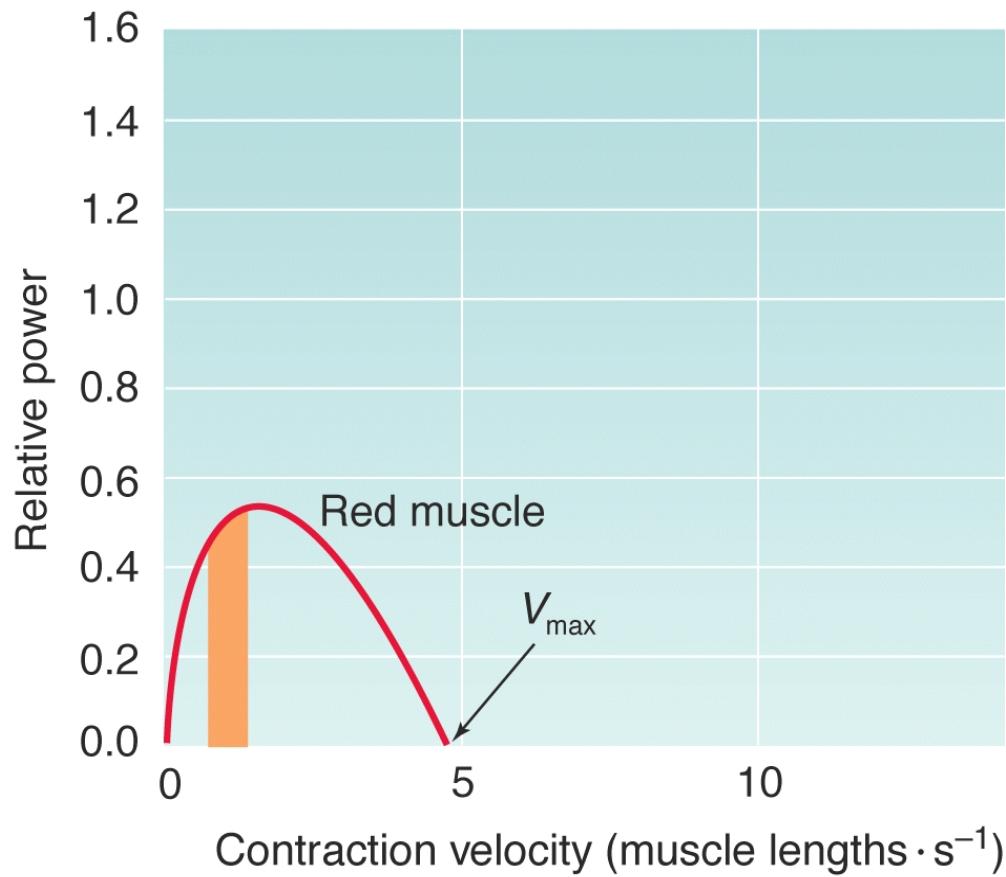
RM is extremely sensitive to Temp, probably incapable of contracting sufficiently even at 15C

Heat generated by RM also warms WM and increases contraction speed



Optimized Motors

Steady swimming



Escape response

