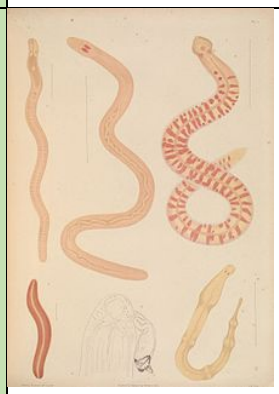
生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	靜水骨骼改變形狀 (Hydroskeleton changes shape)
生物系統 LIVING SYSTEM	紐蟲 (Ribbon worms)
功能類別 FUNCTIONS	#在液體中/上移動 #改變大小/形狀/質量/體積 #Move in/on liquids #Modify size/shape/mass/volume
作用機制標題	紐蟲的運動受到靜水骨骼的纖維排列控制 (The movement of ribbon worms is governed by the fiber arrangement of their hydrostatic skeleton.)
生物系統/作用機制示意圖	

作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)

文獻引用 (REFERENCES)

「Cowey (1952) 似乎是第一個發現纖維排列對於靜水骨骼中重要性的人，他著眼於一種紐形動物門 (nemertean) 的蟲，一種長而扁平且無環節的生物。（幾年後 Clark 和 Cowey 進行了更全面的研究 [1958]。）這些蟲的身體通常會維持扁平的圓柱狀；表層的纖維與長軸成一定角度，大約在 40-70 度範圍內。因為它們不是圓柱體，所以他們身體占的體積比預估的少，然後他們如同圖 20.2 下方標記為「萎縮的」區域中的曲線生活。如果這種蟲收縮縱向肌肉，牠的身體將會變短，並沿著水平線向左移動。當牠充分的收縮將使牠與曲線相抵抗，該曲線在截面中會是圓形的，並且這會使得這種蟲運動時顯得更腫脹。如果這種蟲收縮圓周肌肉，牠的身體就會變長，而且向右移動，但會再一次變得更接近圓形，並且更加腫脹。並非所有蟲都能充分改變形狀以達到極限線，但牠們都使用這種奇特的方法，相信其中的形狀和穩定性有關聯。儘管這些動物在活躍的運動中，其內部壓力從未變的很高，還是非常柔軟。」(Vogel 2003: 413)

"Cowey (1952) seems to have been the first to recognize the importance of fiber arrangement in hydroskeletons, looking at a nemertean worm–a long, flat, and unsegmented creature. (A more general treatment followed a few years later, as Clark and Cowey [1958].)

Normally these worms form severely flattened cylinders; the fibers in their surface layers lie at angles to their long axes somewhere in the 40-70 degree range. Since they're not circular cylinders, they contain less volume than they might, and they live beneath the curve of figure 20.2, in the region labeled 'flaccid.' If such a worm contracts longitudinal muscles it will get shorter, moving to the left along a horizontal line. Sufficient contraction will bring it up against the curve, where it finds itself circular in section and more turgid to boot. If the worm contracts circumferential muscles it gets longer, moving to the right, but again it gets more nearly circular and more turgid. Not all of these worms can change shape enough to hit the limiting line, but they all use this curious scheme in which shape and stiffness are predictably interrelated. Internal pressures, though are never very high–even when actively locomoting, these creatures are a limp lot." (Vogel 2003: 413)

參考文獻清單與連結 (REFERENCE LIST)

Vogel, S. (2013). *Comparative biomechanics: life's physical world, second edition*. Princeton University Press.

延伸閱讀: Harvard 或 APA 格式

生物系統延伸資訊連結 (LEARN MORE ABOUT THE LIVING SYSTEM/S)

https://en.wikipedia.org/wiki/Amphiporus_lactifloreus
https://www.onezoom.org/life/@biota=93302?img=best_any&anim=flight#x247,y553,w0.5808

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AskNature 原文連結

https://asknature.org/strategy/hydroskeleton-changes-shape/