

The faster they come: How social status is negotiated among fishes

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Being the neighbourhood bully has its obvious advantages, but it becomes useless if your authority is continuously being challenged. In many animal species, however, stable hierarchies are routinely formed in which some individuals seem to slip naturally into their dominant role whereas others resign themselves to play the part of lowly subordinates. But why do the latter embrace this fate so readily instead of putting up a fight?

A research team from the University of Sydney is trying to find the answer to this question by studying the interactions between male mosquitofish to see if their behavioural strategy can be traced down to their physical skills.

When the speed of escape in response to an attack was measured, the researchers found that subordinate fish were significantly faster than the dominant ones. "This is particularly interesting because we predicted the opposite: that dominant fish were the ones that would prove to be more athletic" explains Dr. Frank Seebacher, who led the research team.

"Our data indicate either that there may be a training effect because subordinate fish have to escape quickly and often, or that slower [fish](#) become more aggressive because they cannot manoeuvre quickly." The researchers also analysed whether damage to the tail and fins may affect the social position of a given individual, and found that, indeed, aggressive behaviours tend to decline as fin damage sustained in fights accumulates. In other words: if a male has to fight too often to maintain

his dominant status, he will probably end up losing it in the end. These results will be presented by Elektra Sinclair at the Society of Experimental Biology Annual Meeting in Glasgow on Sunday 28th June 2009.

The scientists are currently trying to better characterize the physiological differences between the two groups to find out whether they are hereditary or acquired. They are also planning to address this question by conducting breeding studies designed to distinguish between underlying genetic differences in locomotor performance and plastic changes occurring during the lifetime of the individual as a result of its social status. Ultimately, their aim is to determine if relative position within the stable hierarchy is largely influenced by their inherited genes, or if each generation has to work it out all over again.

Source: Society for Experimental Biology

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