

## Aquarium Fish Finrot

### Identifying and treating aquarium fish finrot.

*By Neale Monks, Ph.D.*

Although physical damage from fighting and fin nipping among fish can cause finrot, it is also overwhelmingly typical of immature, poorly maintained and overstocked aquariums.

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Killifish with finrot, by Tony Terceira.

#### Identification

One of the first signs of an incipient finrot infection is the appearance of red streaks on the fish's fins. As the infection becomes established, the fin membrane decays, making the edge of the fin distinctly ragged. Severe finrot infections can completely destroy fins, reducing them to stumps. Additional symptoms of severe finrot infections include ulcers and lesions on the body, abdominal swelling (edema) and, ultimately, death.

Finrot often develops alongside fungal infections and, to a lesser degree, the infections of the bacterium *Flavobacterium columnare*, known to aquarists as mouth fungus.

#### Pathology

Finrot is caused by opportunistic bacteria, in particular *Aeromonas hydrophila* and *Aeromonas liquefaciens*. Other bacteria implicated in finrot infections are *Pseudomonas* species and various myxobacteria.

#### Triggering factors

The bacteria that cause finrot are present in all aquariums, but they do not normally cause any harm. It is only when aquarium fish are stressed or damaged that finrot infections develop.

By far, the most common triggering factor of finrot is poor water quality. Ammonia and nitrite damage the skin and fins, causing them to bleed. The opportunistic bacteria move onto the patch of dead protein-rich tissue and begin to feed and multiply. Ordinarily, the bacteria would be prevented from entering the body of the fish by its immune system, but if it is stressed by poor water quality, the immune system is weakened, and the bacteria can spread more easily. As the bacteria multiply, more tissue dies, and things get steadily worse. Once the bacteria enter the bloodstream, they can be carried all around the body and eventually end up in the internal organs. At this point, recovery is unlikely, and the fish usually dies.

Whenever the fish's skin is broken or the fins are torn, a fish becomes vulnerable to finrot. Fighting and fin nipping are two ways fish can become injured in this way, and finrot infections are a common result. Burrowing fish are sensitive to infections if kept in aquariums with abrasive or coarse substrates. This is commonly seen with spiny eels when they are kept in aquariums with gravel substrate (rather than sand).

Clumsy handling of fish by the aquarist can also cause problems. When they get very cold, fancy goldfish end up suffering from what are essentially frostbitten fins, and these are very sensitive to finrot.

Anything that weakens a fish – including bullying, overcrowding and poor feeding – can compromise the immune system sufficiently, allowing finrot to become established.

#### Before

This *Colomesus* pufferfish was in poor condition when initially obtained. As well as being underweight, it showed the classic signs of finrot on the tail fin in particular. After treatment with an antibacterial medication and a couple of months of good care, the fish had made a full recovery. Photos by Neale Monks.

#### After

**Antibiotics**  
In the United States especially, finrot is commonly treated using over-the-counter antibiotics such as erythromycin and minocycline. Trimethoprim and sulfadimidine may also be used. Outside of the U.S., antibiotics may be controlled and only available from a veterinarian surgeon.

Because finrot can be caused by a variety of bacteria, antibiotics effective against one sort might not be so good against

another, which is why some finrot medications include a cocktail of antibiotics.

#### Alternatives to antibiotics

Proprietary antibacterial medications suitable for treating finrot are widely available and effective. These typically contain organic dyes that kill pathogenic bacteria but do not harm filter bacteria. However, many are toxic to invertebrates and sensitive fish, such as sharks, stingrays and mormyrids, so they should be used with caution.

#### Tea tree oil and salt

Medications based on tea tree oil are sometimes promoted as cures for finrot. While they may work in some instances, they do not work reliably and are best considered preventatives rather than cures for finrot. As such, they should be used when a fish appears to be physically damaged to prevent finrot infections from getting started. Should the fish develop the infection, the tea tree oil will need to be supplemented with an appropriate antibiotic or antibacterial medication.

Tonic salt (sodium chloride) is a useful preventative when used to treat salt-tolerant freshwater fish, such as livebearers, with which doses of up to 1 ounce per gallon can be used safely.

#### Prevention

Finrot is among the easiest diseases to prevent because the aquarist simply needs to provide good water quality and ensure the fish don't get scratched, bitten or otherwise damaged.

If possible, new aquariums should be cycled using fishless methods. If that isn't possible, the aquarist should be diligent about performing generous water changes on a regular basis to keep the ambient levels of ammonia and nitrite to a minimum. As a rule of thumb, aim to perform 25 to 50-percent water changes every other day for the first few weeks, at least until the ammonia hits 0 and the nitrite concentration stays below 2 mg per gallon.

To avoid physical damage, the aquarist should make sure fighting and fin nipping do not occur. Overcrowded cichlids and damselfish are apt to fight over territories, and damaged fins and jaws can quickly become sites of infection.

Several so-called community fish are confirmed fin nippers, including tiger barbs, serpae tetras and black widow (or petticoat) tetras. Angelfish and Synodontis catfish will sometimes become fin nippers when kept with particularly vulnerable tankmates, such as fancy guppies and bettas. In brackish and saltwater aquaria, pufferfish and targetfish are the most serious fin nippers.

Neale Monks studied zoology at the University of Aberdeen in the north of Scotland and obtained his Ph.D. at the Natural History Museum in London. He's also been a marine biologist, a high school teacher, a university professor and a museum's exhibit designer. But his real love has always been tropical fish. His particular interest in brackish water fish culminated in his editing of the first encyclopaedic book on the topic, 'Brackish-Water Fishes', published by TFH in 2007. Neale regularly contributes to all the major English-language fishkeeping magazines, focusing especially on community tanks, biotopes, healthcare and water chemistry issues. After living in London and then for a while in Lincoln, Nebraska, Neale now lives in a quaint cottage in a pretty market town in Hertfordshire, England, where he divides his time between teaching and writing.<