

# **Streptococcus iniae**

## **What is Streptococcus iniae?**

Since its isolation from an Amazon freshwater dolphin in the 1970s, *S. iniae* has emerged as a leading fish pathogen in aquaculture operations worldwide. Since its discovery, *S. iniae* infections have been reported in at least 27 species of cultured or wild fish from around the world.

## **What kind of germ is Streptococcus iniae?**

*Streptococcus iniae* is a species of Gram-positive, sphere-shaped bacterium belonging to the genus *Streptococcus*. *S. iniae* has emerged as a leading fish pathogen in aquaculture operations worldwide. *S. iniae* has occasionally produced infection in humans, especially fish handlers of Asian descent. Human infections include sepsis, toxic shock syndrome, and inflammation of the skin, intervertebral discs, or inner layer of the heart.

## **How can Streptococcus iniae be diagnosed?**

The site of *S. iniae* infection and its clinical presentation vary from species to species. In tilapia, *S. iniae* causes meningoencephalitis, with symptoms including lethargy, dorsal rigidity, and erratic swimming behavior; death follows in a matter of days. In rainbow trout, it is typically associated with septicemia and central nervous system damage. Symptoms are consistent with septicemia and include lethargy and loss of orientation (as in tilapia), exophthalmia, corneal opacity, and external and internal bleeding.

*S. iniae* can cause opportunistic infections in weakened or immunocompromised humans. It is most commonly associated with bacteremic cellulitis, but has been known to cause endocarditis, meningitis, osteomyelitis, and septic arthritis.

## **How can Streptococcus be treated?**

Antibiotics and vaccines have been proven to help against infections, but only last so long. Vaccines for this only last about 6 months.

## **Are there any long-term effects of Streptococcus iniae?**

Can lead to death in fish (about 30-50% mortality rate). There are not long-term effects reported for humans, but if you should still seek your doctor if infection occurs.

## **How can humans get Streptococcus iniae?**

Handling infected fish with an unprotected open wound.

## **How can Streptococcus iniae be prevented?**

Several measures can be taken to control infection in aquaculture once an *S. iniae* outbreak has been confirmed. Decreasing the quantity of feed given to fish has been shown to reduce mortality rates, as the uptake of bacteria in water is expedited by feeding. Decreasing the density of the fish stock increases survival by reducing injury to fish and lowering the general stress level in the population. Lowering the water temperature and keeping optimal oxygen levels has also been shown to reduce stress to fish and inhibit bacterial growth. For humans, keep your clothes clean, wash hands regularly, keep open wounds covered.

