

Zebrafish health conditions

By Micah Rai Dupont. University of Warwick.

Email: m.dupont@warwick.ac.uk

| Condition | Features | Signs and symptoms | Action to take | Condition | Features | Signs and symptoms | Action to take |
|--|---|---|--|--------------------------------|--|--|--|
| Fish TB | Agent: Mycobacterium Importance: High Incurable Transmission: Cannibalism of infected fish Through open wounds | Emaciation Haemorrhaging Frayed fins Lesions Colouration loss Distended abdomen Dropsy | Euthanise all fish within infected tanks. Disinfect tanks and equipment with 50- 70% ethanol with a minimum contact time of | Gas bubble disease | Importance: Moderate Treatable Transmission: Poor water quality (High dissolved oxygen) Importance: Moderate | Visible bubbles form on the fins, gills and skin. Retrobulbar tissues are commonly affected bulging eyes | Move affected fish to a tank with the correct dis- solved oxygen content to recover. |
| Edwardsiella ictalurid | Agent: Bacteria Importance: High Highly infectious and high mortality Transmission: Excretion by carrier animals | - Ulcers - Reddening of the skin - Behavioural changes - Loss of appetite | 1 minute. - Isolate Infected fish from the system and Euthanise. - All equipment including tanks and nets need to be disinfected. | Ecsions Fag accoriated | Treatable Cause: Fighting Trauma Bacterial/parasitic infections Underlying conditions | - Lesion - Puncture wound - Abrasion | Monitor to see if it can heal in home tank. If not separate fish with lesion and check daily for signs of healing. |
| Neon tetra disease | Agent: Parasite Importance: High Incurable Transmission: Cannibalism of infected fish | White cysts on body Lesions Loss in colouration Abnormal swimming patterns Scoliosis. | All infected fish need to be isolated from the system and euthanised. | inflammation ulcers | Importance: Moderate Preventable Cause: Egg retention | - Ulcer with a white centre. | Ensure males and females housed together Mate regularly |
| Pseudocapillaria tomentosa | Agent: Parasite Importance: High Incurable Transmission: Live foods (Oligochaetes) | Chronic wasting Decreased reproductive performance Decreased growth rates Darkened colouration | All infected fish need to be treated with emamectin or isolated from the system and euthanised. Disinfect all tanks and | Pigmentation and scale loss | Importance: Moderate Treatable Cause: Poor water quality (pH) | Symptoms of acidosis: Hyperactivity Deep respiration. Symptoms of Alkalosis: Frayed fins | Test pH with a liquid test Buffer the system as needed. |
| Dilated Cardiomyopathy | Agent: N/A Importance: High Incurable Specific strains are susceptible Transmission: Poor water quality (Element | - Intestinal tumburs - Hearts can become 5 times larger. - Swelling - Visible blood clots - Haemorrhaging | equipment. - Euthanise all fish with the condition. | Popeye | Importance: Moderate Treatable Cause: Poor water quality Trauma Bacterial or parasitic Infections | - Protruding eye (Normally in good condition) - Ruptured eye | Bath in a salt water and/ or bacterial treatment. Check water quality parameters |
| Microsporidiosis Operation | toxicity) Agent: Parasite Importance: High Can get through strict biosecurity Can be symptomless Transmission: Ventral transmission (From mothers to eggs) | Emaciation Behavioural changes Deformities Dorsal Darkening | Euthanise any fish that look emaciated or weak. Remove mortalities quickly to prevent cannibalism. Treat eggs, equipment | Swim bladder disorder | Importance: Moderate Treatable Cause: Poor water quality Physical defects Incorrect nutrition, Bacterial or parasitic infections | Listing to the side Tilting Swimming upside down. May not be able to swim off floor May not be able to swim down from the top of the tank. | Isolate fish and feed live food for 3 days If there is no improvement consider a different cause for disorder e.g. bacterial or parasitic treatments |
| Number chart toxicity Number chart Un-lonized Ammonia (Toxic Form) NHs mg/L (ppm) 8.6 0.15 0.30 0.46 0.69 0.12 1.34 8.2 0.10 0.06 0.13 0.20 0.26 0.23 0.44 0.68 0.90 1.12 1.34 8.2 0.10 0.06 0.13 0.20 0.26 0.22 0.39 0.46 0.90 1.12 1.34 8.2 0.10 0.06 0.13 0.20 0.26 0.22 0.39 0.41 0.15 0.91 7.6 0.03 0.05 0.066 0.08 0.09 0.15 0.91 PH 7.4 0.02 0.03 0.04 0.05 0.066 0.05 0.066 9.1 0.01 0.02 0.03 0.04 0.05 0.066 | Horizontal transmission (cannibalism/spores shed in faeces, urine or ingested) Agent: N/A Importance: High Will affect all fish on system | - Hyper-excitability - Emaciation - Difficulty breathing - Reduced growth | Test the water using liquid tests. Establish pH reading to establish water toxicity. Reduce fish density and feeding where possible Water change system | Dropsy/Ascites | Importance: Moderate Treatable Cause: Bacterial or parasitic infec- tions Incorrect water quality Nutritional imbalance Abdominal tumours | Distended abdomen Raised scales Popeye Rapid breathing. Ascites Cracking/ reddening of skin on abdomen | Move non-infected fish to a clean tank and monitor closely. Check weekly water tests results If the fish is important treat fish with salt water baths (3ppt) and/ or bacterial treat- ment. |
| 0.00 0.00 0.01 0.01 0.02 0.02 6.6 0.00 0.00 0.01 0.01 0.01 0.02 6.2 0.00 0.00 0.00 0.00 0.01 0.01 6.0 0.00 0.00 0.00 0.01 0.01 0.01 1.2 2.4 3.7 4.9 6.1 7.3 Test Kit Results - HHyngiL+NH4mgiL/(ppm) = DANGER = CAUTION = SAFE | Poor water quality Agent: Bacteria | - Fish at the surface of the water gasping | and Increase water flow. - Consider introducing a beneficial bacteria to filter | Clamped fins | Importance: Moderate Treatable Cause: Poor environments Parasitic or bacterial infections | Abnormal body shape Lethargic behaviour Can behave differently e.g. floats near the top of the tank | Monitor for other signs of ill health to determine why the fish has clamped fins. Check weekly water test results |
| Bacterial gill disease | Treatable Transmission: Over stocking Poor water quality Long transit times Agent: Bacteria | Infected areas are white, worn and frayed Can rot away entirely. Difficulty breathing | - Isolate Infected tanks off the system and treat with an anti-bacterial treatment . - Disinfect all equipment. | Emaciated/ Wasting | Importance: Moderate Treatable Cause: Under feeding Underlying conditions | Fishes' head is bigger than the body Poor body condition Concaved abdomen between head and abdomen | Ensure tanks are not overstocked If stocking density is fine remove fish from the tank. Monitor and feed separately for a few days. |
| Bacterial senticaemia | Importance: Moderate Treatable Transmission: Over stocking Poor water quality Long transit times | Gill flaring Poor body condition, Fish at the surface of the water gasping Swollen or red gills | Perform water tests Consider reducing the stocking density Consider treating with a bacterial treatment Isolate infected fish and | Egg-bound | Importance: Moderate Treatable Cause: Lack of males Poor water quality | Distended abdomen Cracking of the skin internal cavity may protrude out of the body. | Ensure males and females are housed together Mate regularly Check weekly water tests. |
| | Agent: Bacteria Importance: Moderate Treatable Transmission: High levels of ammonia or nitrite | - Gasping - Lethargy - Haemorrhaging - Ascites - Dropsy | keep in optimal conditions - Test water using liquid tests for ammonia and nitrite - Anti-internal bacterial treatment (chloramine T) | Internal tumour | Importance: Moderate Can live with condition but can affect more internal organs Cause: Cancer | Lumps inside the body cavity Abnormal shaped distended abdomen | Consider squeezing If the tumour affects general health, movement or feeding euthanise the fish. Monitor tank mates. |
| White spotSevent disease | Agent: Parasite Importance: Moderate Treatable Transmission: Direct or indirect contact with infected fish Agent: Parasite Importance: Moderate Treatable (Zebrafish are very | White spot on body surface Increased mucus production Difficulty breathing Lethargic behaviour. Fish will rub themselves on the bottom or | Consider treating with a salt bath (3ppt) or External anti-parasitic treatment baths Salt water dip infected fish, then placed them in a clean tank. | Scoliosis and lordosis | Importance: Low Can live with condition Cause: Hereditary/Inbred fish Generally feeding dry diet Lack of oxygen / Over stocking Trauma Bacterial/parasitic infections Underlying conditions | - Spinal abnormalities Curved spine | Ensure adequate Flow, oxygen stocking levels . If the fish is healthy apart from condition it can live a normal life but do not to breed from these fish |
| Conrolacciaci | susceptible) Transmission: Direct or indirect contact with infected fish Live foods (Oligochaetes) | around the tank. - Fine yellow film on skin - Clamped fins. | Or external anti-parasitic treatment. All tank and equipment must be disinfected | External Tumour | Importance: Low Can live with condition Cause: Cancer | - Tumours on bodies surface | -If the tumour affects gen- eral health, movement or feeding euthanise the fish. - Monitor tank mates. |
| Saprolegniasis | Agent: water mould Importance: Moderate Treatable Transmission: Ubiquitous to environment but opportunistic. Affects fish with lesions, trauma, bacterial or viral infections | - Superficial white or brown cotton like growths on the scales, fins or gills. | If the infection is not severe consider a salt water bath (3ppt) and/or anti-fungal treatment. | Cataracts | Importance: Low Can live with condition Cause: Nutritional imbalances Parasites Genetics: Hereditary | - Opaque appearance of eyes | If the fish is healthy apart from the condition it can live a normal life Try not to breed from these fish. |
| Environmental Fungus | Agent: Fungi Importance: Moderate Preventable (Young Zebrafish are very susceptible) Transmission: Accumulation of food in tanks | - Lethargic behaviour - Reduced feeding - Anaphylaxis | - Regular tank cleaning. | Always cons especially if i | sult the NACWO t involves using may need t | before using treat chemical treatme o be contacted | tment options. nt as PIL or NVS |