SOLVING PROBLEMS

harrogate aquatic
AQUARIUM & POND SPECIALISTS

Usually fish illness is caused by environmental factors rather than contamination or cross-infection. Fish have a coating of mucus (slime) to protect them from parasites and pathogens, and if kept in a perfect environment they should be resistant to disease and infection. If the water quality deteriorates, their resistance to disease is reduced and you will see by a change of behaviour or appearance that something is amiss. If you suspect a problem, the first thing to do is test your water quality. Don't assume it's right because it looks clear—vodka is clear but your fish wouldn't last long in it...

pH Level

pH is a measure of how acidic or alkaline your water is. pH 7 is neutral (where most tropical fish thrive), pH 6 is slightly acidic (ideal for most South American fish) and pH 7.2 is slightly alkaline (ideal for guppies, platies and mollies). African Rift Valley cichlids prefer a pH of 7.5-8.5 which is very alkaline. Our local Harrogate tap water is soft as it doesn't have many minerals dissolved in it. Although it comes out of the tap at pH 7, the pH can drop rapidly as minerals are used up by plants and the the biological processes in the tank. Find out what pH the species of fish you are keeping prefer and adjust your water to suit them.

If your pH is too low and needs to increase, use a "pH up" buffer. You can also use certain rocks and gravels (any containing limestone or calcium carbonate) to naturally buffer the pH but this isn't always the most accurate approach and can actually send the pH too high!

If your pH is already too alkaline, chances are you have the wrong gravel/rocks in your tank causing the increase. Try removing them and add a "pH down" product.

Test your pH regularly—it can change on a weekly basis or even overnight! If your pH is wrong, remember to correct it gradually over a couple of days as a sudden change back to the ideal level can shock and harm your fish.

*If you have tried to raise your pH and it keeps dropping to the wrong level, it may be that your KH level also needs adjusting— see the KH section for more info.

Ammonia (NH_3) + Ammonium (NH_4^+)

Ammonia is a natural product of fish waste and decomposing organic matter e.g. decaying plants or uneaten fish food. In a mature system, bacteria in the water constantly convert the ammonia to nitrite, ensuring levels of ammonia remain almost undetectable. Ammonia is extremely dangerous– even low levels can cause haemorrhaging (bleeding) and damage to mucous and gill membranes. The symptoms of high ammonia levels would be fish gasping at the surface, or the skin/gills appearing reddened and sore. High levels of ammonia are usually a result of adding too many fish too quickly, over-feeding or over-cleaning the aquarium. There are various ammonia-binding products available, but the first emergency step is to perform a partial water-change (about 30%) to temporarily dilute the toxic levels, then add bacteria to boost the natural ammonia-conversion process. Make sure you have plenty of fast-growing plants as a natural quick-fix.

Nitrite (NO_2^-)

No matter how good your water quality is when you start, it will deteriorate once fish are added. Fish excrete waste, plants shed leaves and particles of uneaten food decay. Fish waste and decomposing organic matter contain highly toxic ammonia, which is converted to nitrite (still dangerously toxic) by the bacteria present in the water. Bacteria in your filter then convert nitrite to nitrate, which is relatively harmless unless fish are exposed to it suddenly or on a long-term basis. Nitrate is removed by plants, regular water changes, gravel cleaning and by making sure the filter sponges are

rinsed in mature water taken from the tank at least once a month.
Don't ever wash the sponges under a tap, or the chlorine in tap water will kill the bacteria and cause a massive ammonia and nitrite spike while the bacteria re-colonise the sponges. Nitrite spikes are usually caused by introducing too many fish too quickly, over feeding or over-zealous cleaning of the filter sponges. High nitrite levels cause severe health problems in your tank. Fish will gasp at the surface and appear to be suffocating– this is often mistaken for lack of oxygen but is actually because nitrite bonds to haemoglobin in the blood, meaning the blood can't transport oxygen around the body. If levels are high, do a partial water change (usually no more than 30% of the aquarium volume) to dilute the high levels and make the environment instantly more comfortable for your fish, then add live filter bacteria to kick-start the process of converting nitrite safely to nitrate.
Adding Polyfilter is also advisable to absorb any excess organic waste, and using an ammonia-binding product can give the bacteria a head start to clear the backlog.

KH (Carbonate Hardness)

The KH (Carbonate Hardness) is a measure of how many carbonate/bicarbonate ions are present in the water. The KH level goes hand-in-hand with the pH: if the KH level is high (plenty of carbonate ions) then the water is hard and pH is alkaline. If the KH is low (fewer carbonate ions) then the water is soft and acidic. Plants, fish and invertebrates (shrimp & snails etc) need minerals like carbonate ions to remain healthy. Tap water contains a limited amount (especially in soft-water areas like Harrogate) so you will need to add minerals periodically to keep your plants and livestock healthy. In most tropical aquariums you should aim for a KH of 4-6° hardness (6-10° in a pond). To increase the KH, simply use a KH Buffer. Remember to adjust the KH level gradually as it will affect the pH level and changing the pH too drastically can be stressful for the fish.

Chlorine and Chloramine

Chlorine and chloramine are disinfectant chemicals added to tap water by the Yorkshire Water to kill harmful bacteria, which ensures it is safe for us to drink. Unfortunately this makes it unsuitable for adding to your fish tank as it would sterilise your beneficial filter bacteria and irritate/damage fish gills and the cells that make their protective mucus coating. Tap water also contains dissolved metals (from the time it spends in the metal pipes before it comes out of your tap) and a build-up of heavy metals can be toxic to fish if they are exposed to it long-term. To neutralise chlorine, chloramine and heavy metals simply use a water conditioner or dechlorinator. The old fashioned method of boiling water or 'standing' it over night in a bucket to allow chlorine to evaporate **does not** remove chloramine or heavy metals, only chlorine! When chloramine breaks down, it releases ammonia and chlorine, so you really don't want it in your tank!

What else?

Use a thermometer to check your heater is working correctly—sometimes a drop or spike in water temperature can cause illness or a change in behaviour. If your fish are still showing signs of distress and you've tested that your water chemistry is appropriate to the species of fish you're keeping, then it is possible that your fish are suffering from an external parasite or infection. Research the symptoms of the illness or ask our advice before you medicate: using a cocktail of 'guessed' medications can be more dangerous than the initial infection! Try not to do anything drastic (like a 50% water change) to correct a deterioration in water quality—plunging your fish into 'perfect' water when they've been used to poor quality water can be fatal. If you are using medications, make sure you use the right dose for your aquarium volume, for the right length of time. Check your filter is working properly, as dissolving medications in the water reduces the amount of dissolved oxygen. You can always add an air pump to increase the oxygen levels for a few days and make it easier for your fish to breathe while they're not feeling 100%.