

Zebrafish behaviour and welfare posters

Supporting evidence and references

Poster 1 - Natural environment

- Wild zebrafish are found in habitats with a variety of vegetation, substrates and water flow rates¹⁻⁴

Poster 2 - Plants

- Plants are preferred to a barren tank^{5,6}
- Environments containing artificial plants may contribute to lower anxiety^{7,8}, reduced stress response⁹, social cohesion¹⁰, learning and memory^{11,12}, larger brain size⁷, improved fertility and fecundity¹³, prevent oxidative stress⁹, and improve ability to cope with pain⁸
- Care should be taken as plants may affect aggressive behaviour¹⁴⁻¹⁷

Poster 3 - Substrate

- Gravel, sand, or even an image of gravel is preferred to a barren tank⁵
- Environments containing substrate may contribute to lower anxiety¹⁸, reduced stress response^{9,19}, larger brain size⁷, improved larvae survival¹⁸, prevent oxidative stress²⁰ and improve ability to cope with pain⁸

Poster 4 - Shelter and structure

- Tanks with shelter and structure are preferred to barren tanks^{5,6}
- Structured environments may contribute to lower anxiety, reduced stress response, increased exploration, improved learning, larger brain size and improve ability to cope with pain^{7-9,19}

Poster 5 - Live food

- Live food likely provides short-term enrichment by stimulating natural predatory behaviour²¹
- NB: organisms fed to zebrafish, such as rotifers or *Artemia* nauplii, are not considered to be sentient

Poster 6 - Social housing

- Group housing is preferred²²⁻²⁴, and contributes to lower anxiety and faster recovery from stress^{22,25,26}
- More information is needed on preferred group sizes
- Aggression may be high in small groups of zebrafish (<6 individuals) so caution should be exercised and animals carefully monitored²⁷
- Where fish need to be housed alone or in pairs, using clear perforated barriers to maintain visual and olfactory contact and providing other enrichment such as plants, can help reduce stress^{19,22,28}

See next page for full references

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