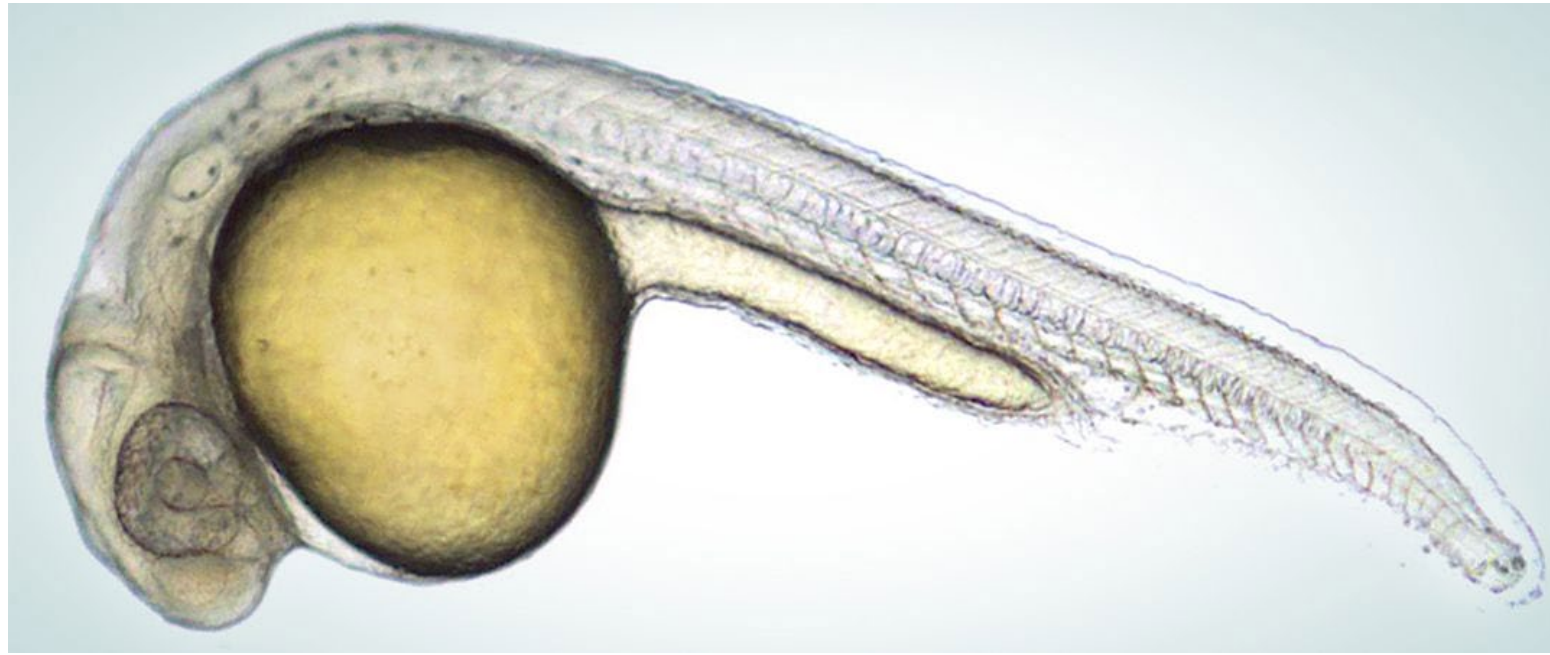


How does Alcohol Affect the growth of a zebrafish embryo?

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Abstract: The purpose of this research is to see how dangerous alcohol is to humans. We can find this out by using zebrafish and observing how alcohol changes how they behave. In our experiment when zebrafish embryos were not exposed to alcohol 64% of zebrafish embryos survived. When there were 300mm of alcohol in their environment 0 zebrafish survived.

Materials and Methods: In the experiment we made stock solutions using 30, 100, and 300 mM of Ethanol and mixed it with instant ocean/embryo media solution. Then using each solutions we filled the wells on a plate and labeled each solution with a control of instant ocean. Then we made sure there were at least 10 embryos in each well and discarded the dead embryos. Then we placed the plate in an incubator at 28.5°C. We left it overnight then observed and recorded the embryos the next day. After observing the embryos we replaced the old solutions with new solutions. We repeated this process over the 5 days of our experiment.

Introduction: Alcohol causes harm to humans and causes health problems like high blood pressure, heart disease, strokes, liver disease, and cancer. Alcohol can also affect humans reaction time and how they react to their surroundings. Humans are far stronger than zebrafish and just imagine what alcohol would do to fish if it can cause harm to humans. This will cause these zebrafish to slow down their birth and may even kill them.

Percentage of zebrafish embryos alive after 96 hours					
Hours	0	24	48	72	96
Solution					
300mm	100	61	56	50	0
100mm	100	62	58	48	40
30mm	100	59	50	6	5
Control	100	7	6	5	5

Results: We set up our experiment up by putting a control of just water in and then 3 other slots with alcohol. The first slot was 300mm of alcohol the second slot was 100mm of alcohol and the last slot was 30mm of alcohol and then the other one was the control with just water. The data shows that zebrafish embryos were affected by alcohol. It affected their growth and the amount alive in each solution. We started off with 18 embryos in the 300 mM solution, 15 in the 100 mM solution, 12 in the 30 mM solution and 11 in the control. After 72 hours in the 300mm the embryos all died and had a 0% survival rate. In the 100mm of alcohol we started with 15 fish and over 72 hours there were 8 dead. So this is a 46% success rate. In the 30mm alcohol we started with 12 zebrafish embryos and 6 died so 50% survived. For the control we started with 8 zebrafish embryos and 3 of them died. So this is a 62.5% success rate

<https://www.bbc.com/news/health-15114325#:~:text=Why%20alcohol%20has%20this%20negative,been%20shown%20to%20damage%20DNA.>
<https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm>
<https://www.healthline.com/nutrition/alcohol-good-or-bad>

Discussion: Some big things that needs to be kept in mind is that the data was significant. The original scientists hypothesis was correct. This hypothesis of that the alcohol will slow down the development showed in the data. This could have happened because of what is in alcohol like acetaldehyde. Axetaldehpe slows down the brain in a human. This could explain why the zebrafish died more and had slower developement in the higher concentrated alcohol.