



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Malak J. Alamad</b>	<b>Project Number</b> <b>J1101</b>
<b>Project Title</b> <b>Stop! Don't Drink Cold Water with Your Meal!</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of the study was to find out whether drinking cold water with a meal is harmful to your health. <b>Methods/Materials</b> My experiments were the following: The first experiment included a simulation of how fat is emulsified (dissolved) in the intestines. To simulate bile or gall, I used table salt. I put a half a teaspoon of butter in each tube, and a half tea spoon of salt. I added hot water to one, and cold water to the other. After shaking them vigorously, the one with hot water emulsified, and became homogeneous. The one with cold water left the butter as it was. Second,I got two clear tubes, one inch in diameter, to simulate the small intestines. I cut them from the front with a cutter, and put adhesive felt on the inside to simulate villi. I spread them with butter, and sprinkled salt. I passed hot water through one, and cold water through the other, as if they were the intestines. Again, the one with hot water left little butter clinging to the sides, the one with cold water left the butter as it was. <b>Results</b> When you drink cold water during or right after your meal, it causes the fat to solidify, which delays the process of its emulsification. This causes the fat to cling between the villi. The villi absorb the nutrients from the intestines. When they are covered with solidified fat, it prevents them from absorbing other very important nutrients, which end up leaving the body without absorption. <b>Conclusions/Discussion</b> Drinking cold water with your meal is harmful for your health. It delays the process of emulsification of fat because it solidifies it. This causes the fat to cling to the villi for a longer time, which prevents other important nutrients from being absorbed. Some of the fat gets directly absorbed into the blood stream from the villi. When the fat clings for a longer period of time, more fat gets absorbed into the blood stream. Over time, fat builds up inside the arteries, which causes high blood pressure. This puts a person at a higher risk for a heart attack. Discussion: Avoid drinking cold water with or right after your meal! Other cold drinks are just as harmful. Diet sodas have been linked to cancer, and regular sodas and juices contain high fructose corn syrup, which has been linked to type 2 diabetes. The best thing to drink is hot green tea during your meal like the Chinese, or a hot cup of tea after your meal, like people from the Middle East.	
<b>Summary Statement</b> My project is about healthy eating practices.	
<b>Help Received</b> My mother helped with cutting the plastic tubes.	