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For Rats Only?

A recent bill that public health authorities are calling "the most impressive gains in school nutrition since school lunch was introduced after World War II" was approved by the California Assembly and Senate. This legislation to ban soda and junk foods from schools is believed to easily pass. "'Elected officials are supporting parents in protecting their children from the unrestrained marketing and ever-present availability of soda and junk food,' says Dr. Harold Goldstein, director of the California Center for Public Health Advocacy. 'California [schools] can no longer be soda and junk-food superstores.'"[1]

Unfortunately, junk food is not the only commodity in which teenagers are a leading consumer group. Alcohol is another. According to surveys, "almost 80 percent of adolescents have consumed alcohol by the time they are 12th-graders, and that about 12 percent of 8th-graders have consumed five or more drinks on a single occasion within the past two weeks." The conclusion was that, "Much remains to be done to get those numbers moving down . . ." says Dr. Faden. "We need to re-examine the approaches we have taken to prevent underage drinking."[2]

Could there be a connection between these two issues? That's what researchers asked a few decades ago. These researchers were not studying teenagers however. They were looking at rats.

In this study, rats were fed a variety of diets to ascertain if certain foods generated a thirst for alcohol. Years before studies had shown "that purified diets, deficient in nutrients, were capable of inducing animals to drink relatively large amounts of alcohol."[3] But how would ordinary human diets influence alcohol intake, especially in young, growing animals? This time 'teenage' food would be given such as doughnuts, hot dogs, soda pop, candy bars, spaghetti and meatballs, garlic bread, sweet rolls, etc. "Moist ingredients were freeze-dried and homogeneously mixed."[4] The researchers compared a teenage-type diet with and without sources of caffeine and spices, and a control diet containing adequate levels of all nutrients, composed of vegetables, fruits, legumes, nuts, wheat flour, sugar and whole milk powder.

In Experiment 1, a group of eight animals were fed the teenage diet, with the addition of coffee and spices. Both an alcohol solution and water were available for them to choose from. After the fifth week they were then given the healthier control diet for four weeks. While drinking was high throughout the first five weeks, alcohol consumption plummeted when the animals were given the control diet. Minimal alcohol intake continued until the balanced diet was replaced by the teenage diet after the ninth week. "At that time, the animals reverted to a higher alcohol consumption."[5]

In Experiment 2, each group of animals was fed one of six test diets. At the end of six weeks, when new drinking patterns had been established, the diet was changed for an additional six weeks. The results on a graph reveal the striking contrast between the groups who ate the control diet and ingested negligible amounts of alcohol with those on the teenage diet who drank copiously. The highest drinkers of all were those who ingested the marginal teenage diet with the addition of spices and coffee. Caffeine was found to be the major active principle in coffee's relation to increased alcohol consumption.

Those who consumed the teenage diet minus the coffee and spices did drink more than the control diet, but considerably less than those who consumed coffee and spices. While they drank less, their intake of alcohol steadily increased with the lapse of time- "a progressive preference" continued throughout the study. For the duration of the experimental period their diet was never altered.

At the end of week six, the group on the teenage diet with spices and coffee included were given the control diet. As a result, their alcohol intake nose-dived. While the alcohol was still an option, they chose for the most part not to partake.

Adding vitamins and minerals to the caffeinated teenage diet also reduced alcohol intake, but not to the same extent as the control diet.

"High drinkers became relative non-drinkers when changed from a marginal to an adequate diet. A subsequent switch from the adequate to the marginal diet resulted in reversion to the high intake of alcohol. The data suggest the possibility of some metabolic control mechanism which is sensitive to dietary factors and which controls the 'biologic thirst' of animals to drink alcohol."[6]

The group of health professionals from the Departments of Nutrition and Biochemistry, Schools of Health and Medicine, at Loma Linda University observed that the rats drank about five times more alcohol when fed a typical teenage diet including coffee and spices, than the group of rats on the control human diet.

While this research was conducted over 30 years ago it is no less pertinent today. Previous to any lab evidence these statements were made decades before. "Tea, coffee, and tobacco are artificial stimulants, and their use creates the demand for the stronger stimulus found in alcoholic beverages."[7] This was undoubtedly true in the experiment with rats.

"Those who accustom themselves to a rich, stimulating diet, find after a time that the stomach is not satisfied with simple food. It demands that which is more and more highly seasoned, pungent, and stimulating. . . . A thirst is created that nothing but strong drink will quench. . . . Let the student be taught the value of a simple, healthful diet in preventing the desire for unnatural stimulants."[8] A measurable statistical significance between what was eaten and the inclination to drink alcohol was also observed with rats.

"Great efforts are made to put down intemperance; but there is much effort that is not directed to the right point. The advocates of temperance reform should be awake to the evils resulting from the use of unwholesome food, condiments, tea, and coffee. We bid all temperance workers Godspeed; but we invite them to look more deeply into the cause of the evil they war against, and to be sure that they are consistent in reform."[9]

"In order to reach the root of intemperance we must go deeper than the use of alcohol or tobacco. Idleness, lack of aim, or evil associations, may be the predisposing cause. Often it is found at the home table, in families that account themselves strictly temperate. . . . The downfall of many a promising youth might be traced to unnatural appetites created by an unwholesome diet."[10]

Choosing to drink alcohol is based on a variety of issues. But are the implications of these studies valuable for rats only? I don't think so.

1 Wood, Daniel B., "California says no to junk-food sales in schools." <http://www.csmonitor.com/2005/0906/p02s01-uspo.html#ads>
2 "Youth Alcohol consumption remains high." <http://alcoholism.about.com/od/tipsforparents/a/blacer040914.htm>
3 Register, U.D., Marsh, S.R., Thurston, C.E., Fields, B.J., Horning, M.C., Hardinge, M.G., Sanchez, A., "Influence of nutrients on intake of alcohol." *Journal of The Dietetic Association*, Vol. 61, August, 1972:159-162.
4 ibid.
5 ibid.
6 ibid.
7 White, Ellen G., *Temperance*, p. 228-229.
8 White, Ellen G., *Education*, p. 203.
9 White, Ellen G., *Counsels on Diets and Foods*, p. 429.
10 White, Ellen G., *Education*, p. 202-203.

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