

Alcohol and birth defects

Since the thalidomide tragedy of a few years ago, more and more drugs taken during pregnancy appear capable of triggering birth defects in offspring, even if taken in relatively modest amounts. A widely used drug—alcohol—is being indicted in two studies reported at a recent workshop in fetal alcoholism, sponsored by the National Institute of Alcohol Abuse and Alcoholism in San Diego.

In one study, Eileen Oulette of Harvard Medical School examined babies delivered to 322 women, some of whom had drunk 10 ounces of alcohol or more daily during pregnancy and some of whom had drunk less or none at all. Seventy-four percent of the babies born to women who drank 10 ounces or more daily during pregnancy suffered a small head size or other abnormalities associated with the fetal alcohol syndrome, compared with some 35 percent of the babies born to women who drank less than 10 ounces daily or none at all.

In the other, perhaps even more disturbing study, James Hanson and co-workers at the University of Washington in Seattle studied the offspring of 74 women who drank two ounces of alcohol daily during pregnancy and of 90 women who drank less than that amount or none at all. Nine of the offspring of the women drinking 2 ounces daily, or 12 percent, were born with a small head or body size, tremors, jitteriness, small openings between the eyelids or other abnormalities associated with the fetal alcohol syndrome. In contrast, only two babies with these defects were born to the women who drank less than 2 ounces of alcohol daily during pregnancy or none at all.

So precisely what are the risks of drinking alcohol during pregnancy? Hanson estimates that if a woman consumes below 2 ounces of 100-proof whiskey a day during pregnancy, her chances of triggering birth defects in her child are low. If she drinks between 2 and 4 ounces a day, the risks are 10 percent, and if she drinks 10 ounces or more a day, the danger could approach 50 percent or even higher.

Sex-linked proteins

Proteins that are present in the blood of one sex but not in that of the other have been identified in a number of species, including mammals. A new sex-linked protein has now been found, in large amounts, in the blood of female hamsters, but not in the blood of male hamsters. This is reported by J.E. Coe of the Rocky Mountain Laboratory in Hamilton, Mont., in the February PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES.

This protein appears to be under sex hormone control because it appeared in the blood of male hamsters after they had been castrated. The purpose of the protein is unknown.

How smoking triggers heart attacks

Although cigarette smoking has long been associated with an increased risk of heart attacks, the pathways by which smoking might trigger an attack have not been fully worked out. Now it appears that one crucial pathway may be stimulation of sympathetic nerves.

Since past experiments had shown that sympathetic nerve stimulation facilitates heart attacks in animals, Philip E. Cryer and his colleagues at Washington University School of Medicine used drugs to block sympathetic nerve action in both smoking and nonsmoking human volunteers. The usual effects of such nerve blockage occurred in the nonsmokers but *not* in the smokers. Cryer and his co-workers conclude that smoking stimulates the sympathetic nerves and that such stimulation might help set the stage for a heart attack.

Satisfaction

Seldom can science touch directly some of the most important areas of human life, including love, happiness and satisfaction. These experiences are hard to measure, harder still to predict, and impossible to command. If any scientific investigation might hope to offer some insight into these intangible variables, it would be the Terman study of gifted individuals, at Stanford University—one of the longest-running experiments in history.

In the February AMERICAN PSYCHOLOGIST, results of the 50-year follow-up survey of men in this group include analysis of what has given these exceptional people most satisfaction in life. Now in their early 60s, the men have reached the peak of their careers and include some of the country's leading scientists, educators and corporation presidents. They were selected for their performance on intelligence tests given by Lewis M. Terman in 1922. (The average IQ was 152, slightly above "genius" level; Terman died in 1956.)

The Stanford researchers who have continued Terman's work were surprised to find that although the men surveyed were generally very ambitious and successful in their careers, family life was cited as the greatest source of their satisfaction. "There is a widespread belief that middle-class males are obsessed with their work and get most of their life's satisfaction from it," says Stanford psychologist Robert Sears. "Certainly this group of sixtyish men found it important, but satisfaction from family life slightly surpassed it."

The key to this satisfaction was apparently good mental health and social adjustment earlier in life. Some 71 percent of the group had had unbroken marriages. Those that had resolved childhood conflicts by middle age generally went on to continue happy marriages. Those who retained the conflicts were most often divorced. The few who committed suicide had apparently failed to establish such satisfying support from family and the outside world.

Satisfaction in their careers, Sears says, is also apparently related to personality factors: "An optimism about life, an enjoyment of the occupational combat, and a feeling of self-worth," beginning early in life. Those who continued to work reported themselves as having higher vitality than did those who had already retired. Interestingly enough, income level seemed unimportant as a predictor of satisfaction.

Excellence in interdisciplinary research

A creative and capable scientist who feels he has something to offer society outside his proclaimed scientific specialty often runs into problems. The reward systems of science are set up to honor those who contribute original increments to knowledge, no matter how narrow the specialty, at the expense of generalists who communicate or synthesize existing knowledge that may offer hope for solving important human problems.

The important unresolved issue, says Stephen H. Schneider of the National Center for Atmospheric Research, is how to determine a proper balance of effort, "not merely to address the irrelevant question of whether disciplinary research is intrinsically 'superior' or 'inferior' to interdisciplinary work." Schneider organized a symposium on "Can research institutions accommodate interdisciplinary researchers?" at the AAAS meeting in Denver. He notes that excellence in single-discipline research is measured in terms of originality. But originality, he says, is not the main need in interdisciplinary research. Schneider proposes three criteria for interdisciplinary excellence: 1) scientific accuracy, 2) clarity of communications across different scientific fields and 3) using and synthesizing existing knowledge from many fields to help solve a problem or advance knowledge about a new issue.