BEHAVIOR

'Mr. Coffee'? It ain't Joe DiMaggio

Silver Lining Dept: Those who grumble about having to cut back on coffee because of the skyrocketing prices might now be advised to view the situation as a blessing in disguise, according to the results of a recent survey by the University of Michigan Medical School and the Veterans Administration Hospital in Ann Arbor.

The researchers have determined—after administering a wide-ranging battery of symptom tests and questionnaires to 100 "representative" volunteers—that "caffeinism" does exist, and apparently carries with it a host of unsavory side effects and predispositions.

Persons tested who consumed more than 750 milligrams of caffeine—as compared to lighter consumers—were "much more frequently: female; inactive in religion; less educated; smokers; alcoholics, and depressed. They were also more likely to have a history of psychiatric treatment, according to the survey. The most commonly reported physical symptoms of caffeinism were urination, anxiety and dizziness.

"Perhaps most intriguing," suggest the researchers—headed by University of Michigan psychiatrist John F. Greden—is that "78 per cent of the heaviest caffeine consumers were depressed on the Beck [depression] Scale but had never been treated with antidepressants. One-third of those depressed high-caffeine consumers observed, however, that coffee or tea made them feel *less* depressed."

The group suggests that now that a clinical profile of the caffeine abuser has been formulated, physicians might use the informaton to diagnose and treat the condition. They conclude that "the ramifications of this possible pattern of self-medication and a variety of other findings . . . [point to] a sound pharmacological theory which would predict the syndrome of caffeinism." Also participating in the study were Patricia Fontaine and Martin Lubetsky of the university's medical school and Kenneth Chamberlain of the VA Hospital's psychiatry department.

'Quiet room' can be disturbing

Many hospitals for emotionally disturbed and retarded individuals are equipped with a "quiet room" for hard-to-handle patients. The quiet room is almost invariably a dingy, locked cell where the person is placed as a punishment for acting out. Poor supervision and an extra dose of tranquilizing drugs sometimes accompany the patient on a visit to the room.

Very few people have stopped to examine just what kind of effect such solitary confinement—even for short intervals—has on a patient. Now, however, two New York Hospital psychiatrists report on a one-year study of secluded patients at that institution.

Marlin R. Mattson and Michael H. Sacks found that 7.4 percent of all psychiatric admissions required trips to the seclusion room. The psychiatrists report that nearly 40 percent of those individuals, once in seclusion, suffered complications such as assaultive and self-destructive behavior and mental and physical deterioration. Secluded patients also were hospitalized longer than others—a mean stay of 49 days compared to 40 days for nonsecluded patients. The researchers found that persons diagnosed as schizophrenic and manic-depressive were placed in the quiet room more often than were those with personality disorders and depressive neuroses. Schizophrenics were the most frequently secluded group.

"Of course," say Mattson and Sacks, "assaultive or self-destructive behavior is usually what caused the need for seclusion in the first place. It is clear, however, that it [the quiet room] is not a 'cure' and staff must maintain their vigilance."

BIOMEDICINE

Ultrasound: Weapon against tumors?

Because ultrasound—high frequency sound—is used in low power densities as a diagnostic tool, it appears to be safe for this purpose (SN: 12/25/71, p. 424). With increased interest in killing tumors with heat, however, attention has been directed toward using ultrasound to achieve tumor heating. For instance, Gloria C. Li and George M. Hahn of Stanford University School of Medicine and Leonard J. Tolmach of Washington University School of Medicine used ultrasound to treat tumors in mice, and they found that it was highly effective.

But did ultrasound kill the tumors by its heating effects? Li, Hahn and Tolmach wanted to find out. So they zapped cells with ultrasound, and as they report in the May 12 NATURE, ultrasound kills not only by its heating but by the sheer intensity of sound used. In fact, survival data for the cells show clearly that small changes in temperature and sound intensity can give rise to impressive changes in cell survival. This finding suggests that ultrasound could far excel X-rays and other conventional cancer therapies in killing tumors while sparing normal tissues.

Indeed, this prediction is consistent with their earlier animal study where ultrasound killed tumors while producing little or no normal tissue damage.

Viral gene transfer to mammalian cells

Although purified cancer virus DNA can be used to make mammalian cells cancerous, neither the viral gene products responsible for cancer transformation nor their functions are well defined. Thus cancer transformation of cells is not a suitable model system for studying viral gene transfer to mammalian cells.

However, it is well established that herpes simplex viruses code for a particular enzyme—thymidine kinase—that can be transferred to different kinds of mammalian cells deficient in this enzyme by using inactivated herpes viruses or temperature-sensitive mutants of the viruses. The viral thymidine kinase can also be easily identified from the mammalian enzyme.

So Silvia Bacchetti and Frank L. Graham of McMaster University in Hamilton, Ontario, Canada, decided that thymidine kinase transfer might be a good system for studying viral gene transfer to mammalian cells. And as they report in the April PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, it looks promising. They have managed to transfer herpes virus thymidine kinase to human cells deficient in the enzyme by infecting them with purified herpes DNA.

German measles: Rising threat

When parents are negligent about having their children vaccinated against childhood infectious diseases, they are not only endangering their own children but other American children as well. A prime case is rubella (German measles). If a pregnant woman becomes infected, especially during the early months of pregnancy, the disease can seriously damage her baby.

There was an alarming increase of 69 percent in the number of rubella cases reported for the first four months of 1977 compared to the same period a year ago, according to the National Foundation-March of Dimes, threatening some five million women of childbearing age. Some 10,500 rubella cases are on record with the Center for Disease Control for the period ending April 30, 1977, compared with 6,205 cases for the same weeks in 1976, and many of this year's cases were adults and college and high school students.

Figures from the CDC also show that child vaccination against rubella dropped slightly last year below 1975 levels and that some 7.5 million children are presently unvaccinated.