

# BEHAVIOR

## Genes and brains: A link

Are some people born smarter than others? Do genes influence intelligence? Some say these questions can never be answered, because there are too many confounding variables and unanswered questions such as what IQ really is, whether it can be accurately measured and what influence environmental and social factors have on the expression of genes in regard to mental abilities. Despite the elusiveness of the target, researchers keep shooting at it. The most recent volley was fired in the May 29 *SCIENCE* by Thomas J. Bouchard Jr. and Matthew McGue of the University of Minnesota at Minneapolis. They report that the evidence supporting "the inference of partial genetic determination for IQ is indisputable."

The researchers base their conclusions on a comprehensive contemporary summary of the world literature on IQ correlations between relatives. In all, 111 studies, which met "explicit selection criteria," yielded 525 familial correlations, based on 113,942 pairings. In general, say researchers, the pattern of average correlations is remarkably consistent with the pattern of correlations predicted on the basis of polygenetic inheritance. That is, the higher the proportion of genes two family members have in common, the higher the average correlation between their IQs. The highest correlations, for example, were found in monozygotic twins reared together.

Even though the data reviewed do point out the importance of environmental influences (monozygotic twins reared apart, for example, are far from perfectly correlated) the researchers conclude that the data offer strong evidence for some genetic determination of IQ. "That these data are informative about the precise strength of this effect," they say, "is dubious."

## Booze and biochemistry: A test

The pubs are abuzz from Thursday through Sunday, traditionally the heavy-drinking days in Ireland—the country with the highest level of personal expenditure devoted to alcohol. Predictably, Irish drinking habits lead to a high rate of hospitalization for alcoholism but, surprisingly, they do not lead to a high rate of deaths from cirrhosis of the liver (perhaps because a three-day alcohol-free period has a liver-sparing effect). Despite the low reported death rates from cirrhosis, many hospitalized Irish alcoholics do have biochemical abnormalities, and researchers hope to make use of the presence of these abnormalities in developing a quick and easy test for alcoholism. Donald J. Draper of St. Patric's Hospital in Dublin, for example, screened 352 patients admitted for alcoholism. In New Orleans at the recent meeting of the American Psychiatric Association he reported raised values in alcoholics on at least one of four biochemical parameters.

Researchers in this country may be even closer to a "biochemical definition of alcoholism." A combination of 25 laboratory tests was used successfully to differentiate between alcoholic and nonalcoholic inpatients, report Ralph S. Ryback and Michael J. Eckardt of the National Institute on Alcohol Abuse and Alcoholism and Robert R. Rawlings of the Alcohol, Drug Abuse and Mental Health Administration. At a press conference in Washington they said their research has determined that a battery of 25 routinely requested clinical laboratory tests can differentiate alcoholics from nonalcoholics. Their approach, which involves analyzing the interrelationships among the tests, proved to be 100 percent successful in identifying nonalcoholics and 86 percent successful in identifying alcoholics. It is the pattern of blood chemistry, say the researchers, not any single chemical in the blood, that identifies the alcoholic individual. This approach, they say, may lead to development of an inexpensive and easy to use diagnostic tool for alcoholism.

# BIOMEDICINE

## Filtering rheumatoid out of the blood

Filtering and cleansing the blood to treat disease has been used on everything from kidney failure to sickle cell anemia (SN: 9/23/78, p. 214) to schizophrenia (SN: 5/24/80, p. 330), with widely disparate results. Apheresis, a procedure similar to dialysis, is in wide use as a treatment for arthritis, although it is highly experimental, potentially dangerous and extremely expensive. In a session on experimental therapies at the national Arthritis Foundation meeting in Boston last week, Daniel J. Wallace of Cedars-Sinai Medical Center in Los Angeles reviewed results of a small, double-blind, controlled trial he and his colleagues performed as part of an ongoing study of the procedure.

The trial included 10 patients with rheumatoid arthritis so severe that conventional drug therapy was ineffective. Five patients received apheresis nine times in three weeks; the other five received a "sham" treatment. The group treated with apheresis showed substantial improvement, as did the other group when they, too, subsequently received the treatment. Patients were continued on their prior medications during the study, and the drugs' effectiveness seemed to be improved.

Wallace stressed that the findings are "very preliminary," adding that "we still do not know precisely what we are removing which leads to improvement." He also offered caveats about the circumstances under which apheresis is performed, saying it should take place only in hospital-based controlled studies on patients with chronic progressive disease who are closely monitored. The Arthritis Foundation echoed this note of caution in a position statement regarding the treatment.

## Pregnancy protein prevents rheumatoid

Three-fourths of young women with rheumatoid arthritis experience a remission from it while they are pregnant, suggesting that something is produced in their bodies during pregnancy to counter the disease. This "something" may now have been found by Robert H. Persellin of the University of Texas Health Science Center in San Antonio and his colleagues.

As they reported last week at the Arthritis Foundation meeting, the material is a protein called "PAG." It was found to be in high concentration in the blood of rheumatoid patients while they were pregnant and then to have disappeared from the patients' blood after they gave birth, at which time their rheumatoid returned. The researchers hope that PAG may eventually be harnessed as a treatment for rheumatoid.

## Muscular dystrophy and hormone lack

The muscular dystrophies are inherited diseases characterized by progressive weakness and degeneration of muscle fibers. The physiological causes, as expressed by abnormal genes, are not known. The limb-girdle version starts in adolescence and the myotonic type can occur at any age.

Now victims of these two forms have been found to have abnormally low levels of the pituitary hormone called growth hormone and of its target hormone in the body, somatomedin, reported Daniel Rudman and Alexander Fleming of Emory University School of Medicine in Atlanta at the recent meeting in San Francisco of the American Federation for Clinical Research.

Growth hormone and somatomedin can be restored to normal levels in such patients, Rudman says, "but whether this will do anything to reverse the muscular dystrophy process, we don't know," because lowered levels of growth hormone and somatomedin are probably not the sole physiological factors. However, some patients with these diseases have gotten growth hormone injections, Rudman points out, and reported subjective muscle improvement.