• Some youngsters doing poorly in school (primarily because of learning disability problems) make a crucial switch in peer groups and begin to associate with other children who are also doing poorly. "We think this is a powerful predictor," Berman says.

• Delinquency-prone children show significant deficiencies on the Halstead-Reitan battery in the trailmaking test (connecting dots between letter and number sequences), tactile performance and the speech sounds perception test. "Auditory problems affect language development and understanding," Berman says. "This is often misperceived as the child not wanting to pay attention, which leads to hassles at school."

• While tending to perform normally on the language and reasoning portions of the Wechsler intelligence scale, delinquent youngsters do considerably more poorly on the perceptual and hand-eye coordination aspects.

• Nondelinquents tended to have "attentive, supportive" families. Even control group youngsters who had similar learning disabilities — and who came from similar socio-economic conditions — seemed to avoid adolescent problems because of their family support.

Overall, the three factors that Berman terms "killers" in determining potential delinquency are: the existence of a learning disability; the failure of parents and school testers to detect the deficiency; and a nonsupportive family. Berman places the brunt of the blame in many cases on school psychologists. "Many psychologists are not adequately trained diagnostically," he says. "They wouldn't know a neuropsychological pattern if they saw it. The disabilities are subtle in some cases, but not so subtle in others. We need much more thoroughly trained people doing diagnostic work."

But should even trained personnel make and act on predictions of potential violence? Singling out certain persons — youngsters or adults — as potential troublemakers is a risky business, both ethically and scientifically, Berman concedes. He points to the earlier, controversial research of Vernon Mark and Frank Ervin which argued that some individuals have "deficient" brain mechanisms that predispose them to violence. After suggesting that brain operations might be appropriate for some of those persons, Mark and Ervin met with a huge public outcry against their work and subsequently withdrew from that field of research.

Although Berman's proposals advocate no surgical or drug intervention, he admits to feeling "uncomfortable with this research" for two reasons: Some observers argue that his prediction capabilities fall short of being foolproof — and he therefore has no ethical right to intervene with youngsters of basically normal intelligence; and if he did intervene with the children in his study at this point, it would not allow him to follow those he predicts will be delinquents to their point of delinquency. And by then, as he admits, it may be too late for successful intervention.

If the disabilities are spotted early enough — and Berman believes that is now possible — special academic programs in most cases will be able to "nip the process" of delinquency. And even if the problems are identified after third grade level, the psychologist says many such children can be helped before serious antisocial behavior sets in. Drug therapy would be warranted only to correct "documented seizure activity," of which Berman saw little in his study.

"All I'm really saying is ... at least consider the possibility that neuropsychological aspects are involved as primary causative factors" in delinquency. "Too many young people's lives," he concludes, "are being wasted while we wait for elegant theories.... Reality demands that we move quickly and effectively into alternate programs since most currently existing programs are not working." □

Jensen: Intelligence a 'biological rhythm'

Few issues in science stir up as much emotional debate as the question of the origins of intelligence. And for the past decade, one of the chief pot-boilers has ben University of California psychologist Arthur R. Jensen. In 1969, Jensen set off a major spark by arguing that genetic factors are significantly more important than environmental ones in determining a person's IQ — a theory that drew the ire of blacks and other minorities. Things simmered somewhat last year when Jensen studied rural Southern blacks and acknowledged that in some cases IQ does have a definite environmental factor (SN: 6/18/77, p. 390).

Now, Jensen has added another ingredient that seems sure to get things bubbling again. It involves "g" — a somewhat pervasive factor of general intelligence measured by administering a conglomeration of various intelligence tests. Like IQ, the question of whether g is primarily inborn or acquired has been subject to much theoretical argument.

In his latest study — presented at the APA meeting — Jensen reports that g (and IQ) has a definite "biological basis." "I would certainly argue that," he told SCIENCE NEWS. "I think there is a genetic basis — it would be impossible to argue otherwise."

The cornerstone of his latest work involves reaction time (RT), as measured on a rather simplistic panel consisting of sets of one to eight green jewelled lights. RT is measured by how long it takes a person to lift his finger off a central pushbutton and move it to the button under the light that has just flashed on. The task, measured in milliseconds, is so simple that the person's reaction occurs faster than the speed of conscious awareness.

This establishes reaction time as a measure independent of other intelligence tests — a critical characteristic because of Jensen's results: He found that reaction times of the more than 400 subjects correlated "across the board" with their performances on a variety of verbal and nonverbal intelligence measures.

"This shows that mental ability measured by standard intelligence tests is getting at something much more basic than skills acquired at school or home, or than specific knowledge," he suggests. The psychologist administered RT tests to each person for one-half hour a day for a month. The subjects included university, vocational college, sixth and ninth grade and retarded students.

In each group, the more lights appearing on a panel the slower the reaction time. (For example, times were fastest when the person knew only one light would flash, and were slowest when one of eight was about to flash.) According to his results, the *amount* of individual slowing time is related to intelligence.

Jensen hypothesizes a noncognitive mechanism for superior reaction times, and, in turn, intelligence: Each person has his or her own "rhythm" of oscillation within and between nerve cells in the brain. The faster the neural rhythm, the more chances for the "switched on" cells to relay information and the greater the intelligence, according to the hypothesis.

Jensen did find a "large significant difference" between the reaction times, as well as the intelligence measures, of university students and vocational college students; and as one might expect, the retarded persons scored quite a bit lower than the rest of the subjects.

Although he found no sex differences in performance, Jensen says he did detect "black-white difference at the junior college level," with blacks exhibiting somewhat slower reaction times (not enough black students participated at the university level to draw any such conclusion there, he says). This may seem surprising considering the "popular misconception" that blacks, particularly athletes, seem to have quicker reactions than whites, he says. But Jensen says his test measures a "different range [of quickness] than that involved in athletic skills." Muhammad Ali was given a similar reaction time test by another researcher and "came out just average," Jensen says. He emphasizes, however, that these results do "not at all" alter his previous conclusions that environment contributes to intelligence at some level. "I'm not putting any stress on the racial aspects," he says of his latest research. "That would be kind of a red herring and detract from the use of reaction time" as an indicator of intelligence. □