

Summary

One way to utilize test scores in behavioral toxicology more efficiently could be to avoid mean scores based on several separable mental processes. In this section Lezak discusses such improvements in the test procedures currently in use, especially with reference to the damage frequently associated with long-term solvent exposure. She also stresses performance deficits rarely investigated in behavioral toxicology, namely, impairment of executive functions, which may be more apparent and important in the individual's activities of daily life than the effects measured with traditional tests. Malfunctioning executive capacities may not only affect the individual's ability to plan and carry out plans effectively, but also the capacity to cope with stress and strain and also social capacity. Many of the patients attending occupational health clinics complain of impairment in such functions.

In his discussion of the Halstead-Reitan battery Bergman emphasizes certain criteria required for a good test battery. The value of the Halstead-Reitan battery has been shown in clinical trials. In Sweden it has been used with large groups of alcoholic patients in combination with computer tomography of the brain. Except for alcoholics of long standing, however, the correlation between morphological and neuropsychological effects is modest.

The findings for chronic alcoholics highlight the validity problems connected with present testing procedures, in particular the predictive validity. But also the construct validity, ie, the degree to which the test measures the constructs it was designed to measure, is difficult to establish. Apparently the problem of construct validity demands that a theory or a model of the mental processes involved be established. Unfortunately most performance tests lack such a theoretical basis. A model of the mechanisms behind functional decrements was proposed by Luria, as described in this section by Christensen, and the performance measurements emanating from this model have proved to be sensitive. To be applicable in behavioral toxicology, however, they may require further standardization.