Defining self-injurious behavior (SIB) presents some difficulties. It has been broadly defined as behavior that produces injury to the individual's own body (Tate & Baroff, 1966a), and thus could be seen as including suicide, self-neglect, substance abuse, malingering, and so forth—all terms that infer some intent on the part of the client. The research literature on modification of SIB, however, has settled on a narrower definition: overt acts directed toward oneself that have restricted spatial and temporal topographies, whose rate of occurrence is reliably observable, and whose consequences are actual or threatened physical damage. Even this definition is not satisfactory, though. S. R. Schroeder, Mulick, and Rojahn (1980) have pointed out that it suffers from three flaws: (1) the consequences specified by the term do not pertain functionally to the reinforcing stimuli responsible for maintaining the behaviors; (2) researchers disagree about the membership of various topographies in the response class of SIB; and (3) no single intervention strategy is indicated for the particular "class" of SIB as opposed to other behaviors.

In this chapter, we will attempt to analyze critically the research literature on SIB in pursuit of answers to these questions. A brief review of the various etiological models of SIB will be followed by a discussion of antecedent conditions and the ecology of SIB, response-contingent management techniques, evaluation of treatment effects, and, finally, programmatic considerations with SIB. In updating this chapter, we will focus on research that has been published since 1981, when the first edition of this volume was published.

**Etiological Models of SIB**

There are several excellent recent reviews of etiological models of SIB. Because Romanczyk (1986) provides a comprehensive analysis of 36 of these reviews that were published since 1971, only a summary of this work will be given here.
Studies of the etiology and pathogenesis of SIB suggest that it is not a unitary phenomenon. It is exhibited in a wide variety of behavioral topographies and environmental settings. At present, only two organic syndromes are known to have a high incidence of SIB as symptoms: Lesch–Nyhan and Cornelia de Lange syndromes. There exist several motivational conditions conductive to the development of SIB: arrested development, avoidance conditioning, stimulus discrimination for positive reward, stereotyped behavior related to arousal arising from disruption of homeostasis, and conditioned emotional responding elicited by anxiety-producing stimuli.

Medical Etiology

Lesch-Nyhan Syndrome

Physicians have developed increased interest in the physiological components of self-injurious behavior since the description of Lesch–Nyhan syndrome in 1964 (Lesch & Nyhan, 1964; Nyhan, 1967, 1968a,b). Lesch–Nyhan syndrome is a sex-linked disorder of purine metabolism in which the child demonstrates spasticity, choreoathetosis, possible mental retardation, elevated urine uric acid (the serum uric acid may also be elevated), self-mutilation, and aggressive behaviors. Mutilation, especially biting of the oral structures and fingers, is most common; this mutilation does cause pain, and the child may welcome restraints to prevent further injury. Patients can cause such severe self-mutilation that the mouth orifice is totally deformed or the fingers are lost.

The self-mutilation appears to be, at least in part, under voluntary control and may be partly related to attention-getting behaviors. However, in most cases, the patient’s self-mutilation seems to be rather compulsive and uncontrollable. In addition, patients develop other forms of self-destruction, such as sticking their fingers in the spokes of their wheelchairs or throwing themselves off furniture, and may also show aggressive behaviors toward others. These other self-destructive and aggressive behaviors seem to be less compulsive and are geared more toward attention-getting.

It should be noted that the self-mutilation occurs in patients who are of near-normal intelligence and verbally communicative as well as in those with more severe intellectual and communication handicaps (Nyhan, 1976).

Lesch–Nyhan syndrome represents the first condition with a demonstrated biochemical defect in which very specific abnormal behaviors are described. However, the exact connection between the defect and the self-mutilation is unknown. Although the serum uric acid level may be elevated, reduction of the uric acid level with Allopurinol does not alter the neurological or behavioral phenomena. In addition, a survey of serum uric acid levels in an institutionalized mentally retarded population (Brandon Training School in Vermont) resulted in no definite correlation between serum uric acid levels and self-injurious responses. Thus, the uric acid level does not seem to be the determinant of the abnormal behavior. Although it is frustrat-