

# Self-Injurious Behavior in People with Developmental Disabilities

By Renée Fucilla Ristic

Many professionals and family members of individuals with developmental disabilities regularly struggle in their attempts to understand and treat the phenomenon of self-injurious behavior (Thompson & Caruso, 2002). According to needs assessments by professionals, parents, and caregivers, self-injurious behavior is near the top of the priority list due to the serious health, social and personal consequences for those in their care (National Institutes of Health, 1991). Specifically, **Self-Injurious Behavior** (SIB) refers to “acts people direct toward themselves that result in tissue damage” (Tate & Baroff, 1966; Schroeder et al., 2002, p. 1). The most frequent forms of SIB are head banging, self-biting, and self-scratching (Rojahn, 1994). People with developmental disabilities are particularly at risk for developing SIB (Rojahn & Esbensen, 2002), although prevalence tends to vary in relation to cognitive ability, setting, and etiology (Bodfish & Lewis, 2002).

SIB in people with developmental disabilities has some common characteristics that distinguish it from other forms of SIB that occur in neurotypical individuals (Schroeder et al., 2002). These differences include a tendency toward:

- Repetitive movements of the limbs, head, trunk or other body parts that result in potential physical injury due to repetition.
- Episodes that occur in discrete bouts—many times per day of the same or similar movement.

- Distinct patterns of:
  - quick bouts that last for seconds and cease (often environmentally maintained); or,
  - longer, continuous bouts with only brief pauses (often neurochemically driven and independent of the environment).

Another difference is that the SIB of individuals with developmental disabilities may be initiated by an adverse environmental event but may continue autonomously after it has begun. Furthermore, the topography and form of self-injury differ significantly relative to the type of associated disability (Schroeder, et al., 2002).

Forty years ago, little was known about SIB. It was often considered untreatable, or treatment concentrated on temporarily reducing the behavior rather than a long-term focus on discovering and addressing its causes (Wacker et al., 1996). Since then, a great deal has been learned about its causes, prevalence and treatment, which has led to great advances in behavioral and more comprehensive approaches encompassing a broad array of relevant sciences (Schroeder et.al., 2002). Early hypotheses regarding the cause of SIB focused on a connection between homeostasis and arousal, and theorized that individuals may use SIB to block out excessive stimulation or increase arousal during periods of under-stimulation (Baumeister & Forehand, 1973).

## About the Author

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Although homeostasis and sensory functions are still likely to play a role, recent research includes numerous additional theories that focus on the learning, social, and communicative functions of SIB (Schroeder et al., 2002).

The research of Carr (1977) introduced a turning point and new direction in the treatment of SIB. Carr suggested that because SIB has multiple motives, the intervention should be individualized and match the specific function of the SIB (e.g., attention, escape, sensory stimulation, etc.). As such, functional assessment and functional analysis became essential tools for the treatment of SIB (Favell & Greene, 1980; Carr, 1977; Horner, 1994). Functional assessment technology uses a variety of methods to identify the antecedents and consequences that maintain self-injury. It provides useful information on the interpersonal and environmental contexts as well as the staff reaction to and natural consequences of SIB in order to identify and address the function of the behavior (Carr et al., 1994; Horner, 1994).

The approach assumes that self-injury is a learned behavior (Lovaas & Simmons, 1969) that is maintained (continued) because it produces some desired effect in the individual's environment (Favell & Greene, 1980). In other words, the SIB is maintained by some type of access, helps people avoid something undesirable, or provides some type of self-stimulation (Carr, 1977). Because the individual achieves the desired outcome through the use of SIB, he/she will continue to use the behavior to produce the same effect in the future. "Research in behavior modification has shown that the strength of a behavior is affected by what happens immediately following it (i.e., its consequences). A behavior that is consistently followed by pleasant or desirable consequences will increase in strength; that is, it will happen more often in the future. A behavior that is not followed by desirable consequences, or is followed by unpleasant consequences, will decrease in strength—it will happen less often in the future (Favell & Greene, 1980, p. 3).

According to Favell & Greene (1980), there are three main consequences that may strengthen or maintain self-injury:

- 1. The self-injury is strengthened by positive rewards.** If the staff response to the SIB is desirable to the individual, it will reinforce the behavior. For example: Mary bites her hand, and the staff member gives her a toy to play with so that she stops. In the future, Mary is more likely to bite her hand in order to get the toy. Other forms of positive reinforcement may include: attention, comfort, and even negative attention, if that is desirable to the individual.
- 2. The self-injury is strengthened because it gets the individual out of unpleasant or undesirable situations.** This may be the function for individuals who begin SIB when they are required to do something they don't want to do. For example: Ted begins to bang his head when the school bus comes. Because his parents can't send him to school when he is so upset, the SIB enabled him to avoid the undesirable activity (going to school).
- 3. The self-injury is strengthened by sensory stimulation.** The sensation or stimulation that is caused by head-banging, eye-poking, or scratching may fulfill a sensory need that the individual has. Like stereotypy, SIB may also be strengthened by the neurochemical response of the body and "serve a self-regulatory homeostatic function used by the individual to modulate excessive or insufficient extrinsic stimulation" (Berkson, 1983; Schroeder et al., 2002, p.xii).

What is known is that there is no single factor that causes SIB. It can be treated, but comprehensive treatment must incorporate an approach that is based on the etiology, underlying social and neurochemical mechanisms, exacerbating medical conditions, and function



of the behavior in order to obtain lasting results (Schroeder et al., 2002). Nonetheless, treatment is not easy, not quick, and can be dangerous. Therefore treatment must be designed and supervised by a qualified professional whose training and experience specialize in the treatment of SIB (Favell & Greene, 1980). It is recommended that treatment be conducted openly and involve a human rights committee, peer review, and parents/guardians. The effects of treatment should be thoroughly and objectively evaluated on a regular basis.

According to Favell and Greene (1980), the primary goal in treating SIB is to durably reduce the strength of the behavior to an acceptable level, meaning that the individual will initiate the behavior less and less often over time. It is essential not to confuse this with simply interrupting or temporarily stopping the behavior. An example of simply interrupting the behavior may go like this: Jane stops head-banging when the staff member puts Jane on her lap. But she is more likely to resume head-banging when the staff member puts her down. Later, Jane begins to bang her head when she wants to be held. This is an interruption, but does not result in a reduction of the strength of the behavior.

For example, temporarily stopping the SIB by putting a helmet on a person or through chemical restraint may be an interim protection, but does not teach the individual NOT to exhibit harmful behaviors or to learn more appropriate skills. In fact, sometimes such interim measures are overused to the point in which the individual finds another outlet or in which the behavior becomes more severe in other circumstances. Such protective elements can be used for interim safety, but only comprise one aspect of the comprehensive treatment goal which should be to teach new behavior and support the individual in gaining control over his/her behavior.

What can be summarized is that SIB is complex and must be addressed comprehensively, not solely managed incident by incident. According to Favell & Greene (1980), some of the key steps that should be initiated prior to treatment are:

- 1. A medical examination** to rule out other causes and identify any potential medical reasons that may be causing the SIB such as a headache, toothache, stomach problems, dermatological issues, or digestive ailments.
- 2. Provide protection in the least restrictive manner possible** both before and during treatment. This may include removing dangerous materials from the person's environment and replacing them with safer tools and materials, replacing glass windows with plexiglass, softening sharp edges of furniture with foam pads, or replacing some items with softer furniture. Clothing and protective items such as gloves, long sleeves, and cushioned helmets may help some individuals, as well as coating skin with petroleum jelly to reduce the impact of biting. All patients under treatment for SIB should have continuous supervision and the staff should be trained in safe ways to manage crisis situations. It is important for the treatment team to understand that interim forms of protection, restraint, and physical intervention are NOT a replacement for treatment, because they do not teach an individual not to self-injure or to develop appropriate behaviors.
- 3. Observe and keep data on the behavior and the environment in which it occurs.** Data collection helps to identify or rule-out various factors that may be contributing to the SIB. At a minimum, data collection should: describe behavior, its frequency, duration, and intensity. It is also important to describe the context of the behavior: Where does

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it occur? Where does it NOT occur? And what are the consequences of the behavior? Identifying what happens immediately after or as a result of the SIB is often a clue as to what the function of the behavior is. It is also useful to record appropriate behaviors and how staff respond to them. Is there enough support for positive behavior?

Once a medical exam has ruled out other causes, protection is in place, and there is preliminary data collection, development of the treatment plan should begin as soon as possible. According to Favell & Greene (1980), some important considerations in developing a comprehensive treatment plan include: looking for ways to rearrange the natural environment, extending the time when SIB does NOT occur, and providing appropriate ways to help individuals meet their needs.

### **Rearrange the natural environment**

One of the most promising treatment methods is to reduce or eliminate the factors that contribute to the SIB and build in support for positive behavior. Some ways to do this include:

- Increasing predictability and routine in the person's environment.
- Using individualized schedules.
- Reducing the amount of unstructured time in the person's schedule.
- Reducing exposure to overstimulating, noisy, or crowded environments.
- Adding more structure and organization to work areas.
- Providing clearly established rules, boundaries, and expectations.
- Providing preferred activities within the overall schedule.
- Using visual communication.
- Reducing work quantity, difficulty level, or time requirements.
- Providing break options.

- Giving attention so that it is not sought through SIB.
- Striving for consistency among caregivers to reduce confusion and provide a consistent reinforcement schedule.

### **Extend the times when SIB does NOT occur**

It is essential to provide positive support for appropriate behaviors and to extend the situations where SIB does NOT occur. Possible ways to do this include: using reinforcement puzzles or other positive reinforcement strategies for refraining from SIB, and establishing or increasing positive reinforcement for positive behaviors. In order to make this most effective, staff need to look for strong, individualized reinforcers, and collect data to identify what effectively reinforces positive behavior. It may be effective to identify what reward the person was getting from the SIB and provide that reward for refraining from the SIB. As behaviors decrease and the individual exhibits more control, gradually adjust circumstances, add more work, and increase expectations.

### **Provide appropriate ways to help individuals meet their needs**

Recognize and support the specific needs of individuals. Focus on teaching communication, meeting sensory needs, and teaching skills that promote independence. When staff provide attention, communication systems, and sensory opportunities, they can often help prevent SIB from occurring in the first place. Functional Communication Training (FCT) can help people acquire the skills to request breaks, seek help, and independently meet their own needs. Durand & Carr (1985) suggest that SIB is often a form of communication, and if individuals are taught a more appropriate way to communicate, they will use the communication behavior rather than the SIB as a more



accessible means to achieve their goal. Research demonstrates that FCT skills can be effective in reducing SIB and are well maintained over time (Derby et al., 1997). Also FCT generalizes well to other contexts such as homes, school, employment, and community locations (Durand & Carr, 1991). As well, it is important to consider a person's sensory needs. Because SIB can be related to a sensory function, sensory diets provide opportunity for individuals to develop more adaptive behaviors. Sensory diets often include easy access to music, water toys, rocking chairs, swings, scented soaps, weighted vests, body socks, tents, trampolines, therabands and other materials and activities that address individuals' sensory strengths and weaknesses.

Staff should be aware that individuals sometime attempt to fulfill their sensory needs by seeking physical restraint from staff members. This behavior, called "self-restraint," often includes self-restriction of body parts using clothes, or other objects to wrap oneself, by using the person's own body to restrain the self (sitting on hands, holding arms behind back, etc.), holding or clutching objects, and by persuading others to implement physical restraint (Saposnek & Watson, 1974). The prevalence of self-restraint in individuals showing SIB has been identified as high as 76.1% (Oliver et al., 2002). And one study found that 39.1% of those studied positioned themselves to be restrained by a staff member (Powell et al., 1996).

The most popular theory regarding self-restraint argues that it is reinforced by the avoidance of pain and the need to escape from or avoid self-injury associated with SIB (Luiselli, 1993). Some authors suggest that self-restraint might be functionally similar to protective devices by virtue of the capacity to protect the individual from self-injury (Oliver et al., 2002). Another theory proposes that high levels of arousal or anxiety contribute to individ-



uals seeking restraint as a way to help them calm down and reduce anxiety (Romanczyk et al., 1992).

Staff should avoid becoming part of a cycle that reinforces SIB and the use of restraint. One author describes the phenomenon like this, "SIB is aversive to the person. When they experience pain from SIB, they become aroused and seek escape to reduce arousal.... Pain is followed by arousal. Individuals engaging in SIB do not want to hurt themselves, so they are often physiologically aroused when confronted with situations that elicit SIB. Self-injury then becomes reinforced by staff restraint, which calms the individuals and returns them to physiological equilibrium" (Romanczyk, et al., 1992; Schroeder et al., 2002, p.109). Staff members and organizations that utilize restraints should collect and monitor data in order to ensure that restraint is not reinforcing the SIB.

In summary, people who display SIB "can be treated successfully with communication training, adaptive skills acquisition, pharmacotherapy, and

other interventions matched to social functions and underlying neurochemical mechanisms—or a combination of the above. People with developmental disabilities injure themselves for several reasons, and, accordingly they require different [and individualized] treatments" (Thompson & Caruso, 2002, p. 21). Many new treatment options have become available in recent years, yet the phenomenon of SIB is still often misunderstood, resulting in inappropriate treatment and lack of a comprehensive treatment approach. The welfare and safety of those in our care are dependent upon our willingness to tirelessly seek to understand SIB, and creatively endeavor to provide the resources and support necessary to help staff and the individuals in our care to battle this complex phenomenon.

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