

# Interventions For Behavioral Problems After Brain Injury

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## Introduction

Behavior change is difficult for any individual to accomplish. The process, however, can be infinitely more difficult for those who suffer from a traumatic brain injury (TBI) due to physical, cognitive, and emotional impairments associated with an injury. Successful reintegration into the community and return to activities of choice is often dependent on the individual's ability to modify maladaptive behaviors that may result from the injury. Behavioral challenges that frequently require intervention following brain injury include aggression, disinhibition, difficulty relating to others, and a host of other behaviors.

A total reversal of behavioral problems after a brain injury may not be possible. A more realistic goal is to modify behaviors. There are several interventions available to assist with the modification of those behaviors that negatively effect goal achievement, successful community reintegration, or quality of life for individuals with TBI. The intent of this article is to describe and provide examples of current options for therapeutic intervention and examine their effectiveness for individuals with TBI.

## Proactive Measures

There are a number of steps that can be taken proactively to set the stage in developing effective plans for behavior change.

### **Developing Trusting Relationships**

It is important to build a trusting relationship with an individual who has had a brain injury. Much of what occurs during rehabilitation is based on trust that the individuals providing services understand what is important to the person receiving services. There must be trust that the recommendations providers make and activities they encourage, are designed to help the individual achieve his/her goals.

Trust is developed through honest, caring, and consistent interactions. It is important to be realistic with the individual. You cannot promise to 'make him/her better.' We, as family members or professionals, do not have all the answers to the individual's problems. We may be most helpful by providing a comfortable, nonjudgmental atmosphere in which the individual can discuss his/her concerns and preferences, even if the concerns and the

accompanying behaviors do not appear to be logical. The knowledge gained from such discussions is invaluable when developing behavior plans or carrying out treatment.

The importance of relationships in behavior change goes beyond relationships between professionals and a person with brain injury. Following a brain injury, an individual may feel isolated and depressed (Denmark & Gemeinhardt, 2002). Success in coping with or adapting to changes after injury, as well as in modifying maladaptive behaviors, is highly dependent upon the feedback and support an individual receives from his/her social network. A supportive network may include professionals, family, old friends, new friends, and persons who have had similar experiences.

## **Understanding the Behavior**

Developing adaptive behavior first requires recognizing what may be contributing to the problematic behavior. Triggers, antecedents, and precipitating factors are terms describing that which precedes the behavior. Triggers to acting-out behavior may be internal or external (Caraulia & Steiger, 1997). Examples of internal causes of behavioral problems can be fatigue, hunger, lowered self-esteem, etc. External triggers may include a frustrating task, interaction with certain individuals, change in structure/ routine, increased level of stimulation, etc. In addition to understanding what may trigger maladaptive behavior, it is important to understand what occurs following the behavior that may serve to reinforce and hence maintain the behavior. For example, if a given behavior consistently results in a rewarding experience such as increased attention, the frequency of the behavior will most likely increase. Modification of antecedents and consequences to change behavior is discussed in more detail under the heading Behavior Therapy.

## **Recognizing and Responding to Precursors**

Individuals often provide non-verbal and verbal signs prior to displaying the behavior of concern. A person's change in behavior can represent a negative internal state. There may be signs of anxiety such as pacing and fidgeting. The face may become flushed; he/she may have difficulty maintaining eye contact or may display decreased attention to a task. An individual may also exhibit verbal signs, such as muttering to him/herself or increasing the volume of speech. Clearly, it is important to be aware of sudden, often subtle, changes in behavior (both non-verbal and verbal) in order to effectively intervene. Intervening early in the sequence of behavioral escalation is one of the most effective strategies for behavior change.

## **General Guidelines**

In order to select the most appropriate intervention for modifying behavior during rehabilitation, the following guidelines, outlined by White, Seckinger, Doyle, and Strauss (1997), need to be considered:

Include the individual with TBI when developing a strategy. If a plan is developed without client input, it is not likely to be effective.

Prioritize the functional needs of the individual. Consider his/her strengths and weaknesses.

Analyze the tasks required for goal achievement. Individuals have more success if they can incorporate what they have already learned and know.

Consider the learning style. Individuals can learn from written information, oral information, or a combination of both. Ensure the intervention is compatible with the learning style of the individual.

Consider the individual's willingness to participate in the therapy or strategy.

Ensure that the strategy is practical. Time and funding constraints, family concerns, and environment limitations (i.e., in-patient vs. day-patient) should be considered.

## Therapeutic Interventions

Several different approaches have been used to modify behavioral problems in individuals with TBI, some with more success than others. Most of the therapeutic intervention strategies were developed originally for individuals with learning disabilities, emotional dyscontrol, and psychiatric disorders. Studies have shown that with some adjustments or combination of approaches, these intervention strategies can benefit individuals with TBI (Alderman, 2003). However, most researchers agree that additional studies should be conducted to better measure the effectiveness of therapeutic interventions that have been adapted for use with persons with TBI (Denmark & Gemeinhardt, 2002; Kinney, 2001; Manchester & Wood, 2001; Schlund & Pace, 1999).

### **Insight Oriented Psychotherapy**

Insight oriented psychotherapy can be defined as a process to gain more awareness and insight into our thoughts, feelings, and behaviors (Pologe, 2001). Theoretically, the more awareness one has of thoughts, feelings, and behaviors, the more one is able to change them. Therefore, insight oriented psychotherapy guides an individual to gain this awareness in order to change behavioral patterns. This type of therapy requires the

individual to attend to task, maintain thought process, recall what is occurring (or occurred) during therapy, use reason, and develop insight. Considering these requirements, it is understandable that individuals with TBI, who may have problems with attention, memory, thought organization, or abstract processing, may not benefit from insight oriented psychotherapy. For this reason, Wood and Worthington (2002) concluded that insight oriented psychotherapy could only be implemented with individuals who have suffered mild or moderate debilitating effects.

For individuals with traumatic brain injuries who do not have severe cognitive deficits, insight oriented psychotherapy may be very beneficial. Prigatano (1986) suggested that a goal of psychotherapy for individuals with TBI should be to increase understanding of what has happened, the injury, and its effects. It should also help the person develop strategies for acceptance of injury, achieve self-acceptance, be realistic, and adjust to role and relationship changes. Finally, the process may be used to increase social appropriateness and develop behavioral strategies. Insight oriented psychotherapy for individuals with TBI is often conducted in a group in the rehabilitation setting. The group setting adds opportunities for feedback from peers that may enhance insight. Group therapy may not be productive, however, for individuals who are unable to filter out external stimuli and selectively attend to the task at hand, for those who become overly stimulated in a group setting, or for those who easily become frustrated or aggressive (Bennett & Raymond, 1997).

## **Cognitive Behavioral Therapy**

Cognitive behavioral therapy is a specific form of psychotherapy that is concerned with how people's behavior is shaped by their interpretation and perception of their experience (Alderman, 2003). It aims at assisting the individual in understanding the link between beliefs, thoughts, feelings, and behavior. That is, there is often a belief (realistic or not; adaptive or maladaptive) that underlies one's thoughts and results in a pattern of behavior that is consistent with that belief. Needless to say, belief patterns that existed prior to the injury or those that are developed post-injury affect progress in rehabilitation.

In cognitive behavioral therapy, the individual is required to analyze maladaptive behavior in regard to any underlying beliefs that may be untrue, unrealistic, or counterproductive to meeting basic needs. The benefit of this approach is that one can alter behavior by changing beliefs or the way one thinks when it may not be possible to change the external situation (Albert Ellis Institute & Abrams, 2004). For example, a teenager may be suspended multiple times for fighting in school. She reveals to her counselor that she has the following belief: "the way to deal with hostility is to be hostile in return — an eye for an eye and a tooth for a tooth." Her counselor suggests alternative beliefs that would alter her emotional response and help her to avoid fights in school. In this case, alternative beliefs

might include, "ignoring or walking away from another person's hostility keeps me out of trouble" or "being hostile in return doesn't improve the situation in the long run." The process requires that an individual take an active role in the application of techniques. Homework may be assigned so that techniques are practiced. Furthermore, the individual may be required to monitor his/her own behavioral responses (self-monitoring). This process builds awareness of behavioral patterns (including frequency, type of response, etc.), and leads to the individual taking more responsibility for altering his/her own behavior (Denmark & Gemeinhardt, 2002).

Effectiveness of cognitive behavioral therapy with individuals who have a TBI is dependent upon the individual's level of cognitive functioning. For example, the following personal characteristics are required to participate in Rational Emotive Behavioral Therapy (REBT) which is a form of cognitive behavioral therapy: self-direction, good ability to tolerate frustration, flexibility, acceptance of uncertainty, self-acceptance, nonutopianism (accepting the fact that one will never achieve a utopian or ideal existence), and ability to take responsibility for one's own emotional disturbances (Ellis & Dryden, 1997). Additionally, in REBT self-defeating thoughts and feelings are openly challenged. Discussion in either individual or group settings can be quite direct and demanding. Consequently, it has been suggested that a more flexible protocol of REBT be implemented for individuals with TBI. It should be more collaborative, less directive, and more flexible. In this sense, the therapist might adapt to the needs of the individual rather than the individual adapting to the REBT (Kinney, 2001). Manchester and Wood (2001) advocate that if REBT or another form of psychotherapy is used with persons with brain injury that the sessions be highly structured, repetitive, and include role play. They suggest that through procedural learning (repetition and structure), the likelihood will increase that cognitive behavioral therapy will be successful.

## **Behavior Therapy**

The goal of behavior therapy is to manipulate the person's environmental antecedents (that which consistently precedes a behavior) and consequences (that which follows or results from the behavior) in order to decrease the likelihood of maladaptive behaviors occurring and increase more positive, adaptive behaviors (Denmark & Gemeinhardt, 2002). Typically, individuals who are not appropriate for insight oriented psychotherapy or cognitive behavioral therapy are able to benefit from behavior therapy. Behavior therapy is currently accepted as an effective intervention for modifying behavior following TBI. For example, there is evidence suggesting that if behavior therapy intervention is properly implemented to meet the needs of the individual, outbursts significantly decrease in a group home setting for individuals with TBI (Denmark & Gemeinhardt, 2002). Traditionally, behavior therapy has focused on modification of maladaptive behaviors. However, it has

also been effective in helping individuals to relearn other skills such as self-care, budgeting, etc.

## Terms and Concepts in Behavior Therapy

### **Identifying and modifying antecedents**

As mentioned previously, analyzing the environment for antecedents to problem behavior and adapting the environment in which the behavioral problems occur can be critical in decreasing the severity and frequency of the behavior. For instance, an outburst could be preceded by a lot of noise, too many people in the room, too many demands, or simply fatigue or hunger (Ponsford, 1995). In the initial stages of working with an individual with TBI and assessing reasons for undesirable behaviors, consider the environment's comfort and pleasantness, level of stimulation, and adequacy in terms of privacy. Consider cultural issues that may contribute to behavioral problems. For instance, most Europeans prefer to bathe rather than shower. Attempting to impose a change in these cultural practices may, in fact, cause an undesirable behavior to occur. External expectations that do not take these issues into account may become a source of frustration for the individual and can contribute to behavioral problems.

Fluharty and Glassman (2001) examined the use of antecedent control to improve outcome for an individual with frontal lobe injury and intolerance for auditory and tactile stimuli. The individual suffered from profound memory, reasoning, and insight deficits. Therefore, traditional behavior modification using reinforcement and consequences was unsuccessful. The individual was unable to recall what behavior resulted in reward or consequence and had limited ability to understand the effects of his behavior. The treatment team made changes to the environment by eliminating noise and touch, which had previously served as triggers for problem behaviors. These changes were effective in reducing the problem behaviors. Clearly, understanding antecedents is a very important factor in the process of changing behavior.

### **Identifying and modifying consequences**

Consequences serve to encourage or discourage a specific behavior or behavioral pattern. For example, others' reaction to an unwanted behavior may impact the individual's response resulting in the escalation (or de-escalation) of the behavior. This is referred to as an integrated experience — both individuals' behavior and attitude affect each other (Caraulia & Steiger, 1997). Individuals who display maladaptive behaviors are the most challenging to rehabilitate and may be excluded from rehabilitation settings because staff members lack the skills to respond effectively. If participating in a program that does not specialize in the treatment of maladaptive behavior, there is a natural tendency for staff to

intensify interactions with the individual during the crisis situation (or when maladaptive behavior is exhibited) and to provide less attention to the individual when he/she is not displaying the maladaptive behaviors. The attention paid to the maladaptive behavior becomes a rewarding or reinforcing consequence. According to Alderman (2003), a benefit of using behavior therapy techniques is that staff members are required to attend to the individual when he/she is displaying desired, productive behaviors, reversing the tendency to attend to undesirable behaviors.

### **Positive reinforcement**

Positive reinforcement refers to the use of rewards, privileges, incentives, attention, and praise to increase a desired behavior. When positive things happen following a behavior, the behavior is likely to increase.

### **Negative reinforcement**

Negative reinforcement refers to the removal of noxious stimuli in order to increase desired behavior. For example, when inappropriate or aggressive behavior successfully stops the continuation of an unpleasant or physically taxing physical therapy session (unpleasant stimuli), the inappropriate or aggressive behavior is likely to occur in the future (Braunling-McMorrow, Niemann, & Savage, 1998).

### **Punishment**

Punishment consists of unpleasant consequences following undesirable behavior. When behavior leads to a negative consequence (punishment), it is less likely to occur (Braunling-McMorrow, et al., 1998). It should be noted that punishment is consistently found to be less effective than positive reinforcement for creating and maintaining behavioral change. When the threat of the punisher has been removed, the behavior may resume.

### **Differential reinforcement**

Differential reinforcement refers to a variety of positive reinforcement strategies and is one of the most widely used concepts in behavior therapy. The primary focus of differential reinforcement is to positively reinforce a desirable behavior that will replace the undesirable behavior. Four categories of differential reinforcement are defined below with an example as described in the American Academy for the Certification of Brain Injury Specialists (AACBIS) Training Manual for Certified Brain Injury Specialists (Braunling-McMorrow et al., 1998).

Differential Reinforcement of Other Behavior (DRO) – In using DRO, the individual receives a reward for specified periods of time in which there has been no occurrence of the



undesirable behavior. For example, someone who has a verbal outburst twice per hour would receive a reward for each 30-minute interval in which no verbal outbursts occur.

Differential Reinforcement of Incompatible Behavior (DRI) — In DRI, a behavior that is incompatible with the undesirable behavior is identified and reinforced. For example, if one touches others repetitively when asked not to do so, an incompatible behavior would be keeping one's hands in one's pockets. The individual would receive positive reinforcement when engaging in the incompatible behavior.

Differential Reinforcement of Alternative Behavior (DRA) — DRA involves identifying an alternative behavior that is not necessarily incompatible with the target behavior and reinforcing it. For example, if one is overly talkative during vocational activities, an alternative behavior (e.g., remaining on task) is reinforced, while the undesirable behavior (e.g., talking) is ignored.

Differential Reinforcement of Low-Rate Behavior (DRL) — DRL involves the reinforcement of the reduction of undesirable behavior. For example, if someone displays 20 verbal outbursts per day, it is unrealistic to implement a plan that requires zero verbal outbursts to earn reinforcement. Rather, implementing a plan in which a lower frequency of the undesirable behavior, (i.e., displaying no more than 15 verbal outbursts per day), is more realistic. When the individual displays a lower rate of an unwanted behavior, reinforcement is provided.

## Individual Behavior Plans

Reinforcement systems may be combined to develop an individual behavior plan. Individual behavior plans are detailed plans that include strategies and interventions designed to address specific issues that are impeding an individual's progress toward goals. The plan takes into account the individual's strengths and weaknesses and individual learning style. Since precision and consistency of application is important for learning to occur and for new behavioral patterns to develop, scripts are incorporated into the plan. A script is a set of written instructions that direct individuals working with the person with brain injury on how to respond to certain behaviors or situations. A behavior plan addresses antecedents and consequences. It defines a way of responding that teaches, elicits, and reinforces adaptive behavior, minimizes reinforcement of maladaptive behavior, and ensures the safety of the individual. Prompts, cues, instructions, and gestures are used to elicit the desirable behavior that is subsequently reinforced. Verbal instructions, visual cues (pictures), physical guidance (hand-overhand), and modeling can be used to facilitate learning (Wood, 2001). Verbal mediation is another method used to elicit adaptive behavior. Verbal mediation is used when the precursors of maladaptive behavior become evident. Mediation is used to evoke thoughts (why am I feeling this way?) and problem solving (alternatives in dealing with the problem situation). In the area of non-violent crisis intervention, Caraulia and Steiger (1997) developed a verbal mediation

strategy that is called CPI COPING. COPING stands for: recognition of lack of “control” which prompts the following sequence: “orient” the person to the facts, identify “patterns” of behavior, “investigate” alternatives to the behavior, “negotiate” using a behavioral or incentive plan, and “give” back empowerment. While its development was not geared specifically to individuals with TBI, several of the steps have been useful when practicing verbal mediation with individuals with TBI. When prompting or verbal mediation elicits adaptive behavior, the behavior is reinforced.

Specific reinforcers or rewards must be identified for the individual for whom the plan is being developed. Remember, we are all unique in our preferences and what one person may find reinforcing or rewarding may not be reinforcing for another. To identify preferences for reinforcers, can ask the individual, ask family or friends, or simply observe the individual. Primary reinforcers include, but are not limited to, praise, encouragement, and attention. Secondary reinforcers such as tokens or points may be earned and traded in for special outings, increased time in certain activities or with preferred individuals, or desired purchases. Rewards may be provided each time the desired behavior occurs or at scheduled times such as at the end of the day. Cognitive factors may influence the schedule of reinforcement (ResCare Premier, 2002). For example, memory problems may interfere with the effectiveness of a reward program that involves a lengthy delay; the individual may not recall what they did or didn't do to obtain the reward. Alternatively, rewards given too frequently may result in the individual becoming satiated. The frequency of delivery of reinforcers must be identified in the behavior plan.

One type of secondary reinforcement system used within rehabilitation settings is the “token economy.” Ponsford (1995) recommends that a psychologist supervise this type of system. The individual may receive tokens as reward for desired behavior; they may then exchange the tokens for certain material rewards. A set of rules is established outlining the behaviors desired, the frequency with which the tokens may be earned, and how they can be exchanged. Tokens can be given immediately or at specified time intervals. A specified time interval is effective if you are teaching the individual to remain on task or to sustain learned behavioral changes. Difficulties with this system have been noted by Ponsford (1995) who points out that some individuals with TBI find the system demeaning. Therefore, she suggests that a point system be implemented instead. The points are earned, similar to tokens; praise and encouragement is provided at the time that points are awarded. The point system is very effective for both individuals with TBI and staff members as it increases both parties' awareness of the expected behavior. The system promotes consistency and provides the opportunity for social reinforcement. Both token and point systems provide a visual cue so the individual can monitor his/her progress and successes throughout the day. Incentive programs such as point or token systems are used successfully to encourage participation in rehabilitation activities and development of adaptive behavior.

In addition to incentive programs, incidental and structured feedback may be incorporated into a behavior plan. Incidental feedback involves providing a prescribed response at the time that the alternative, adaptive behavior is observed. Structured feedback is a review with the individual of recent events or activities that have occurred. An individual may not have insight into what happened and why. Structured feedback provides an opportunity to get the facts and to analyze elements of the intervention plan that may not be working. The process can be a learning opportunity, an opportunity to develop preventive strategies for the future, and can be helpful in developing self monitoring skills. The review may occur at intervals throughout the day (at lunch, dinner, etc.). Each interval's activities or events are reviewed.

Schlund and Pace (1999) conducted a study to examine the benefit of systematic feedback to reduce maladaptive behaviors in three individuals with TBI. Their study concluded that the implementation of this feedback resulted in a reduction of both the variability and frequency of maladaptive behavior.

### **Summary of guidelines for an individual behavior plan**

The following are guidelines for implementing a successful behavior plan (Alderman, Davies, Jones, & McDonnell, 1999; Braunling-McMorrow, 1998; Ponsford, 1995; ResCare Premier, 2002; Wood, 2001).

The individual with TBI should be included in the development, design, and implementation of the behavior plan. If the individual has input into the plan, it increases motivation to participate.

The behavior targeted for change should be identified and clearly defined.

The alternative behavior to be reinforced must be identified and clearly defined.

Scripts and directions for teaching and eliciting the adaptive behavior should be included.

Types and timing of reinforcement should be defined. The plan should be as positive as possible. The focus of a behavior change plan should be on teaching and rewarding desired behavior. Rehabilitation is a difficult process. Encouragement and praise should be given liberally for all attempts to complete the desired behavior.

It is a misconception that punishment or loss of privileges is the most effective response to undesirable behaviors. Punishment should be used only after all other interventions have been attempted and exhausted and when the maladaptive behavior is extreme, putting the person or those in his/her environment at risk. If this type of intervention is necessary, all stakeholders (family, rehabilitation providers, funders, case managers, etc.) must be in agreement in regard to the strategy used. The strategy is then used in conjunction with incentives for positive behaviors.

The plan should be a tool for teaching. Some individuals may display 'avoidance' and 'escape' behaviors. When a demand is initiated, individuals with TBI may respond by acting out in order to escape the task. However, being proactive and teaching alternative behaviors can help the individual to cope with the task. For example, identify the skills needed to complete the avoided task, teach the skills to the individual in small, manageable steps, develop an advance agreement to complete the avoided task at a specified time thereby giving the individual the ability to prepare for the task, and follow task completion with a positive reinforcer to increase the likelihood that the desirable response will occur.

The plan should be carried out in all contexts. Behavior does not happen in a vacuum, it is influenced by environmental factors and therefore can be displayed in the home, in the community, in the rehabilitation setting, etc. Consistency in implementing the program is critical for its success. Any inconsistencies may cause confusion and may indirectly reinforce the undesirable behavior. All individuals implementing the plan should receive training in all aspects of the plan.

The plan should include opportunities for feedback.

The frequency in which the desired and undesired behavior occurs should be documented. This process serves two purposes. First, tracking behavioral frequency provides feedback for the individual regarding his/her progress. Second, by tracking behavioral patterns, the effectiveness of the individual behavior plan can be evaluated and revised as needed. It may be necessary to adjust expectations if the desired behavior is too easy or too difficult or to adjust the frequency or type of rewards.

## **Relaxation Training**

Relaxation training is used to reduce one's experience of anger and tension (Denmark & Gemeinhardt, 2002). It is thought that an individual cannot exhibit both relaxation and anger/tension responses at one given time. Therefore, the individual learns relaxation strategies that he/she can implement when feelings of anger/tension emerge in daily life. Some examples of these techniques are progressive muscle relaxation (focused relaxation of each muscle group in the body — feet, legs, torso, etc.), guided imagery (visualizing relaxing, peaceful, or encouraging experiences), biofeedback (monitoring the relaxation response by using electrodes which monitor and provide feedback about the activity of a muscle), breathing exercises, and forms of meditation (Denmark & Gemeinhardt, 2002). It is useful to incorporate role-play into relaxation sessions. The individual practices initiating relaxation techniques while thinking about potential real-life situations. There is very little literature that evaluates outcomes for the use of relaxation therapy techniques for individuals with TBI. This technique, however, has been used with success for individuals with learning disabilities and for children (Denmark & Gemeinhardt, 2002).

## **Social Skills Training**

Social skills training programs are implemented with individuals who lack interpersonal skills and the ability to effectively communicate their desires in a problem situation or conflict (Denmark & Gemeinhardt, 2002). This type of program is geared toward individuals with problems in social interactions and includes focus on the development of social skills, assertiveness, and problem solving techniques. Social skills acquisition includes teaching the individual how to listen and understand others. Assertiveness teaches the individual to express him/herself constructively rather than in a confrontational manner. Problem-solving techniques allow the individual to develop conflict resolution skills. For individuals with TBI, this type of training can be especially useful as many individuals have difficulty expressing themselves, which often results in frustration and maladaptive responses. Denmark and Gemeinhardt (2002) suggest that role modeling the problem situations in a safe environment is the most beneficial. The role-playing allows the individual to learn appropriate responses or strategies at his/her own rate. It also provides opportunities for repetition and rehearsal of skills. The individual is able to internalize the behavior which helps to circumvent cognitive deficits such as planning, sequencing, and comprehension.

## **Anger Management**

Novaco (1975) introduced one of the first multi-component approaches to anger management. He used a combination of behavioral, relaxation, and assertiveness training during three phases of treatment. The three phases included: 1) cognitive preparation, 2) skill acquisition, and 3) application of training. Medd and Tate (2000) conducted a study with persons with brain injury using a variation of Novaco's principles. They modified the training by outlining anger syndromes and common difficulties relevant to TBI and developed handouts summarizing the sessions. The program encouraged the participants to increase their awareness of emotional, behavioral and cognitive changes that occur when they become angry. The participants practiced relaxation techniques, self talk methods, and time outs. Medd and Tate (2000) concluded that this type of intervention was beneficial to the individuals in their study. However, they also recognized that the individuals in their study had a relatively high level of cognitive ability with only minimal memory impairments noted. They questioned the effectiveness of this type of approach with individuals who had more severe cognitive impairments.

Another multicomponent anger management program was developed by Deffenbacher (1995) and was called ideal treatment package. This included assessing the individual's anger and then working at developing self-monitoring, stimulus and response control, relaxation, cognitive restructuring, and interpersonal skills (Denmark & Gemeinhardt, 2002). A study has not been conducted to date regarding the application of this program with individuals with TBI.

## Conclusion

In conclusion, several therapeutic approaches exist to assist individuals with brain injury to develop adaptive behaviors. At this time, there is not enough outcome data to dictate which therapy works best. The challenge for those who work with persons with brain injury is to find the intervention or combination of intervention strategies that works best for each individual. It is unlikely that one approach will ever be the 'sole treatment' for behavioral problems following brain injury. Unique individuals require unique and individualized treatment.

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