Therapeutic Restraint and Protective Holding

7

Derek D. Reed, James K. Luiselli, Jonathan R. Miller, and Brent A. Kaplan

Introduction

Individuals with intellectual disabilities (IDD) are at risk for developing severe problem behaviors such as aggression or self-injury (SIB; Schroeder, Rojahn, & Oldenquist, 1991). While conclusive epidemiological studies are lacking in this area, the consensus is that such severe problem behaviors are found in many disability types and across numerous settings (see Rojahn & Ebensen, 2002). Recent research focusing on individuals with autism suggests that as many as 94 % of this population engages in some form of problem behavior (Matson, Wilkins, & Macken, 2009). Other studies suggest indicate prevalence rates for aggression in approximately 7 % of the population with intellectual disabilities (Emerson et al., 2001), while 15 % of IDD engage in some form of self-injurious behavior (SIB; Wicks-Nelson & Israel, 1999). The unfortunate reality behind these numbers is that such behaviors are related to increased risk for extreme negative outcomes such as tissue damage, retinal detachment, and death (e.g., Berzlanovich, Schöpfer, & Wolfgang, 2012) to the individual or to the caregivers charged with serving the individual. To protect the individual and others from harm, strategic application of therapeutic restraint (TR) and protective holding is sometimes necessary (Matson & Boisjoli, 2009) but only as a last resort and for emergency situations.

This chapter aims to provide families, caregivers, and clinicians with information on what constitutes therapeutic restraint. This discussion will be supplemented with a review of policy statements on its use from professional organizations. We will then provide recommendations for clinical decision making regarding therapeutic restraint along with empirical evidence for supporting its use. In addition, we will discuss the dangers and limitations associated with programmatic use of therapeutic restraint for individuals with developmental disabilities and offer clinical strategies to reduce the necessity and use.

What Therapeutic Restraint Is and Is Not

Throughout the literature, researchers and clinicians frequently use many different terms to describe TR. For example, Luiselli, Dunn, and Pace (2005) used the term "protective holding" to

D.D. Reed, Ph.D., BCBA-D (✉)
J.R. Miller, M.A., BCBA • B.A. Kaplan, B.G.S.
Department of Applied Behavioral Science, University of Kansas, 4001 Dole Human Development Center, 1000 Sunnyside Avenue, Lawrence, KS 66045-7555, USA
e-mail: dreed@ku.edu; jrmiller1@ku.edu; bkaplan4@ku.edu

J.K. Luiselli, Ed.D., ABPP, BCBA-D
May Institute, 41 Pacella Park Drive, Randolph, MA 02368, USA
e-mail: jluiselli@mayinstitute.org

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describe the therapeutic holding of individuals' arms and legs contingent upon aggression, destruction, or self-injury until the individuals were calm and safe. Alternatively, others have used the terms "physical restraint" (e.g., Foxx & Meindl, 2007) and "immobilization" (e.g., Bitgood, Crowe, Suarez, & Peters, 1980) to describe the contingent use of physical means to address problem behaviors. For the remainder of this chapter, we will use the term TR to describe any restraint procedure specifically aimed at protecting the safety of clients, caregivers, and environment.

The term "therapeutic restraint" refers to the strategic application of safety procedures consisting of some form of immobilization contingent upon clearly defined crisis behaviors putting the individual, his/her caregivers, or his/her immediate surroundings in imminent danger. As described by Luiselli (2011), TR typically consists of one or more caregivers using physical means to limit mobilization by holding the individual's arms, legs, torso, or body. These procedures may be used in standing positions while seated or in supine positions on the ground (see Luiselli, 2011). At first glance, these procedures appear to serve as aversive consequences meant to punish the individual's behavior—this, however, is *not* the intention of TR. As defined in this manner, TR should be *therapeutic*, not necessarily a programmed behavior reduction procedure. It may very well be the case that TR does indeed serve as an effective punisher to the target crisis behavior, as reviews have found that it successfully decelerates problem behaviors (Matson & Farrar-Schneider, 1993). As we will discuss later in this chapter, however, TR may actually reinforce or accelerate severe problem behavior in some individuals. Clinicians and caregivers should never view TR as a way to simply modify behavior, despite the possible suppressive effects of the procedure. TR controls safety associated with dangerous behavior. Understanding the difference in goals between (a) restraint (physical, mechanical [i.e., using equipment or devices to limit individuals' mobility], or chemical [i.e., sedation]) to punish behavior and (b) TR is paramount in understanding the caregivers' role in protecting the safety of everyone involved in crisis management. The use of restraint to intentionally reduce target behavior is beyond the scope of this chapter. We encourage the reader to consult other sources (e.g., Harris, 1996; Jones, Allen, Moore, Phillips, & Lowe, 2007; Luiselli, 2011; Matson & Farrar-Schneider, 1993) when considering the ethics and value of these kinds of aversive procedures. Note that institutional, organizational, credentialing boards/agencies and/or state policies may prohibit certain forms of restraint and caregivers wishing to proceed with such intervention should do so with caution and discretion (see Ryan, Robbins, Peterson, & Rozalski, 2009, for a review of state policies on restraint in schools). In the next section, we articulate several important policy statements on the use of TR.

Policy Statements on the Use of Therapeutic Restraint Procedures

In 1982, an important Supreme Court case was held involving Nicholas Romeo, an individual with intellectual disability, and the Pennsylvania state hospital in which he was a resident. In this landmark court case, the issue in dispute was of the standard of care and if the Pennsylvania state hospital had violated that standard of care. Further, and seemingly more significant, was the issue of whether intellectually disabled individuals have the constitutional right to safe conditions of confinement and freedom from bodily restraint. After the initial trial and several appeals, the Supreme Court ruled, in accordance with the 14th amendment, that Nicholas Romeo had the right to "safe conditions of confinement and freedom from unreasonable bodily restraints" (http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=457&invol=307). This was a landmark court case because, up until that point, the standard of care had not been well established for intellectually disabled populations. Additionally, the result of this court case has influenced how organizations, who primarily deal with individuals

with disabilities, view the role of TR as well as under what conditions TR should be used.

As noted in the preceding section, there are many different forms of TR that may be used. Likewise, there are a number of organizations and entities that differ on their views and policies toward the use of TR. All of the entities discussed below advocate the use of TR but do not all agree upon under what conditions TR should be used. It may be easiest to think of a continuum, ranging from the most positive or liberal to the least positive or conservative use of restraint, on which these organizations may be placed.

On the farthest end toward the most positive use of TR lie the Association for Behavior Analysis International (ABAI) and the Association for Professional Behavior Analysts (APBA). According to ABAI's position statement, the welfare of the individual is the highest priority (Association for Behavior Analysis International, 2010) and that the research and intervention literature should guide therapies that aim to serve the individual's best interest. Furthermore, in agreement with the US Supreme Court ruling discussed above, individuals as well as parents and guardians have the right to choose treatments. The APBA holds a similar stance in that they are firmly against the illegal or improper use of restraints but recognize restraints may be a necessary part of a behavioral intervention plan. Moreover, they understand that when used in conjunction with a proper behavioral plan, the use of restraint may serve a "protective and therapeutic role" (Association for Professional Behavior Analysts, 2007). Additionally, the APBA is strongly opposed to categorically prohibiting or severely restricting the use of restraint. The organization, however, does outline under what conditions and what form of TR should be used. Some of the conditions under which TR may be used include when there is a clear possibility of immediate harm inflicted either on the individual or others, when less restrictive alternatives are not feasible, when a functional behavioral assessment has been conducted, and when a specific comprehensive intervention plan has been developed for that individual. It is, therefore, in accordance with both ABAI and APBA's position statement that the least-restrictive treatment should be used and only under very specific circumstances.

Toward the middle of the spectrum lies the American Psychological Association. The APA is in complete accordance with the above-mentioned Supreme Court ruling that individuals with intellectual disability have the right to choose treatments and safe standard of care as this institution testified in support of Romeo during the 1982 court case.

At the far end of the spectrum in which there is a more conservative view of restraint lie the Arc, the American Association of Intellectual and Developmental Disabilities (AAIDD), the Bureau of Developmental Disabilities Services (BDDS), the Bureau of Quality Improvement Services (BQIS), and the Council for Exceptional Children (CEC). The Arc, AAIDD, BDDS, and BQIS all hold the position that those interventions in which TR is used are the least desirable. Further, these organizations believe restraint should be used as the last resort when all other attempts have failed. The Arc and AAIDD are strongly against the use of any and all aversive procedures such as, but not limited to, electric shock, deprivation, and isolation and seclusion. The CEC, on the other hand, believes the use of restraint should only be restricted to educational settings in which there is immediate harm to the individual or others specifying that if restraint is to be used in a classroom, it should be part of a positive behavior support plan. In the case that restraint is used in the classroom, the CEC requires a comprehensive debriefing and completion of an incident report. Any use of restraint to force compliance is also strictly prohibited. On a more extreme end, the CEC believes any use of restraint to force compliance is strictly prohibited as well as the case that it should only be used in emergency situations and should not be considered as a treatment.

For a more comprehensive description or clarification of the aforementioned organizations' policies, readers are encouraged to contact the organizations directly (Table 7.1).

Table 7.1 Organizations (and URLs) with TR policy statements referenced in text

Organization	URL
The American Association of Intellectual and Developmental Disabilities (AAIDD)	http://aaidd.org/
The American Psychological Association (APA)	http://www.apa.org
The Arc	http://aaidd.org/
The Association for Behavior Analysis International (ABAI)	http://www.abainternational.org/
The Association for Professional Behavior Analysts (APBA)	http://www.apbahome.net/
The Bureau of Developmental Disabilities Services (BDDS)	http://www.in.gov/fssa/files/Use_of_Restrictive_Interventions.pdf
The Bureau of Quality Improvement Services (BQIS)	http://www.in.gov/fssa/files/Use_of_Restrictive_Interventions.pdf
The Council for Exceptional Children (CEC)	http://www.cec.sped.org/

Clinical Decision Making Regarding TR

Deciding When TR Is Necessary

As discussed throughout this volume, behavioral crises emerge when an individual's topography or rate of destructive behavior suddenly reaches dangerous levels that can no longer be managed using the current behavioral support plan in place. Such crisis situations may feature episodes of severely destructive behavior that places the individual, the caregivers, or the surrounding environment in danger of harm. In such situations, the caregivers should be knowledgeable on emergency unplanned restraint techniques. Many forms of physical restraint systems exist, and many organizations train their staff on such procedures for both emergency and planned procedures during new-hire orientation. Examples of organizations that provide training on TR procedures are summarized in Table 7.2. Note that this list is not exhaustive and many other options exist.

Table 7.2 Examples of organizations that provide TR training

Organization	URL
Crisis Prevention Institute, Inc. (CPI)	http://www.crisisprevention.com
The Mandt System, Inc.	http://www.mandtsystem.com
PMT Associates, Inc.	http://www.pmtassociates.net
Professional Crisis Management Association (PCMA)	http://www.pcma.org
Quality Behavioral Solutions, Inc.	http://www.qbscompanies.com
Therapeutic Crisis Intervention	http://rccp.cornell.edu/TCIpage1.htm

Documenting Unplanned Emergency TR

Emergency TR occurs when staff intervenes during an unanticipated and potentially dangerous behavioral crisis. Conversely, staff implements planned restraint as one component of a written behavior support protocol. Although emergency TR appears to be necessary in most treatment settings, many professionals recommend planned restraint as a better and more therapeutically effective strategy (Luiselli, 2011; Matson & Boisjoli, 2009; Williams, 2009a, 2009b). While unplanned emergency TR procedures are appropriate to maintain safety, these should not be used on a continued basis. Rather, staff and caregivers should carefully monitor both the frequency and duration of these emergency procedures to examine whether either metrics begin to increase over time. Regardless of whether the organization requires TR reporting, we encourage staff/caregivers to document the duration of each TR procedure, the kind of TR procedure utilized, the individuals involved, the setting, the context warranting the use of the TR procedure, and whether any individuals were harmed as a result. The context of the TR procedure should document precursor/antecedent events that occurred before the destructive behavior. Analysis of these antecedent conditions will ultimately aid in identifying variables predictive of the destructive behavior. For an example of the successful use of such antecedent reviews, the reader is encouraged to consult Luiselli, Pace, and Dunn (2003).

Moving from Unplanned to Planned TR

Increases in the frequency or duration of emergency TR is an indicator that planned TR should be incorporated into the individual's behavior support plan. Decisions regarding the criteria to move from emergency to planned TR should be made with an interdisciplinary team of staff and with parental guidance/approval. These criteria should factor into account the topography of the destructive behavior, as well as the severity/risk associated with the behavior. Moreover, the specific form of the TR procedure should be carefully selected based on the idiosyncratic features of the destructive behavior, as well as the context in which the behavior has been occurring (e.g., different forms of TR may be selected if the behavior occurs in close proximity to other individuals vs. more secluded environments).

Once decisions are made regarding the form of TR to be used, the next step in decision making concerns the scheduling/timing of the TR. Using the antecedent analysis described above, the team should identify the most reliable predictors of the emergency situation. Such predictors could be proximity based (e.g., the individual moves to the corner of the room), rate based (e.g., at least two instances of hand-to-head self-injury within 30 s), or topographically based (e.g., the individual places his/her wrist in his/her mouth). It may also be the case that the most reliable predictor of destructive behavior is an interaction of several contextual variables. Identifying the requisite contextual events to contingently apply TR leads to decisions regarding the duration of the TR application. We describe examples of these decisions in detail below.

Ultimately, the decision to move to planned TR is not easy. These decisions are based off careful observations and data collection. As we have repeatedly emphasized throughout the chapter, TR is an intervention of last resort. Caregivers should always attempt to manage behavior using less intrusive means, such as antecedent interventions and environmental enrichment (see Luiselli, 2006) or function-based treatments (see Chap. 8 of this handbook) before moving to TR. Nevertheless, careful and strategic use of TR in crisis intervention is an efficacious approach to enhancing safety and reducing levels of destructive behaviors.

Forms of Therapeutic Restraint

Regardless of the context in which restraint is used, it is useful to group restraint procedures into some general categories based on form of the procedures to help delineate whether they are considered TR and when they should be used. Some general categories include brief response prevention, extended response prevention, and assisted movement. In this section, we provide some details about each type of procedure.

Brief response prevention, or response blocking, is when the problematic behavior of an individual is temporarily disrupted by an intervener through physical contact that lasts only a few seconds. This can include moving one's hand between the body part of an individual and the surface (e.g., another body part of the individual, another person, or property) that the behavior would contact if uninterrupted. For example, if a child were to engage in SIB in the form of eye poking, a caregiver could prevent the child's finger from reaching the eye simply by placing their hand in the way and guiding the child's hand to their lap, immediately releasing the hand. Response blocking is often taught within programs of restraint focusing on TR as a means to protect the individuals engaging in problem behavior and their caregivers; however, it is often used for less intense behaviors such as stereotypy, pica, and some forms of SIB (e.g., Lancioni, Singh, O'Reilly, & Sigafoos, 2009). When used properly, empirical research has shown that response blocking can be used effectively to accomplish therapeutic changes (e.g., Reid, Parsons, Phillips, & Green, 1993).

Although using any intervention that prevents or limits movement can be considered a step toward more restrictive procedures, response blocking is not typically considered a form of TR. The essential characteristic that separates response blocking from TR is the brevity of the procedure. It is important to note this difference

because even though response blocking typically lasts only a few seconds, some procedural variations involve more extended movement suppression, at which point they would be considered forms of TR. For instance, in the previous example of the child eye poking, if the caregiver were to block and then hold the child's hands down for 30 s, it would be considered restraint. Knowing the threshold of when a procedure becomes TR may help to avoid unintentional application of restraint without the appropriate therapeutic safeguards for the individual and to adhere to least-restrictive practices. Because response blocking is not technically a form of TR, it is not within in the scope of this chapter to cover it in any further detail.

Extended response prevention in the form of physical holds are those usually implemented as TR. Within the broader category of physical holds, there are several subgroups based on the number of caregivers required to implement the hold. These include single-person holds, two-person holds, three-person holds, and four-person holds. Typically, the more people that are required to perform the hold, the greater the restrictiveness (as when nearly all movement by the individual engaging in the problem behavior is prevented in a four-person hold), and therefore, the type of hold used should match the severity of the behavior.

Single-person holds can vary in form and typically involve restriction of one or both arms. Holds involving control of a single arm are often done to keep the caregiver in a safer position (e.g., slightly behind and to the side) during the problematic episode. A commonly used hold controlling both arms and the torso of the individual engaging in problem behavior is the basket hold. This tends to put the caregiver in a safer position (e.g., behind the individual) while also preventing the individual from using either arm to engage in problem behavior. It can be performed in either a standing or seated position. This form of TR is necessarily more restrictive than a single-arm hold and, as with any escalation of restrictive practice, should be used with increasing levels of safeguards for both the individual receiving TR and the caregiver implementing it.

Two-person holds can also occur in a variety of forms. The less restrictive holds can simply be two caregivers each controlling one arm (similar to the single-person one-arm hold). Some two-person holds are intended to keep the individual receiving TR off balance as a means of preventing problem behavior, while others are intended to prevent problem behavior through physical restriction of the body and legs (as with one person implementing a basket hold and the other restricting movement of the legs).

Three-person and four-person holds should be reserved for instances of extreme problem behavior in which the individual is at a high risk of causing severe harm to themselves or others. These involve a great deal of training and coordination to implement effectively and safely. They tend to have fewer variations, as the positions from which control of an individual's body can be effectively produced are limited. Three-person holds are typically implemented with two caregivers controlling the arms and one controlling the legs and can be done in a standing position or a supine position. This results in a high degree of movement restriction. Four-person holds are typically conducted in the supine position, similar to the three-person hold, with the fourth caregiver restricting movement of the head. The result of a four-person hold is the complete immobilization of the individual receiving TR. With this level of restrictiveness, it is absolutely essential that there be systems of professional oversight and monitoring of implementation of the TR to ensure the safety and rights of the individual.

Another category of TR involves assisted movement, as when a situation requires an individual to be lifted or transported to another area during an episode of problem behavior. Transports can involve minimal restriction of body parts, as with guidance, while a caregiver controls a single arm, or maximal restriction of body parts, as when an individual is completely lifted from the ground and moved. As with physical holds, assisted movement can involve one to several caregivers to perform. Anytime that TR involves moving an individual, as opposed to restricting movement, there is added potential for injury to either the individual receiving TR or the caregiver. Oftentimes transports and lifts are reserved for emergency situations in which it is necessary to

relocate the individual to avoid imminent danger (e.g., if property destruction results in broken glass, moving the individual away from the glass) but sometimes can be used to help caregivers relocate the individual so that physical holds can be more safely and effectively implemented. Some programs of TR also incorporate minimally restrictive assisted movement (e.g., walking with single-arm control) as a means to help calm the individual during episodes of problem behavior. Regardless of the context in which these types of TR are used, it is important that caregivers are adequately trained to implement these procedures properly.

Programs of Therapeutic Restraint

As mentioned in Section "Clinical Decision Making Regarding TR," there are numerous programs of TR (see Table 7.2 for some examples). For professional caregivers working in clinical settings, there are benefits to using a specific program of TR. These programs have been developed specifically to provide caregivers with safe and effective procedures for managing severe behaviors. As a result, there is the potential for decreased injury during episodes of problem behavior for both those implementing and receiving TR. Additionally, some programs of TR may provide aid in the event of litigation resulting from injuries incurred during their use. The extent to which specific programs of TR are safe and effective has not been well researched. Few studies have sought to empirically validate the efficacy of programs of TR, and even fewer have directly compared programs to determine if one program is relatively more effective than another. Those studies that do exist have examined these programs with individuals with psychiatric disorders rather than with individuals with developmental disabilities (e.g., Henderson, Siddons, Wasser, Gunn, & Spisszak, 2005), despite the fact that the programs of TR are used with both populations.

Limitations of Therapeutic Restraint

As indicated earlier in the chapter, TR is a controversial procedure that many professionals do not endorse, notwithstanding that it may be necessary and clinically justified on a case-by-case basis. In this section, we review limitations to TR and suggest ways to resolve them.

Injury from TR

A notable limitation of TR is the potential for injury to the people receiving and implementing it. Most concerning are restraint-related deaths which have been reported among individuals in institutions, prisons, and similar settings (Weiss, 1998). Medical reports reveal that fatalities can be caused by the method of restraint (e.g., prone floor control) and associated positional asphyxia (Mohr & Mohr, 2000; O'Halloran & Frank, 2000). Nonlethal but serious restraint-related injuries to clients and staff are also prevalent in treatment settings for children and adults with IDD (Hill & Spreat, 1987; Luiselli, 2011; Sanders, 2009; Spreat, Lipinski, Hill, & Halpin, 1986; Tilli & Spreat, 2009; Williams, 2009a, 2009b).

Staff Training

One factor that accounts for injury during restraint is procedural misapplication by staff. Convention demands that human services and behavioral health-care organizations for people with IDD train direct-care staff in approved methods of physical management including TR (Lennox, Geren, & Rourke, 2011). However, there is no uniformly accepted restraint training curriculum, and indeed, the quality of training varies from one organization to another. Poorly trained staff is at high risk for misapplying restraint. Accordingly, organizations must continuously monitor their restraint training program to ensure that the content and method are consistent with best practices, meet regulatory guidelines, and accommodate internal policies and procedures.

Supervision

Even properly trained staff can apply TR improperly if they are not adequately supervised. One objective of supervision is verifying that what staff was trained to do, in fact, is demonstrated under actual conditions and interactions with clients.

A common problem, termed *procedural drift*, refers to staff departing from a criterion implementation standard. For example, when working with a child or adult who displays low-frequency but high-intensity challenging behaviors, procedural drift could develop because some staff may never have had to apply TR or done so infrequently. Consequently, intervention implementation may deviate from the protocol that was originally trained.

Another influence on procedural misapplication is a person resisting and struggling against restraint. Many times staff responds to restraint-provoked challenging behaviors with forceful counterreaction (e.g., intensifying pressure against the person's body) that includes improvised positioning and contact points. By altering approved techniques and safe-restraint practices, staffs themselves are susceptible to injury and more likely to harm the person they restrain.

Routine supervision is critical for preventing improperly applied restraint and resulting injuries. Clinical supervisors should observe staff applying restraint and provide performance feedback that reinforces skilled implementation and corrects procedural errors (DiGennaro, Martens, & Kleinmann, 2007). In effect, supervision functions both as intervention integrity assessment (DiGennaro Reed & Codding, 2011) and, in vivo, competency-based training (Ricciardi, 2005).

Emergency Versus Planned Restraint

Concerning injuries, there is research showing that they are more likely to be sustained with emergency restraint than planned restraint (Spreat et al., 1986; Tilli & Spreat, 2009; Williams, 2009a, 2009b). This outcome should not be surprising given the preceding discussion. That is, emergency restraint, it would seem, allows staff too much discretion about when to implement restraint, perhaps more often than required, and in consequence increasing the probability of injury. It also is possible that because emergency restraint is typically applied at last resort, the person being restrained is in a state of high arousal and therefore prone to injury.

Reinforcing Effects of TR

It may appear paradoxical, but TR sometimes can function as reinforcement (Favell, McGimsey, & Jones, 1978; MaGee & Ellis, 1988). If so, the clinical scenario is bleak: contingently applied restraint will increase the behaviors targeted for reduction (Kahng, Leak, Vu, & Mishler, 2008). Although more research about the reinforcing effects of TR is needed, at this time several plausible explanations, presented below, can be considered.

Social Positive Reinforcement

Functional behavioral assessment and functional analysis reveal that many challenging behaviors of children and adults with IDD are maintained by social positive reinforcement (Hanley, Iwata, & McCord, 2003). In lay terms, social reinforcement operates when someone "attends" to a person as a consequence of behavior that subsequently increases. The social consequences can be verbal, such as a comment about behavior, or nonverbal, such as a facial expression. For some people, being restrained may provide social attention, albeit unintended but sufficiently reinforcing. It is also worth noting that the source of social attention could be the responses of peers and not staff implementing restraint. For example, some children and adults receiving restraint may "enjoy" seeing and hearing their peers react emotionally.

Social Negative Reinforcement

Children and adults with IDD also display challenging behaviors that are escape motivated (Miltenberger, 2006). An escape-motivated function is seen in persons whose challenging behaviors have been negatively reinforced through contingent removal or termination of non-preferred conditions and interactions. Certainly, the process of applying TR temporarily removes a person from situation she or he dislikes. If the reinforcing consequence of escape is more potent than the aversive features of restraint, the restraint-provoking behaviors will be maintained and not reduced. Escape, therefore, makes TR a reinforcing event.

Automatic Reinforcement

The physical contact, holding, and positioning that characterizes TR could function as sensory pleasurable stimulation that is automatically reinforcing. To illustrate, we have witnessed children and adults with IDD that seemed to enjoy the tactile sensations, pressure, and body immobilization associated with restraint. Also, people that were exposed to physical and sexual maltreatment may have heightened sensitivity to potential automatic reinforcement that is contacted during TR. Whereas it may be possible to eliminate or greatly attenuate the social reinforcement occurring contemporaneously with restraint, automatic reinforcement is not as easy to identify and manipulate. Should automatic reinforcement be a concern, restraint may not be a therapeutic option.

Adventitious Reinforcement

Social positive, social negative, and automatic reinforcement may not operate initially but be acquired after a person experiences restraint. Consider the case of an adolescent boy, whom staff restrains several times per guidelines in his behavior support plan. Unexpectedly, the boy spits at staff during restraint, staff reacts with surprise and disgust, and restraint episodes with spitting increase week to week. This scenario illustrates what could happen when a previously non-encountered behavior, spitting at staff, contacts social consequences during restraint, which then function as reinforcement.

Interventions to Reduce and Eliminate TR

The need to reduce and eliminate TR is widely recognized and reflected in the clinical research and systems-level analyses described in this section (Harris, 1996; Luiselli, 2009, 2011; Williams, 2009a, 2009b). We emphasize that more studies must be conducted to further validate and replicate findings reported in the extant literature as well as extend applications to larger populations of people with IDD and service settings.

Preventive Intervention

To reiterate, with planned TR, staff implements restraint when a child or adult demonstrates specific challenging behaviors such as aggression or self-injury. A logical approach toward restraint reduction and elimination is, first, assessing conditions that reliably set the occasion for the behaviors (Luiselli et al., 2005; Luiselli et al., 2003) and, second, manipulating these conditions so that the behavior and subsequent restraint are prevented.

Luiselli, Kane, Treml, and Young (2000) described a preventive intervention approach with two boys (14 and 16 years old) who had IDD and frequent aggressive behaviors toward peers and staff at a residential school. Following a baseline phase, restraint reduction was not achieved through a program of differential positive reinforcement and behavior-specific restraint criteria. The next phase of intervention included antecedent control procedures that were intended to remove situations that consistently predicted aggression. The procedure were (a) having staff cue the boys to "take time" when they appeared agitated, (b) teaching them to request a "break" from demanding activities, (c) scheduling more high-preference activities during the day, and (d) strategically positioning the boys so that they were less proximate to peers within groups. Luiselli et al. (2000) found that these antecedent modifications essentially eliminated aggressive behaviors and use of restraint with both boys.

Another example of preventive intervention is Luiselli et al. (2005) in the case of a 15-year-old girl who had IDD and aggressed toward staff by biting them, often causing skin bruises and lacerations. Intervention was implemented with the girl at a residential school and included aggression-contingent TR. Through antecedent assessment, it was determined that her actual and attempted biting was more likely to occur in certain instructional contexts and when she was presented with particular tasks. Luiselli et al. (2005) were able to drastically reduce TR to near-zero frequency by preventing aggression through (a) scheduling instructional activities outside of the

classroom, (b) implementing a curriculum that emphasized functional life skills instead of sedentary desk work, and (c) allowing her to choose the type and sequence of tasks.

The preceding studies support antecedent intervention as effective in reducing and possibly eliminating TR. As Luiselli (2009) advised, "A long-term objective of such intervention is to minimize restraint while gradually re-introducing conditions that previously set the occasion for restraint-provoking behaviors" (p. 130).

Fixed-Time Release

When staffs implement TR, they typically maintain physical contact until the child or adult achieves a behavior-contingent release (BCR) criterion. For example, a BCR criterion might specify that staff does not terminate restraint until the person demonstrates 60 consecutive seconds of "calm" behavior (e.g., absence of screaming, struggling, resisting). A BCR criterion is intended to avoid negatively reinforcing disruptive behaviors that occur immediately preceding staff terminating restraint. Unfortunately, most clinicians are familiar with children and adults who experience prolonged restraint because they do not easily achieve the BCR criterion. Furthermore, having to maintain lengthy episodes of restraint burdens staff physically and may increase probability of injury to everyone involved.

Several years ago, Luiselli et al. initiated research that questioned whether a person's total exposure to TR could be reduced by releasing restraint after a preset duration of time had elapsed independent of the challenging behavior during restraint (Luiselli, Treml, Kane, & Young, 2004; Luiselli, Pace, & Dunn, 2006). The impetus of our research into *fixed-time release* (*FTR*) was studies suggesting that relatively low-duration physical restraint was as effective as longer-duration physical restraint (Singh, Dawson, & Manning, 1981; Winton & Singh, 1983) and one study which found that time-based release from time-out was as effective as BCR (Mace, Page, Ivancic, & O'Brien, 1986). In Luiselli et al. (2004), we were able to reduce the average duration of TR applications with a 12-year-old girl from 5.6 min under BCR to 3.1 min under FTR. The study by Luiselli et al. (2006) targeted three youths (11–14 years old) and revealed decreased time in TR from averages of 14.2, 5.1, and 11.2 min under BCR to 3.8, 1.4, and 3.0 min under FTR, respectively. Notably, when compared to BCR, the *frequency* of TR in these studies either remained the same or decreased with the change to FTR. This effect, the reduced total exposure to restraint and the possibility of better intervention integrity, suggests that FTR is a promising approach toward restraint reduction.

Restraint Fading

Several studies have evaluated fading methods for gradually limiting frequency of TR. Lerman, Iwata, Shore, and Deleon (1997) addressed restraint fading with four adults (25–35 years old) who had IDD and self-injurious behavior. An initial intervention evaluation revealed that in all cases, restraint applied on a continuous (FR-1) schedule reduced self-injury. Fading was implemented by thinning the schedule from FR-1 to fixed-interval 120 s (FI-120 s) with two of the adults and from FR-1 to fixed-interval 300 s (FI-300 s with the other two adults). The intervals were lengthened by a prespecified duration based on the rate or percentage of recording intervals with self-injury. Fading was successful with two of the adults but ineffective with two others—these adults required that restraint be applied continuously to maintain minimal self-injury.

Grace, Kahng, and Fisher (1994) attempted to minimize TR of an 11-year-old boy with IDD by implementing it with different topographies of challenging behavior. "Less severe" topographies included the boy making mild physical contact with other people, banging objects, and pushing materials off tables. "More severe" topographies were the boy forcefully hitting other people, overturning furniture, and destroying objects. Relative to baseline (no restraint) conditions, both behavior topographies decreased substantially with TR. During phases when restraint was applied to the "more severe" topographies but not

the "less severe" topographies, the former behaviors occurred infrequently, but the latter behaviors persisted at baseline levels. Thus, the results of Grace et al. (1994) suggest that partial TR, or intervening with some but not all challenging behaviors, may not be an effective restraint-fading strategy.

One additional method, reported by Luiselli (2008), is FTR fading. The participant was a 13-year-old boy with autistic disorder and PDD-NOS diagnoses. He slapped, pinched, bit, and pulled the hair of classroom staff, resulting in a behavior support plan that had aggression-contingent TR. In an initial (prefading) intervention phase, staff released the boy from restraint after 60 s. During subsequent phases, the FTR criterion was decreased from 60 to 30, 15, and 7 s, based on a deceasing frequency of restraint and, by default, reduced duration. Upon reaching the FTR-7 s criterion, TR was successfully eliminated by having staff move behind the boy as if to implement restraint, touch him gently on the shoulder, and instruct him to "sit down." When he complied, staff stepped back, waited a few seconds, and then had the boy stand up.

Staff Training

All of the restraint reduction clinical procedures we have described demand comprehensive staff training and supervision. Singh et al. (2009) proposed and evaluated an innovative approach toward reducing physical restraint that relied on mindfulness-based staff training. The setting was four group homes serving 20 people with IDD (20–25 years old) and staffed by 23 direct-care providers. The staff was separated into morning and afternoon shifts, each shift receiving 12 2-h mindfulness training sessions that taught meditation and exercises to enhance mindfulness throughout the day. In a subsequent phase that immediately followed mindfulness training, staffs were instructed to apply their mindfulness skills when interacting with clients but otherwise did not receive further support. As evaluated in a multiple baseline design across staff shifts, mindfulness training and practice was associated with decreased restraint to almost zero frequency among all of the group home residents. These results are promising but certainly mindfulness-based staff training and intervention is a relatively novel approach within IDD (Singh et al., 2006), and its principles and mechanisms of change must be researched in greater detail. On this matter, Singh et al. (2009) posited that mindfulness "enables staff to disengage themselves from a premature cognitive commitment to pre-empt or control the behavior of the individuals, based on history. Staff can observe without judgment or an expectation of specific resultant behaviors, whether social or aggressive" (p. 198).

Organizational (Systems-Level) Intervention

Within child and adult psychiatric hospitals, use of restraint has been reduced through large-scale organizational intervention such a mandatory behavioral consultation (Donat, 1998), administrative policy change (Singh, Singh, Davis, Latham, & Ayers, 1999), and systems-level modifications (Donat, 2002). Similarly, Sanders (2009) described an organization initiative and intervention plan that reduced physical restraint of children and adults with IDD at a regional facility over a 4-year period. Among several directives aimed at minimizing restraint and supporting clinical safety, the intervention emphasized (a) intensified staff training, (b) alternatives to restraint, (c) increased supervision by senior management personnel, and (d) systematic review of restraint utilization. In addition to less-frequent restraint, corollary benefits from intervention were fewer staff injuries and related salary costs to the facility.

In a project concerned about mechanical and not physical restraint, Williams and Grossett (2011) incorporated principles of organizational behavior management (OBM) at a large residential facility for people with IDD (13–65 years old). The project formed residential treatment teams that were responsible for identifying youth and adults with restraint histories, received consultation from a senior-level psychologist, and

participated in peer review with behavioral and medical specialists. Other components of the OBM intervention were instituting a restraint monitoring and feedback system, submitting incident reports to a management coordination team, and standardizing acceptable and non-approved conditions for applying mechanical restraint. Over 17 months of intervention evaluation, mechanical restraint decreased by 80 %, and there was a corresponding increase in written behavior support plans. Although Williams and Grossett (2011) had to do with mechanical restraint, the methods and policies they implemented are applicable to organizational change projects for reducing physical restraint as well (see Luiselli & Russo, 2005, and Luiselli, 2011, for further discussion about organizational tactics).

Summary

This chapter highlighted (a) what constitutes TR, (b) clinical decision-making strategies when considering use of TR, (c) policy statements on TR by relevant professional organization, (d) forms of TR, (e) limitations of TR, and (f) ways to reduce the necessity and need for TR for IDD in crisis. The use of TR should be avoided whenever possible. Behavioral crises may necessitate the use of TR for safety reasons but should never be considered a long-term solution for behavior problems. Should TR be required/necessitated, the clinical team should immediately begin strategies to fade this procedure. TR should only be used in conjunction with thorough behavioral treatment strategies that incorporate the technologies and procedures outlined throughout this volume.

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