



Intervention Strategies for the Reduction of Repetitive Behavior in Persons with ASD

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Strong Center for Developmental Disabilities

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Rochester Regional Center for Autism Spectrum Disorder (RRCASD)

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- Information & Referral
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- Information Sheets on ASD-related topic
- Community Presentations & Events
- Parent/Guardian & Professional Development Programs



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Diagnostic Features of Autism Spectrum Disorders Related to Repetitive Behavior

According to the Diagnostic and Statistical
Manual of Mental Disorders, one essential
diagnostic feature of autistic disorder is the
presence of restricted, repetitive and
stereotyped patterns of behaviors, activities,
and interests.

General Characteristics of Repetitive Behavior

- ▶ The behavior involves repetition
- ▶ The behavior is rigid
- ▶ The behavior is topographically invariant

Repetitive behaviors lack variability in form

Types of Repetitive Behavior

- Verbal
- Motor oriented
- Very simple in form or very complex in form

Common Examples Repetitive Behavior

- Hand flapping
- Body rocking
- Toe walking
- Spinning objects
- Sniffing objects or other people
- Delayed echolalia (repeating something you heard in the past)
- Immediate echolalia (repeating something immediately after you hear it)
- Running objects across one's peripheral vision
- Inflexible non-functional adherence to a routine or ritual
- Only attending to specific parts of objects (for example, care wheel, shoes of a doll)
- Playing with toys in a very specific fashion (e.g., only making towers with Legos)
- Rigid preferences about things like food (e.g., only eating one type of pizza from a particular pizza parlor, only eating food of a certain color)

Who Displays Repetitive Behavior?

- Repetitive behaviors are not just displayed by persons with autism
- Commonly displayed by persons with sensory (e.g., visual) impairments, intellectual, and developmental disability
- Repetitive behaviors are also displayed by all people (e.g., typically developing children, adults without disabilities)

Common Repetitive Behaviors Displayed by Many Persons

- Tapping feet
- Nail biting
- Smoking
- Shaking one's leg
- Playing video games (with difficulty turning them off)
- Stroking one's own beard

Why You Should We Be Concerned About Repetitive Behavior

- Socially stigmatizing
- May cause some parents to limit community activities
- May limit interactions with same-age peers (for example, decreasing opportunities to learn through observational learning)
- Interfere with classroom engagement, learning (for example, decreasing opportunities to learn through observational learning) (see Koegel and Covert , 1972)

Potential Highly Focused Interests

- Art
- Music
- Trains
- Computers
- Type of vehicle (for example, vans)
- Bus or train timetables
- Body parts such as feet or elbows
- Thomas the Tank Engine,
- Dinosaurs
- Animals (for example, white tigers)
- Particular cartoon characters (for example, Rainbow Dash)
- Can be anything!

Theoretical Explanation of Repetitive Behavior

- Arousal
- Stress and Anxiety
- Lack of engagement in functional skills
- Behavioral

Arousal

- **Hypo-arousal.** Repetitive behavior reduces a physiological response produced by external stimuli
 - Hand flapping reduces an increased heart rate triggered by a very loud and crowded setting (for example, visiting Wegmans on a Sunday)
- **Hyper-arousal.** Repetitive behavior produces an increase in a physiological response.
 - Body rocking may be a way to stimulate the balance (vestibular) system

Anxiety

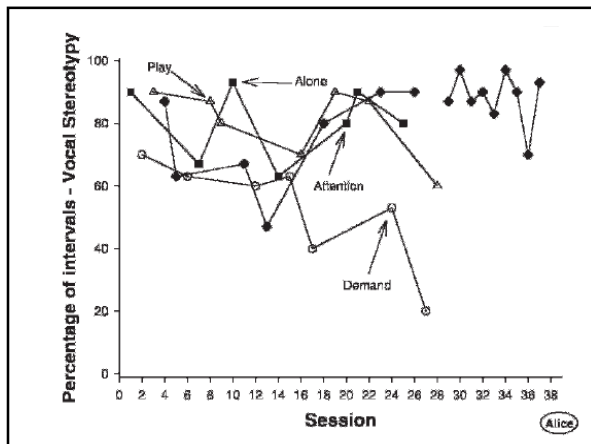
- Repetitive behaviors are adaptive
- Reaction to stress and/or anxiety
- Repetitive behavior block out feelings of uncertainty

Lack of Engagement in Functional Skills

- ▶ Repetitive behavior are an adaptive response to social and leisure deficits
- ▶ Repetitive behaviors are a substitute for more functional adaptive behaviors
- ▶ Suggests that social and leisure skill instruction may be the key (see upcoming behavioral skills training section)

Behavioral Model

- ▶ Repetitive behaviors are most often maintained by non-social or internal factors
- ▶ Supported by a large number of peer-reviewed behavioral studies that have demonstrated that repetitive behaviors occur in the absence of social interactions



Basic and Easily Implemented Strategies

- › Modify the Environment
- › Increase Structure
- › Visual Supports
- › Setting Boundaries
- › Provide Alternatives
- › Make use of focused interests to identify occupations or social activities

Modify the Environment

- › Can you reduce the environmental triggers (for example, is the environment too noisy)?
- › Does the individual with autism find a particular place difficult to tolerate (for example, a classroom, the mall, or a restaurant)?
- › Is it too bright? Can you do something like turning off some of the lighting?

Increase Structure

- › Make the world a more structured and predictable place
- › A more structured environment can reduce downtime, which is sometimes strongly associated with repetitive behavior
- › Identify and carry a variety of high-preference activities in which the child will engage

Visual Supports

- ▶ Develop and use a visual schedule
- ▶ Preteach expectations using a visual teaching sequence
- ▶ Use a visual timer to help with prompting to end activities

Setting Boundaries

- ▶ Establish a time limit for talking about a particular topic or engaging in a particular activity (another good use for the visual timer)
- ▶ Setting boundaries is most likely to be effective if start with a small change in behavior and proceed slowly
- ▶ Reinforce (reward) the individual for meeting the established goal

Provide Alternatives

- ▶ Provide as many opportunities to engage in alternative activities as possible
 - Playing a video game versus watching one's reflection in a mirror
 - Running on a treadmill versus body rocking
- ▶ Can you provide an appropriate replacement behavior (e.g. asking to leave)?

Make use of focused interests to identify occupations or social activities

- ▶ A focus on computers could be developed into someone studying or working in IT
- ▶ A person with a special interest in historical dates could join a history group and meet people with similar interests
- ▶ A person with knowledge of sport or music would be a valuable member of a trivia game team

Interventions Requiring Professional Support

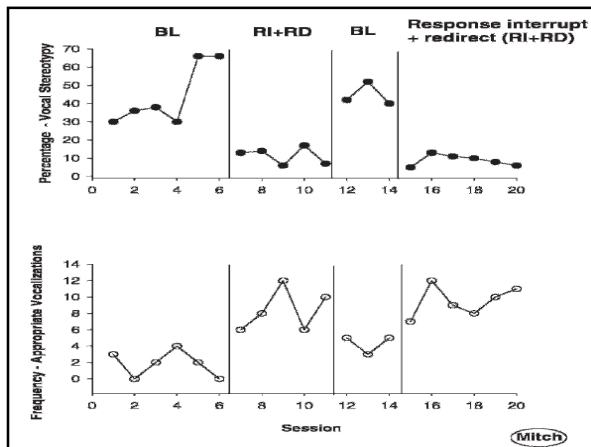
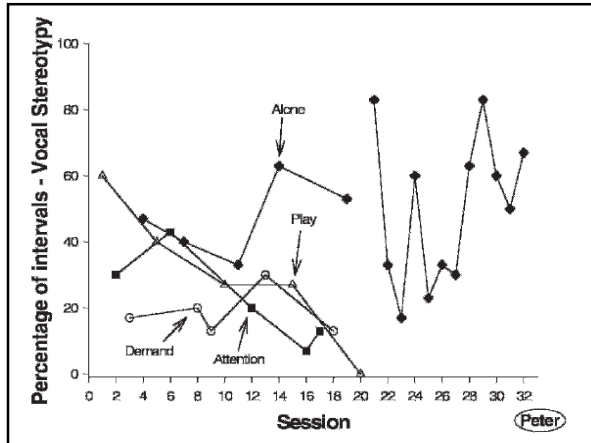
- ▶ Response Interruption and Redirection
- ▶ Lag Reinforcement
- ▶ Habit Reversal
- ▶ Differential Reinforcement
- ▶ Parent Training

Response Interruption and Redirection (RIRD)

- ▶ First described by Ahearn et al. 2007
- ▶ Intervention for vocal repetitive behavior that interferes with teaching or participating in community-based activities

Description of RIRD

- ▶ Asking “wh” questions contingent on vocal repetitive behavior. Three “wh” questions within very close proximity of each other
- ▶ Immediate verbal prompt to engage in a functional activity



Lag Reinforcement

- › Intervention developed in the 1970's that received little attention until recent years
- › Reinforcement (rewarding) of a behavior only when the behavior varies from the individual's prior behavior
- › Napolitano et al (2010) used it to teach more diverse, less repetitive, toy play behavior

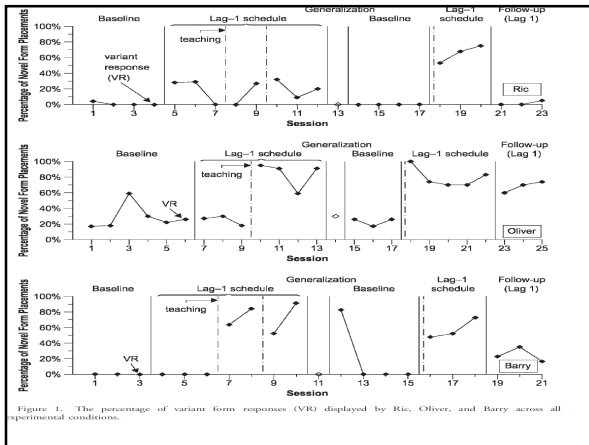


Figure 1. The percentage of variant form responses (VR) displayed by Ric, Oliver, and Barry across all experimental conditions.

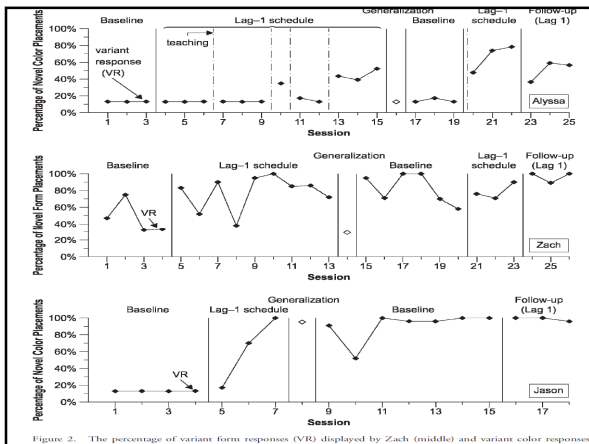
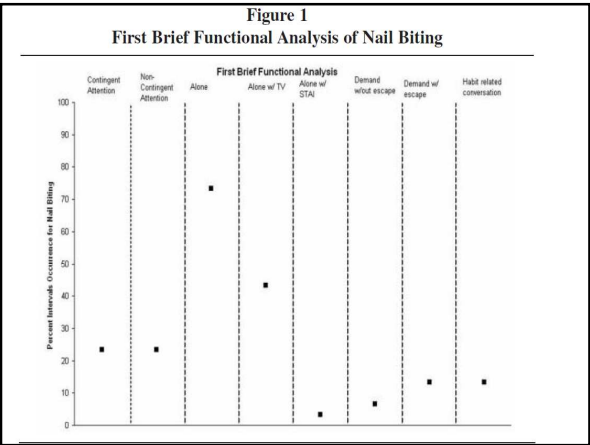
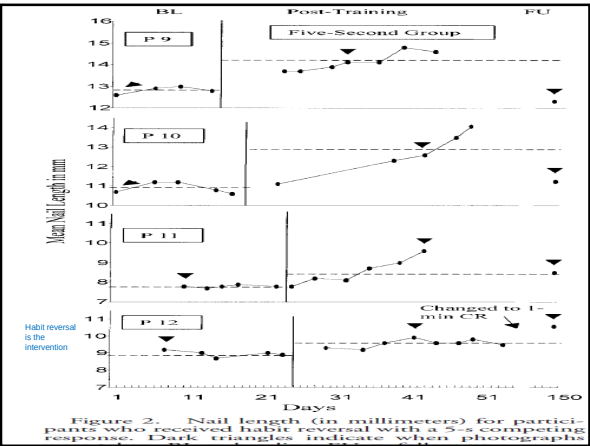


Figure 2. The percentage of variant color responses (VR) displayed by Zach (middle) and variant color responses

Habit Reversal

- ▶ Multicomponent behavioral treatment package originally developed to address a wide variety of repetitive behavior disorders
- ▶ Developed by Nate Arzin in the 1970's
- ▶ Three main components
 - awareness training
 - competing response training
 - contingency management





Differential Reinforcement

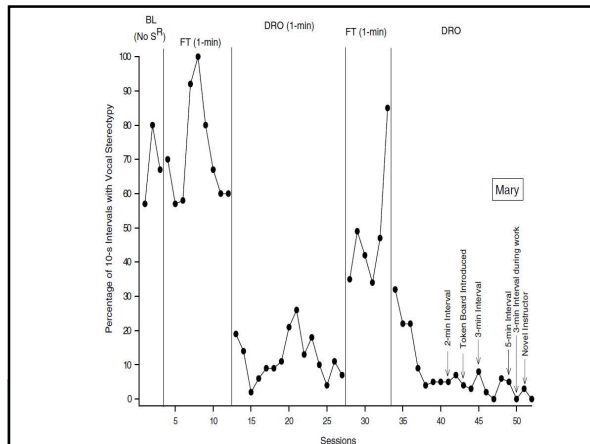
- ▶ Differential reinforcement of behavior can take many different forms
 - Differential reinforcement for alternative behavior (DRA)
 - Differential reinforcement of low rates of behavior (DRL)
 - Differential reinforcement for other behavior (DRO)

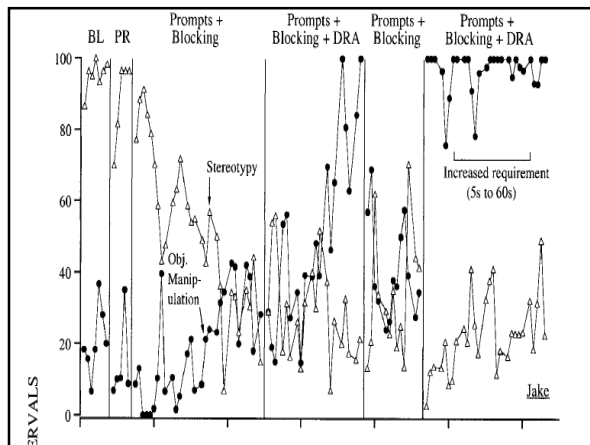
DRO – Differential Reinforcement of Other Behavior

- ▶ Also called differential reinforcement of zero rate of behavior
- ▶ Reinforcer is delivered for the ***absence*** of the problem behavior in *intervals* of time
- ▶ Intervals are chosen based on the baseline level of the problem behavior
- ▶ If the problem behavior occurs, the interval is reset (resetting DRO)

DRA – Differential Reinforcement of *Alternative Behavior*

- ▶ DRA is typically used to decrease undesirable behaviors by increasing or strengthening desirable behaviors.
- ▶ It is typically used with extinction for the problem behavior
- ▶ Typical uses of DRA:
 - Do you want to increase a desirable behavior?
 - Is the desired behavior occurring already, at least occasionally?
 - Do you have access to a reinforcer that you can deliver after the occurrence of the behavior?
 - You can often think of DRA as reinforcing communication
 - DRA does not need to be “functionally equivalent” in that you can use items (e.g., stickers, notes home, etc.) to increase the likelihood someone will work.





Parent Training

- Working with individuals with ASD and parents
- Key Components:
 - RIRD
 - Differential Reinforcement
- Key Principles
 - Repeated trials
 - Identify antecedents/triggers
 - Disrupt the association between behavior and reward
- First work with person with ASD then teach parents

Boyd, B. A., McDonough, S. G., Rupp, B., Khan, F., & Bodfish, J. W. (2011). Effects of a family-implemented treatment on the repetitive behaviors of children with autism. *Journal of autism and developmental disorders*, 41(10), 1330-1341.

Teaching New Skills: Behavioral Skills Training

- ▶ Used to teach new behaviors, for skills that can be imitated
- ▶ May be used individually or in groups, to teach persons with autism and to teach parents, teachers and others
 - Instructions
 - Modeling
 - Rehearsal
 - Feedback

Instructions

- ▶ Must be understood by learner, specific and describe what is expected
- ▶ Given by a person with credibility

Modeling

- ▶ Model has high status or similarity
- ▶ Model's behavior is reinforced; do not model errors
- ▶ Complexity of the model is appropriate for the learner
- ▶ The model's behavior occurs in the proper context, with a variety of teaching examples (exemplars)
- ▶ Describe important aspects of the models' behavior, then have the learner describe these aspects.
- ▶ Repeat as necessary

Rehearsal

- Immediately after instructions and modeling
- Rehearsal in the proper context
- Immediate praise or other reinforcers
- Corrective feedback if needed
- Repeat rehearsal of correct behavior
- Work from easy to hard behaviors or situations
(program for success)

Praise and Feedback

- Praise correct behavior immediately
- Always praise some aspect of the performance
- Use descriptive praise
- Give feedback on one aspect of performance at a time
- Do not make corrective feedback negative
- Mix praise and feedback

Using Behavioral Skills Training Procedures

1. Identify and define the skills to teach
2. Identify all the relevant cues
3. Assess the learner's skills/ establish a baseline
4. Begin training with the easiest skill first
5. Describe the behavior and model it in a realistic role-play context
6. Allow the learner to rehearse the behavior in the role-play context

Using Behavioral Skills Training, cont.

7. Provide praise for correct performance and further instructions (feedback) for improvement
8. Repeat until the learner performs the behavior successfully without assistance
9. Advance to the next behavior and repeat steps 5–8
10. Program for generalization

Resources

- ▶ Rochester Regional Center for Autism Spectrum Disorder (RRCASD)
 - Educational resources, webinars, Information & Referral services.
 - Contact information:
 - Website: www.golisano.urmc.edu/rrcasd-nyautism
 - E-mail: rrcasd@urmc.rochester.edu
 - Phone: 1-855-508-8485
- ▶ Autism Speaks: www.autismspeaks.org
 - This site contains various toolkits and guides for home, school, work, safety, health/medical, etc.

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Question & Answer

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2016–2017 Webinar Series

Executive Functioning in Individuals with ASD
and Related Disabilities

Wednesday, April 26, 3:00–4:30 p.m.
Linda Matons & Valerie Smith

Registration Period: 4/5–4/19
