# Differential Reinforcement of Alternative, Incompatible, or Other Behavior Fact Sheet

## **Brief Description**

Differential reinforcement of alternative, incompatible, or other behavior (DRA/I/O) teaches new skills and increases behavior by providing positive/desirable consequences for behaviors or their absence that reduces the occurrence of an undesirable behavior, especially behaviors that interfere with the learner's learning, development, relationships, health and so on (e.g., tantrums, aggression, self-injury, stereotypic behavior). Through differential reinforcement the learner is reinforced for desired behaviors, while inappropriate behaviors are ignored. The learner is provided reinforcement when: a) the learner is engaging in a specific desired behavior other than the inappropriate behavior (DRA), b) the learner is engaging in a behavior that is physically impossible to do while exhibiting the inappropriate behavior (DRI), or c) the learner is not engaging in the interfering behavior (DRO). Differential reinforcement is often used with other evidence-based practices such as prompting to teach the learner behaviors that are more functional or incompatible with interfering behavior, with the overall goal of decreasing that interfering behavior.

### **Qualifying Evidence**

DRA/I/O meets evidence-based criteria with 26 single case design studies.

#### Ages

According to the evidence-based studies, this intervention has been effective for preschoolers (3-5 years) to young adults (19-22 years) with ASD.

## Outcomes

DRA/I/O can be used effectively to address social, communication, behavior, joint attention, play, school-readiness, academic, motor, and adaptive skills.

#### **Research Studies Providing Evidence**

- Adelinis, J. D., Piazza, C. C., & Goh, H. L. (2001). Treatment of multiply controlled destructive behavior with food reinforcement. *Journal of Applied Behavior Analysis*, 34(1), 97-100. doi: 10.1901/jaba.2001.34-97
- Bergstrom, R., Tarbox, J., & Gutshall, K. A. (2011). Behavioral intervention for domestic pet mistreatment in a young child with autism. *Research in Autism Spectrum Disorders*, 5(1), 218-221. doi: 10.1016/j.rasd.2010.04.002
- Buckley, S. D., & Newchok, D. K. (2005). An evaluation of simultaneous presentation and differential reinforcement with response cost to reduce packing. *Journal of Applied Behavior Analysis*, 38(3), 405-409. doi: 10.1901/jaba.2005.71-04

- Buckley, S. D., Strunck, P. G., & Newchok, D. K. (2005). A comparison of two multicomponent procedures to increase food consumption. *Behavioral Interventions*, 20(2), 139-146. doi: 10.1002/bin.188
- Call, N. A., Pabico, R. S., Findley, A. J., & Valentino, A. L. (2011). Differential reinforcement with and without blocking as treatment for elopement. *Journal of Applied Behavior Analysis*, 44(4), 903-907. doi: 10.1901/jaba.2011.44-903
- Charlop, M. H., Kurtz, P. F., & Milstein, J. P. (1992). Too much reinforcement, too little behavior: Assessing task interspersal procedures in conjunction with different reinforcement schedules with autistic children. *Journal of Applied Behavior Analysis*, 25(4), 795-808. doi: 10.1901/jaba.1992.25-795
- Charlop-Christy, M. H., & Haymes, L. K. (1996). Using obsessions as reinforcers with and without mild reductive procedures to decrease inappropriate behaviors of children with autism. *Journal of Autism and Developmental Disorders*, *26*(5), 527-546. doi: 10.1007/BF02172274
- Egan, P. J., Zlomke, L. C., & Bush, B. R. (1993). Utilizing functional assessment, behavioral consultation and videotape review of treatment to reduce aggression: A case study. *Special Services in the Schools*, 7(1), 27-37. doi: 10.1300/J008v07n01\_02
- Hagopian, L. P., Kuhn, D. E., & Strother, G. E. (2009). Targeting social skills deficits in an adolescent with pervasive developmental disorder. *Journal of Applied Behavior Analysis*, 42(4), 907-911. doi: 10.1901/ jaba.2009.42-907
- Hammond, J. L., Iwata, B. A., Fritz, J. N., & Dempsey, C. M. (2011). Evaluation of fixed momentary DRO schedules under signaled and unsignaled arrangements. *Journal of Applied Behavior Analysis*, 44(1), 69-81. doi: 10.1901/jaba.2011.44-69
- Healey, J. J., Ahearn, W. H., Graff, R. B., & Libby, M. E. (2001). Extended analysis and treatment of selfinjurious behavior. *Behavioral Interventions*, *16*(3), 181-195. doi: 10.1002/bin.91
- Kelley, M. E., Shamlian, K., Lomas, J. E., & Pabico, R. S. (2011). Pre-assessment exposure to schedulecorrelated stimuli affects choice responding for tasks. *Research in Developmental Disabilities*, 32(2), 527-531. doi: 10.1016/j.ridd.2010.12.029
- Kerth, D. M., Progar, P. R., & Morales, S. (2009). The effects of non-contingent self-restraint on self-injury. *Journal of Applied Research in Intellectual Disabilities*, 22(2), 187-193. doi: 10.1111/j.1468-3148.2008.00487.x
- Lee, R., McComas, J. J., & Jawor, J. (2002). The effects of differential and lag reinforcement schedules on varied verbal responding by individuals with autism. *Journal of Applied Behavior Analysis*, 35(4), 391-402. doi: 10.1901/jaba.2002.35-391
- Marcus, B. A., & Vollmer, T. R. (1996). Combining noncontingent reinforcement and differential reinforcement schedules as treatment for aberrant behavior. *Journal of Applied Behavior Analysis*, 29(1), 43-51. doi: 10.1901/jaba.1996.29-43
- Napolitano, D. A., Smith, T., Zarcone, J. R., Goodkin, K., & McAdam, D. B. (2010). Increasing response diversity in children with autism. *Journal of Applied Behavior Analysis*, 43(2), 265-271. doi: 10.1901/jaba.2010.43-265
- Newman, B. (2005). Self-management of initiations by students diagnosed with autism. *The Analysis of Verbal Behavior*, 21(1), 117-122.
- Patel, M. R., Carr, J. E., Kim, C., Robles, A., & Eastridge, D. (2000). Functional analysis of aberrant behavior maintained by automatic reinforcement: Assessments of specific sensory reinforcers. *Research in Developmental Disabilities*, 21(5), 393-407. doi: 10.1016/S0891-4222(00)00051-2
- Pelios, L. V., MacDuff, G. S., & Axelrod, S. (2003). The effects of a treatment package in establishing independent academic work skills in children with autism. *Education and Treatment of Children*, 26(1), 1-21.

- Piazza, C. C., Moes, D. R., & Fisher, W. W. (1996). Differential reinforcement of alternative behavior and demand fading in the treatment of escape-maintained destructive behavior. *Journal of Applied Behavior Analysis*, 29(4), 569-572. doi: 10.1901/jaba.1996.29-569
- Reed, G. K., Ringdahl, J. E., Wacker, D. P., Barretto, A., & Andelman, M. S. (2005). The effects of fixed-time and contingent schedules of negative reinforcement on compliance and aberrant behavior. *Research in Developmental Disabilities*, 26(3), 281-295. doi: 10.1016/j.ridd.2004.01.004
- Rozenblat, E., Brown, J. L., Brown, A. K., Reeve, S. A., & Reeve, K. F. (2009). Effects of adjusting DRO schedules on the reduction of stereotypic vocalizations in children with autism. *Behavioral Interventions*, 24(1), 1-15. doi: 10.1002/bin.270
- Shabani, D. B., & Fisher, W. W. (2006). Stimulus fading and differential reinforcement for the treatment of needle phobia in a youth with autism. *Journal of Applied Behavior Analysis*, 39(4), 449-452. doi: 10.1901/jaba.2006.30-05
- Taylor, B. A., Hoch, H., & Weissman, M. (2005). The analysis and treatment of vocal stereotypy in a child with autism. *Behavioral Interventions*, *20*(4), 239-253. doi: 10.1002/bin.200
- Thompson, M. J., McLaughlin, T. F., & Derby, K. M. (2011). The use of differential reinforcement to decrease the inappropriate verbalizations of a nine-year-old girl with autism. *Electronic Journal of Research in Educational Psychology*, *9*(1), 183-196.
- Tiger, J. H., Fisher, W. W., & Bouxsein, K. J. (2009). Therapist-and self-monitored DRO contingencies as a treatment for the self-injurious skin picking of a young man with Asperger syndrome. *Journal of Applied Behavior Analysis*, *42*(2), 315-319. doi: 10.1901/jaba.2009.42-315

#### DIFFERENTIAL REINFORCEMENT OF ALTERNATIVE, INCOMPATIBLE, OR OTHER BEHAVIOR FACT SHEET—SUGGESTED CITATION

Kucharczyk, S. (2013). Differential reinforcement of alternative, incompatible, or other behavior (DRA/I/O) fact sheet. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, The National Professional Development Center on Autism Spectrum Disorders.

Adapted from:

Bogin, J. & Sullivan, L. (2009). Overview of differential reinforcement of other behaviors. Sacramento: University of California at Davis School of Medicine, M.I.N.D. Institute, The National Professional Development Center on Autism Spectrum Disorders.