Evidence-base

The National Clearinghouse on Autism Evidence and Practice has adopted the following criteria to determine if a practice is evidence-based. The 2020 EBP report (Steinbrenner et al., 2020) provides more information about the systematic review process.

Efficacy must be established through high-quality, peer-reviewed research in scientific journals using:

- At least 2 randomized or quasi-experimental group design studies, or
- At least 5 single subject/case design studies, or a
- Combination of evidence of 1 randomized or quasi-experimental group design study and 3 single subject/case design studies

OVERVIEW:

Based upon the 2020 systematic review conducted by the National Clearinghouse on Autism Evidence and Practice (NCAEP), Differential Reinforcement is a focused intervention that meets the evidence-based practice criteria with 58 single case design. Differential Reinforcement has been effective for early intervention (0-2 years), preschoolers (3-5 years), elementary school learners (6-11 years), middle school learners (12-14 years), high schoolers (15-18 years), and young adults (19-22 years) on the spectrum. Studies included the 2020 EBP report (Steinbrenner et al., 2020) detail how Differential Reinforcement can be used to effectively address the following outcomes for a target skill/behavior/goal: academic/pre-academic, adaptive/self-help, behavior, communication, joint attention, motor, play, school readiness, and social.

In the table below, the instructional outcomes identified by the evidence base are shown by age of participants.

Age	Academic	Adaptive	Behavior	Communication	Joint Attention	Motor	Play	School Readiness	Social
0-2		Yes	Yes	Yes					
3-5	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
6-11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12-14			Yes	Yes		Yes		Yes	Yes
15-18		Yes	Yes						
19-22			Yes						

EARLY INTERVENTION (0-2 YEARS):

*** McGinnis, A. A., Blakely, E. Q., Harvey, A. C., Hodges, A. C., & Rickards, J. B. (2013). The behavioral effects of a procedure used by pediatric occupational therapists. *Behavioral Interventions, 28*(1), 48-57. https://doi.org/10.1002/bin.1355**

* Najdowski, A. C., Wallace, M. D., Reagon, K., Penrod, B., Higbee, T. S., & Tarbox, J. (2010). Utilizing a home-based parent training approach in the treatment of food selectivity. *Behavioral Interventions*, *25*(2), 89-107. https://doi.org/10.1002/bin.298

*** Robertson, R. E., Wehby, J. H., & King, S. M. (2013). Increased parent reinforcement of spontaneous requests in children with autism spectrum disorder: effects on problem behavior. *Research in Developmental Disabilities, 34*(3), 1069-1082. https://doi.org/10.1016/j.ridd.2012.12.011**

PRESCHOOL (3-5 YEARS):

Allison, J., Wilder, D. A., Chong, I., Lugo, A., Pike, J., & Rudy, N. (2012). A comparison of differential reinforcement and noncontingent reinforcement to treat food selectivity in a child with autism. *Journal of Applied Behavior Analysis, 45*(3), 613-617.

*** Brogan, K. M., Rapp, J. T., Sennott, L. A., Cook, J. L., & Swinkels, E. (2017). Further analysis of the predictive effects of a free-operant competing stimulus assessment on stereotypy. *Behavior Modification, 42*(4), 543-583. https://doi.org/10.1177/0145445517741476**

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. https://doi.org/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. https://doi.org/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. https://doi.org/10.1007/BF02172274

*** Chezan, L., Drasgow, E., Legg, J., & Hollborn, A. (2016). Effects of conditional discrimination training and choice opportunities on manding for two young children with Autism Spectrum Disorder and language delays. *Journal of Developmental and Physical Disabilities, 28*(4), 557-579. https://doi.org/10.1007/s10882-016-9493-1**

Dixon, M. R., Peach, J., Daar, J. H., & Penrod, C. (2017). Teaching complex verbal operants to children with autism and establishing generalization using the peak curriculum. *Journal of Applied Behavior Analysis, 50*(2), 317-331. https://doi.org/10.1002/jaba.373

Drasgow, E., Martin, C. A., Chezan, L. C., Wolfe, K., & Halle, J. W. (2016). Mand training: An examination of response-class structure in three children with autism and severe language delays. *Behavior Modification, 40*(3), 347-376. https://doi.org/10.1177/0145445515613582

Falcomata, T. S., Muething, C. S., Roberts, G. J., Hamrick, J., & Shpall, C. (2016). Further evaluation of latency-based brief functional analysis methods: An evaluation of treatment utility. *Developmental Neurorehabilitation, 19*(2), 88-94.

*** Fisher, W. W., Pawich, T. L., Dickes, N., Paden, A. R., & Toussaint, K. (2014). Increasing the saliency of behavior-consequence relations for children with autism who exhibit persistent errors. *Journal of Applied Behavior Analysis, 47*(4), 738-48. https://doi.org/10.1002/jaba.172**

Ganz, J. B., Flores, M. M., & Lashley, E. E. (2011). Effects of a treatment package on imitated and spontaneous verbal requests in children with autism. *Education and Training in Autism and Developmental Disabilities*, *46*(4), 596-606.

*** Lanovaz, M. J., Rapp, J. T., Maciw, I., Pregent-Pelletier, E., Dorion, C., Ferguson, S., & Saade, S. (2014). Effects of multiple interventions for reducing vocal stereotypy: Developing a sequential intervention model. *Research in Autism Spectrum Disorders, 8*(5), 529-545. https://doi.org/10.1016/j.rasd.2014.01.009**

Laprime, A. P., & Dittrich, G. A. (2014). An evaluation of a treatment package consisting of discrimination training and differential reinforcement with response cost and a social story on vocal stereotypy for a preschooler with autism in a preschool classroom. *Education & Treatment of Children, 37*(3), 407-430. https://doi.org/10.1353/etc.2014.0028

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. https://doi.org/10.1901/jaba.1996.29-43

McGinnis, A. A., Blakely, E. Q., Harvey, A. C., Hodges, A. C., & Rickards, J. B. (2013). The behavioral effects of a procedure used by pediatric occupational therapists. *Behavioral Interventions, 28*(1), 48-57. https://doi.org/10.1002/bin.1355

* Najdowski, A. C., Wallace, M. D., Reagon, K., Penrod, B., Higbee, T. S., & Tarbox, J. (2010). Utilizing a home-based parent training approach in the treatment of food selectivity. *Behavioral Interventions*, *25*(2), 89-107. https://doi.org/10.1002/bin.298

* Newman, B., Tuntigian, L., Ryan C. S., & Reinecke, D. R. (1997). Self-management of a DRO procedure by three students with autism. *Behavioral Interventions*, *12*(3), 149-156. https://doi.org/10.1002/(SICI)1099-078X(199707)12:3<149::AID-BRT173>3.0.CO;2-M

Ninci, J., Lang, R., Davenport, K., Lee, A., Garner, J., Moore, M., Boutot, A., Rispoli, M., & Lancioni, G. (2013). An analysis of the generalization and maintenance of eye contact taught during play. *Developmental Neurorehabilitation, 16*(5), 301-307. https://doi.org/10.3109/17518423.2012.730557

Persicke, A., Jackson, M., & Adams, A. (2014). Brief report: An evaluation of TAGteach components to decrease toe-walking in a 4-Year-Old Child with Autism. *Journal of Autism & Developmental Disorders, 44*, 965-968. https://doi.org/10.1007/s10803-013-1934-4

*** Plavnick, J. B., Mariage, T., Englert, C. S., Constantine, K., Morin, L., & Skibbe, L. (2014). Promoting independence during computer assisted reading instruction for children with autism spectrum disorders. *Revista Mexicana de Analisis de la Conducta, 40*(2), 85-105. https://doi.org/10.5514/rmac.v40.i2.63667**

Polick, A. S., Carr, J. E., & Hanney, N. M. (2012). A comparison of general and descriptive praise in teaching intraverbal behavior to children with autism. *Journal of Applied Behavior Analysis, 45*(3), 593-539. https://doi.org/10.1901/jaba.2012.45-593

*** Rapp, J. T., Cook, J. L., McHugh, C., & Mann, K. R. (2016). Decreasing stereotypy using NCR and DRO with functionally matched stimulation: Effects on targeted and non-targeted stereotypy. *Behavior Modification, 41*(1), 45-83. https://doi.org/10.1177/0145445516652370**

*** Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2017). The role of the replacement behavior in function-based intervention. *Education and Training in Autism and Developmental Disabilities, 52*(3), 305-316. https://doi.org/10.2307/26420402**

*** Robertson, R. E., Wehby, J. H., & King, S. M. (2013). Increased parent reinforcement of spontaneous requests in children with autism spectrum disorder: effects on problem behavior. *Research in Developmental Disabilities, 34*(3), 1069-1082. https://doi.org/10.1016/j.ridd.2012.12.011**

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. https://doi.org/ 10.1002/bin.200

Watts, A. C., Wilder, D. A., Gregory, M. K., Leon, Y., & Ditzian, K. (2013). The effect of rules on differential reinforcement of other behavior. *Journal of Applied Behavior Analysis, 46*(3), 680-684. https://doi.org/10.1002/jaba.53

*** Wiskow, K. M., Donaldson, J. M., & Matter, A. L. (2017). An evaluation of generalization of compliance across response types. *Behavior Analysis: Research and Practice, 17*(4), 402-420. https://doi.org/10.1037/bar0000087**

ELEMENTARY SCHOOL (6-11 YEARS):

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. https://doi.org/ 10.1016/j.rasd.2010.04.002

*** Brogan, K. M., Rapp, J. T., Sennott, L. A., Cook, J. L., & Swinkels, E. (2017). Further analysis of the predictive effects of a free-operant competing stimulus assessment on stereotypy. *Behavior Modification, 42*(4), 543-583. https://doi.org/10.1177/0145445517741476**

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. https://doi.org/10.1901/jaba.2005.71-04

* 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. https://doi.org/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. https://doi.org/10.1007/BF02172274

*** Chezan, L., Drasgow, E., Legg, J., & Hollborn, A. (2016). Effects of conditional discrimination training and choice opportunities on manding for two young children with Autism Spectrum Disorder and language delays. *Journal of Developmental and Physical Disabilities, 28*(4), 557-579. https://doi.org/10.1007/s10882-016-9493-1**

Cook, J. L., Rapp, J. T., & Schulze, K. A. (2015). Differential negative reinforcement of other behavior to increase wearing of a medical bracelet. *Journal of Applied Behavior Analysis, 48*(4), 901-906. https://doi.org/10.1002/jaba.228

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. https://doi.org/10.1300/J008v07n01_02

*** Fisher, W. W., Pawich, T. L., Dickes, N., Paden, A. R., & Toussaint, K. (2014). Increasing the saliency of behavior-consequence relations for children with autism who exhibit persistent errors. *Journal of Applied Behavior Analysis, 47*(4), 738-48. https://doi.org/10.1002/jaba.172**

* 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. https://doi.org/10.1901/jaba.2011.44-69

Kelley, M. E., Shamlian, K., Lomas, J. E., & Pabico, R. S. (2011). Pre-assessment exposure to schedule-correlated stimuli affects choice responding for tasks. *Research in Developmental Disabilities*, *32*(2), 527-531. https://doi.org/10.1016/j.ridd.2010.12.029

Lambert, J. M., Clohisy, A. M., Barrows, S. B., & Houchins-Juarez, N. J. (2017). Compound-schedules approaches to noncompliance: Teaching children when to ask and when to work. *Journal of Behavioral Education, 26*(2), 201-220. https://doi.org/10.1007/s10864-016-9260-5

Lanovaz, M. J., Rapp, J. T., & Ferguson, S. (2013). Assessment and treatment of vocal stereotypy associated with television: a pilot study. *Journal of Applied Behavior Analysis, 46*(2), 544-548. https://doi.org/10.1002/jaba.35

*** Lanovaz, M. J., Rapp, J. T., Maciw, I., Pregent-Pelletier, E., Dorion, C., Ferguson, S., & Saade, S. (2014). Effects of multiple interventions for reducing vocal stereotypy: Developing a sequential intervention model. *Research in Autism Spectrum Disorders, 8*(5), 529-545. https://doi.org/10.1016/j.rasd.2014.01.009**

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. https://doi.org/10.1901/jaba.2002.35-391

Lustig, N. H., Ringdahl, J. E., Breznican, G., Romani, P., Scheib, M., & Vinquist, K. (2014). Evaluation and treatment of socially inappropriate stereotypy. *Journal of Developmental and Physical Disabilities, 26*(2), 225-235. https://doi.org/10.1007/s10882-013-9357-x

Marcus, A., Sinnott, B., Bradley, S., & Grey, I. (2010). Treatment of idiopathic toe-walking in children with autism using GaitSpot auditory speakers and simplified habit reversal. *Research in Autism Spectrum Disorders*, *4*(2), 260-267. https://doi.org/10.1016/j.rasd.2009.09.012

*** McGinnis, A. A., Blakely, E. Q., Harvey, A. C., Hodges, A. C., & Rickards, J. B. (2013). The behavioral effects of a procedure used by pediatric occupational therapists. *Behavioral Interventions, 28*(1), 48-57. https://doi.org/10.1002/bin.1355**

* Newman, B., Tuntigian, L., Ryan C. S., & Reinecke, D. R. (1997). Self-management of a DRO procedure by three students with autism. *Behavioral Interventions*, *12*(3), 149-156. https://doi.org/10.1002/(SICI)1099-078X(199707)12:3<149::AID-BRT173>3.0.CO;2-M

Paden, A. R., Kodak, T., Fisher, W. W., Gawley-Bullington, E. M., & Bouxsein, K. J. (2012). Teaching children with autism to engage in peer-directed mands using a picture exchange communication system. *Journal of Applied Behavior Analysis, 45*(2), 425-429.

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. https://doi.org/10.1016/S0891-4222(00)00051-2

* 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. https://doi.org/10.1901/jaba.1996.29-569

*** Plavnick, J. B., Mariage, T., Englert, C. S., Constantine, K., Morin, L., & Skibbe, L. (2014). Promoting independence during computer assisted reading instruction for children with autism spectrum disorders. *Revista Mexicana de Analisis de la Conducta, 40*(2), 85-105. https://doi.org/10.5514/rmac.v40.i2.63667**

*** Rapp, J. T., Cook, J. L., McHugh, C., & Mann, K. R. (2016). Decreasing stereotypy using NCR and DRO with functionally matched stimulation: Effects on targeted and non-targeted stereotypy. *Behavior Modification, 41*(1), 45-83. https://doi.org/10.1177/0145445516652370**

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. https://doi.org/10.1016/j.ridd.2004.01.004

*** Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2017). The role of the replacement behavior in function-based intervention. *Education and Training in Autism and Developmental Disabilities, 52*(3), 305-316. https://doi.org/10.2307/26420402**

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. https://doi.org/10.1002/bin.270

Schmidt, J. D., Bednar, M. K., Willse, L. V., Goetzel, A. L., Concepcion, A., Pincus, S. M., Hardesty, S. L., & Bowman, L. G. (2017). Evaluating treatments for functionally equivalent problem behavior maintained by adult compliance with mands during interactive play. *Journal of Behavioral Education, 26*(2), 169-187. https://doi.org/10.1007/s10864-016-9264-1

*** Schmidt, J. D., Long, A., Goetzel, A. L., Tung, C., Pizarro, E., Phillips, C., & Hausman, N. (2017). Decreasing pica attempts by manipulating the environment to support prosocial behavior. *Journal of Developmental and Physical Disability, 29*(5), 683-697. https://doi.org/10.1007/s10882-017-9548-y**

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. https://doi.org/10.25115/ejrep.v9i23.1433

Vladescu, J. C., & Kodak, T. (2016). The effect of a multiple-schedule arrangement on mands of a child with autism. *Behavioral Interventions, 31*(1), 3-11. https://doi.org/10.1002/bin.1422

*** Watts, A. C., Wilder, D. A., Gregory, M. K., Leon, Y., & Ditzian, K. (2013). The effect of rules on differential reinforcement of other behavior. *Journal of Applied Behavior Analysis, 46*(3), 680-684. https://doi.org/10.1002/jaba.53**

*** Wiskow, K. M., Donaldson, J. M., & Matter, A. L. (2017). An evaluation of generalization of compliance across response types. *Behavior Analysis: Research and Practice, 17*(4), 402-420. https://doi.org/10.1037/bar0000087**

MIDDLE SCHOOL (12-14 YEARS):

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. https://doi.org/10.1901/jaba.2001.34-97

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. https://doi.org/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. https://doi.org/10.1901/jaba.2011.44-69

Jessel, J., Ingvarsson, E. T., Whipple, R., & Kirk, H. (2017). Increasing on-task behavior of an adolescent with autism using momentary differential reinforcement. *Behavioral Interventions, 32*(3), 248-254. https://doi.org/10.1002/bin.1480

*** Lanovaz, M. J., Rapp, J. T., Maciw, I., Pregent-Pelletier, E., Dorion, C., Ferguson, S., & Saade, S. (2014). Effects of multiple interventions for reducing vocal stereotypy: Developing a sequential intervention model. *Research in Autism Spectrum Disorders, 8*(5), 529-545. https://doi.org/10.1016/j.rasd.2014.01.009**

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. https://doi.org/10.1901/jaba.2010.43-265

* Newman, B., Tuntigian, L., Ryan C. S., & Reinecke, D. R. (1997). Self-management of a DRO procedure by three students with autism. *Behavioral Interventions*, *12*(3), 149-156. https://doi.org/10.1002/(SICI)1099-078X(199707)12:3<149::AID-BRT173>3.0.CO;2-M

* 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. https://doi.org/10.1901/jaba.1996.29-569

*** Reeves, L. M., Umbreit, J., Ferro, J. B., & Liaupsin, C. J. (2017). The role of the replacement behavior in function-based intervention. *Education and Training in Autism and Developmental Disabilities, 52*(3), 305-316. https://doi.org/10.2307/26420402**

Slocum, S. K., Mehrkam, L. R., Peters, K. P., & Vollmer, T. R. (2017). Using differential reinforcement of a discard response to treat pica. *Behavioral Interventions*, *32*(3), 234-241. https://doi.org/10.1002/bin.1483

HIGH SCHOOL (15-18 YEARS):

Bruhn, A. L., Balint-Langel, K., Troughton, L., Langan, S., Lodge, K., & Kortemeyer, S. (2015). Assessing and treating stereotypical behaviors in classrooms using a functional approach. *Behavioral Disorders, 41*(1), 21-37. https://doi.org/10.17988/0198-7429-41.1.21

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. https://doi.org/10.1111/j.1468-3148.2008.00487.x

Leaf, J. B., Oppenheim-Leaf, M. L., & Streff, T. (2012). The effects of the time-in procedure on decreasing aberrant behavior: A clinical case study. *Clinical Case Studies, 11*(2), 152-164. https://doi.org/10.1177/1534650112443003

*** Schmidt, J. D., Long, A., Goetzel, A. L., Tung, C., Pizarro, E., Phillips, C., & Hausman, N. (2017). Decreasing pica attempts by manipulating the environment to support prosocial behavior. *Journal of Developmental and Physical Disability, 29*(5), 683-697. https://doi.org/10.1007/s10882-017-9548-y**

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. https://doi.org/10.1901/jaba.2006.30-05

YOUNG ADULTS (19-22 YEARS):

* 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. https://doi.org/10.1901/jaba.2011.44-69

Healey, J. J., Ahearn, W. H., Graff, R. B., & Libby, M. E. (2001). Extended analysis and treatment of self-injurious behavior. *Behavioral Interventions*, *16*(3), 181-195. https://doi.org/10.1002/bin.91

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. https://doi.org/10.1901/jaba.2009.42-315

Notes: * denotes the study has participants in at least two age ranges
Bold denotes new studies since 2011 (2012 till 2017)