



APPLIED BEHAVIOR ANALYSIS & AUTISM



Much publicity has surrounded the Applied Behavior Analysis approach to the treatment of Autism... **But what exactly is ABA?**

How do you know if an intervention program works? How do you select a behavior analyst in the first place, making sure you don't inadvertently choose someone who is not properly trained in the ABA methodology? What rights do clients of these services have to effective treatment? Recognizing the confusing number of claims and choices which clients and parents of autistic children face, we would like to address these questions (and more) to give consumers of ABA services the information needed to choose wisely.

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Applied Behavior Analysis for Autism

Recent years have seen a surge of interest in applied behavior analysis (ABA) in the treatment of autism. Scores of programs and practitioners claiming to "do ABA" have popped up, some seemingly overnight. Many stories about ABA for autism have appeared in the electronic and print media, and various task forces and committees have undertaken to evaluate published research on ABA and other approaches to autism treatment. Yet misconceptions about ABA—including some that have been around for years—persist, and many treatment programs that claim to be "doing ABA" really are not. How can families, professionals, and funding agencies differentiate genuine ABA programs and practitioners from imposters? It is difficult to paint a picture of genuine ABA treatment for autism in words, especially in a limited space, but this article attempts to describe some of its key features.

Behavior analysis is a natural science approach to understanding behavior; ABA is the use of behavior analytic methods and research findings to change socially important behaviors in meaningful ways. Autism is only one of many arenas in which behavior analysis has been applied successfully. Since the early 1960s, hundreds of researchers have documented the effectiveness of ABA principles and methods for building a wide range of important skills and reducing problem behavior in individuals with autism and related disorders of all ages. Today, *bona fide* ABA programming for learners with autism often combines many research-validated methods into a comprehensive but highly individualized package. For each learner, skills to be increased and problem behaviors to be decreased are clearly defined in observable terms and measured carefully by direct observation, with

independent verification by secondary observers. An initial assessment is done to determine skills that the learner does and does not have. Selection of treatment goals for each individual is guided by data from that initial assessment, and a curriculum scope and sequence that lists skills in all domains (learning to learn, communication, social, academic, self-care, motor, play and leisure, etc.), broken into smaller component skills and sequenced developmentally, or from simple to complex. The overall goal is to help each learner develop skills that will enable him or her to be as independent and successful as possible in the long run.

A variety of behavior analytic procedures are used to strengthen existing skills and build those that have not yet developed. That involves explicitly arranging for the learner to have multiple, repeated opportunities to learn and practice skills throughout every day, with abundant positive reinforcement. One way to arrange learning opportunities is for an adult to present a series of trials to the learner, each consisting of a specific cue or instruction from the adult, an opportunity for the learner to respond, and a consequence delivered by the adult depending on the learner's response. Such arrangements are called discrete trials, and they are essential for building many important skills in learners with autism. But programming that relies exclusively on discrete trial procedures, often referred to as "discrete trial training" or "DTT" is not state-of-the-art ABA, particularly when "drills" are used in a cookbook fashion that is not individualized to each learner. Research has shown that overusing discrete-trial procedures tends to produce skills that do not carry over (generalize) from the training situation to other everyday situations. For that reason, effective ABA programming blends discrete-trial procedures with a variety of other ABA methods, including child-initiated instructional sequences (known as incidental teaching procedures), task analysis and chaining to teach skills involving sequences of actions or steps, instructional trials embedded in ongoing activities, and others. There is a heavy emphasis on making learning enjoyable, and on engaging the learner in positive social interactions.

In a quality ABA program, behavior change procedures are specified clearly. The instructions and prompts, reinforcers ("rewards"), materials, and so on that are used to develop each skill are tailored to the individual learner. There is a written program or set of instructions for teaching each skill; the behavior analyst in charge of the programming trains everyone who works with the learner to implement those programs consistently. It is particularly important for parents to be trained to implement the procedures outside of formal treatment sessions, in a variety of settings (home, playground, community); research has shown that otherwise, the learner's skills are not likely to generalize. Maladaptive behaviors (such as stereotypic behavior, self-injury, aggressive and disruptive behavior) are explicitly not reinforced; appropriate alternative behaviors are taught and reinforced instead. Learner progress is measured frequently, using the direct observational measurement methods mentioned earlier. Data are graphed to provide visual pictures of what is happening with each skill and each maladaptive behavior targeted for

treatment. The data are reviewed regularly by the behavior analyst directing the programming so that learning errors can be caught early and intervention methods adjusted promptly if progress is not satisfactory. The behavior analyst also observes treatment and provides feedback to interventionists on an ongoing basis.

Last but certainly not least, a defining feature of ABA programs is that they **are directed by professionals with advanced formal training in behavior analysis** – at least a master's degree – as well as supervised experience in designing and implementing ABA programming for learners with autism and related disorders. These professionals have either met the educational, experiential, and examination performance standards of the Behavior Analyst Certification Board and are Board Certified Behavior Analysts, or can document that they have at least the equivalent training and experience. They adhere to the BACB's Guidelines for Responsible Conduct, and base treatment on the best available scientific evidence. For further information about the training and skills required to direct ABA programming for learners with autism, see the guidelines for consumers developed by the Autism Special Interest Group of the Association for Behavior Analysis in this section of behavior.org.

Frequently Asked Questions about Autism and Behavior Analysis

Applied Behavior Analysis (ABA) is the most comprehensive and most effective approach to improving the lives of persons with autism and their families.

The following questions illustrate common misconceptions about the ABA approach to treating Autism:

- *Is ABA just a new fad?*
- *Is ABA comprehensive?*
- *Is ABA useful for managing anything other than "bad" behavior or severe behavior problems?*
- *Is ABA basically just early intervention?*
- *Is ABA an easy "miracle cure?"*
- *Is ABA a mechanical approach, which turns people into robots?*
- *What are the key features of ABA?*

ABA with persons with autism is not new and is not a fad

Research began in the early 1960s with the studies of Charles Ferster, Ivar Lovaas, Montrose Wolf and Todd Risley to name just the best known pioneers. As long ago as 1981, applied behavior analysis was identified as the treatment of choice for autistic behavior. (See the literature review by Marion K. DeMyer, J.Hingtgen and R. Jackson.)

Recently, Johnny Matson and his colleagues counted more than 550 studies published in scientific journals showing the effectiveness of behavior analytic procedures with persons with autism.

ABA is comprehensive

ABA has been effective for teaching a vast range of skills to people with disabilities as well as to many other people in every setting in which people live, study and work:

- in their own homes in shops, restaurants, public transport
- in recreation and sporting activities
- in regular and special preschools, primary schools and high schools
- in colleges [For an exciting and challenging review, see Ed Anderson's Education that works: The child is always right.]
- in business and industry
- in institutions, hospitals and correctional facilities.

ABA is definitely not just useful for managing "bad" behavior or for people with severe behavior problems

Although ABA does provide the best methods for managing problem and aberrant behavior such as self-injurious, ritualistic, repetitive, aggressive and disruptive behavior, it does this through teaching alternative *pro-social* behavior. Proper application of behavior principles and procedures also prevents behavior from becoming a problem.

ABA is much more than early intervention

The most successful early intervention programs to be documented are based on applied behavior analysis, but a great deal of work has been accomplished throughout the age span as well.

ABA is not easy and not a "miracle cure"; there are no cures

ABA is not easy and not a "miracle cure"; there are NO cures – psychological or medical. Anyone who has tried to do ABA knows it is not easy. However, when done properly, progress can be seen very quickly. Positive results make the effort worthwhile. You will not find a shred of scientifically acceptable evidence that treatments using psycho-dynamic psychotherapies or holding therapy are effective. The theory behind them has been discredited.

There are no medical treatments for autism itself. Persons with autism, of course, have a medical needs for which pharmacological and other medical treatments are appropriate. In a recent review of autism in the *New England Journal of Medicine*, Dr. Isabelle Rapin concluded: "No drug or other treatment cures autism, and many patients do not require medication. However, psychotropic drugs that target specific symptoms may help substantially." She said further that: "The most important intervention in autism is early and intensive remedial education that addresses both behavioral and communication disorders." (p. 102)

"Many other (than educational/behavioral and medical) interventions are available, but *few*, if any, scientific studies support their use. These therapies remain controversial and may or may not



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reduce a specific person's symptoms. Parents should use caution before subscribing to any particular treatment. Counseling for the families of people with autism also may assist them in coping with the disorder." (From *NIMH Fact Sheet*)

ABA is not mechanical

People are often told that behavior analysts are cold scientists who tell others what to do. In fact, behavior analysts know that successful programs require that they work collaboratively with all concerned. Being scientific means being guided by objective results and modifying procedures because other demands in the school or family must also be met and to make best use of the knowledge and skills of caregivers and the persons with autism as well.

A series of papers by Montrose Wolf and his associates published between 1964 and 1967 illustrate these points very well. The articles describe how they worked first with "Dicky" when he was 3-1/2 years old in a hospital and made transitions from hospital to home and pre-school. Successful methods were developed in the hospital, the parents practiced them there, and then in stages Dicky returned home and was enrolled in a generic nursery school, where he acquired self-help, pre-academic and play skills. Many people were involved in planning and making those programs work.

And ABA does not turn people into robots

"... Anne-Marie is friendly and caring. She continues to make contact more easily with her peers and she is forming deeper relationships with them. Anne-Marie feels close to her teachers and is sharing more of her thoughts with them now... Anne-Marie is a cooperative, helpful group member who has learned to take her share of responsibilityAnne Marie is a capable child who is eager to learn. It's a pleasure to see Anne-Marie feeling comfortable and relaxed in her school environment and actively enjoying our various group activities with her classmates..."(Maurice, p. 286).

Anne-Marie was the older of two children who had been treated very successfully by ABA methods. These comments were made by her pre-kindergarten teachers in their end-of-year report. Other parents have reported similar outcomes. Catherine Maurice's book, *Let Me Hear Your Voice. A Family's Triumph over Autism*, was published in 1993. Studies have shown that ABA programs are successful in generating spontaneous and creative behavior.

Guidelines for Selecting Behavior Analysts

The demand for behavior analysts far exceeds the number of persons with the expertise required to provide effective ABA programs. Enabling families to access affordable and competent behavior analysts is an urgent problem, because this is not an area in which "do-it-

yourself” programming is advisable. Often, however, particularly for persons living far away from services, parents will have to assume major responsibility for their children's intervention programs.

We cannot tell you who is, or who is not competent. Standards regarding the competent delivery of behavioral service have been identified, but they have not been fully implemented. A useful starting point may be to view by state the Certificant Registry of those individuals credentialed as Board Certified Behavior Analysts or Board Certified Associate Behavior Analysts, maintained by the Behavior Analyst Certification Board. Another valuable resource is the Directory of Graduate Training Programs in Behavior Analysis published by the Association for Behavior Analysis (ABA). ABA is the professional organization for the discipline. Although ABA does not accredit or certify individuals, it does accredit graduate training programs. In addition, The Autism Special Interest Group of ABA has adopted guidelines for consumers of applied behavior analysis services to individuals with autism.

How to Evaluate Intervention Programs - J.S. Birnbrauer (August 1999)

Evaluating Claims About Treatments for Autism

Gina Green has written an excellent chapter by that name in Maurice, Green and Luce (1996, Chapter 2). She describes types of evidence and explains why subjective evidence – testimonials, anecdotes and personal accounts – are not reliable. Testimonials alone are simply too ambiguous to be the basis for making critical decisions about which treatment program to choose. Resources and time are too scarce to be wasted on treatments that have not been shown to be effective.

Now, we have a substantial body of controlled quantitative research on programs of treatment for autism. Now there has been ample time to properly investigate currently popular treatments, but most of these programs have not been. Advocates of treatments should be asked to:

1. Describe the exact purposes of the treatment – what is it intended to achieve?
2. Describe exactly how the treatment is conducted – there should be no mystery or secrecy about the methods and procedures being used.
3. Describe how treatment effects were measured – what numerical data were collected and how were they collected?
4. Show before and after data collected by independent - unbiased - evaluators;
5. How follow up data – do the persons maintain gains? Do they continue to improve? Do they regress?

Only applied behavior analysis is able to answer these questions convincingly.

Gina Green argues the case in the next chapter entitled "Early Behavioral Intervention for Autism: What Does Research Tell Us?" Then, in Chapter 4, Tristram Smith answers the question, "Are Other Treatments Effective?" His conclusions are:

"Nonbehavioral special education classes, individual therapies, and biological interventions (except major tranquilizers) have not been established as effective treatments for children with autism. Some treatments, especially Facilitated Communication and psychoanalysis, are quite harmful and definitely should be avoided. Major tranquilizers offer an alternative to behavioral treatment for managing disruptive behavior, but they can cause major side-effects and therefore are a last resort rather than a first-line intervention. Several other biological treatments (Prozac, Anafranil, naltrexone, and B6 with magnesium) may be effective but require further research.

In short, behavioral treatment has much more scientific support than any other intervention for children with autism. Consequently, if behavioral treatment is available, or if families are in a position to set up their own behavioral treatment program, the best initial course of action may be to concentrate exclusively on carrying out behavioral treatment as well as possible, rather than looking for ways to supplement it with other treatments." (Maurice, Green & Luce, 1996, Page 56).

Tristram Smith has carefully studied peer-reviewed outcome investigations of ABA programs, Project TEACCH, and Colorado Health Sciences. He found that the latter two programs have shown little improvements for most of the children, but some subgroups may have benefited. [Smith T. (1999). Outcome of early intervention for children with autism. *Clinical Psychology: Research and Practice*, 6, 33-49]

In contrast, he found convincing evidence that ABA programs increase adaptive behavior and reduce maladaptive behavior. He also noted that these programs may substantially raise IQ and other standardized test scores, while reducing the need for special services. However, he cautioned that the quality of the research on IQ, other test scores, and school placement does not permit firm conclusions; replications of this research are needed. For up to date evaluations of biological interventions, see www.autism-biomed.org/research.htm.

Rights of Clients

A committee of behavior analysts have prepared a position paper that has been adopted by the Association for Behavior Analysis. [See Van Houten et al. The right to effective behavioral treatment. *Journal of Applied Behavior Analysis*, 1988, vol.21, pp. 381-384. This document is also available from the [Association for Behavior Analysis](http://www.aabp.org).]

The position paper asserts that all persons with special needs have the following rights:

1. The right to a therapeutic environment
2. The right to services whose overriding goal is personal welfare
3. The right to treatment by a competent behavior analyst
4. The right to programs that teach functional skills
5. The right to behavioral assessment and ongoing evaluation
6. The right to the most effective treatment procedures available.

The right to treatment by a competent behavior analyst is elaborated as follows:

"In cases where a problem or treatment is complex or may pose risk, individuals have a right to direct involvement by a doctoral-level behavior analyst who has the expertise to detect, analyze and manage subtle aspects of the assessment and treatment process that often determine the success or failure of intervention. A doctoral-level behavior analyst also has the ability, as well as the responsibility, to insure that all individuals who participate in the delivery of treatment or who provide support services are trained in the methods of intervention, to assess the competence of individuals who assume subsequent responsibility for treatment, and to provide consultation and follow-up services as needed."

What is ABA and how do we use it to help kids become successful learners?

- Behavior analysis is a natural science approach to understanding behavior; ABA is the use of behavior analytic methods and research findings to change socially important behaviors in meaningful ways.
- ABA programming for learners with autism often combines many research-validated methods into a comprehensive but highly individualized package with the goal of learners becoming as successful and independent as possible. We work as inter-disciplinary teams with SLP, OT, and others as needed to create comprehensive learning programs.

Steps to creating individualized learning programs

- Behaviors to be increased and decreased are identified and clearly defined;
- Initial assessment is conducted, treatment goals are selected from that assessment
- Curriculum across all domains (learning to learn, communication, social, academic, self-care, motor, play, and leisure, etc.) is developed for each individual. Teaching is broken down into smaller component skills and developmentally sequenced;
- Data are collected and visually displayed through graphs to measure success in reaching goals. Reaching strategies are revised and refined to ensure progress continues in the desired direction;
- ABA involves many teaching strategies beyond teaching or "drills" at a desk. Making learning enjoyable and engaging through positive social interactions are the foundations of successful learning;
- ABA programming blends discrete-trial procedures with a variety of other ABA methods (beyond discrete trial), including child-initiated instructional sequences (known as incidental teaching procedures), task analysis and chaining to teach skills involving sequences of actions or steps, instructional trials embedded in ongoing activities, and others. There is a heavy emphasis on making learning enjoyable, and on engaging the learner in positive social interactions.



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- Quality Behavior analytic programs are directed by Board Certified Behavior Analysts and highly trained staff. Our staff meets performance competencies and participates in regular training and evaluation.
- A defining feature of ABA programs is that they are directed by professionals with advanced formal training in behavior analysis -- at least a master's degree, as well as supervised experience in designing and implementing ABA programming for learners with autism and related disorders. These professionals have either met the educational, experiential, and examination performance standards of the Behavior Analyst Certification Board and are Board Certified Behavior Analysts, or can document that they have at least the equivalent training and experience. They adhere to the BACB's Guidelines for Responsible Conduct, and base treatment on the best available scientific evidence.

For more information, visit us at www.FireflyAutism.org or call (303) 759-1192 to schedule a tour.