

Neuropsychological Deficits
Underlying Social Skills
Weaknesses and Strategies
for Remediation

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Session T-43
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Special Thanks

- Angela J. Fawcett, Ph.D.
- Roderick I. Nicolson, Ph.D.
- Drake D. Duane, M.D.
- Bradley C. Duchaine, Ph.D.
- Thomas Grueter, M.D.



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Case Study of a Dyslexic



- Male college student
- 21 years old
- 3.8 GPA in Electrical Engineering
- 145 Full Scale IQ
- Excellent social and conversational skills
- Dresses and acts age appropriate
- Mildly depressed (Dx: Dysthymic Disorder)
- Severe Reading Disorder/Dyslexia

Case Study of a Dyslexic

- “I don’t recognize my own face”!
- Developmental Prosopagnosia



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Problems Remembering Faces



- **Prosopagnosia**: Inability to recognize faces, even one’s own face (p. 1168).
Taber’s (1981). Taber’s Cyclopedic Medical Dictionary. Philadelphia, PA:F.A. Davis
- **Joaachim Bodamer, M.D. 1947**: German soldiers with brain injuries who could no longer see faces. Coined term “*Prosopon*” meaning face + “*agnosia*” meaning nonrecognition from Greek.
Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

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What is a Developmental Disorder?

- A disorder characterized by a significant delay in the rate a normal human trait develops in an individual.
- It takes the individual longer to develop this trait than their age peers.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford, pp. 92-93.

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Subtypes of Prosopagnosia



- Possible Associated Conditions:
 - Problems with recognition of facial expression of emotion
 - Problems with gender of face discrimination
 - Problems with age of face discrimination
 - Problems with **TOPOGRAPHAGNOSIA**: difficulty with personal navigation; getting lost easily
 - Asperger’s Disorder

Galaburda, A.M. and Duchaine, B.C. (2003). Developmental Disorders of Vision. Neurologic Clinics, 21 (3), 687-707.

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Subtypes of Prosopagnosia



- Possible Associated Conditions:
 - Central Auditory Processing Disorder (CAPD):
“The inability to understand spoken language in a meaningful way in the absence of what is commonly considered a hearing loss” (Sinaps and Hunter, 1997).

Duchaine, B.C. (2000). Developmental Prosopagnosia with Normal Configurational Processing. Cognitive Neuroscience and Neuropsychology, 11 (1), 79-82.
Choisser, B. (August, 14, 2007). Face Blind! From website: www.choisser.com/faceblind/about.html, p. 7 of 10.
Sinaps, D. and Hunter, L. (1997). I Can Hear But...When Auditory Perception and Listening Break Down: Implications For Language and Reading. Paper presented at the International Dyslexia Association Annual Conference, Minneapolis, MN, November 13, 1997, Session T-45.

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Prosopagnosia



- Remembering Faces:
 - This is an important ability for survival.
 - It lets you know “friends and foes”.
 - It helps you maintain relationships.
 - It helps you remember the social status of others.

Ratey, J.J. (2001). A User’s Guide to the Brain: Perception, Attention and the Four Theaters of the Brain. New York, NY: Vintage.

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Developmental Prosopagnosia



- Affects 2 to 3 percent of the population
- That equates to 6,000,000 Americans!
- Those affected often know something is wrong, but they don't know exactly what.

Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

Symptoms of Prosopagnosia



- Extreme difficulty recognizing faces. Even with a person who is well known by the sufferer (i.e., a parent, spouse, best friend, etc.).
- Appears aloof/arrogant, does not respond to people they “know” when they see them.
- Often complain they cannot follow movies or TV shows because they cannot remember the identity of characters.
- They tend to recognize people by hair, gait, clothing, voice, context, or other information.

Author (August 14, 2007). www.faceblind.org/research, p. 1 of 3.

Additional Symptoms of Prosopagnosia Found in Children



- It may take months to recognize their classmates.
- School transition may be a problem.
- Extreme separation anxiety and stranger wariness
- Changes in people's appearance (i.e., new glasses, new hair style, etc.) may be a problem.
- Feelings of frustration, isolation and embarrassment

Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

Face Perception

- The right Fusiform Gyrus typically does not respond to objects.
- This area reorganizes faces into wholes.
- The fusiform gyrus helps to differentiate between visually similar stimuli
- Greebles-novices treat them as objects while experts treat them in a holistic manner.

Gauthier, I. (November 3, 2004). Face Processing: Is It Hard-wired or Learned? Evidence from Brain Imaging Studies. Paper presented at the 55th Annual International Conference seminar, *The Neural Basis of Reading and Other Forms of Skill Acquisition*, Philadelphia, PA, Session: W-1.

Face Perception

- “Our results show that a man with severe prosopagnosia performed normally throughout the standard greeble training procedure. These findings indicate face recognition and greeble recognition rely on separate mechanisms” (Duchaine, et.al., August, 2004).

Duchaine, B.C., Dingle, K., Butterworth, E. and Nakayama, K. (August, 2004). Normal Greeble Learning in a Severe Case of Developmental Prosopagnosia. Neuron, 43 (4), 469-473 (From abstract).

Developmental Prosopagnosia




- “The hereditary type of prosopagnosia has an autosomal dominant type of inheritance. This means that men and women are affected in equal numbers. In our experience women are more willing to talk about their face recognition problems, though” (Thomas Grueter, M.D.).
- If one parent has Prosopagnosia their child has a 50% chance of having it.

Grueter, T. (August 14, 2007). Personal Communication.

Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

Kennerknecht, I., Grueter, T., Wellin, B, Wentzek, S, Horst, J., Edwards, S. and Grueter, M. (June, 2006). First Report of Prevalence of Non-Syndromic Hereditary Prosopagnosia. American Journal of Medical Genetics, Part A, 140A (15), 1617-1622 (From abstract).

Whose at Risk for Prosopagnosia?



Those with Learning Disorders,
AD/HD, Nonverbal Learning
Disorders and Asperger's Disorder

Roffman, A.J. (2000). Meeting The Challenge of Learning Disabilities In Adulthood. Baltimore, MD: Brookes.

Liddell, G.A. and Rasmussen, C. (August, 2005). Memory Profile of Children with Nonverbal Learning Disability. Learning Disabilities Research and Practice, 20 (3), 137-141 (From abstract).

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 130.


Schultz, R.T. (2005). Developmental Deficits in Social Perception in Autism: The Role of the Amygdala and Fusiform Face Area. International Journal of Developmental Neuroscience, 23, 125-141.

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Bradley Duchaine
on Dyslexia
& Prosopagnosia



"I have certainly heard from many
prosopagnosics with dyslexia, but I've
never seen reason to believe that there is
a higher than normal prevalence of
dyslexia among prosopagnosics".


Duchaine, B. (August 24, 2006). Personal Communication.
Duchaine, B. (August 29, 2006). Personal Communication.

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Bradley Duchaine
on Dyslexia
& Prosopagnosia



- There is little data regarding the co-occurrence of developmental prosopagnosia and LD, AD/HD and NVLD.
- Most people he has evaluated with Asperger's Disorder have face processing problems.


Duchaine, B. (June 23, 2010). Personal Communication.

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Thomas Grueter
on Dyslexia &
Prosopagnosia



- "In our sample of about 200 congenital prosopagnosics, dyslexia is no more frequent than in the general population. Currently, we have no indication of a connection".
- "In most people, face recognition is preferentially performed in the right hemisphere, while reading mostly employs the left hemisphere. Only a general neural dysfunction or structural brain deficit (as in some cases of PDD) would cause both functions to be impaired at the same time".

Grueter, T. (August 8, 2007). Personal Communication.

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Dyslexia and Prosopagnosia

- "Although face recognition showed a ceiling effect which prevented any solid conclusions drawn from this task, the dyslexic group were significantly impaired on the recognition of voices" (p. 304).

Brachacki, G.W., Fawcett, A.J. and Nicolson, R.I. (1994). Adults with Dyslexia Have a Deficit in Voice Recognition. Perceptual Motor Skills, 78 (10), 304-306.

- "There was no overall difference between dyslexics and non-dyslexics in the speed or accuracy with which they named faces...the non-dyslexic group was significantly faster to name early- than late acquired faces while the dyslexic group showed a much smaller and non-significant effect of AoA (Age of Acquisition)" (p. 129).

Smith-Spark, J. H. (May, 2009). The Representation and Processing of Familiar Faces in Dyslexia: Differences in Age Acquisition Effects. Dyslexia, 15 (2) (p. 129-146).

Fawcett, A.J. (June 25, 2010). Personal Communication.

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Dyslexia and Prosopagnosia

- Regarding the above Nicolson stated that he and fellow researchers found that those with dyslexia have a slowed rate of acquisition of traffic signs. The dyslexics recognized them less well than controls and amount of driving experience did not appear to influence the recognition skills of the dyslexics.

Nicolson, R. (June 23, 2010). Personal Communication.

Brachacki, G.W.Z., Nicolson, R.I. and Fawcett, A. J. (1995) Impaired Recognition of Traffic Signs in Adults with Dyslexia. Journal of Learning Disabilities, 28 (5), 297-301.

- Nicolson said he has stayed away from face recognition because it may be controlled by a unique module in the brain.

Nicolson R. (June 23, 2010). Personal Communication.

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Dyslexia and Prosopagnosia

- Both Nicolson and Fawcett said, in so many words, that in the above research they were looking for procedural memory/learning deficits in order to develop their procedural memory deficit theory of dyslexia.
- Nicolson R. (June 23, 2010). Personal Communication.
Fawcett, A.J. (June 25, 2010). Personal Communication.
Nicolson, R.I. and Fawcett, A.J. (2008). Dyslexia, Learning, and the Brain. London, England: MIT Press.

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Brain Imagery Prosopagnosia and Dyslexia

“The present results emphasize the special nature of the occipitotemporal abnormality to letter strings in dyslexia. However, in behavioral tests dyslexic subjects were slower and more error prone than non-reading impaired subjects in judging the similarity of faces and geometrical shapes. This effect may be due to reduced activation of the right parietotemporal cortex at about 250 ms after onset” (p.1194).

Tarkiainen, A., Helenius, and Salmelin, R. (2003). Category Specific Occipitotemporal Activation During Face Perception in Dyslexic Individuals: An MEG Study. NeuroImage, 19 (3), 1194-1204.

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Event Related Potentials, Facial Memory and Dyslexia

“No group differences in amplitude or topography of the old/new effect emerged. However, ERPs for all faces were more positive for normal compared with those of dyslexic readers” (p. 1285).

The researchers further stated that the recognition memory problem dyslexics have is probably specific to verbal stimuli.

Russeler, J., Johannes, S. and Munte, T.F. (2003) Recognition Memory for Unfamiliar Faces Does Not Differ for Adult Normal and Dyslexic Readers: An Event-Related Brain Study. Clinical Neurophysiology, 114 (7), 1285-1291.

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How to Assess Developmental Prosopagnosia

- Cambridge Face Memory Test
 - Test My Face Recognition- Internet test
- Duchaine, B. and Nakayama, K. (2006). The Cambridge Face Memory Test: Results for Neurologically Intact and an Investigation of It's Validity Using Inverted Face Stimuli and Prosopagnosic Participants. Neuropsychologia, 44, 576-585. From web site: www.faceblind.org/people/duchaine06neuropsychologia.pdf#search=%22Cambridge%20Face%20Memory%20Test%22 .
- Test My Face Recognition (From web site): www.icn.ud.ac.uk/facetests/

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Treatment of Prosopagnosia

- “Prosopagnosics cannot be cured, but they can and do learn ways to recognize people” (p. 70).

Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

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Treatment of Prosopagnosia: “Are you my Mother?”

- Encourage the person to look at people’s faces when socializing.
 - Introduce new people slowly and emphasize their characteristics: “Say hi to Billy with the red hair and freckles”.
 - Have children meet teachers long before school starts and have the child meet with them often.
 - Have teachers keep their appearance “stable”.
 - Play introduction games.
 - Post photos of teachers, friends, parents on wall.
- Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

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Computer Programs to Treat Prosopagnosia

- “Let’s Face It!” – Face Recognition Program and workbook for children with Autism Spectrum Disorders (University of Victoria Brain and Cognition Lab & the Yale Child Study Center)
 - Teaches facial recognition and emotion recognition in 20 hours!
 - It is **FREE!**
- From: <http://web.unic.ca/~letsface/letsfaceit/index.php>



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Mnemonic Techniques to Remember Faces

- Lucas, J. (2000). Names and Faces Made Easy: The Fun Way To Remember People.
- www.jerrylucas.com



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Prosopagnosia of Facial Expressions



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Prosopagnosia of Facial Expressions



- “Face perception can be subdivided into two general types – recognition of person identity via the structures of the face, and recognition of internal affective state on the shape of individual features and changes in their relative distance from one another during the expression” (p. 128).
- Schultz, R.T. (2005). Developmental Deficits in Social Perception in Autism: The Role of the Amygdala and Fusiform Face Area. International Journal of Developmental Neuroscience, 23, 125-141.

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Recognizing Emotional Facial Expressions



- Emotional Facial Expression Recognition:
 - “Does this mean we come into the world expecting to see human faces and ready to respond with our own prewired facial expressions? Yes!” (Ratey, 2001, p. 300).

Ratey, J. J. (2001). A User’s Guide to the Brain: Perception, Attention, and the Four Theaters of the Brain. New York: NY: Vintage.

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Decoding Skill and Facial Expression

- Positive emotions are the easiest to decode.
- Negative emotions are the most difficult
- Poor interpreters of facial expression have less social acceptance and poorer adjustment.



Semrud-Clíkeman, M. (Spring, 2003). Executive Function and Social Communication Disorders. Perspectives, 29 (2), 20-22.

Semrud-Clíkeman, M. (2007). Social Competence in Children. New York, NY: Springer.

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Decoding Skill and Facial Expression

- Most and Greenbank (2000) stated LD children are less accurate in identifying emotional expressions than non-LD children.
- Brown (2001) indicated AD/HD children are less accurate in facial expression identification than their non-AD/HD peers.
- Attwood (2007) stated those with Asperger's Disorder have great difficulty decoding faces.

Most, T. and Greenbank, A. (2000). Auditory, Visual, and Auditory—Visual Perception of Emotions by Adolescents With and Without Learning Disabilities, and Their Relationship to Social Skills. *Journal of Learning Disabilities*, 15 (4), 171-178.

Brown, T. E. (2001). Social Ineptness & "Emotional Intelligence" in ADHD. Paper Presented at the 13th Annual Children and Adults With Attention Deficit Disorders International Conference, October 18-20 2001, Anaheim CA.

Attwood, T. (2007). *The Complete Guide to Asperger's Syndrome*. Philadelphia, PA: Jessica Kingsley, p. 130.



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Dyslexia and Facial Expressions

- Non-LD children did better than Verbal LD, NVLD and children with both Verbal LD and NVLD in interpreting facial expressions.
- Non-LD group did better than Verbal LD only with surprise.
- Non-LD group did better than NVLD and NVLD/Verbal LD groups for 4 facial expressions.
- Older subjects did better identifying fear and disgust than younger subjects.
- No difference between girls and boys in ability.

(Ref. #1)




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Dyslexia and Facial Expressions

- Non-disabled children did better in recognizing facial expressions than those with Verbal LD and those with NVLD. (Ref. #2)
- Those with Verbal LD did better than those with NVLD. (Non-LD>Verbal LD>NVLD) (Ref. #2)
- Teens (12-15 years) with Verbal LD were worse than those with NVLD, and those who where Non-LD in recognizing facial expressions. (Ref. #3)
- There was no difference between the Non-LD and NVLD groups. (Ref. #3)




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Dyslexia and Facial Expressions: References

1. Dimitosky, L., Spector, H., Levy-Shiff, R. and Vakil, E. (1998). Interpretation of Facial Expressions of Affect with Learning Disabilities with Verbal and Nonverbal Deficits. *Journal of Learning Disabilities*, 31, 286-292,312.
2. Dimitrovski, L., Spector, H., and Levy-Shiff, R. (2000). Stimulus Gender and Emotional Difficulty Level: Their Effect on Recognition of Facial Expressions in Children With and Without LD. *Journal of Learning Disabilities*, 33 (5), 410-416.
3. Bloom, E. and Heath, N. (2010). Recognition, Expression, and Understanding Facial Expressions of Emotion in Adolescents With Nonverbal and General Learning Disabilities. *Journal of Learning Disabilities*, 43 (2), 180-192.



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Assessment for Face Perception

Simon Baron-Cohen's Tests:

- Faces Test
- Eyes Test (Adult)
- Eyes Test (Child)
- Cambridge Mindreading (CAM) Face-Voice Battery
- Empathy Quotient (EQ) (Adult)
- Empathy/Systemizing (EQ-SQ) (Child)
- And many others...

Downloadable from:
www.autismresearchcentre.com/tests/default.asp




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Evaluating Nonverbal Behavior

- Diagnostic Analysis of Nonverbal Behavior 2 (DANVA2)
 - Adult faces and voices
 - Child faces and voices
 - African American faces and voices
 - Postures



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www.drkevintblake.com
www.edconsultmidwest.com

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FACE READING ASSESSMENT

- **Comprehensive Affect Testing System (CATS)**

"This ensemble of tests enables clinical psychologists, neuropsychologists, neurologists, educators, speech therapists and other related disciplines to assess dysfunctional processing of affect expressed by the human face and voice" (p. 1 of 4).

Froming, K., Levy, M. and Ekman, P. (2003).

www.psychologysoftware.com/CATS.html.

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Treating Problems Reading Facial Expressions

- **FACIAL EXPRESSIONS CAN BE TAUGHT!**

Volkmar, F. (April 23, 2003). Asperger Syndrome: Clinical Features, Assessment, and Intervention Guidelines. Seminar presented by the New England Educational Institute, Phoenix, AZ.

Gauthier, I. and Tarr, M.J. (1997). Becoming a "Greeble" Expert: Exploring Mechanisms for Face Recognition. Vision Research, 37 (12), 1673-1682.

"WILSON, GET READY!"



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Computer Programs to Treat Prosopagnosia

- Baron-Cohen, S. (2003). Mind Reading: An Interactive Guide To Emotions. Philadelphia, PA: Jessica Kingsley.

"Harry Potter" teaches facial expressions.

- Baron-Cohen, S., Drori, J., Harcup, C. (2009). The Transporters (USA Version). London, England: Changing Media Development: www.thetransporter.com
"Thomas the Tank-Engine" teaches faces.

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Computer Programs to Treat Prosopagnosia



- "Gaining Face": www.ccodeur.com/GainingFace
- Paul Ekman, Ph.D. ("Lie to Me"/SPOT – Surveying Passengers by Observational Techniques) CD ROMS:
Micro Expression Training Tool (METT)
Subtle Expression Training Tool (SETT)
Repeated presentations of METT & SETT to those with Autism Spectrum Disorders
Available from: www.paulekman.com

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Computer Programs to Treat Prosopagnosia

- "Let's Face It!" – Face Recognition Program and workbook for children with Autism Spectrum Disorders (University of Victoria Brain and Cognition Lab & the Yale Child Study Center)
- Teaches facial recognition and emotion recognition in 20 hours!
- It is **FREE!**

From: <http://web.unic.ca/~letsface/letsfaceit/index.php>



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Treating Problems Making & Reading Facial Expressions



- Cognitive Affective Training-Faces and Feeling Words: www.CAT-kit.com
- Student Handout: Emotions and Facial Expressions – From: McAfee, J. (2002). Navigating the Social World. Arlington, TX: Future Horizons, pp 83-84.
- Ekman, P. & Friesen, W.M. (2003). Unmasking The Face: A Guide To Recognizing Emotions From Facial Cues. Cambridge, MA: Malor Books.
- Ekman, P. (2003). Emotions Revealed: Recognizing Faces and Feelings to Improve Communication and Emotional Life. New York, NY: Time Books.

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Teaching Facial Affect Recognition

- Social Skills training by Mental Health Professionals and Speech-Language Pathologists (female teacher with small children)*
 - 9/11 & Future Prosthetic Devices (Azar, 2000)
 - Try an “Emotional Seeing Eye Dog” (Grandin, 1995)
- Azar, B. (2000). Two Computer Programs Face Off. Monitor on Psychology, 31 (1), 48-49.
- Grandin, T. (1995). Thinking in Pictures: And Other Reports From My Life with Autism. New York, NY: Vintage.
- Grandin, T. (2006). Animals in Translation. New York, NY: Simon and Schuster.
- Dimitrovski, L., Spector, H. and Levy-Dhiff, R. (2000). Stimulus Gender and Emotional Difficulty Level: Their Effect on Recognition of Facial Expressions in Children With and Without LD. Journal of Learning Disabilities, 33 (5), 410-416.*



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Wearable Prosthetic



“We describe a novel wearable device that perceives and reports on social-emotional information in real-time human interaction. Using a wearable camera, combined with machine perception algorithms, the system records and analyzes the facial expressions and head movements of the person with whom the wearer is interacting. We propose the application of the social-emotional prosthetic to assist the growing number of individuals diagnosed with Autism...

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Wearable Prosthetic



...Spectrum Disorder (ASD) in perceiving communication in a natural rather than a structured environment, bootstrapping their ability to learn and develop in social settings...” (p. 1).

- el Kaliouby, R., Teeters, A. and Picard, R.W. (MIT Media Lab) (No Date). An Exploratory Social-Emotional Prosthetic for Autism Spectrum Disorders. From website: www.affect.media.mit.edu/pdfs/06.kaliouby-teeters-picard-bsn.pdf . More information from: kaliouby,alea.picard@media.mit.edu.
- el Kaliouby, R., Picard, R. and Baron-Cohen, S. (2006). Affective Computing and Autism. Annual of the New York Academy of Sciences, 1093, pp. 228-248.

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Emotional Seeing Eye Dogs

- Dogs separated from wolves about 135,000 years ago.
 - Dogs lived with humans for 100,000 years; even before we were “modern humans” (Homo Habilis).
 - Dog and humans co-evolved.
 - Humans learned to think and act like dogs.
 - Dogs allowed humans to hunt big game while they acted as guards and lookouts. Humans did more planning and organization activities.
 - 14,000 years ago humans domesticated dogs.
 - Homo Sapien Neantathalensis did not have dogs; they are extinct.
 - In the past 100,000 years dogs brains shrank by 10 to 30%; mostly in their forebrains while humans' brains shrank by 10%; mostly in the midbrain sensory and smell areas.
 - Dogs have a symbiotic relationship with humans and have a genetic predisposition to understand human emotions.
- Grandin, T. (2005). Animals in Translation. New York, NY: Simon & Schuster.

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Emotional Seeing Eye Dogs



- 4Paws For Ability
253 Dayton Avenue
Xenia, OH 45385
- Training Center:
937-374-0385
- Website:
www.4pawsforability.org

Dogs may have a rudimentary mirror neuron system!
Blakeslee, S. (January 10, 2006). Cells That Read Minds. New York Times; From website: www.nytimes.com/2006/01/10/science/10mirr.html?pagewanted=t&_r=1.

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HOW TO ACCEPT A COMPLIMENT

- LOOK AT THE PERSON.
- SMILE.
- USE A PLEASANT VOICE TONE.
- SAY, "THANK YOU!"

DATE INTRODUCED __/__/__
DATES ROLE PLAYED SUCCESSFULLY __/__/__ __/__/__
 __/__/__ __/__/__

DATE MASTERED __/__/__

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HOW TO APOLOGIZE

- LOOK AT THE PERSON.
- USE A QUIET, SINCERE, PLEASANT VOICE
MAKE A SPECIFIC STATEMENT OF APOLOGY.
- STATE A PLAN FOR FUTURE BEHAVIOR.
- ASK THE PERSON TO ACCEPT THE APOLOGY.

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HOW TO GET THE TEACHER'S ATTENTION

- LOOK AT THE TEACHER.
- RAISE YOUR HAND.
- WAIT FOR THE TEACHER TO CALL ON YOU.
- THEN ASK YOUR QUESTION IN A QUIET VOICE TONE.

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HOW TO ACCEPT CRITICISM OR A CONSEQUENCE

- LOOK AT THE PERSON.
- SAY, "OK."
- NO ARGUING, WHINING OR POUTING.
- IF YOU HAVE A QUESTION, OR YOU NEED A REASON, PLEASE WAIT UNTIL MUCH LATER.

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HOW TO ACCEPT "NO" FOR AN ANSWER

- LOOK AT THE PERSON.
- SAY, "OK."
- NO ARGUING, WHINING, OR POUTING.
- IF YOU DON'T UNDERSTAND WHY, CALMLY ASK FOR A REASON.
- IF YOU DISAGREE, BRING IT UP MUCH LATER.

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HOW TO SAY "NO!"

- LOOK AT THE PERSON.
- SAY, "NO, I CAN'T DO THAT BECAUSE....."
- (IT CAN HURT SOMEONE, IT WILL GET ME IN TROUBLE, I DON'T THINK IT IS FAIR, IF I LIE FOR YOU, WHAT'S TO STOP ME FROM LYING TO YOU?)
- IF NECESSARY, WALK AWAY AND SAY, "SEE YA LATER."

DATE INTRODUCED _/_/_
DATES ROLE PLAYED SUCCESSFULLY _/_/_ _/_/_
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DATE MASTERED _/_/_

Thanks! Have Fun in Arizona
and a Safe Trip Home!


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APPENDIX

Prosopagnosia with
AD/HD, Nonverbal
Learning Disorders &
Asperger's Disorder




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AD/HD and Facial
Expressions



"Importantly, findings of this study show that emotion processing difficulties in children with ADHD extend beyond facial emotion and also effect the recognition of emotions on the basis of contextual information. Our data thus indicate that children with ADHD have an overall emotion-processing deficit" (p. 111).


Da Fonseca, D., Sequier V., Santos, A., Poisno, F. and Deruelle, C. (March, 2009). Emotion Understanding in Children with ADHD. Child Psychiatry and Human Development. 40(4), 111-121.

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AD/HD and Facial
Expressions



"Children with ADHD exhibited a general deficit in decoding emotional facial expressions, with specific deficit in identifying anger and sadness. Self-rating of the task difficulty revealed lack of awareness of decoding errors in the ADHD group as compared with control subjects. Within the ADHD group, there was a significant correlation between interpersonal problems and emotional facial expression decoding impairment, which was more marked for anger expressions" (p. 93).


Pelc, C., Kornreich, C., Foisy, M-L. and Dan, B. (2006). Recognition of Facial Expressions in Attention-Deficit Hyperactivity Disorder. Pediatric Neurology. 35 (2), pp.93-97.

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AD/HD and Facial
Expressions



"Boys with ADHD may show poorer task Performance because of general cognitive factors, but also show selective problems in matching facial expressions to situations" (p. 398).


Yuill, N., and Lyon, J. (2007). Selective Difficulty in Recognizing Facial Expressions in Boys with ADHD: General Performance Impairments or Specific Problems in Social Cognition? European Child and Adolescent Psychiatry. 16 (6), pp. 398-404.

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AD/HD and Facial
Expressions



"Attention deficits in boys with ADHD seemed to account for their difficulty in recognizing facial expressions of emotion. Effective treatment for attention deficits is expected to have a beneficial effect on facial emotion recognition in boys with ADHD". (p. 323)


Shin, D.-w., Lee, S.J., Kim, B.-J., Park, Y., and Lim, S.-w. (2008). Visual Attention Deficits Contribute to Impaired Facial Emotion Recognition in Boys with Attention-deficit/Hyperactivity Disorder., Neuropediatrics. 39 (6), pp. 323-327.

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AD/HD and Facial
Expressions



Research evidence indicates that emotional facial recognition difficulties in people with ADHD may be related to biological impairment of the medial prefrontal cortex and amygdala.

Marsh, P.J., and Williams, L.M. (2006). ADHD and Schizophrenia Phenomenology: Visual Scanpaths to Emotional Faces as a Potential Psychophysiological Marker? Neuroscience Biobehavior Review. 30 (5), pp. 651-665.

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AD/HD and Facial Expressions



- “These results suggest that affect recognition abilities may be impaired in adults with ADHD and affect abilities are more adversely affected by inattentive than hyperactive-impulsive symptoms” (p. 1)
- No difference between non-disabled and those with Combined Type AD/HD in facial expression recognition.
- Those with Inattentive AD/HD made more errors in recognizing expressions of fear.

Miller, M., Hanford, R.B., Fassbender, C., Duke, M., and Schweitzer, J.B. (2010). Affect Recognition in Adults with ADHD. Journal of Attention Disorders, 20 (10), pp. 1-9.

AD/HD and Facial Expressions



Research indicates there may be altered neurological functioning of identifying affect anger and fear recognition in those with AD/HD that appear to be reduced by methylphenidate (Ritalin). Those with ADHD had left amygdala overactivation when viewing neutral faces.

Brotman, M.A., Guyer, A.E., Lunsford, J.R., Horsey, S.E., Reising, M.M....Leibenluft, E. (2010). Amygdala Activation During Emotion Processing of Neutral Faces in Children with Severe Mood Dysregulation versus ADHD or Bipolar Disorder. American Journal of Psychiatry, 167, pp. 61-69.

Possible Treatment for Emotional Working Memory Problems

- Stimulant Medication?
 - Lessens Hyperactivity and Impulsivity in AD/HD, Combined Type Individuals
 - Hundreds of Double Blind Studies to Support

Barkley, R.A. (2006). Attention Deficit Hyperactivity Disorder, 3rd Edition. New York, NY: Guilford.



Possible Alternative Medicine Treatment for Working Memory Problems in AD/HD



- Working Memory Training:
 - Torkel Klingberg, M.D., Ph.D.
 - Karolinska Institute- Stockholm, Sweden
 - CogMed software company (RM Program)
 - AD/HD deficient in visual spatial working memory (WM). Gets worse with age.
 - **MAY** help relieve visual spatial WM difficulties and reading comprehension in Combined Type AD/HD.
 - **More Research Is needed!**

www.cogmed.com

Klingberg, T. (February, 2006). Training Working Memory. AD/HD Report, 14 (1), pp. 6-8.
Barkley, R. (February, 2006). Editorial Commentary Issues in Working Memory Training in AD/HD. ADHD Report, 14 (1), pp. 9-11.
Ingersoll, B. (October 26, 2006). Complementary Treatments for AD/HD. Paper Presented at the 18th Annual CHADD International Conference, Chicago, IL.
Klingberg, T. and Anderson, M. (October 28, 2006). Computerized Training of Working Memory in Children with AD/HD. Paper presented at the 18th Annual CHADD International Conference, Chicago, IL.

Prosopagnosia and NVLD (Nonverbal Learning Disorders)



“Hence, it appears that children with NLD have a specific deficit on immediate memory for faces. This facial memory deficit may be linked to a deficit in right hemisphere functioning which has already been implicated in facial processing and may also be linked with other disorders (e.g., autism spectrum disorder) in which similar facial processing deficits have been documented.” (p. 1-2)

Liddell, G.A. and Rasmussen, C. (August, 2005). Memory Profile of Children with Nonverbal Learning Disability. Learning Disabilities Research and Practice, 20 (3), 137-141 (From abstract).

Prosopagnosia and Autism Spectrum Disorders



“Although not part of current diagnostic criteria, much evidence suggests that persons with ASD have marked deficits in face perception.” (p. 127)

Schultz, R.T. (2005). Developmental Deficits in Social Perception in Autism: The Role of the Amygdala and Fusiform Face Area. International Journal of Developmental Neuroscience, 23, 125-141.

Face Perception in ASD

- The Fusiform Face Area (FFA) responds much more to faces than to other objects.
- Nine different labs have found that those with Autism Spectrum Disorders have a hypoactivation of the FFA when viewing faces.
- Developmental Prosopagnosia and Developmental Agnosia are separate disorders.

Schultz, R.T. (2005). Developmental Deficits in Social Perception in Autism: The Role of the Amygdala and Fusiform Face Area. International Journal of Developmental Neuroscience, 23, 125-141.

Duchaine, B., and Nakayama, K. (2005). Dissociations of Face and Object Recognition in Development Prosopagnosia. Journal of Cognitive Neuroscience, 17, 249-261 (From Abstract).

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Facial Expressions



- Remembering Expressions:
 - The non-disabled are “pre-wired” to find the human face and voice the most important stimuli in the world.
 - Those with Asperger’s Disorder (AD) don’t look at the eyes they look at the mouth. Differentiated those with AD from non-disabled 100% of the time.

Klin, A. (October 11-12, 2001). Autism, Asperger’s and the PDD Spectrum. Seminar presented at the 33rd Annual Arizona Association of School Psychologists Conference, Mesa, AZ.

Volkmar, F.(April 23, 2003). Asperger Syndrome: Clinical Features, Assessment, and Intervention Guidelines. Seminar presented by New England Educational Institute, Phoenix, AZ

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Prosopagnosia and Autism Spectrum Disorders



“Thus, these data argue for the role of the FFA-amygdala system in social cognition more generally, and retrieval of specific social knowledge about what constitutes a friendly social interaction, or not. Collectively these data suggest the the amygdala-FFA system and its failure to strongly activate during face perception tasks points to a causal mechanism involved in autism...” (p. 137).

Schultz, R.T. (2005). Developmental Deficits in Social Perception in Autism: The Role of the Amygdala and Fusiform Face Area. International Journal of Developmental Neuroscience, 23, 125-141.

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Facial Expression Training & Autism



- “Even when people with autism spectrum disorders can figure out what someone’s eyes or face conveys, they do so in a different way than everyone else, which may be less efficient or take more time” (p. 62).
- The non-disabled use the temporal lobe and fusiform gyrus to decode facial expressions.

Ozonoff, S., Dawson, G.,and McPartland, J. (2002). A Parent’s Guide to Asperger Syndrome & High – Functioning Autism. New York, NY: Guilford.

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Facial Expression Training & Autism

- Looking at pictures of eyes and deciphering the emotion they conveyed activated the non-disabled amygdalas and frontal lobes.
- Those with Asperger’s used the frontal lobes far less and did not activate the amygdala. They used other areas of the brain not designed for such tasks.
- Those with Asperger’s may use voice, touch, etc. to recognize others, not their face.

Ozonoff, S., Dawson, G.,and McPartland, J. (2002). A Parent’s Guide to Asperger Syndrome & High – Functioning Autism. New York, NY: Guilford.



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Possible Future Treatment for Facial Recognition, Etc. with Autism Spectrum Disorders

- “Thus, under oxytocin, patients respond more strongly to others and exhibit more appropriate social behavior and affect, suggesting a therapeutic potential of oxytocin through its action on a core dimension of autism”. (p. 4389)
- “With increased oxytocin levels, previously presented faceswere more correctly assessed as “known,” whereas the ability of recollecting faces was unchanged” . (p. 38)
- Intranasal oxytocin improves emotional facial expression recognition in those with Autism Spectrum Disorders.
- The use of Risperidone has been approved with those who have Autism Spectrum Disorders because it can increase oxytocin.

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References for Slide #72

Andari, E., Duhamel, J.-R., Zalla, T., Herbrecht, E., Leboyer, M., and Sirigu, A. (March 2, 2010). Promoting Social Behavior with Oxytocin in High Functioning Autism Spectrum Disorders. Proceedings of the National Academy of Sciences of the United States of America, 107 (9), 4389-4394.

Rimmele, U., Hediger, K., Heinrichs, M., and Klaver, P. (January 7, 2009). Oxytocin Makes a Face in Memory Familiar. Journal of Neuroscience, 29 (1), 38-42.

Author (1997). Use of "Atypical" Neuroleptics in the Treatment of PDDs. MedScape Psychiatry & Mental Health e Journal, 2 (4): www.medscape.com/viewarticle/430897_5.

Guastella, A.J., Einfeld, S.L., Gray, K.M., Rinehart, N.J., Tonge, B.J., Lambert, T.J., and Hickie, I.B. (April 1, 2010). Intranasal Oxytocin Improved Emotion Recognition for Youth with Autism Spectrum Disorders. Biological Psychology, 67 (7), 692-694; www.ncbi.nlm.nih.gov/pubmed/19897177.

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Problems Making the Appropriate Facial Expression to Match How One Feels and What is Appropriate to The Situation

- Unmedicated AD/HD, Combined Type people have difficulty making facial expressions to match how they feel. They tend to "over-emote" their facial expressions. (Kuehle, et.al., 2002).
- Attwood's (2007) story of the boy with Asperger's Disorder who saw his mother crying and asked, "What face do I make?" (p. 134)

Kuehle, H.J., Hoch, C. and Jansen, F. (2002). Video Assisted Observation of Visual Attention, Facial Expression of the Individual Stimulant Dosage and Motor Behavior for the Diagnosis and for the Determination in Children with AD/HD. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.


Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 135.

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AD/HD and Making Facial Expressions



- Regarding facial expressions in children and adults with AD/HD Kuehle, Hoch, Rautzenberg and Jansen (2001) concluded, "Altogether, ... the facial expressions, are uncontrolled and jerky and are often wrongly dimensioned in time and space." (p. 6)


Kuehle, H.J., Hoch, C., Rautzenberg, P. and Jansen, F. (2001). Short-Term Video-Based Observation of Behavior with Special Reference to Eye-Contact, Facial Expression and Motor Activity in Diagnosis and Therapy of Attention Deficiency/ Hyperactivity Syndrome (ADHS). (First Published in): Praxis der Kinderpsychologie und Kinderpsychiatrie 50: 607-621. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.

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Facial Expressions and AD/HD



- AD/HD children smile abruptly.
- There is little or no transition between emotional states.
- Sometimes their facial expression bleeds over into the next emotional state.
- Expression of emotion often appears exaggerated. The quality of expression can be limited due to this.
- Even body movements are jerky and uncontrolled.


Kuehle, H.J., Hoch, C. and Jansen, F. (2002). Video Assisted Observation of Visual Attention, Facial Expression of the Individual Stimulant Dosage and Motor Behavior for the Diagnosis and for the Determination in Children with AD/HD. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.

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AD/HD and Making Facial Expressions



- AD/HD childrens' eyes drift away from those they are in conversation with.
- This usually interrupts the flow and their comprehension of the conversation.
- Often parents feel rejected by AD/HD children when they do this.


Kuehle, H.J., Hoch, C. and Jansen, F. (2002). Video Assisted Observation of Visual Attention, Facial Expression of the Individual Stimulant Dosage and Motor Behavior for the Diagnosis and for the Determination in Children with AD/HD. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.

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Possible Treatment of Problems with Facial Expression and AD/HD



- Optimal dosing of a stimulant medication causes a significant reduction in visual attention loss.
- Facial expressions will become smooth and variable.
- Too high a dose can cause a return of the symptoms.
- Can properly ID 80% of the AD/HD children with video procedure.

Kuehle, H.J., Hoch, C., Rautzenberg, P. and Jansen, F. (2001). Short-Term Video-Based Observation of Behavior with Special Reference to Eye-Contact, Facial Expression and Motor Activity in Diagnosis and Therapy of Attention Deficiency/ Hyperactivity Syndrome (ADHS). (First Published in): Praxis der Kinderpsychologie und Kinderpsychiatrie 50: 607-621. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.

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Famous People with Prosopagnosia

- Jane Goodall, Ph.D.
- Oliver Sacks, M.D.

Sacks, O. (August 30, 2010). Face-Blind.
The New Yorker, 36-43



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