



University of California, Irvine Child Development Center School

A unique school intervention model
for children “at-risk”

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Neuropsychological Characteristics of Executive Dysfunction

Key Components of Executive Function Skills are Attention, Inhibition & Working Memory (Lyon & Krasnegor, 1996)

- Hallmarks of Deficits of Executive Function
 - Difficulties with inhibition and maintaining mental set
 - Difficulties with shifting mental set and perseveration

Struwwel-Peter

(Slovenly Peter)



Sieh einmal, hier steht er –
Pius! Der Struwwelpeter!
An den Händen beiden
Ließ er sich nicht schneiden
Seine Nägel faul ein Jahr.
Kämmen ließ er nicht sein Haar.
„Pius!“ ruft da ein jeder:
„Garstig Struwwelpeter!“

Molecular Genetics, Executive Dysfunction, and Risk

- Specific genes associated with poor self-regulation
 - Dopamine receptor D4 gene (DRD4) on chromosome 11
 - Dopamine transporter gene (DAT1) on chromosome 5
 - D2 dopamine receptor gene
 - Dopamine-beta-hydroxylase gene
 - Uncertain about the association of noradrenergic genes
- There are several genes involved and their effects are cumulative



Sunohara G, et al. *J Am Acad Adolesc Psychiatry*. 2000;39:1537-1592.

Giros B, et al. *Nature*. 1996;379:606-612.



UC Irvine Molecular Genetic Studies of the DRD4 Receptor

- Swanson et al. (2000) *Neuroscience & Biobehavioral Reviews*
- Swanson et al. (2001) *Proceedings of the National Academy of Science*
- Ding et al. (2002) *Proceedings of the National Academy of Science*
- Grady et al. (2003) *Molecular Psychiatry*
- Leung et al. (2005) *American Journal of Medical Genetics*

Early Risk Factors for School Failure & Substance Abuse

- Executive Function Deficits
 - Impaired self-regulation
 - Impaired inhibition
 - Mental Under-arousal
- Impaired socialization skills
- Novelty seeking and dangerous behavior
 - Lack of self-awareness
 - Higher accident rate/ number of ER visits
- Cognitive rigidity

Children with impaired executive function and risk for school failure

Barbarese, et al. 2007

- Median reading achievement scores at age 12.8 years were significantly different for study children versus their non-affected peers.
- Median percentage of days absent was significantly higher for children with poor EF
- 3 times more likely to be retained a grade.
- 2.7 times more likely to drop out before high school graduation

Economic Cost Swedish Study

Nyden, Myren, and Gillberg, 2007

- 9 year follow-up
- 78% of total treatment costs were indirect (eg. Parent absenteeism)
- 22% were direct (doctor visits, hospitalization)
- Impairments in executive function skills healthcare costs were significantly more than healthy comparison families

Outcome in Adult Life

- Howlin study, 2000
 - Individuals may succeed well as adults, but achievements rarely come easily
 - Individuals rely heavily on family support for finding jobs or accommodation
 - Socialization often centers around special interests rather than spontaneous friendships
 - Stress and anxiety about “fitting in”
 - Secondary psychiatric diagnoses common

UC Irvine CDC School Day Treatment Program

- Empirical Evidence for a Multi-Modal Treatment Approach to children at-risk for school failure and substance abuse
 - Parent Training
 - Multiple Family Groups
 - Intense Social Skills Training
 - Family Support in Transition

Early History of the UC Irvine CDC School & Research



- 1981 James Swanson comes to Irvine from the Hospital for Sick Kids in Toronto, Canada
- Implements an in-patient treatment program at UC Irvine
- 1984 Team develops an adaptation of Bill Pelham's Summer Treatment Program
- 1986 Ron Kotkin and Steve Simpson collaborate with the Orange County Department of Education to form a Public School/Day Treatment Program Hybrid

UC Irvine CDC and Early Intervention

practice to research and research to practice

- 1996 Multi-modal Treatment Study First Wave
- 2000 Molecular Genetics Family Study
- 2000 Preschool Study of children at-risk
- 2001 Early Parent Training Prevention Program
- 2002 Collaboration with Children's Hospital OC
- 2004 Implementation of CUIDAR model
- 2005 Vanguard site of the National Children's Study

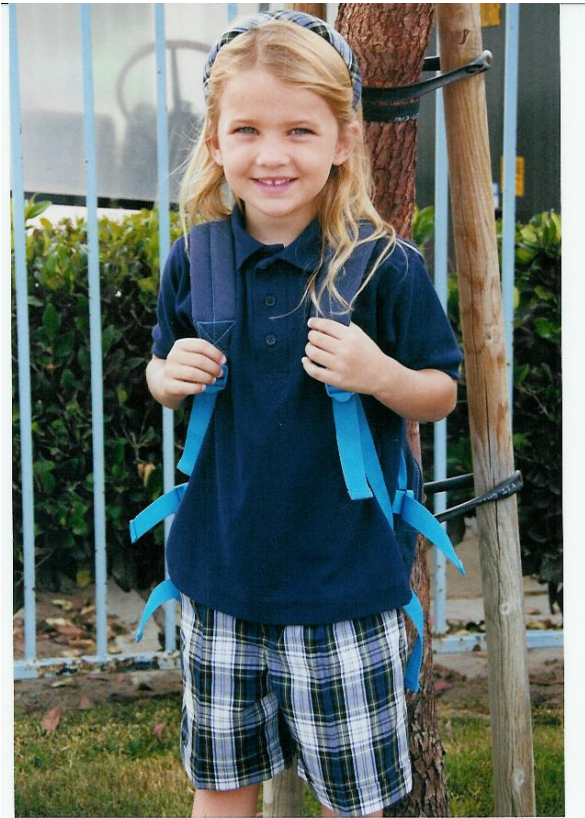
Academic Component

- Collaboration with local Public County Department of Education
- California State Academic Standards
- Regular Education Curriculum-Extensively Modified
- Supplemental Support for Special Education Needs and Learning Differences

Classroom Environment

- 4 classrooms of 15 children each
- 1 teacher and 2 Behavior Specialists
- Grades K through 6
 - Kindergarten/1st grade
 - 1st/2nd grade
 - 3rd/4th grade
 - 5th/6th grade

UC I CDC
Token Economy
Classroom



The Point System

Getting Started

Following Directions

Staying On Task

Getting Along

Following Rules

Cleaning Up

Compliance * Relationships * Productivity

Cognitive Reflection Strategies

Frequent Point Check (15 or 30 minute Centers)

Shaping cognitive perceptions about self-regulation

Preparing children for transition to next setting

Daily Reward Reinforcing Positive Behavior

Weekly Reward

Reinforcement of Continuity

- Fun Day Friday
- 90 minute period highly desired activity
 - Transportation Day
 - Halloween Carnival
 - Water Play Day
 - Movie and Popcorn Party
 - Ice Cream Sundae Party

Generalization

The Level System

- As positive behavior is maintained over time, greater and greater opportunity privileges are accessible
- Privileges in proportion to 'Level' attained
 - Greater access to playground structures
 - Line leader privileges
 - 'Helper' privileges for older children

Social Skills Intervention

- Intense 1 hour small group sessions daily
- Skills learned in session are integrated across the classroom and playground settings
- Specific vocabulary used to 'cue' skills
- Focus on relationships
 - behaviors required for school success
 - Behaviors required for good sportsmanship in play

Generalization: Parent Training

- Initial Parent Training
 - Parents participate in an 8-week course prior to a child's enrollment in the school program
- Home Program
 - A home Token Economy with home-based rewards is created during training
- Transition Support

Generalization:

Multiple Family Group

- Weekly Multiple Family Group
 - Weekly participation during stay in program
 - Sessions designed to teach the social skills language and support the implementation of the home program
- Individual Counseling
 - As needed
- Marital Counseling
 - As needed

Transition

- UC Irvine Treatment Team meets with parents
- UC Irvine professionals meet with child's home school district to determine placement options
- UC Irvine professionals and parents attend a placement meeting to ensure adequate support is in place for a successful transition
- Transition Groups are held weekly for 8-weeks in the fall after the child has transitioned

Follow Up

- Ratings collected at 3 and 6 months post program participation
- Phone Interviews conducted at 12, 18, and 24 months
- Junior Counselor/Alumni Summer Program
 - ‘Graduates’ are welcome to attend summer sessions where they serve as peer mentors to enrolled children

Clinical Support Services

- Neuropsychological Assessment
- Psychoeducational Assessment
- Educational Therapy
- Extended Marital or Individual Counseling

Dissemination of Data

- Comprehensive Data Base
 - Neuropsychological Assessment
 - Psychoeducational Assessment
 - Parent, Teacher, Clinician, and Self-Ratings
 - Demographic Information
 - Child Health History
 - Family Mental Health History
 - UC Irvine CDC School Data
 - Academic Progress
 - Outcome Measures

Upcoming Related Research

Novel Non-Pharmacological Intervention

- Exercise and Learning to Read
- Human Animal Interaction and Social Skills Training;
a Synergistic Approach



Future of UC Irvine CDC School Directions and Development

- Expand to grade 8
- Expand to one grade level per classroom
- Expand Preschool Program
- Broaden Educational Therapies for Learning Difficulties
- Broaden Speech and Language Support in context of program