

# Our Remarkable Brain-United States (ORBUS) ©

## A Curriculum and Research Protocol of the Synaptic Youth Foundation™

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### ABSTRACT

Research indicates that family connectedness is a leading protective factor against youth involvement in alcohol and other drug use, bullying conduct, and suicidal behavior. A vital component to building positive family connections is effective parent-child communication and the development of empathy. By empathy is meant feelings of concern, regard, and respect one human being may have for oneself and another. The ***Our Remarkable Brain (ORBUS)©*** program places specific emphasis on identifying several key components to successful parent-child interactions. The breathtaking use of the human brain also provides parents and their children an unforgettable life and educational experience about peer pressure, and the importance of practicing healthy brain behaviors. The cooperative learning curriculum content and strategies are based on educational trials and comprehensive review of the professional literature. Parents, guardians, children, and observing professionals should find this unique program beneficial to promoting quality parent-child communication and healthy youth behavior.

### INTRODUCTION

The ***ORBUS©*** youth suicide prevention program, created in 1983, and a curriculum component of the non-profit charitable foundation ***Synaptic Youth™***, has implemented a new primary prevention elementary school anti-bullying and preventative substance abuse curriculum. The program's decision to transition to the elementary school curriculum was based on the presentation and publication of evidence which was accumulated following ten years of successful trials in California, Colorado and New Zealand [1, 2]. In addition, some educational approaches that currently target universal populations, such as Drug Abuse Resistance Education, or DARE, have shown a consistent lack of effectiveness in scientific studies [3]. Furthermore, traditional educational and prevention formats have reported limited or no effect in changing youth behavior [4]. In fact, some have reported a slight increase in maladaptive conduct [5].

***Synaptic Youth™*** has its corporate and research headquarters in Grand Junction, Colorado and conducts evidence based research to establish program and cost effectiveness in accordance with the policies of the Substance Abuse and Mental Health Administration (SAMHSA) and the National Institutes of Mental Health (NIMH) [3]. The ***ORBUS©*** curriculum is consistent with the strategies and programs identified in Youth Violence: A Report of the Surgeon General "Promoting Healthy Children" and research on the positive outcomes on cooperative learning including academic gains, and increased personal and social development [3, 6].

The empirically based, understandably novel, and pioneering curriculum is essentially a cooperative learning approach for young student healthy decision making. Utilizing the human brain, pencil-and-paper, and coloring diagrams, the program facilitates active, hands on learning and encourages collaboration between students and their families. The formal program elements include:

- Students and parents learn cooperatively to complete tasks
- Students work collectively and assist one another
- Students promote each other's skills, asking another, helping another

The **ORBUS®** program specifically encourages students to:

- Recognize the major brain structures involved in his or her healthy brain behaviors including anti-bullying, drug abuse, and suicide presentation behaviors.
- Retain understanding of brain healthy skills required to work and play with others.
- Become aware that healthy behavior maximizes the protective brain factors of self-respect, compassion, and friendship, and minimizes risk factors of substance abuse, bullying, and personal isolation [1].
- Work with their parents on activities targeting personal development, empathy, and communication.

These goals, defined as crucial for our students self and interpersonal success, are presented in an exceptional, nonthreatening human brain encounter which strengthens parent-child, student to student, as well as community school and library bonds. Program standing is enhanced by way of Dr. Russell Copelan's faculty and directorship affiliations with Colorado Mesa University, research relationships with the University of Colorado Health Sciences Center and the Colorado Anatomical Board, and his international presentation and peer-reviewed research and publication record in brain anatomy and youth violence [1, 2].

The program is specifically tailored to interlibrary training settings emphasizing community based multicultural educational programming. The curriculum can be used in older student populations as well as secondary prevention programs for children at increased risk of unhealthy youth behaviors, and are aimed at preventing the onset and reducing the risk of violence and substance abuse.

#### MISSION

**Synaptic Youth™** and the **ORBUS®** curriculum aim to develop and deliver a unique and innovative educational resource to help children and parents living in Colorado to acquire and use direct brain knowledge and skills to equip them to live safer and healthier lives. According to the Colorado Department of Public Health and the Environment, states in the Rocky Mountain West, including Colorado, consistently demonstrate drug and dangerous influences, including youth suicide, substantially above the national averages [7].

## HISTORY

The brain study program in Colorado was conceived in 1983 and subsequently received copyright protection from the Library of Congress in 1997 [8]. Following a ten year, multi-center, primary prevention educational trial in El Paso, Teller and Pueblo Colorado counties and the province of New Plymouth in Taranaki, New Zealand, the program was made available to schools and libraries throughout Colorado.

## RESEARCH (Preliminary study and Protocol)

### **Fact patterns**

1. In 2005, 270 children ages 10 to 14 completed suicide in the U.S. Suicide rates for this age group increased 50% between 1981 and 2005. For every completed suicide by these children, it is estimated that 100 attempts are made. Suicides by suffocation occur most frequently in this age group. Colorado reached historical highs in 2012.
2. The prevalence of moderate to frequent bullying among U.S. youth in grades 6 through 8 is substantial (30%). Perpetrating and experiencing bullying are associated with poorer psychosocial adjustment, including problem behavior, school adjustment, social and emotional adjustment, and parenting.
3. Rates of drug use for children 12 years old, in the past month, including any illicit drug, marijuana, nonmedical use of a therapeutic drug, or alcohol (not including binge or heavy use): 2.5% (2009). The National Institute of Drug Abuse found that marijuana use has climbed among 10th- and 12th-graders nationally, while the use of other drugs and alcohol has held steady or declined. Marijuana problems in Colorado schools have increased after the 2010 Colorado regulation of medical marijuana dispensaries and the 2012 vote to legalize recreational marijuana.

### **Author's objective**

To determine whether a primary prevention program using a human brain is effective in preventing alcohol and other drug use, bullying conduct, and suicide attempts or completions in children aged 9 to 13.

### **Searching**

The keywords and search items were developed. MEDLINE and Sociological Abstracts were searched from 1987 to 1998. Public Health Effectiveness Database were also searched for recent reviews and primary studies. Key substance abused and suicidology journals were examined. Experts in the field and other agencies were contacted for unpublished studies.

### **Study selection: study designs and specific interventions**

No randomized controlled trials (RCTs), controlled clinical trials (CCTs), or cohort analytic studies were identified in which a human brain was utilized in a primary prevention curriculum. Studies looking at any primary prevention program which was universally designed to prevent alcohol or drug abuse were reviewed. These included: school-based programs and community-wide programs with multiple, different frameworks. The majority of the studies included DARE school-based interventions. This intervention demonstrated consistent lack of effectiveness in scientific studies. The pilot primary prevention study was based on a single theoretical framework which was designed to prevent alcohol or drug use, bullying conduct, or suicide attempt or completion by promoting healthy brain behaviors.

### **Study selection: participants**

100 children aged 9 to 13 were considered for inclusion in a multi-center primary prevention educational program in which parent involvement was required. The mean age was 13 years or less in all samples. Samples were representative of the general population of elementary school aged children. The percentage of females in the samples ranged from 25 to 75%. Subjects were excluded if there were issues of secondary prevention (recurrence or exacerbation of a diagnosable disorder).

### **Study selection: outcomes**

The study used outcome measures that focused specifically on actual behaviors. Impact of the primary prevention intervention was not measured in terms of knowledge or attitudes. The study examined the following outcome measures: initiation of alcohol or drug use, bullying conduct, suicide attempt or completion (or continued prevention), and the effects on academic achievement. Follow-up rates of behavioral outcomes were obtained using school and household setting surveys.

### **Validity assessment**

A standard quality rating tool developed by the Public Health Research Education and Development Program (PHRED) was reviewed for preliminary design criteria.

### **Results of the trials**

This pilot study addressed an appropriate primary prevention research question using a single theoretical framework, and clear inclusion and exclusion criteria. The literature search was comprehensive and unable to identify either published or unpublished controlled or cohort studies in which brain study was included in a primary prevention study. 3 school-based trials with 100 students and their parents were included. Participants included low-income White, African-American and Hispanic children in the US (n = 85), and White and Maori children in New Zealand (n = 15). There were no withdrawals or drop-outs. The follow-up in the combined trials ranged from immediately post program to 3 years post-program.

The results of the study found that it was possible to strengthen continued prevention of alcohol and drug use, bullying conduct, and suicide attempt or completion. Directly post-program, and at 3 years post-program follow-up, none of the participants had initiated alcohol or drug use, bullying conduct, or

suicide attempt or completion. There were no gender differences. There were no methodological differences between the two surveys.

### **Implications of the trial for practice and research**

**Practice:** The author states that primary prevention programs, focused on measurable behavioral outcomes, should focus on the provision of including human brain study in a structured school-based or community based program. In that many school-based interventions have demonstrated consistent lack of effectiveness, efforts for the design of innovative programs should focus on the five features that define effective interventions: theory-based design, provision of healthy brain facts, skills building exercises, the use of trained teachers, and a duration of at least 2 hours.

**Research:** The author states that there is a crucial need for the design and evaluation of primary prevention, school- and community-based, alcohol and drug use, bullying conduct, and suicidal behavior prevention programs. These issues merit serious attention, both for future research and preventive intervention. This pilot study found that it was possible to add force to healthy pre-adolescent behavior, over a 3 year follow-up period of increasing vulnerability, utilizing an innovative primary prevention program.

### **Bibliographical detail**

Copelan RI, Messer M, Ashley D. Adolescent violence screening in the ED. *American Journal of Emergency Medicine*. 2006; 24(5):582-594.

American Association of Suicidology. Fact sheet. 28 January, 2008.

National Center for Injury Prevention and Control (NCIPC) ([www.cdc.gov/ncipc/wisqars/default.htm](http://www.cdc.gov/ncipc/wisqars/default.htm))

Nansel Tr, Overpeck M, Pilla RS, Ruan WJ, Simons-Morton B, Scheidt P. Bullying behaviors among US youth: prevalence and association with psychological adjustment. *JAMA*. 2001 Apr 24;285(16):2094-100.

Centers for Disease Control and Prevention/National Center for Health Statistics (last updated: July 21, 2011. ([www.cdc.gov/nchs/fasats/druguse.htm](http://www.cdc.gov/nchs/fasats/druguse.htm))

### **Other publications of related interest**

Copelan RI, Ashley D. ACUTE (Adolescent and child urgent threat evaluation) Practice Manual. Psychological Assessment Resources, Inc., Lutz, FL. 2005

Read more: [Pot problems in Colorado schools increase with legalization - The Denver Post](http://www.denverpost.com/breakingnews/ci_24501596/pot-problems-colorado-schools-increase-legalization#ixzz31nsmo1pM)  
[http://www.denverpost.com/breakingnews/ci\\_24501596/pot-problems-colorado-schools-increase-legalization#ixzz31nsmo1pM](http://www.denverpost.com/breakingnews/ci_24501596/pot-problems-colorado-schools-increase-legalization#ixzz31nsmo1pM)

## **URL for original research**

[www.parinc.com](http://www.parinc.com) (search ACUTE)

## **About the author Russell Copelan, MD**

Dr. Russell Copelan graduated from Stanford University with a degree in ancient history, and subsequently attended the University of Nevada, Reno School of Medicine as a graduate student in anatomy. He received his medical degree from UCLA School of Medicine and completed post-graduate training in surgery at Presbyterian Medical Center, emergency room psychiatry at the University of California, Irvine Medical Center, and fellowship training in unusual movement disorders at the University of Colorado Health Sciences Center. Dr. Copelan was formerly a member of the Department of Psychiatry, University of Colorado Health Sciences Center and neurosciences staff of Memorial Hospital in Colorado Springs. He was previously Director of the Forensic Sciences Research Center and coordinator of cadaver anatomical and neuroanatomy studies at Colorado Mesa University in Grand Junction, Colorado. Dr. Copelan has published in the American Journal of Emergency Medicine, Pediatrics in Review, and co-authored the Adolescent and Child Urgent Threat Evaluation (ACUTE). He maintains an active and current administrative medicine license with the Colorado Board of Medical Examiners, and is a member of the Mesa County medical society.

## **AGE GROUPS AND PROGRAMMING**

The program is directed by Dr. Russell Copelan, coordinator of anatomical studies and current director of the forensic research center at Colorado Mesa University. In addition to Dr. Copelan, the instructors of the curriculum are upper division university students and selected faculty, directly supervised by Dr. Copelan at Colorado Mesa University. Instructors undergo 50 hours of special training in brain anatomy, child development, and teaching techniques. Instructors and Dr. Copelan are invited by local library and school districts to speak and work with students, teachers, and parents. There are programs for different age levels. Working with library and school staff, the instructors lead students on interactive discussions. Unusually well motivated young students, who have attended previous sessions, are invited to serve as mentors to fellow participants in forthcoming sessions. Furthermore, students and parents may re-enroll at anytime.

The program is a life skills program, consistent with the Colorado Department of Public Health and the Environment mission statement [6], and primarily directed to pre-middle school 9 – 12 year old elementary school children. Starting in 4<sup>th</sup> grade students are enrolled in a single 1hour lesson plan emphasizing brain anatomy, positive and negative brain influences, and personal choices for a healthy brain. Brain study is enhanced by helping students identify brain regions directly involved in reading, playing, sleeping, and feelings for others, bullying, drug abuse, and suicide. Dr. Copelan provides to participants Ten Tips for a Health Brain and a Certificate of Completion. The sessions are interactive and collaborative, and parents are strongly encouraged to attend. The curriculum is conducted by Dr. Copelan, faculty designee, or an upper division college student who has satisfied the pre-requisite training from Dr. Copelan. Each enrolled student and parent has an opportunity to hold the human

brain. This is repeatedly a transforming and awe-inspiring experience. There is no cost to attend the educational program. There are no communicable medical risks.

## FUNDING

The **Synaptic Youth™** foundation is funded largely as an anti-bullying, drug and suicide prevention program working through library and school districts. The entity is established as a 501(3)c non-profit charitable foundation. It submits grants to the Departments of Justice and Education, the US Drug Enforcement Agency, Colorado Department of Public Health and the Environment, corporations, foundations, individuals, and other sources. In addition, training and local programs typically receive funding from state legislative appropriations, state agencies, county, cities, school and library districts, hospitals, police and sheriff agencies, individual and community fund raisers.

## REFERENCES

1. Copelan RI, Messer M, Ashley D. Adolescent violence screening in the ED. *American Journal of Emergency Medicine*. 2006; 24(5)582-594.
2. Copelan RI, Ashley D. ACUTE (Adolescent and child urgent threat evaluation). Psychological Assessment Resources, Inc., Lutz, FL. 2005.
3. Youth Violence: A Report of the Surgeon General. January 2001. Secretary's Message & Chapter 5.
4. Ciffone J. Suicide prevention: A classroom presentation to adolescents. *Social Work*. 1993; 38, 196-203.
5. Overholser JC, Hemstreet AH, Spirito A, & Vyse S. Suicide awareness programs in the schools: Effects of gender and personal experience. 1989. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1989. 28, 925-930.
6. Brown, H., & Ciuffetelli, D.C. (Eds.). (2009). *Foundational methods: Understanding teaching and learning*. Toronto: Pearson Education.
7. Colorado Department of Public Health and the Environment. Injury, Suicide and Violence Prevention Unit & Health Statistics Section. [www.cdphe.state.co.us](http://www.cdphe.state.co.us)
8. Copelan R. Library of Congress. Txu000791545 / 1997-04-07. Human brain study groups for the prevention and treatment of substance abuse. Date of Creation: 1983.

