

Teaching Behavior Modification Skills to Overweight Rural Families:

Results from a Community-Based Program

Joseph A. Bianco, Ph.D. , Molly Malone-Prioleau, OMS-III

Andrew Wapner, DO, Michael Kushnik, DO, Karen-
Montgomery-Reagan, PhD, Gabriel Angel-Martos, MD, & Jay
Shubbrook, DO

Objectives



1. Provide a basic overview of the child obesity epidemic
2. Discuss empirically-supported psychosocial interventions for pediatric obesity
3. Describe the opportunities and challenges inherent in delivering obesity-related psychosocial interventions to rural population

Overview

- I. Pediatric Obesity
- II. The Setting: Rural Appalachian Ohio
- III. TAKE ACTION
- IV. Psychosocial Program
- V. Barriers/Challenges
- VI. Recommendations

I. Pediatric Obesity

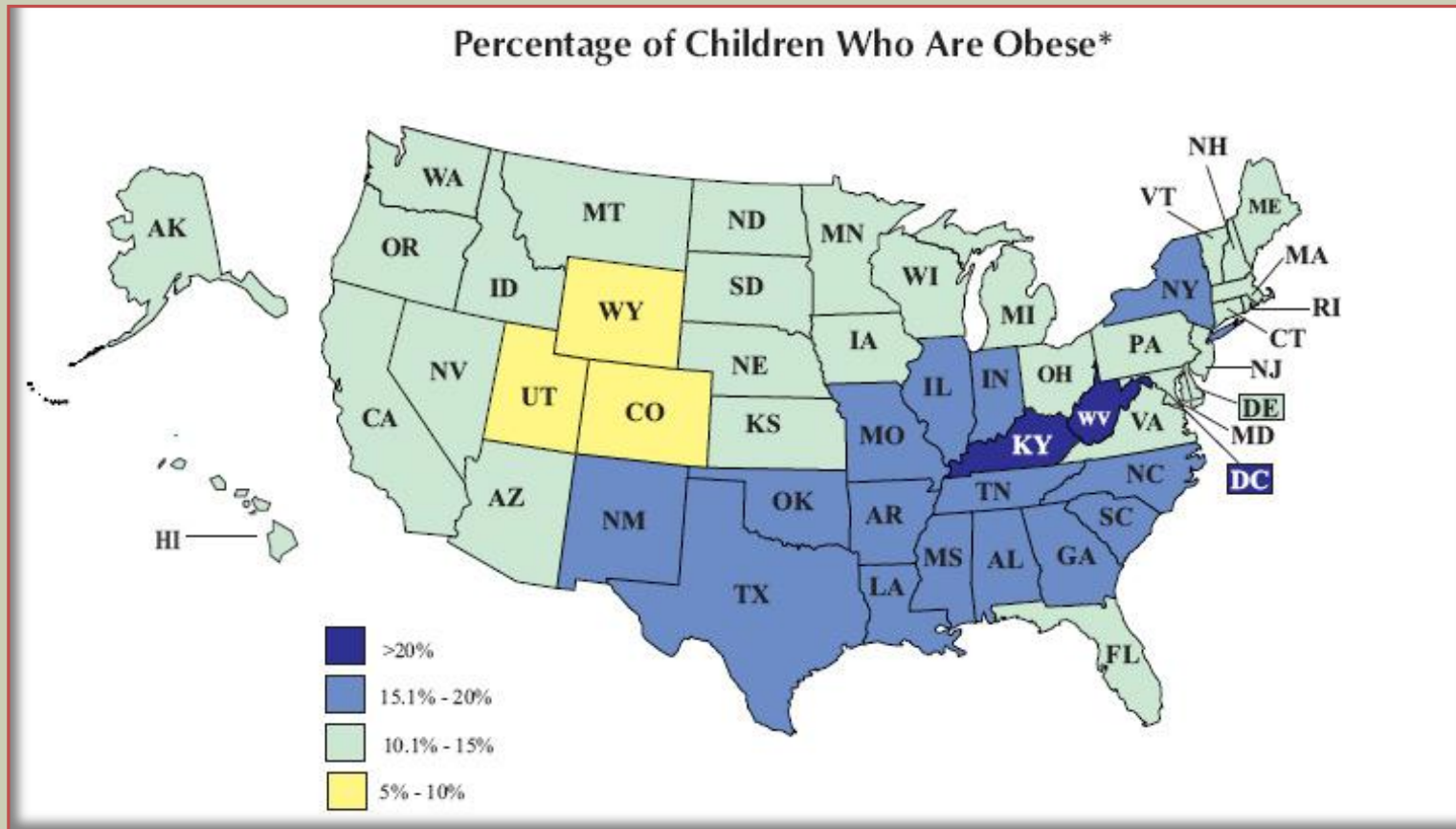
Prevalence, trends, risk factors, & correlates

BMI Classification for Children

<u>BMI Category</u>	<u>Percentile</u>
Underweight	Less than 5 th
Healthy Weight	Btwn 5 th and 85 th
At Risk for Overweight	Btwn 85th and 95th
Overweight	> the 95th

Based on the CDC Growth Charts (2000) for age and sex

Prevalence and Trends



NHANES , 2004

Prevalence and Trends (Ogden et al., 2009)

- ❑ Approximately 16.3% of children have BMIs in **overweight** range
 - ❑ Compare to the HP2010 target: 5%
- ❑ From 1976 – 2006, rates of obesity among 6-11 year old children more than tripled (NHANES, 2006).
- ❑ Good news: no significant changes in high BMI prevalence from 1999 to 2006.

Risk Factors and Correlates in Children

- ❑ Watching TV (> 2 hrs/day)
 - ❑ 8-13 year old boys who watch 5+ hours/day have 30% greater likelihood of developing obesity
- ❑ Male gender (11-19 years)
- ❑ Overweight parents
- ❑ African- Americans and Latinos
- ❑ Geographic location

Risk Factors and Correlates (cont.)

- ❑ Regional
 - ❑ Rural areas tend to have significantly higher rates of obesity than other areas
- ❑ Recent research suggests that rural residency is a ***risk factor*** for childhood obesity (Lutfiyya et al., 2007)
 - ❑ Overweight or obese children are 25% more likely to live in rural areas *after controlling for SES*



©Lawrence Hamel-Lambert, Associate Professor, School of Visual Communication
Ohio University

II. The Setting

Rural Appalachian Ohio



Joseph Bianco, Ph.D., TAKE ACTION2

Rural Appalachia: Geography and Health

- **Geographic features:**
 - Low population density
 - Remote communities
 - geographic isolation
 - from other rural communities and rest of the nation
- **Consequences:**
 - poor access to health care
 - provider shortages
 - significant health disparities
 - Stigma regarding psychology



Photo by:

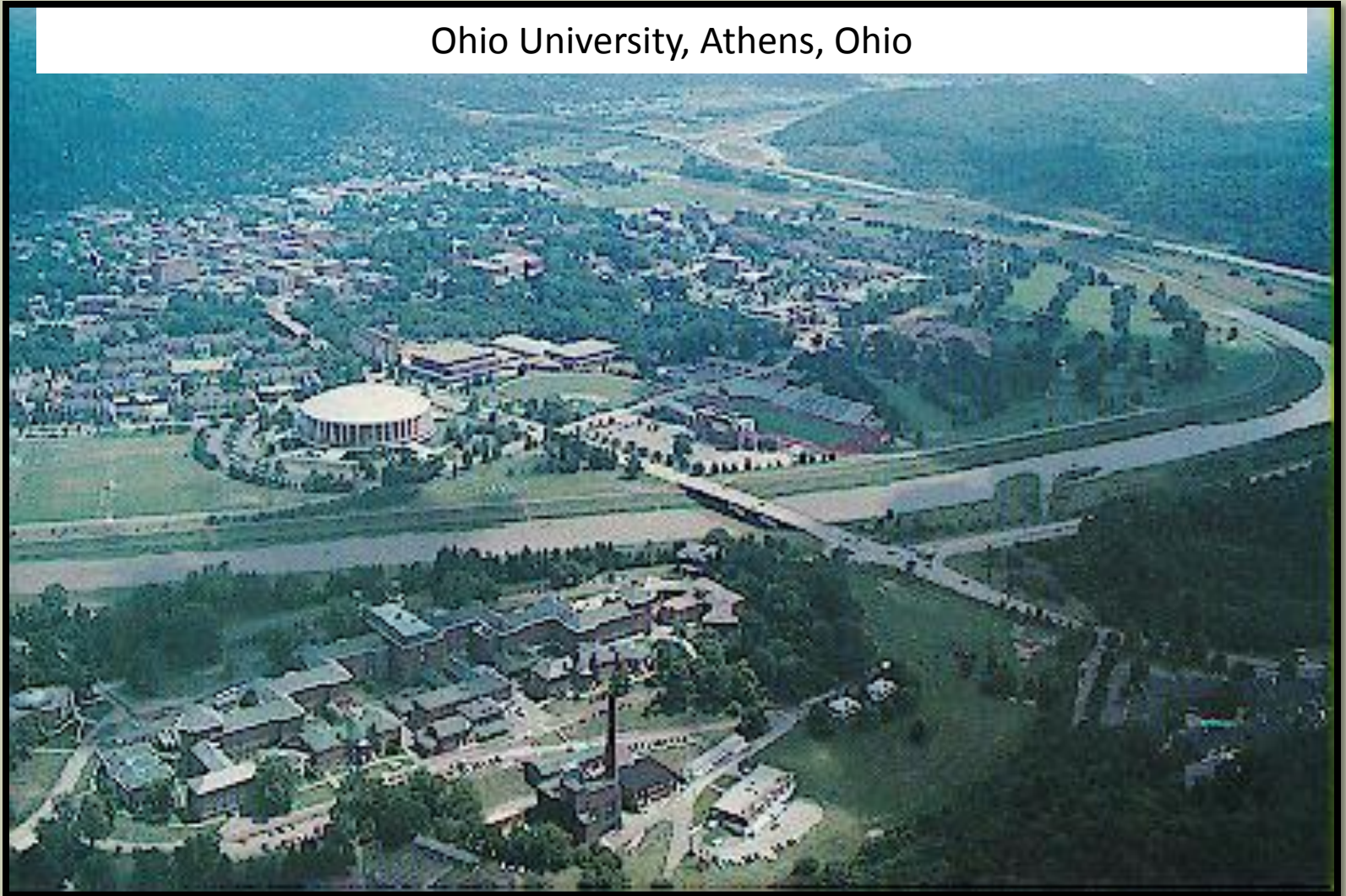
©Lawrence Hamel-Lambert, Associate Professor School of Visual Communication
Ohio University

Rural Appalachian Ohio

- ❑ 29 counties in Southeastern Ohio designated Rural Appalachian
- ❑ Population (2006): 1,476,738
 - the poorest in Ohio: 10.3% of families below poverty level (1999)
 - Educational attainment: 43% high school graduates
 - Health disparities: diabetes, cardiovascular disease, obesity over-represented

Athens County

Ohio University, Athens, Ohio



Athens County, OH

- Population: ~ 62,000
- Formerly mining and farming
- Largest employer: Ohio University
- “At Risk” economic designation (ARC)
- Mental Health Provider Shortage Area (MHPSA),
 - ▣ Paucity of child mental health practitioners
 - ▣ No pediatric psychiatrists

Athens County, OH

- Children (6-11 years): ~ 5,200
- Elementary Schools: 11
- Hospitals: 2 (1 critical access)

- County: 509 sq-miles
- City: 9 sq-miles
- Number of fast food restaurants: **51** (and counting)

Fast Food Restaurants (within 8 sq-miles)

- ❑ Arbys 991 E State St
- ❑ Avalanche Pizza, 329 E State St
- ❑ BW-3 Grill and Bagel, 21 W Union St
- ❑ Bagel Street Deli, 27 S Court St
- ❑ Blue Skies Carry Out, 207 W Union St
- ❑ Bob Evans Restaurant, 357 E State St
- ❑ Burger King, 949 E State St
- ❑ Casa Lopez, 1017 E State St
- ❑ China Fortune Restaurant, 15 W Union St
- ❑ China Garden, 21 S Court St
- ❑ Court Street Diner, 18 N Court St
- ❑ Courtside Pizza, 85 N Court St

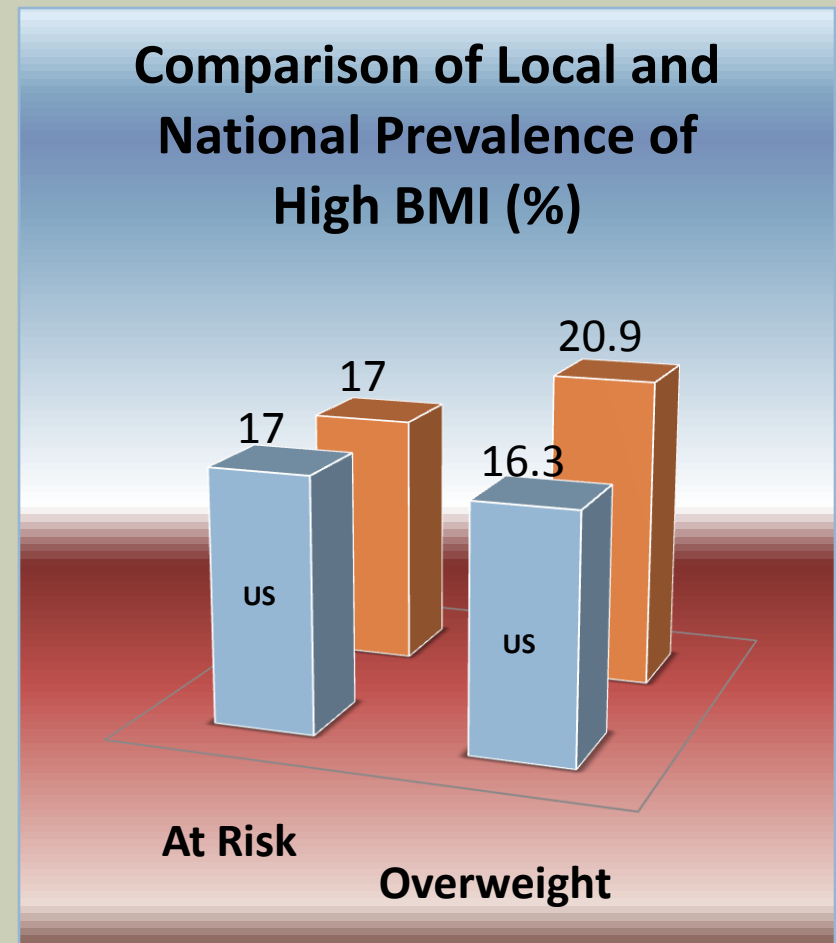
Fast Food Restaurants, cont.

- ❑ D P Dough, 374 Richland Ave
- ❑ Dairy Queen, 70 Columbus Rd
- ❑ Damon's Grill, 859 E State St
- ❑ Domino's Pizza, 12 Mill St
- ❑ Firehouse Pizza, 270 E State St
- ❑ Gold Star Chilli 70 W Union St
- ❑ Goodfella's Pizza, 35 N Court St
- ❑ Goodfella's Pizza, 6 W Union St
- ❑ Grand China Buffet, 1002 E State St
- ❑ Hardee's, 688 E State St
- ❑ Hungry Howie's Pizza and Subs (coming soon), 235 W Union St
- ❑ Jimmy Johns, 16 S Court St
- ❑ Kentucky Fried Chicken, 60 E Stimpson Ave

...to name just a few

Prevalence of Pediatric Obesity: Athens County (Montgomery-Reagan, Bianco, Heh, et al., 2009)

- Recent county-wide BMI screening program of elementary-school aged children
- **20.9%** of children are **overweight** (i.e., 95th %) compared to **16.3%** across the nation
- Boys in Athens County:
 - 23% more likely to be overweight than girls
 - 11% odds of developing obesity with each year of age



Recommended Interventions

- ❑ Interventions that include a combination of behavioral and lifestyle modifications with dietary and exercise programs (Holt et al, 2006)
 - ❑ *Self-monitoring, Peer-support, education, self-esteem*
- ❑ Systemic—target caregivers and children together (Epstein et al, 1985)
- ❑ Location: familiar, popular, non-stigmatizing settings

Common Community Measures for Obesity Prevention Project (CDC, 2009)

“Reversing the US obesity epidemic requires a comprehensive and coordinated approach that uses policy and environmental changes to transform communities into places that support and promote healthy lifestyle choices for all US residents.” (p. 1)

III. TAKE ACTION

Teamwork with Age-appropriate Kids' Exercise in Appalachia with Interventions for Overweight and Nutrition



Overview

- ❑ 8-week multimodal parent-child intervention for children with high BMI (> 85%)

Components:

- ❑ Supervised exercise
- ❑ Nutrition education
- ❑ Medical monitoring
 - inflammatory markers, cardio
- ❑ Health and wellness
 - behavior modification, depression/body image assessment

TAKE ACTION 2: A Multidisciplinary Approach

Areas Represented:

- Medical (10)
- Exercise physiology (8)
- Nutrition (5)
- Psychology (1)

Professions:

- Physicians/students (9)
- RDs/Master students (4)
- Exercise physiologists (5)



Eligibility

- ❑ Children 6-17 with BMI >85%
- ❑ Must have parent /guardian willing to participate with them
- ❑ No disease exclusion criteria for parents other than clearance
- ❑ Children with type 2 DM, hypertension, orthopedic problems were excluded

Participants & Recruitment

Recruited by word of mouth, through
pediatric/primary care clinics, community
advertising

26 families responded

- ▣ 13 weren't included (eligibility, drop-outs)

13 families completed entire program:

- ▣ 13 children (6-17 years)
 - 8 females, 5 males
 - Predominantly Caucasian

Groups

Participants divided into 4 age-related groups:

- ❑ Group 1: children 6-11
- ❑ Group 2: parents of 6-11 year olds
- ❑ Group 3: adolescents 12-17
- ❑ Group 4: parents of adolescents

Procedure/Format

- ❑ 2 hour sessions, twice a week x 8 weeks
 - ❑ 1 hour lecture or activity
 - ❑ Healthy living, eating shopping
 - ❑ Lecture or games
- ❑ 1 hour supervised interval exercise

Procedure/Format

☐ Typical session:

- ☐ Children exercise from 3-4 while parents attend nutrition lecture
- ☐ From 4-5 the switch
- ☐ 5-6 adolescents exercise, their parents attend lecture
- ☐ 6-7 teens and parents switch

☐ Tues: lectures were mostly didactic

☐ Thurs: activity or game to support Tuesday's topic

IV. TAKE ACTION: Psychosocial Curriculum

Theoretical Basis, Goals, Interventions

Psychosocial (Wellness) Program

Function: help participants adopt and assimilate health behaviors learned in the program

Objectives:

- ❑ 1. Reframe participants' goals from weight loss /diets to health behavior adoption
- ❑ 2. Teach culturally-relevant behavioral skills to support health habit adoption
- ❑ 3. Restructure parent-child relationships vis-à-vis health and weight
- ❑ 4. monitor participants for depression, eating disorders, body image dissatisfaction
- ❑ 5. Prevent attrition by maximizing investment

Theoretical Influences

Social learning:

- ▣ Relationships influence and accelerate learning
- ▣ group discussion, peer examples, teamwork

Child-As-Expert model:

- ▣ Children are not the “identified patients” (obesity is a health status *and* a culture—esp. family culture)
- ▣ Children can learn and make positive choices regarding health
- ▣ Empower children, relieve parents of responsibility

Theoretical Influences

Transtheoretical model of change

- ▣ Precontemplation: raise consciousness
- ▣ Contemplation: educate, pros & cons
- ▣ Preparation: setting the stage for action
- ▣ Action: implementation
- ▣ Maintenance: preventing relapse

Avoid stage-intervention mismatches

Expect and normalize relapse, slips, slides, and refusals

Learning Methods

Active and interactive

Customized modules: culturally-relevant, brief, tangible, and realistic

Child-as-expert approach

Multiple learning tools:

- ▣ Group discussion
- ▣ Display ideas with participant's names
- ▣ Creative activities, novel games
- ▣ Newsletters, postcards, peer ideas

Curriculum

Topics:

1. Introductions/Welcome/Orientation
2. Realistic Expectations
3. Launching change
4. Goal-setting
5. Enhancing motivation
6. Supermarket psychology
7. Cue control

Examples:

Week 1: Launching Your Healthy New Life

- Topic: launching a rocket
- Learning tool: video clip
- Activity: discussion, listing benefits of “lift-off”
- Prop for kids: rocket-pens

Examples:

Week 2: Food Pyramid

Psychosocial Topic: Healthy Life Pyramid

Learning tool: pyramid handouts to customize

Activity: design your healthy lifestyle pyramid with appropriate “serving sizes”

Motivational Tools:

Enhance motivation through weekly postcards

- ▣ Personalized “notes to self” about lessons learned, pride about accomplishments, ego boosts
- ▣ Personalized, private: In participant’s writing
- ▣ Decorated/embellished to reinforce investment
- ▣ Mailed by research team, designed to arrive between sessions

Weekly “Coaches Corner” and “Teen Scene” cards: records of who said what in the previous session

For children, sticker-reward charts for good behavior and engagement

V: Analyses

What worked, what did not, future directions

Psychosocial Program: What Worked

- ✓ Setting the tone:
 - ✓ Supportive, non-judgmental, mildly irreverent
 - ✓ Discouraging “shoulds”/focusing on choice
 - ✓ Leveling the playing field: child autonomy
- ✓ Establishing expectations
 - ✓ Emphasis on small victories, baby steps
- ✓ Topics:
 - ✓ Healthy Life Pyramid
 - ✓ Supermarket Psychology talk
- ✓ Using reward charts for younger children

What didn't Work: Barriers

Logistical Barriers encountered:

- ▣ 1. transportation
- ▣ 2. childcare issues
- ▣ 3. short duration

Town-gown/Cultural issues:

- ▣ Rapport building was intensive and slow, esp. with psychosocial program
- ▣ Heterogeneity of education, backgrounds
- ▣ Participant discomfort/unfamiliarity with psychology
- ▣ PowerPoint: too academic

Barrier: Staff Disappointment and Burnout



- Hard to stay positive and motivated
- Adolescents didn't like psychosocial and nutrition modules
- Very little evidence of change or, at times, interest
- Parallel process regarding expectations

Issues: Interdisciplinary Cultures

Philosophical Differences
between psychology and
other disciplines

What constitutes change?

- Attitudinal and behavioral change vs. pounds lost
- Process vs. Outcome



Recommendations

- Focus groups
 - Rural and Appalachian populations have distinct cultures, attitudes, and beliefs about obesity
 - Learn more about *your* community, as each one may be vastly different
- 3 month minimum duration
 - It took 8 weeks to build rapport, engagement, and set the tone
- Rapport-building for interdisciplinary team
 - Understand differences in professional cultures
 - Establishing mutual expectations of team
 - Defining each area's unique contributions
 - Develop shared mission to unite disparate professions
- Use interactive, culturally relevant activities
- Focus on *process* of change, not just outcome

V. Acknowledgments

TAKE ACTION 2 team, Funders, Partners

TA2 Team



- **Andrew Wapner, DO**
- Jay Shubbrook, DO
- Michael Kushnik, PhD
- Gabriel Angel-Martos, MD, PhD
- John Kopchek, PhD
- Tom Murray, MS
- Deb Murray, RD
- Joseph Bianco, PhD
- Melissa Lustic, MS
- Melissa Knutson, DO
- Michael Knutson
- Teresa Stampelis
- Drew Timothy
- Mark McGlynn
- Teresa Stampelis
- Molly Malone-Proleau
- Katie Moleski
- Abby Smith
- Trisha Snair
- Noel Davis
- Liesl Willis

Funding and Project Assistance

- Ohio University College of Osteopathic Medicine
 - Research and Scholarly Affairs Committee (RSAC)
 - Centers for Osteopathic Research and Education (CORE)
- American Academy of Family Physicians (AAFP)
- Athens County Community Recreation Center

