

2007 DEC CONFERENCE

Poster Title:

Testing the Effectiveness of a Physical Activity Intervention in Early Childhood Classrooms

Background:

- ◆ More than 10% U.S. children 2-5 years are overweight.
- ◆ Being overweight during early childhood is a disability and can bring harmful consequences on child outcomes.
- ◆ About 56% U.S. children are spending part of their day in an early childhood care and education program.
- ◆ Very few studies, however, have investigated children's physical activity in child care settings.

Why Center Based Physical Activity Interventions?

- ◆ Child care centers are a crucial setting to provide physical activity intervention to children early in life.
- ◆ Teachers' curriculum can bring about positive short-term changes in children's physical activity.
- ◆ Focusing on moderate to vigorous physical activity (MVPA) is an effective way to increase children's physical activity within a short period of time.
- ◆ Parental involvement in addition to classroom activities plays an important role in helping the child establish and maintain healthy physical activity habits.
- ◆ There are relatively few physical activity interventions offered to young children in the child care setting solely, compared to the number of school based ones.

Our Intervention:

1) **Physical Activity Curriculum** - 10 packets, each of which contains 2 related classroom lessons and one take home activity for children aged 3 through 5 years.

- ◆ Guiding principles for the curriculum:
 - to increase moderate and vigorous physical activity,
 - to use evidence-based practice,
 - to include an active parental engagement component,
 - to make it fun and easy so that child care providers would use the model.

2) **PEP (Planned Energetic Play)**

- Quick activities with bursts of energy
- Relatively short (2-3 minutes)
- Often with domains of cognitive, social/emotional, creative arts, or language and literacy learning involved
- Appropriate for children at a very young age
- Can be used before, during, and after group or transitional times
- Often accompanied by music with strong beats

Hypothesis:

There will be a significant increase in children's physical activity (*energy expenditure* and *intensity of physical activity* including *sedentary*, *light*, *moderate*, and *vigorous* physical activity) from before to mid-point and to after the intervention.

Samples:

55 children (28 boys and 27 girls) in three classes (the 3-year-old, 4-year-old, and kindergarten classes) of the University of Delaware Laboratory Preschool.

Accelerometry:

The Actical activity monitor (a validated tool to measure physical activity in preschoolers) was used to measure children's energy expenditure and intensity of physical activity.

Data Collections:

Time 1 - baseline data collection

Time 2 - mid-point of the intervention, about 4 weeks after the beginning of the intervention

Time 3 - immediately after the completion of the intervention

Results:

- ◆ Children in the kindergarten class showed a significant increase energy expenditure from time 1 to time 2, and from time 1 to time 3, but not from time 2 to time 3.
- ◆ The 4-year-olds had the highest energy expenditure at all three measurements and the 3-year-olds had the lowest. However, none of the changes in energy expenditure among the 3- and 4-year-olds were significant.
- ◆ For sedentary activity, only the 3-year-olds showed a significant decline from time 1 to time 3.
- ◆ For light and moderate activity, no class showed a significant change over the three times of measurement.
- ◆ For vigorous activity, the 3-year-olds showed a significant increase from time 1 to time 2.

Findings and Implications:

- ◆ The 8-week intervention had a significant effect on energy expenditure of children in the kindergarten class only and not the 3- or 4-year-olds.
- ◆ The 3-year-olds were significantly more vigorous and less sedentary after the intervention.
- ◆ The effectiveness of the intervention was affected by children's age but not gender.
- ◆ Future physical activity interventions should reach out to a larger and demographically more diverse sample, particularly those at a higher risk of childhood obesity.

Contact Information:

Penny L. Deiner pennyd@udel.edu

Wei Qiu weiqiu@udel.edu

Department of Individual and Family Studies

University of Delaware

111 Alison Hall West

Newark, DE 19716