

# Rise & Shine! Benefits of Before School Physical Activity

Steve Wehrle  
Greenwich Twp. School District

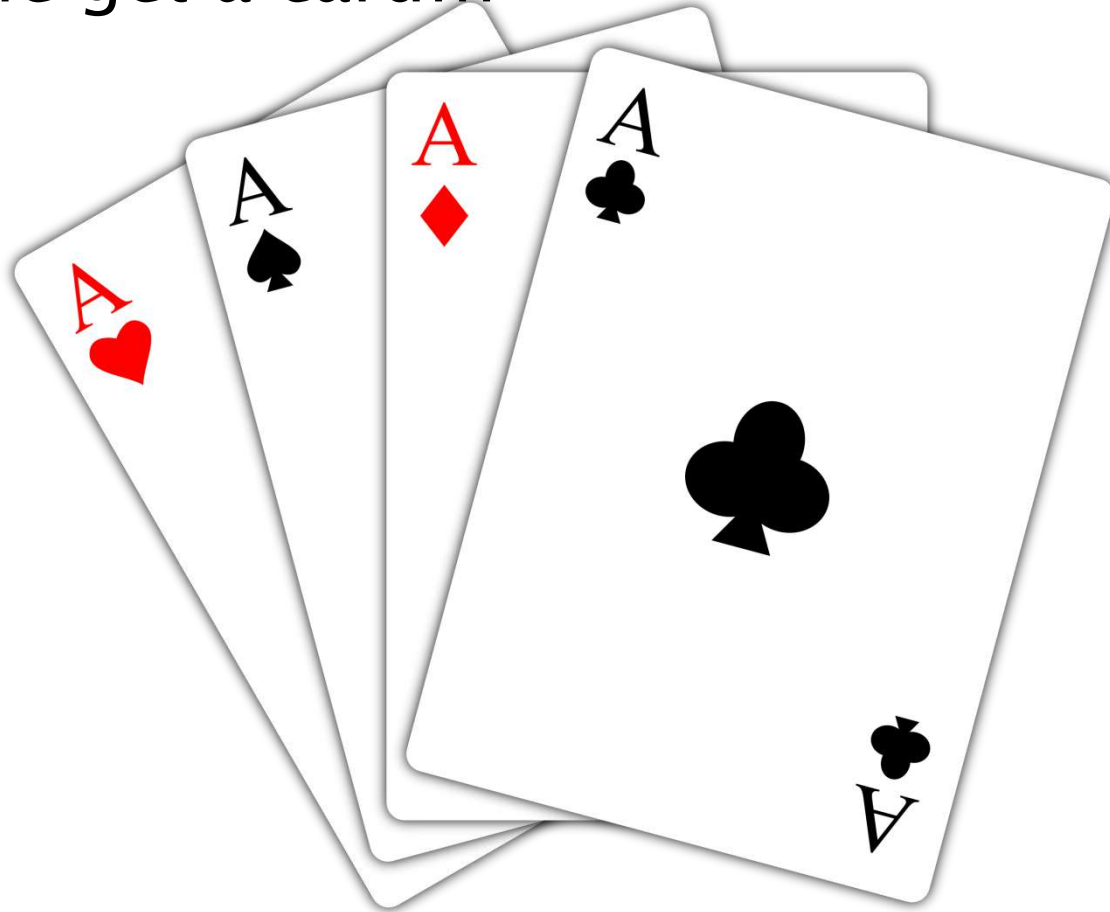
# Little bit about me...

- ▶ K-5 Health/Phys Ed Teacher
- ▶ Organized a before school physical activity program for seven years
- ▶ Dissertation on Before School Physical Activity and Students with ADHD

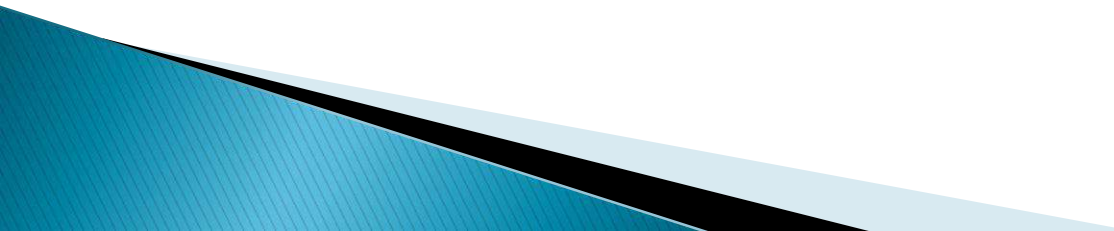


# I can't start without moving...

- ▶ Everyone get a card...



# What are the goals of today?

- ▶ How to run a before school physical activity program (BSPAP)
  - ▶ Items I use in my program/ different components
  - ▶ Examples of activities
  - ▶ What I found in my research and from others
  - ▶ Benefits my study showed
- 

# Physical Activity vs Physical Education

- Physical education is an academic subject and serves as the foundation of a CSPAP
- Physical education provides students with a planned sequential K-12 standards-based program of curricula and instruction
- Develop.....
  - motor skills,
  - knowledge
  - behaviors for healthy active living
  - physical fitness
  - sportsmanship
  - self-efficacy
  - emotional intelligence.
- Essential components of a physical education program include policies and environment, curriculum, appropriate instruction and student assessment

Physical Education

## Some Examples...

- recess,
- physical activity integrated into classroom lessons,
- physical activity energizers in and outside the classroom, and
- lunch time club or intramural programs.
- These opportunities should be offered to all grade levels K-12 and not exclude middle and high school youth, who also can benefit from engaging in physical activity throughout the school day.

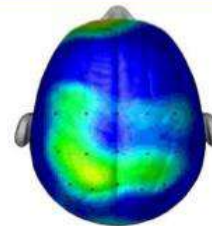
Physical Activity

# Why before school?

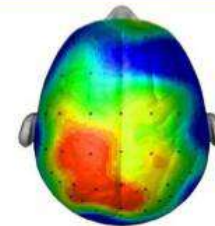
- ▶ Bus/transportation limits
- ▶ Desire to “wake up” students
- ▶ Space was available
- ▶ Tie in with food, getting kids to eat breakfast

## Physical Activity Enhances Brain Function

**Average composite imaging:  
Brains of 20 students taking same test**



After sitting quietly



After 20 minute walk

Research/imaging, courtesy, Dr. Charles Hillman, University of Illinois

# Why before school?

- ▶ *“If you had half an hour of exercise this morning, you’re in the right frame of mind to sit still and focus ..., and your brain is far more equipped to remember it.”*
  - Dr. John Ratley, Harvard Medical School
- ▶ *“A physically active child will have an **ADVANTAGE** in learning and that an inactive child is at a **DISADVANTAGE** for learning.”*
  - Dr. Germund Hesslow, Lund University
- ▶ “There is substantial evidence that physical activity can help improve academic achievement.”
  - U.S. Department of Health and Human Services

# The story behind the Rise and Shine program\*

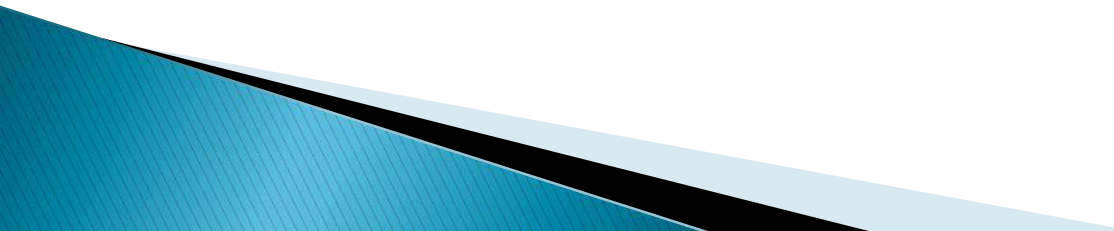
- ▶ Program is in its seventh year
- ▶ Curriculum is based on BOKS
- ▶ First year of the program we piloted it the week of NJ-ASK Test
- ▶ Get students to school on time, eat breakfast, and ready for the test
- ▶ Transformed into an all school event, running 3 times a week for two 8 week sessions
- ▶ Different grades, students of various need



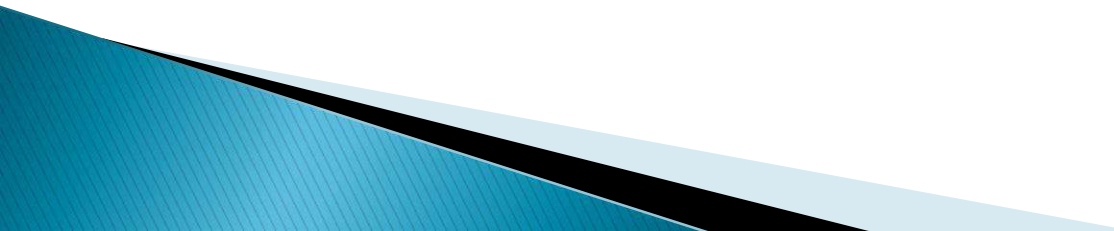
# Quick Look at the Program



# Program Overview (Components)

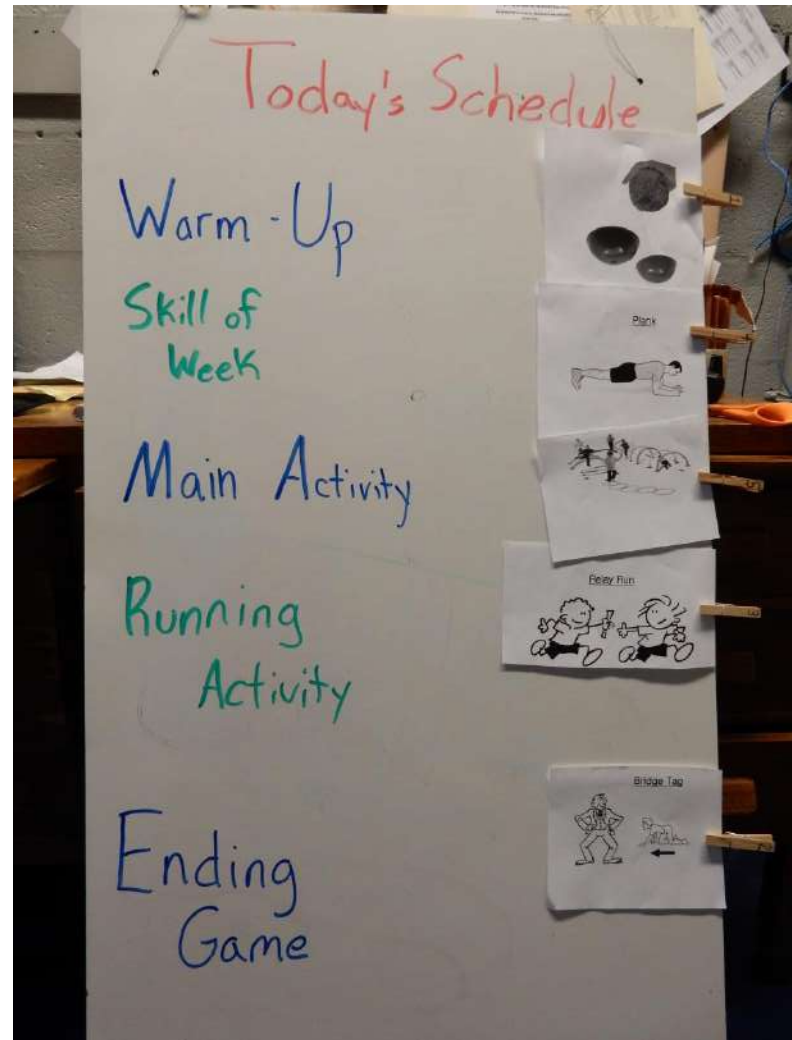
- ▶ Arrival/Opening Activity
  - ▶ Announcements/ Overview of the skill of the week
  - ▶ Main activity (centered around S.O.W.)
  - ▶ Running Activity
  - ▶ Ending Game/Activity
  - ▶ Dismissal
- 

# How it is set up

1. Arrival/Opening~ 10 minutes
  2. Announcements/Overview S.O.W.  
~ 3–5 minutes
  3. Main activity (centered around S.O.W.)  
~5–8 minutes
  4. Running Activity~ 5 minutes
  5. Ending Game/Activity~ 5–7 minutes
  6. Cool Down/Dismissal~3–4 minutes
- 

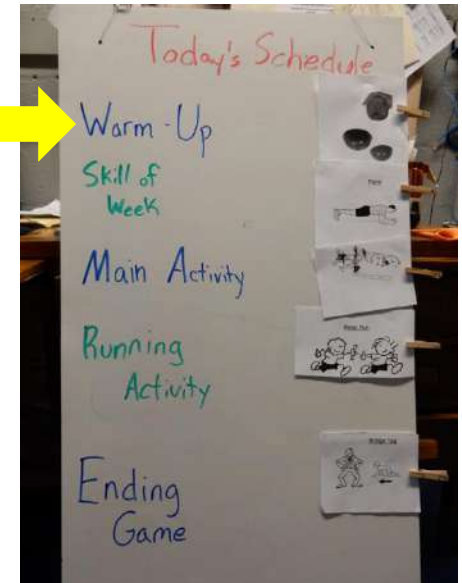
# Let's go Through a Session

- No buses
- Students enter through one door
- Staff member welcomes them and checks them in
- First thing they see



# Warm Up Activity

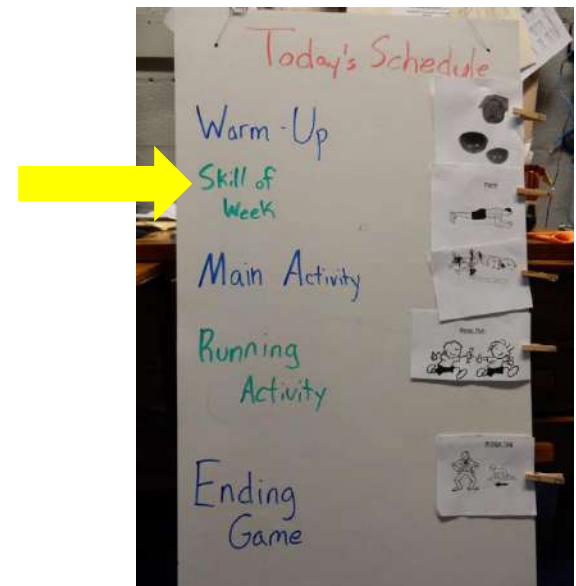
- ▶ Some type of activity game that does not need a high amount of supervision, can have players jump right in
- ▶ Example: Space Commanders  
free play, double trouble tag



# Skill of the Week (S.O.W.)

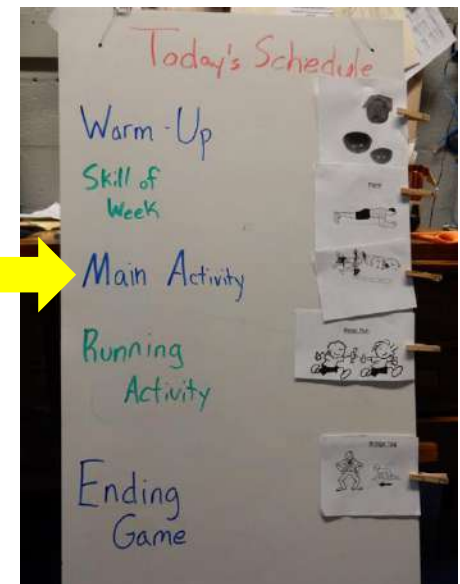
- ▶ Announcements
- ▶ Various from week to week, modify for students of different needs
- ▶ Why we do the S.O.W.

- ▶ Example: Plank, Crunches, Push-Ups, Jumps, etc...



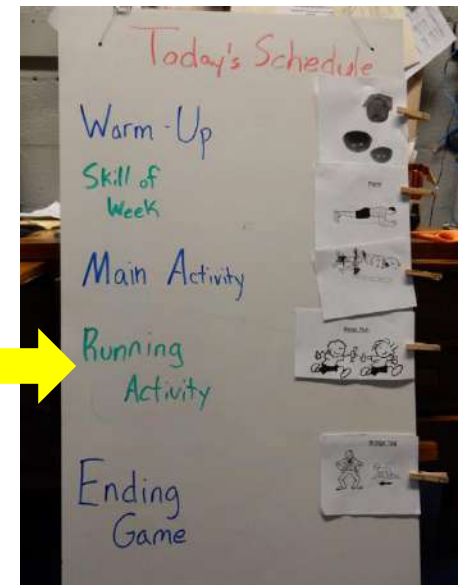
# Main Activity

- ▶ A longer activity that uses the skill of the week, longer movement segment
- ▶ Example: Obstacle course, Traffic Shadow, Sit Ups with Cards



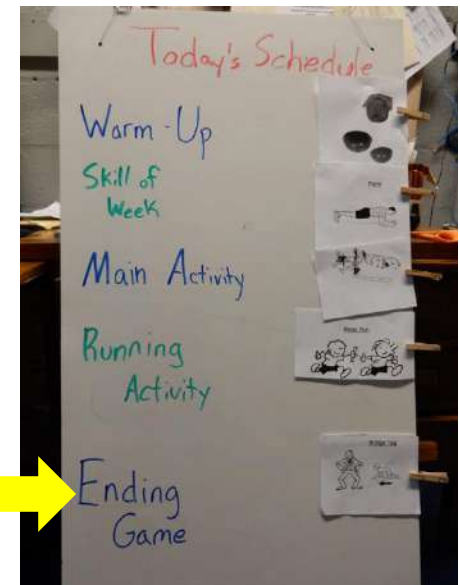
# Running Activity

- ▶ Some type of activity centered on running, Moderate to Vigorous Physical Activity (MVPA)
- ▶ Example: Partner Run (PACER test)  
Timed run, relay, etc...



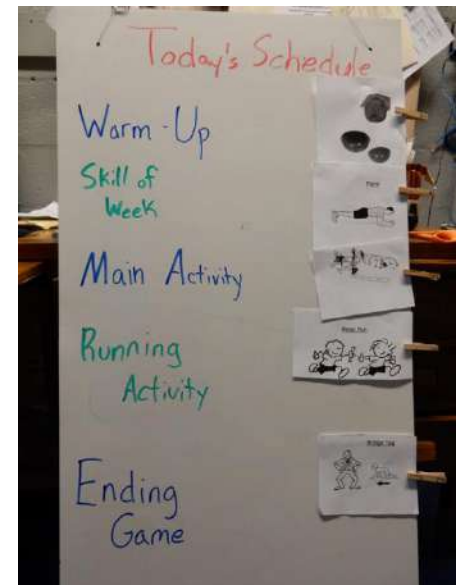
# Ending Game

- ▶ Fun MVPA game to bring the whole thing together
- ▶ “Carrot on the end of the stick”
- ▶ Example: Tunnel Tag, Toilet Tag Uncle Sam, etc...



# Cool Down/Dismissal

- ▶ Want the students to bring the energy down
- ▶ Center on crossing mid line stretches
- ▶ Example: Yoga or Juggling



# What are the benefits?

## Health-related

- Improved physical health

(Cawley, Frisvold, & Meyerhoefer, 2012; U. S. DHHS, 2008b)

- Positive mental health outcomes

(U. S. DHHS, 2008b)

- Enhanced brain structure and function

(Chaddock, Kramer, Hillman, & Pontifex, 2011; Ratey, 2008)

## Academic Performance

- Better grades
- Higher standardized test scores
- Enhanced concentration
- Improved retention
- Increased on-task behavior
- Fewer absences

(CDC, 2010)

# What are the benefits?

- Social setting and opportunity for students of various grades and abilities
- Physical Activity leads to increased blood flow to the brain

(Chaddock et al., 2010, Ratey, 2008)

- Social setting and opportunity for students of various grades and abilities
- Increase BDNF to brain

(Ratey, 2008)



## Broad Street School's Rise and Shine Program

What is the Rise and Shine Program?

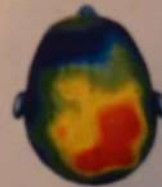
- A before school physical activity program, built on scientific concepts to not only increase physical activity time for students, but to prepare them for the school day

What Concepts is the Program built on?

- Brain activity increases following periods of physical activity
- Noted in numerous studies using FMRI scans, how physical activity brings increased blood flow to the brain, which enables a student to better use different facets of the brain
- Physical activity also brings increased neurotransmitters in the brain that aids in memory recall, sequencing of operations, ability to sustain focus, and several functions under that fall under an umbrella term executive functions
- Executive functions are critical for students who face difficulties in sustaining attention and impulsive behavior, as physical activities increases the same neurotransmitters as ADHD medication
- The program consists of activities designed to aid students in these areas



This is your child's  
brain without activity



This is your child's  
brain with activity\*

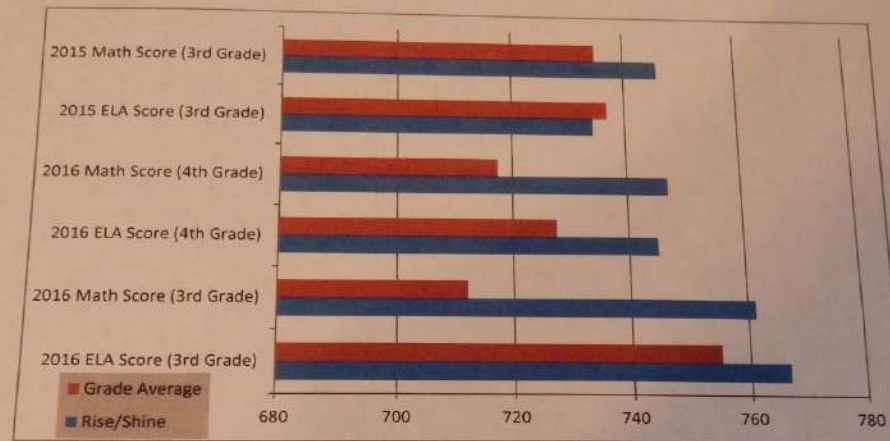
## Study Results/ Conclusions

### Behavior/ Procedural Results

- Students noted an ability to better follow classroom procedures following the program
- Enjoyed an ability to release energy, "wake up" for the day
- Students who attended the program were on time, and one of the first students to start morning procedures
- Develop confidence in oneself
- Satisfied a need for creativity

## PARCC Scores

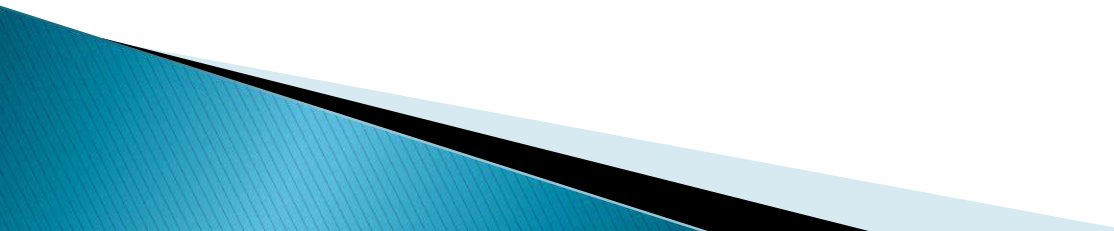
### Students who attended Rise and Shine vs Class Average



## Thank You

- Thank you for allowing me to conduct this research to better serve the students of Greenwich Township
- To take what was concluded as a result of this study and program and to apply it
- I have been fortunate....
  - New Jersey Teacher of the Year for Physical Education
  - SHAPE America Mabel Lee Award given to an individual under 36 who has made significant contributions to the field of Physical Education
- How I can serve Greenwich Township
  - Better educator
  - Speak on the wonderful things occurring at Broad Street School, and let the Physical Education department at the school, be a model for the state and nation, about what a quality program can look like

# What my case study showed

- ▶ Students Believe That the Before-School Physical Activity Session Helps Them Focus During the School Day
    - Provides Students With an Opportunity to Move and Create Their own Activities That They Enjoyed Doing.
    - Allowed Students to Arrive at School and Homeroom on Time.
    - Students Were Able to Better Follow Morning Classroom Routines and Procedures After Participating in the BSPAP.
- 

Provides Students With an Opportunity to Move and Create Their own Activities That They Enjoyed Doing.

- ▶ Kids want to move
- ▶ MVPA time shrinking
- ▶ Create movements



Allowed Students to Arrive at School and Homeroom on Time.

► Our school's opening schedule

- 8:15–8:35 Arrival from Students
- 8:35–8:40 Homeroom



► Time problems

- Arrive at 8:35 be on time
- Variety of Tasks to accomplish in 5 minutes
  - Breakfast, Put away items, do morning work, check off lunch, transit time, morning announcements, etc...

8:40~ First period starts

# Students Were Able to Better Follow Morning Classroom Routines and Procedures After Participating in the BSPAP



- ▶ Teacher A said, “I have noticed that on mornings where there is Rise and Shine he is a little calmer, than he is when he doesn’t go” compared to “Between the holidays, and not being able to go outside to release some of that extra energy, it was rough, a few rough months there”.
- ▶ Teacher B said, When he comes in, in the morning he typically is active, but it still takes him a while to do the next steps. But when he comes in on Monday, Wednesday, Friday, he is in more of a, I’m going to do this, I’m going to do this and does it. But he is not like talking to his friends, like on Tuesdays and Thursdays he is malaise”. On Rise and Shine Days “He comes in almost like tired, it’s like a good tired, like he is awake. If that makes sense”.

**We ask a lot of our students, in a short period of time. Students who struggle with Ex Fn, struggle with sequences**

# Students Were Able to Better Follow Morning Classroom Routines and Procedures After Participating in the BSPAP



- ▶ Increased blood flow, neurotransmitters connections are also being increased to the brain  
(Brown, 2013; Ratey, 2008)
- ▶ Physical activity increases blood flow to the executive functioning systems, which in return affects effort and focus  
(Brown, 2013; Chen, Yan, Yin, Pan, & Chang, 2014).
- ▶ Areas of Ex Fn: Activation, Focus, Effort, Emotion, Memory, and Action  
(Brown, 2013)
- ▶ Focus function allows a student to not only focus on a task but sustain that focus, and shift focus between tasks  
(Brown, 2013)
- ▶ Allows the students to be able to organize and prioritize task  
(Brown, 2013)

# How to help students with disabilities

- ▶ Allows a social setting of interaction they might not receive elsewhere
- ▶ An ability to try new strategies to meet and make friends

## Research

- Some students are kinesthetic learners (Gardner, 2011)
- Struggle with poor social skills (Barkley, 2006)
- Accommodations for students diagnosed with ADHD usually include increased opportunities to move, or ways to express themselves (Barkley, 2013)

# Visual Schedule\*



## Research

Difficult sequencing activities and exhibit delays in memory storage

(Sagvolden et al., 2005)

Knowing what will occur reduces the anxiety of not knowing what to expect in the classroom

(Breitfelder, 2008)

Placing a schedule in a visible location allows students to know what is to occur in the future and eliminates the need for constant verbal reminders

(Pfiffner, Barkley, & DuPaul, 2006)

Verbal schedules are not nearly as beneficial because they have difficulty focusing on long verbal instructions, committing multiple tasks to memory, and are not focused when directions are presented


(DuPaul & Stoner, 2003)

# Other people have talked about this, right?

## ▶ **Physical Activity Benefits Brain Functions**

- ▶ Physical activity increases blood flow to executive function areas of the brain and aids in synapse connection (Medina, 2008; Ratey, 2008)
- ▶ Physical activity helps connect brain tissue to each other, form new brain cells and increases memory and attention (Medina, 2008)
- ▶ Physical activity also raises levels of dopamine and norepinephrine in the brain (Medina, 2008)

## ▶ **Executive Dysfunction Theory**

- ▶ Root causes of ADHD behaviors reside in the Executive Function processing areas of the brain (Barkley, 1997, 2009; Brown, 2013)
  - ▶ ADHD behaviors are caused by delays between synapses in the brain that are caused by shortages of two neurotransmitters: dopamine, and norepinephrine (Brown, 2013)
- 

# I can only do it afterschool...

## AWESOME!!!!

- ▶ ASPs have been identified as a key setting for providing PA

(Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the PCFSN, 2012)

- ▶ Nearly 10.2 million U. S. children (18%) currently participate in an ASP which reflects an increase of nearly 2 million children over the past 5 years

(Afterschool Alliance, 2014)

- ▶ 80% of parents with children enrolled in an ASP believe PA opportunities should be offered daily

(Afterschool Alliance, 2015)

# Afterschool programs

- ▶ Provide 30 min of daily, developmentally appropriate PA
- ▶ Support MVPA at least 50% of the time
- ▶ PA should be inclusive, appealing to children, & offer variety
- ▶ Promote the health-related benefits of fitness
- ▶ Use evidence-based best practices

(Afterschool Alliance, 2015; Wiecha, Hall, Gannett, & Roth, 2011)



# I've got some ideas, where do I go from here?

- ▶ What is the space available?
  - Gym? Outside? Classroom?
- ▶ What age group of kids do I want to reach?
  - Start with a few grades? Set number?
- ▶ How do the majority of my kids get to school?
  - Bus district? Walking district?
- ▶ Will anyone help me?
  - You CAN'T do this on your own, sorry
- ▶ This isn't about tests, my administrators won't care
  - It is related, absenteeism, alertness, arrivals, etc...

# Thank You for Coming!!



Steve Wehrle: [swehrle@greenwich.k12.nj.us](mailto:swehrle@greenwich.k12.nj.us)