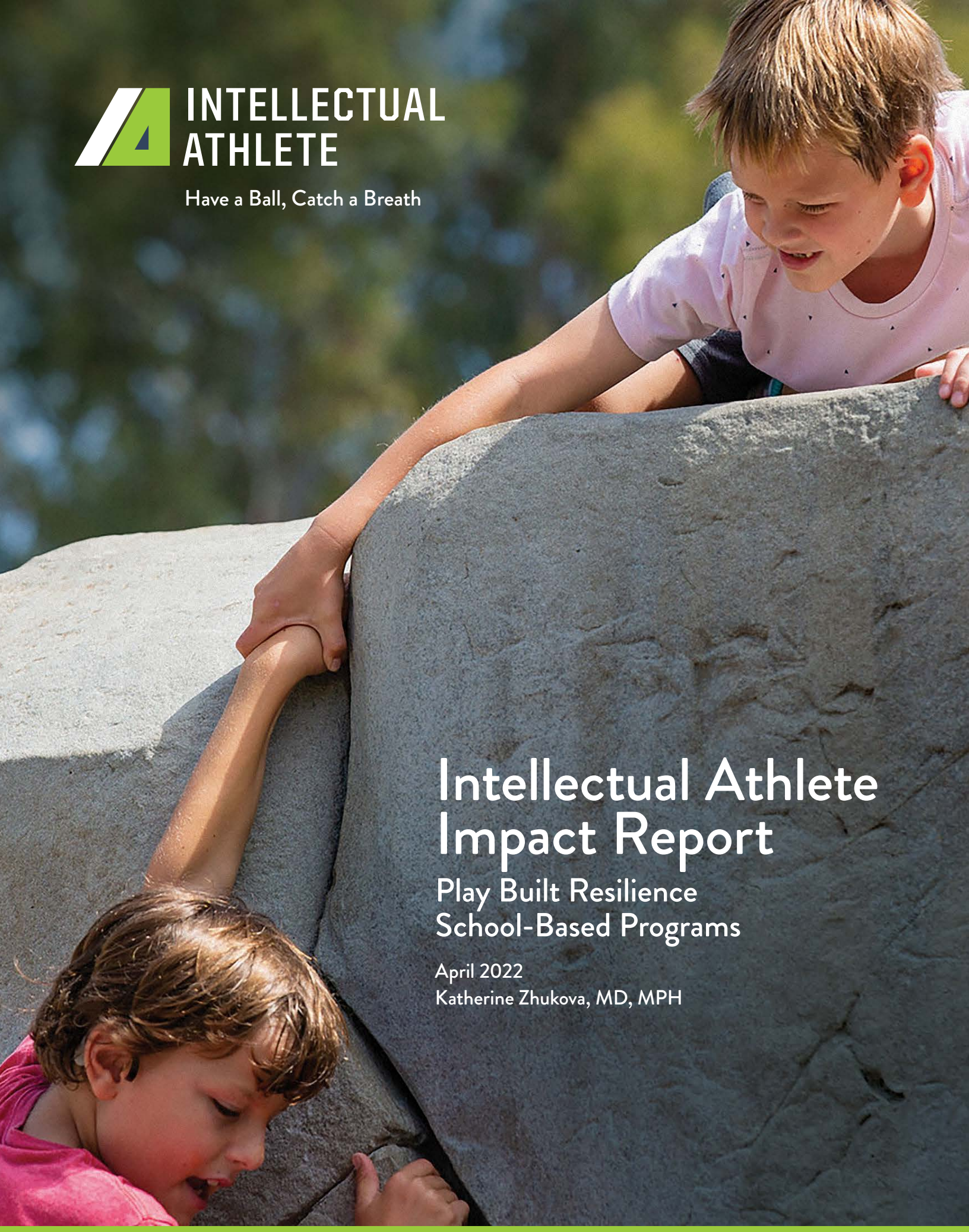


INTELLECTUAL ATHLETE

Have a Ball, Catch a Breath

Intellectual Athlete Impact Report

Play Built Resilience School-Based Programs

April 2022

Katherine Zhukova, MD, MPH

Abstract

In the pages that follow, we present the results of our recent evaluation of Intellectual Athlete's school-based programs running in Fall 2021. Programs at three elementary schools (two public, one private) in San Diego County were evaluated for effectiveness in teaching healthy coping skills such as breathing techniques, and in improving overall resilience. Pre and post experience surveys assessing attitudes to overcoming challenges, working with others, emotional self-regulation, and use of breathing techniques were given to students and parents. **Surveys from 53 students and 20 parents showed statistically significant increases in the use of breathing techniques by children to calm themselves down during sports (≥29%, $p<0.01$) and at home (≥30%, $p<0.01$).** after participating in our school-based programs. Additionally, parent answers showed evidence of further **self-management skills acquisition,** such as **not giving up when faced with a difficult challenge (33% increase)** and **knowing how to cheer themselves up (40% increase).** Qualitative responses provided by the children showed understanding of the benefits of breathing and retention of techniques. Qualitative responses from parents attested to witnessing their children practicing breathing techniques at home without being prompted. The implications of these findings, in terms of the potential of Intellectual Athlete's innovative stigma-free delivery of mental health prevention to transform school environments are discussed.

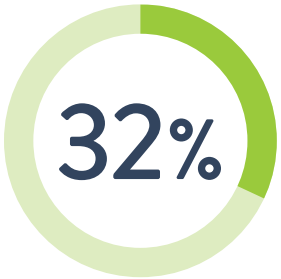
Organization
Intellectual Athlete

Program
Fall 2021 Play Built Resilience School-based Programming

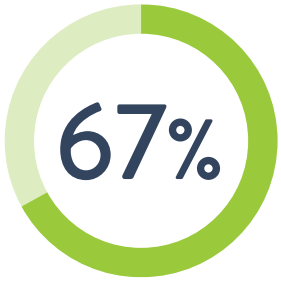
Site
2 San Diego Unified School District Elementary schools

1 Private Catholic Elementary school in San Diego County

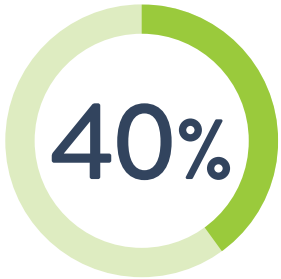
Grades
K through 8



increase in number of students from Public Elementary School No. 1 agreeing that when they feel angry at home, they stop to breathe, after taking part in our program
(27 pre, 35 post child surveys)



increase in number of parents of students from Private Catholic Elementary School agreeing that their child knows how to breathe to stop their thoughts from racing and make better decisions, after taking part in our program
(15 pre, 10 post parent surveys)



increase in number of parents of students from Private Elementary School No. 1 agreeing that their child knows how to cheer themselves up when feeling down, on post-program surveys
(15 pre, 10 post parent surveys)

1. Introduction

Mental health challenges in children, adolescents, and young adults are real and widespread. Rates of childhood mental health concerns rose steadily between 2010 and 2020, and the pandemic intensified this crisis. Now researchers estimate that up to 80% of children and youth are potentially affected by a mental health condition. This sobering statistic was cited by the Secretary of Education Dr. Miguel Cardona in fall 2021, who warned that children's mental health crisis is at a critical point, and that schools need to take action now.[1]

Intellectual Athlete (IA) was created to equip young people with the coping skills to combat anxiety and depression before these conditions manifest. Just as professional sports leagues and elite athletes have embraced meditation and mental skills to gain a tactical advantage, IA hopes to change the mental health game, by teaching kids how to self regulate through our fun, play based curriculum. We use sport and play to accelerate heart rates and increase stress levels, followed by breathing techniques to help young people learn how to calm their minds.

IA's *Play Built Resilience* curriculum is centered around the awareness of breath. It is delivered by a network of mind-body professionals (coaches, counselors, and performance psychologists) who teach young people how, when and why to breathe in response to stress, integrating storytelling, free play, and athletic skill development into each practice session. The ability to manipulate breath and body to calm the mind is a skill that can be learned, just like throwing, catching and jumping.

These approaches work because research shows that intentionally slowing down your breathing activates the parasympathetic nervous system, calming the body's stress response.[2] When under stress, the body tends to be in 'fight-or-flight' mode, mediated by the sympathetic nervous system. The amygdala, the brain's emotional epicenter, predominantly drives decision-making while under stress. Taking intentional slow deep breaths, transitions the body and mind into a calm state, allowing the prefrontal cortex to be fully active where reasoning and good decision-making takes place.

To illustrate the impact our program is having, we evaluated several of our school programs from fall 2021. We sought to determine firsthand, the impact we are having on students as well as perspectives from parents. We wanted to know if we can strengthen students' resilience (capacity to adapt and recover quickly from difficult situations). Furthermore, we wanted to know if this instinct to breathe in the face of stress would carry over to daily life.

2. Methods

Children and parents completed a 10-question Likert scale questionnaire, before the first Intellectual Athlete school session and at the end of an 8- or 10-week program. Electronic or paper questionnaires were completed by parents.

Questions assessed three resilience domains: **1, Self-Management; 2, Emotional Wellbeing; 3, Self-Regulation.** These are also key components of **Social-Emotional Learning** (SEL), a crucial curriculum focus of the Department of Education's strategy post pandemic. Self-management describes students' ability to manage their behavior, thoughts and emotions effectively, persist through life's challenges, and achieve goals and aspirations, including collective goals. Questions were inspired by validated Resilience assessment tools (Connor-Davidson Resilience Scale and survey from the Resilience Research Centre, Canada). Emotional Wellbeing was assessed by asking three questions adapted from the Columbia Depression Scale and assessments from the American Academy of Child and Adolescent Psychiatry. Self-Regulation questions were developed by us and asked specifically about breathing techniques.

We also collected qualitative data from students, parents, and coaches in the form of narrative accounts and written vignettes.

Survey data from 5-point and 4-point Likert anchors were categorized into agree and disagree. We used descriptive statistics and used Chi-square and Fisher's Exact to test difference in proportions. Likert scale scores were calculated and compared as a total, and also categorized into 'Emerging' and 'Advanced' as a point of reference for pre and post comparison.

1. NPR, Morning Edition (Oct. 2021). Kids' mental health crisis is at a critical point, Education Secretary Cardona says. Retrieved from: https://www.npr.org/2021/10/19/1047223095/kids-mental-health-crisis-is-at-a-critical-point-education-secretary-cardona-say

2. Chen, Y. (2016). The Effectiveness of Diaphragmatic Breathing Relaxation Training for Reducing Anxiety. Perspectives in Psychiatric Care, 53(4), 329-336. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1111/ppc.12184

3. Results

A total of 60 children and 26 parents completed pre-surveys, and 67 children and 20 parents completed post-surveys across two public elementary schools and one private school.

3.1 Public Elementary School No. 1

Students at Public Elementary School No. 1 completed 27 pre and 35 post-surveys (of 40 participating students) and were spread evenly from kindergarten through 5th grade. Table 1 summarizes their answers to Self-Regulation questions:

Table 1. Self-Regulation Results from Public Elementary School No. 1

Survey Question	Pre (Agree)	Post (Agree)	% Change	p-value‡
When I feel angry during sports, I stop and breathe and then feel better	68%	97%	**29%**	**<0.01**
When I feel angry at home I stop, breathe, and this makes me feel better	62%	94%	**32%**	**<0.01**
I can stop my thoughts from racing and make better decisions when I stop to breathe	75%	97%	**22%**	**<0.01**

‡Chi-square test for proportions

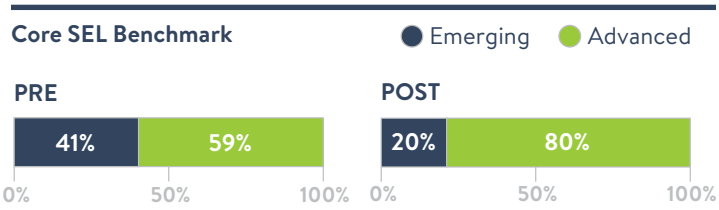


Fig.1. Pre- and post-program comparison of children's survey scores for all 10 SEL-related questions ('Advanced' students only dropped a maximum of 3 points, 1 for each of 3 survey domains)

This trend was reflected by observations of coaches during IA sessions that children were engaged and excited to learn, able to recall times during the week when they used breathing techniques (Table 6), and written feedback left by many students about what they learned: 'Box Breath/ breathing/breathing techniques' (mentioned by many children), 'I learned how to calm myself down when sad or mad', 'I found it fun and learned that you can take a breath when you are feeling different ways', and 'I learned how to cheer myself up when I am not feeling good', 'I learned that breathing can really help calm me down'.

Three parents from this school completed post-program surveys. They were asked specifically to answer whether their child is using breathing at home or during sports to calm down *because of participating in Intellectual Athlete's program.*

All three parents said that they had seen their child practice breathing techniques they had learnt 'frequently' at home, and 'sometimes' (1) or 'often' (2) used these when angry at home. Two wrote:

> "I have noticed my kids talking about breathing techniques without being prompted and they like to teach and advise us as their parents."

> "[Student No. 1] has been thrilled to teach us the breathing techniques he learned. We use box breath or finger trace breath together when he is upset. I have also seen him sitting alone doing the breaths to calm himself down. This was a very valuable program, and we greatly appreciate your investment in our children's mental health!"

3.2 Public Elementary School No. 2

At Public Elementary School No. 2, 30 students participated in the program and 18 pre and 18 post-surveys were completed by students who ranged from 4th to 5th graders. Answers to self-regulation questions are shown in Table 2:

Table 2. Self-Regulation Results from Public Elementary School No. 2

Survey Question	Pre (Agree)	Post (Agree)	% Change	p-value‡
When I feel angry during sports, I stop and breathe and then feel better	44%	44%	0%	1.00
When I feel angry at home I stop, breathe, and this makes me feel better	28%	58%	**30%**	**<0.01**
I can stop my thoughts from racing and make better decisions when I stop to breathe	56%	72%	16%	0.15

‡Chi-square test for proportions

Parents completed 11 pre and 6 post-surveys and these showed a 34% increase in the use of breathing at home noted in their children (results not shown).

Evidence of wider SEL skill building at this school is available from observations recorded by coaches every week for a weekly de-brief. For example, one student, who had been disruptive and initially disinterested, taking charge to lead a team and doing so successfully by coming up with a game plan for her team.

3.3 Private Elementary School No. 1

Students at Private School No. 1 ranged from 4th to 8th graders. A total of 15 students participated in the program. Parents completed 15 pre and 10 post-surveys. Parent responses show strong evidence of change—27% and 47% more parents agreed their children stopped to breathe when angry at home or during sports. In addition, all parents answered 'agree' or 'strongly agree' to their children knowing why to use breathing techniques—a 67% increase (Table 3). Two parents left the following feedback:

> "My son loved the classes and talked about them, and I have seen him use the skills he has gained on the field. Thank you!"

> "Thank you for having my son [Student No. 2] in this program. He has been doing so much better, especially when playing sports, he takes time to do the breathing techniques he learned from your program. Also, his behavior at home has improved. Thank you and hopefully he has the opportunity to be part of this great program again."

Table 3. Self-Regulation Results from Private Elementary School No.1

Survey Question	Pre (Agree)	Post (Agree)	% Change	p-value‡
When my child feels angry during sports, they stop and breathe and then feel better	33%	80%	**47%**	**0.04**
When my child feels angry at home they stop, breathe, and this makes them feel better	33%	60%	**27%**	**0.24**
My child knows how to breathe to stop thoughts from racing and make better decisions	33%	100%	**67%**	**<0.01**

‡Fisher's exact test

This pattern of parent answers is also supported by accounts collected by coaches over the last weeks of the program when students shared times they used breathing techniques during sports or their daily life. Students also completed breathing diaries. All students were able to share at least one account—from using breathing to calm down before a test, to taking a confidence charge breath in a baseball game (Table 6).

Additionally, parent answers to Self-Management and Emotional Wellbeing questions from this school also showed stark improvements (Tables 4 & 5). We plan to hold a focus group with these parents to further investigate the validity of these findings.

Table 4. Select Self-Management from Private Elementary School No.1

Survey Question	Pre (Agree)	Post (Agree)	% Change	p-value‡
My child knows how to cheer themselves up when feeling down	40%	80%	**40%**	**0.10**
My child doesn't give up quickly when facing a difficult challenge	53%	80%	**27%**	**0.23**
My child believes they can accomplish challenging tasks with sufficient effort and hard work	67%	100%	**33%**	**0.06**

‡Fisher's exact test

Table 5. Select Emotional Wellbeing from Private Elementary School No.1

Survey Question	Pre (Disagree)	Post (Disagree)	% Change	p-value‡
My child has been in a bad mood lately	67%	100%	**33%**	**0.06**
My child gets mad and loses their temper at home	33%	80%	**47%**	**0.04**

‡Fisher's exact test

Overall Resilience Gauge

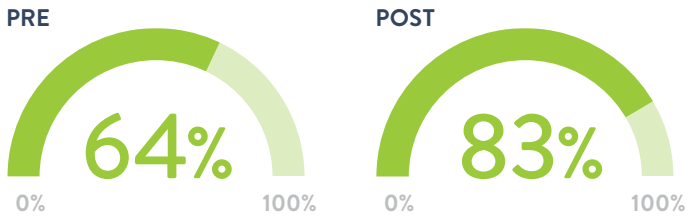


Fig.2. Average total parent survey scores before and after their children took part in IA program presented as percentages as a reflection of resilience

Table 6. Examples shared by students from all 3 schools of when they used breathing techniques learnt at IA sessions (n=35)

Situation	No. of students (%)	Examples
School	10 (29%)	New class with unfamiliar people, around unruly behavior in school, before taking tests
Home/ Other	17 (49%)	To avoid fighting with siblings or parent, to wind down to sleep/ stop racing thoughts when unable to sleep at night, before Covid shot, speaking in front of others at church
Sport	8 (23%)	Baseball game before running to base or batting, soccer game to score penalty kick, to calm nerves when meeting new basketball coach, together with teammates during soccer game when going into overtime, gymnastics learning to do backflip, when under pressure during football game

> Two students (6th or 7th grade) told me (coach Alec) about how they had a big test in school that week. While the tests were being handed out, they both practiced a few box breaths to calm their nerves and put their minds at ease."

> One girl used the box breath during her gymnastics class while she was learning to do a backflip. Her gymnastics coach asked her where she learned the box breath and she told them that she learned it from her after-school breathing coach. I asked her what the gymnastics coach said. She told me that her coach said, "Wow, that is so cool!"

4. Discussion

Intellectual Athlete ("IA") demonstrated effectiveness in teaching coping strategies and breathing techniques to students through stress-inducing play. Specifically, results suggest IA students learned how, when, and why to breathe, and were able to apply learned coping strategies when experiencing stress in daily life.

This study consisted of 85 students in the 5–12 age range attending three different schools in Southern California. Although the schools were close in geographic proximity, the socioeconomic status and cultural backgrounds of the participating schools were different and diverse:

- One private school consisted of upper middle class students
- One public school catered to middle class military families
- A second public school served low-income students

The study took place during a time of heightened stress for each of the school communities due to COVID outbreaks, masking requirements, and recognized teacher burnout. According to a recent report published by the National Education Association (NEA), teacher burnout is expected to result in a mass exodus of teachers from the profession in the coming months and years.[3] Lack of mental health support for students was cited as primary contributor to teacher dissatisfaction. Recognized teacher burnout, coupled with the increase in students who may be struggling with mental health issues, results in a complicated challenge for our education systems.

The data supporting sport, play and storytelling to help young people improve their well-being is rich and ever expanding. Intellectual Athlete's, attempt to combine these evidence-based practices into a new fun framework, we call *Play Built Resilience*™ is both innovative and timely. Over the next six months, IA will continue to monitor and evaluate our curriculum, train instructors, and assess for whom the program works best and when. We want to understand how the students are experiencing the stories we share with them and what guided questions are best used to facilitate dialogue at a developmentally appropriate level.

For our assessments, we are always debriefing our instructors to gather feedback to adjust and improve over time. Our staff are currently undertaking trauma-sensitive approaches training facilitated a leading national non-profit, The Center for Healing and Justice Through Sport—meeting recommendations set out in recent US Department of Education guidelines,[4] given that children and families have experienced additional levels of trauma brought on by the pandemic and distance learning. We will be assessing the use of wearable technology to monitor student heart rates to understand when and why stress levels increase or decrease during our program. Ultimately, a randomized controlled trial will be necessary to prove the efficacy and fidelity of our *Play Built Resilience*™ curriculum. We hope to run an RCT here in San Diego in the next twelve months.

3. National Education Association (Jan. 2022). Poll Results: Stress and Burnout Pose Threat of Educator Shortages. Retrieved from https://www.nea.org/sites/default/files/2022-02/NEA%20Member%20COVID-19%20Survey%20Summary.pdf

4. U.S. Department of Education (October 2021). Supporting Child and Student Social, Emotional, Behavioral, and Mental Health Needs. Retrieved from https://www2.ed.gov/documents/students/supporting-child-student-social-emotional-behavioral-mental-health.pdf

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If you are interested in having a discussion with us regarding how IA can be used to support your students, please contact **Sean Tuohey** at **sean@intellectualathlete.co** or **202.320.6718.**