



## Yoga for at-risk youth

### 1. Evaluation of yoga for preventing adolescent substance use risk factors in a middle school setting: A preliminary group-randomized controlled trial. (Conducted in the US. Published in Germany, 2017)

<https://link.springer.com/article/10.1007/s10964-016-0513-3>

#### Abstract

Adolescence is a key developmental period for preventing substance use initiation, however prevention programs solely providing educational information about the dangers of substance use rarely change adolescent substance use behaviors.

Recent research suggests that mind–body practices such as yoga may have beneficial effects on several substance use risk factors, and that these practices may serve as promising interventions for preventing adolescent substance use.

The primary aim of the present study was to test the efficacy of yoga for reducing substance use risk factors during early adolescence. Seventh-grade students in a public school were randomly assigned by classroom to receive either a 32-session yoga intervention (n = 117) in place of their regular physical education classes or to continue with physical-education-as-usual (n = 94). Participants (63.2 % female; 53.6 % White) completed pre- and post-intervention questionnaires assessing emotional self-regulation, perceived stress, mood impairment, impulsivity, substance use willingness, and actual substance use. Participants also completed questionnaires at 6-months and 1-year post-intervention.

Results revealed that participants in the control condition were significantly more willing to try smoking cigarettes immediately post-intervention than participants in the yoga condition. Immediate pre- to post-intervention differences did not emerge for the remaining outcomes. However, long-term follow-up analyses revealed a pattern of delayed effects in which females in the yoga condition, and males in the control condition, demonstrated improvements in emotional self-control.

The findings suggest that school -based yoga may have beneficial effects with regard to preventing males' and females' willingness to smoke cigarettes, as well as improving emotional self-control in females. However additional research is required, particularly with regard to the potential long-term effects of mind–body interventions in school settings. The present study contributes to the literature on adolescence by examining school-based yoga as a novel prevention program for substance use risk factors.

#### Method: Kripalu Yoga

-A 32-session version of the **Kripalu Yoga in the Schools (KYIS) curriculum**, developed for high school students by the Kripalu Center for Yoga & Health, was used as the yoga intervention in the present study (KYIS 2015). The original KYIS program consisted of a 24-session intervention, however this program was expanded to 32 sessions for the present study in an effort to ensure that all of the intervention content could be delivered with a younger age group, as well as a desire to provide a high enough “dosage” to produce effects. The 32-session intervention was created by adding one review session after every three yoga sessions. Each review session was taught as a reinforcement of the prior lessons.

- The KYIS program aims to cultivate social and emotional learning (SEL) skills through yoga and mindfulness. Its curriculum is entirely secular, focusing on stress management, emotion regulation, self-appreciation, confidence, and strong peer relationships. The program emphasizes Kripalu yoga techniques such as mindfulness (self-observation without judgment), self-regulation (“riding the wave of resistance”) and compassion meditation (loving-kindness).

-A typical yoga session contained the following segments (with some variation from class to class):

- **centering and breathing exercises** (\*5 min): examples include **ocean breath** (i.e., breathing through the nose while slightly constricting the esophagus), **alternate-nostril breathing** (i.e., breathing in through one nostril and out the other), and **3-part breathing** (i.e., deep diaphragmatic breathing moving from the abdomen to the solar plexus and upper chest).
- **warm-ups** (\*5 min)
- **yoga poses** (\*15 min): Commonly practiced poses included **warrior I, warrior II, triangle, sun salutations, integrative twist**, and **legs up the wall**. Each session built upon the previous sessions and introduced new postures as the curriculum progressed.
- **didactic/experiential content** (\*5 min): often encouraged **social interaction** (e.g., peer-to-peer listening, group discussion, students leading poses) or **activities for self-discovery** (e.g., holding a posture beyond initial resistance, journaling about ways to de-stress)
- **relaxation** (\*5 min)

-The KYIS intervention was instructed by 2 lead teachers (one male; one female) and 5 female assistants who were not members of the school staff. All teaching staff were certified as 200-h yoga teachers. Both lead teachers were additionally certified in the 60-h KYIS training program. Four of the five assistants completed the KYIS training program. The fifth assistant did not complete the KYIS training, although she did attend a 4-month volunteer term at the Kripalu Center for Yoga & Health and was well-versed in the Kripalu yoga style.

**(Between the study conclusion and the references page on the study document, there is an appendix with a sample class.)**

## **Findings**

- Participants in the control condition reported a significantly greater willingness to smoke cigarettes immediately post-intervention than participants in the yoga group. Thus, it appears that the yoga intervention may have prevented students from becoming willing to

smoke cigarettes. This finding is similar to previous research that has found school-based yoga interventions to provide preventive effects by mitigating the worsening of negative outcomes.

- Females in the present study tended to experience greater long-term benefits from participating in yoga, whereas males tended to experience greater long-term benefits from participating in standard physical education. This finding is supported by prior research which has found that males tend to be resistant to participating in school-based yoga (Conboy et al. 2013), as well as national studies of yoga participation which have found that there is a strong tendency for adolescent females to participate in yoga more than adolescent males (Black et al. 2015). Thus it is possible that North American cultural preconceptions regarding the gender-appropriateness of yoga may influence the effects that yoga has on students, particularly during developmental periods such as middle school when gender differences are accentuated (Hill and Lynch 1983).

- "It appears as though both the yoga intervention and control condition may have had delayed effects in which changes did not appear until the two follow-up time points. This finding is rather remarkable given that the two follow-up periods occurred 6 months and 1 year after the yoga intervention was complete, and suggests that school-based yoga may have delayed effects that take time to integrate" (Butzer et al., 2017).

- Students in the yoga group reported practicing yoga more often outside of school than students in the control group (Butzer et al., 2017). This finding is consistent with qualitative research suggesting that students often report using skills and techniques from school-based yoga in a variety of areas of their lives (LoRusso et al. 2015; Wang and Hagins 2016).

Butzer, B., LoRusso, A., Shin, S. H., & Khalsa, S. B. S. (2017). Evaluation of yoga for preventing adolescent substance use risk factors in a middle school setting: A preliminary group-randomized controlled trial. *Journal of Youth and Adolescence*, 46(3), 603–632.

<https://doi.org/10.1007/s10964-016-0513-3>

## **2. Use of formative research to develop a yoga curriculum for high-risk youth: Implementation considerations. (Conducted in the US. Published in the UK, 2014)**

<https://www.tandfonline.com/doi/abs/10.1080/1754730X.2014.916496>

**Full Article Link:**

[https://www.academia.edu/11125047/Use\\_of\\_formative\\_research\\_to\\_develop\\_a\\_yoga\\_curriculum\\_for\\_high\\_risk\\_youth\\_implementation\\_considerations](https://www.academia.edu/11125047/Use_of_formative_research_to_develop_a_yoga_curriculum_for_high_risk_youth_implementation_considerations)

### **Abstract**

The purpose of this study is to elucidate the use of formative research to adapt, develop, and pretest a mindful yoga curriculum for high-risk youth attending a nontraditional high school. The formative work was conducted in the first year of a larger project to test the efficacy of a mindful yoga program through a randomized controlled trial. The formative work included focus groups with: (1) an Advisory Board of experts in preventive interventions with high-risk youth, yoga and mindfulness and (2) students in the target population. Major themes emerging from the Advisory Board included youths' preconceptions about yoga,

desirable characteristics in a yoga teacher, racial/ethnic differences in yoga participation, gender differences, and youths' likely motivations for participation. Additional themes reported by the student focus group participants included perceived motivations for participation, likely benefits of yoga, perceptions of yoga, yoga experience, and peer opinions. Additional results pertained to important logistical considerations when implementing school-based yoga programs. The formative work resulted in a 20-session, manualized curriculum that was pretested with students. Pretesting indicated that the intervention was feasible and enjoyable. In a focus group following the intervention, students reported improved mood and a high degree of satisfaction with the intervention. Implementation challenges included logistics within a school setting, recruitment and consenting, gender considerations, and developmental issues.

### **Method: “Be BOLD” curriculum based on the hatha vinyasa flow yoga style**

- Using feedback from the Advisory Board and the student focus groups, we developed a 20-session mindful and vigorous yoga curriculum. The curriculum was developed by an integrated team of experts with experience in yoga, developmental and clinical psychology, prevention of adolescent substance use and violence, and instruction of the mindfulness-based stress reduction (MBSR) program. Also assisting with curriculum development was a yoga instructor who instructed yoga with high-risk adolescents and who was a licensed clinical social worker. The yoga sessions were instructed three times a week.
- We developed the curriculum around concepts used in MBSR including **non judging, beginner’s mind, automatic pilot, letting go, thoughts are not facts**, and included **exercises like the body scan**.
- We provided an introduction to the benefits of the day’s exercises with developmentally appropriate information on how the body and brain react to stress and how yoga can mitigate this reaction. We also integrated examples with using breathing/yogic exercises to calm down during the types of stressors that were common to our population.
- The yoga expert also emphasized the importance of **introducing poses a few at a time**, and **sequencing the poses building toward a more rigorous practice**. Per student focus group feedback, **we introduced new postures each session to reduce boredom**.
- We also identified **types of music to play during sessions (e.g., world music, chanting)**, as suggested by our focus groups.
- The experts also noted that some students may have a history of trauma which may be manifested as reluctance or resistance to doing certain postures. **We excluded some postures from the practices that may have felt too vulnerable (e.g., happy baby where student would be on back with legs apart), or postures where students may have felt more exposed, such as downward dog**.
- We considered the importance of having teachers who were **culturally competent**. We were fortunate to hire an African American instructor who also brought experience as a clinical social worker and as a school social worker in a local high school.
- One key factor was that the yoga instructor was not permitted to touch students. As a result, she was not able to make physical adjustments to correct postures that could potentially reduce the risk for injury. The instructor did provide **verbal prompts as needed to address alignment issues**. Nevertheless, it was critical for the instructor to **keep a careful eye on students**, especially with the more challenging poses.

-Each week introduced a separate theme (e.g., week 1: turning inward by focusing on the breath; week 2: self-observation without judgment).

-Each 50-minute yoga session followed a structured format based on goals and objectives, and included an opening meditation/centering exercise, a sequence of yoga postures, mindfulness prompts, a closing meditation, and an affirmation of respect to self and others to close the session.

-Mindfulness was integrated throughout each session.

- Examples include **verbal prompts**, such as asking students to pay attention to how their breath changed during a posture; mentioning that judgmental thoughts may arise if a pose is challenging ('I can't do this'); and **observing and letting go**. The sessions were cumulative and built toward increased rigor in the yoga postures.

-The yoga style was **hatha vinyasa flow** that involved sequencing basic yoga postures such that the students were moving from one posture to the next. The postures moved the body in different ways – bending forward, bending backwards, bending to the side, inverting (i.e., going upside down), twisting, and balancing. The postures were first instructed as distinct poses and then combined to form a sun salutation, a commonly instructed sequence of poses. The sun salutation increased in part over time building toward a moderately vigorous practice.

-The curriculum was entitled **Be BOLD** to reflect the process -- **Breathe, Observe, Let it go, and Do it again**.

-The project obtained approval from the school district for the yoga sessions, and the curriculum was developed to meet high school health education standards.

## Findings

- The instructor utilized frequent verbal guidance to alter how a pose was done and, consistent with mindfulness principles, emphasized that yoga is not about competition, but rather an opportunity to practice being in the moment with one's body. She also emphasized the need for students to pay attention to uncomfortable sensations, and to take care of their bodies. Students enjoyed the physical nature of the yoga, and were excited to learn more challenging poses (Miller et al., 2014).

-All of the students were very adamant about wanting to keep their socks on, despite repeated reminders that taking off their socks would provide a less slippery surface. It was not entirely clear why students preferred to keep their socks on – perhaps they were worried about exposing their feet or potential odor. In addition, some of the students (most often the female students) preferred to keep on their coats and jackets. This tendency was less prominent as the sessions progressed, and perhaps indicated a growing trust of the instructor and the group. Our team chose to not make an issue of either the socks or the coats, and gave students the choice.

-The atmosphere of the yoga sessions was different from a typical adult session in that there was ongoing talking and conversation. The students, particularly the girls, were frequently making comments about the postures (e.g., 'This is hard!' 'I did it!') or asking questions (e.g., 'Is this where I put my foot?' 'I like this pose.'). As the sessions progressed, the students became increasingly comfortable with laughing if a pose was challenging, and commenting when he or she was successful in doing a pose. Over time, students also began to compliment and verbally help each other with poses, which was rewarding to observe.

With rare exceptions, the talking during the sessions was not distracting, and appeared to foster students' comfort level.

- There was general consensus that the most beneficial aspect of the yoga sessions was improving the ability to manage stress. All students reported feeling physically and emotionally stressed at school. This sense of depletion was exacerbated by family/home stress. Many students mentioned being fatigued, not getting enough sleep, and sleeping poorly. In particular, the students were unanimous in their appreciation of the closing relaxation which involved lying prone on the yoga mat with lights slightly dimmed and eye pillows for relaxation. The yoga teacher talked students through relaxation and gave them a period of silence to completely let go.

The closing relaxation was perceived as a safe, nurturing time to renew their energy and boost their mood. Overall, their impressions were summed up by one student who stated 'When we come in, we are mad. When we leave, we are smiling.' (Miller et al., 2014).

- "A number of students talked about their reluctance [to yoga] early on. They indicated that students outside the yoga class were curious about it and perceived it as somewhat strange. They reported telling other students that it was 'cool' and they should give it a chance. In addition, most of the students did not appear self-conscious about the poses and felt comfortable setting their own limits" (Miller et al., 2014).

Miller, S., Herman-Stahl, M., Fishbein, D., Lavery, B., Johnson, M., & Markovits, L. (2014). Use of formative research to develop a yoga curriculum for high-risk youth: Implementation considerations. *Advances in School Mental Health Promotion*, 7(3), 171–183.

<https://doi.org/10.1080/1754730X.2014.916496>

### **3. Yoga for the prevention of depression, anxiety, and aggression and the promotion of socio-emotional competencies in school-aged children. (Conducted in Bogotá, Columbia. Published in the UK, 2015)**

<https://www.tandfonline.com/doi/full/10.1080/13803611.2015.1111804?needAccess=true>

#### **Abstract**

Children and youth coming from disadvantaged socioeconomic backgrounds are at risk of developing behavioural problems. This study examined the efficacy of a Yoga programme implemented in a low-socioeconomic status school, for the prevention of depression, anxiety, and aggression. After-school workshops were delivered twice a week during 12 weeks to 125 students in 5th, 8th, and 9th grades, enrolled in a school in Bogotá, Colombia. Participants were randomly assigned to an intervention and to a control group. Children's anxiety, depression, aggression, and some socioemotional competencies (specifically empathy, anger management, and prosociality) were quantitatively assessed before and after the intervention, by means of self- and peer-reported questionnaires. Qualitative data were also collected to assess children's perceived benefits from the workshops. Results suggested a potential of the programme to reduce children's anxiety problems, in particular. Results are discussed in terms of recommended improvements to the programme and its future evaluation.

### **Method: Yoga workshops designed based on the Satyananda Yoga Tradition**

-There were twenty-four 2-hr sessions or workshops held for each of the five groups. A yoga instructor not affiliated with the school led the sessions. To reinforce attendance, children were offered a small snack after each workshop.

-Yoga professionals affiliated to Corporación Dunna ([www.dunna.org](http://www.dunna.org)) – a non-governmental organisation dedicated to the development of intervention programmes to create peace-building strategies in Colombia – developed a protocol that described in detail the activities to be carried out in each session. This protocol was designed according to the Satyananda Yoga tradition.

□ This approach seeks to integrate all aspects of the individual: physical, energetic, mental, emotional, psychic, and spiritual (Saraswati, 1990). It consisted of a number of **postures (asanas), breathing exercises (pranayamas), relaxation (yoga nidra), and meditation techniques** that were chosen for each of the 24 sessions.

□ The activities in each session included postures practised in a dynamic and active way, with their **names based on animals or flowers** to help children understand and enjoy them. The selection of the postures was made based on previous empirical findings that showed that they could be used specifically to stimulate **self-confidence and self-worth**, as well as **self-regulation, relaxation, and consciousness** (Saraswati, 1990).

### **Findings**

- The study suggests that Yoga may be beneficial in preventing anxiety, which is consistent with other research findings, and in decreasing depression problems, especially for elementary school students, for boys, and for children whose permanent attendance to the workshops is encouraged

- Results showed that Yoga prevented decreases in prosocial behaviours over time in adolescents.

- Students who were identified as highly aggressive at pretest by their peers showed a decrease in their aggressive behaviour across the 4-month period they were followed, regardless of the experimental condition (Velásquez et al., 2015).

- "There was a high degree of satisfaction in the students that participated in the workshops, as well as an awareness of feelings of calmness and relaxation, and an experimentation of less stress" (Velásquez et al., 2015).

Velásquez, A. M., López, M. A., Quiñonez, N., & Paba, D. P. (2015). Yoga for the prevention of depression, anxiety, and aggression and the promotion of socio-emotional competencies in school-aged children. *Educational Research and Evaluation*, 21 (5–6), 407–421.

<https://doi.org/10.1080/13803611.2015.1111804>

## **4. Effectiveness of a school-based yoga program on adolescent mental health, stress coping strategies, and attitudes toward violence: Findings from a high-risk sample. (Conducted in the US. Published in the UK, 2014).**

<https://www.tandfonline.com/doi/full/10.1080/15377903.2013.863259>

## Abstract

This study aimed to assess the effectiveness of a universal yoga-based social-emotional wellness promotion program, Transformative Life Skills, on indicators of adolescent emotional distress, prosocial behavior, and attitudes toward violence in a high-risk sample. Participants included 49 students attending an alternative education school in an urban inner-city school district.

Results indicated that students who participated in the Transformative Life Skills program demonstrated significant reductions in anxiety, depression, and global psychological distress. Significant reductions in rumination, intrusive thoughts, physical arousal, and emotional arousal were reported as well. Students exposed to Transformative Life Skills reported being significantly less likely to endorse revenge-motivation orientations in response to interpersonal transgressions and reported overall less hostility than did students in the comparison condition. No significant improvements in somatization or general affect were found. Results of this pilot study provide evidence of the potential for Transformative Life Skills to influence important student social-emotional outcomes among high-risk youth. Limitations and suggestions for future research are discussed.

## Method: Transformative Life Skills (TLS) Program

-Transformative Life Skills (TLS) is a universal **classroom-based program** for use with adolescents in middle or high school settings (Frank et al., 2012). The TLS program provides students with sequenced instruction and applied experience in using **yoga postures, breathing techniques, and centering meditation** in order to reduce stress and promote social-emotional health and physical wellness. The intervention is secular and does not use terminology or practices that would be considered religious or unusual in most U.S. public school contexts.

-The TLS curriculum is manualized, and provides a detailed set of lesson-based scripts to facilitate implementation. Lessons are divided into four units focusing on **stress management, body and emotional awareness, self-regulation, and building healthy relationships**. Each unit includes 12 lessons which can be delivered in approximately 15-, 30-, or 60-min segments (**see Figure 1 on study document**). Each lesson is designed to teach specific skills connected to the overarching unit theme.

-Before beginning each lesson, behavioral expectations are reviewed and the agenda for the day's lesson is reviewed. Then, instructors attempt to activate student background related to the topic in question, and may engage in brief conversation with the group to stimulate interest.

-Students engage in the **Action-Breathing-Centering Activities (referred to as the ABCs)** which provides students **experience in engaging in yoga postures, focused breathing, and centering meditation**. Across sessions, ABC sequences become progressively more challenging.

-At the end of each lesson, instructors are asked to complete a fidelity checklist documenting that each lesson component was implemented, rate the overall level of student engagement, and reflect on the quality of lesson implementation.



-At the end of each unit, instructors are asked to review their implementation data to plan a reteaching lesson during which they repeat coverage of content within the last content unit that was poorly covered or had limited student engagement.

### **Findings**

- The study found significant and meaningful reductions in youth reports of anxiety, depression, and global psychological distress, as well as significant and large effects on youth reports of problematic involuntary stress responses such as rumination, involuntary actions, intrusive thoughts, physical and emotional arousal (Frank et al., 2014).
- "A particularly important finding of relevance to this population was the strong and significant reductions we found in youth report of revenge motivation and hostility. Given the heightened rates of violence noted for students attending alternative schools and high rates of violence-related injuries (Escobar-Chaves et al., 2002; Fulkerson et al., 1999a; Grunbaum et al., 2000), this finding is of particular importance" (Frank et al., 2014).

Frank, J. L., Bose, B., & Schrobenhauser-Clonan, A. (2014). Effectiveness of a school-based yoga program on adolescent mental health, stress coping strategies, and attitudes toward violence: Findings from a high-risk sample. *Journal of Applied School Psychology, 30*(1), 29–49. <https://doi.org/10.1080/15377903.2013.863259>

## **5. Yoga to enhance self efficacy: An intervention for at-risk youth. (Conducted in the US. Published in the Netherlands, 2018)**

<https://www.sciencedirect.com/science/article/pii/S0883941717303576>

### **Abstract**

Objective: Yoga has demonstrated effectiveness in improving self-management in a variety of disease states however little is known about the impact of yoga as a health promotion intervention for adolescent females in an urban school based environment. This pilot study was conducted to determine if yoga could improve the self-efficacy and body core tone in at-risk adolescent female participants. Method: A quasi-experimental design was employed, with data collection at baseline, end of program, and 1 month post-program. Fifteen participants ages 11–14 were recruited. Yoga was practiced twice weekly for eight weeks. Self-efficacy was measured using a standardized tool, the Self-Efficacy Questionnaire for Children (SEQ-C). Improvements in flexibility and core body tone were also examined. The researchers collected data on adverse childhood events using the Adverse Childhood Event (ACEs) scale. Results: Fifteen participants were successfully recruited and 14 (87%) were retained through the duration of the project. Based on the small sample size, non-parametric tests were used (Freidman's test). Although there were no significant improvements in total SEQ-C, there were significant improvements in SEQ-C social subscale ( $p = 0.028$ ). Significant improvements were also identified in waist circumference ( $p = 0.001$ ) and in flexibility ( $p = 0.034$ ). Conclusions: Participant attendance/dose did not correlate to any of the outcomes, however with the physical and emotional improvements noted, it is assumed that any level of attendance was beneficial. Improvements in the social subscale

of the SEQ-C could be the result of belonging to a group and strengthening healthy relationships.

## **Methods**

## **Findings**

Kwasky, A. N., & Serowoky, M. L. (2018). Yoga to enhance self efficacy: An intervention for at-risk youth. *Archives of Psychiatric Nursing*, 32(1), 82–85.

<https://doi.org/10.1016/j.apnu.2017.10.009>