Evidence In-Sight:

YOGA TO DEVELOP MINDFULNESS AND EMOTION REGULATION SKILLS IN CHILDREN

Date: December 2012

www.excellenceforchildandyouth.ca • www.excellencepourenfantsados.ca
Yoga for mindfulness and emotion regulation

The following Evidence In-Sight report involved a non-systematic search and summary of the research and grey literature. These findings are intended to inform the requesting organization, in a timely fashion, rather than providing an exhaustive search or systematic review. This report reflects the literature and evidence available at the time of writing. As new evidence emerges, knowledge on evidence-informed practices can evolve. It may be useful to re-examine and update the evidence over time and/or as new findings emerge.

Evidence In-Sight primarily presents research findings, along with consultations with experts where feasible and constructive. Since scientific research represents only one type of evidence, we encourage you to combine these findings with the expertise of practitioners and the experiences of children, youth and families to develop the best evidence-informed practices for your setting.

While this report may describe best practices or models of evidence-informed programs, Evidence In-Sight does not include direct recommendations or endorsement of a particular practice or program.

This report was researched and written to address the following question(s):

- According to the literature, is there any evidence to support the use of yoga to develop mindfulness and emotion regulation skills in children 4-12 years old?

We prepared the report given the contextual information provided in our first communications (see Overview of inquiry). We are available at any time to discuss potential next steps.

We appreciate your responding to a brief satisfaction survey that the Centre will e-mail to you within two weeks. We would also like to schedule a brief phone call to assess your satisfaction with the information provided in the report. Please let us know when you would be available to schedule a 15-minute phone conversation.

Thank you for contacting Evidence In-Sight. Please do not hesitate to follow up or contact us at evidenceinsight@cheo.on.ca or by phone at 613-737-2297.
1. Overview of inquiry

The agency requesting information on the use of yoga to develop mindfulness and emotion regulation skills provides specialized outpatient services within a community school. The program is for children ages 4-13 who have emotional and behavioural problems, and it is intended to help support their mental health and educational needs. Agency staff work with parents and guardians, the school, and other professionals using a collaborative problem solving and milieu-based approach. They try to build on the child’s strengths and develop strategies to respond to unique client needs.

This agency is interested in developing a yoga component as part of the outpatient program. They are interested in knowing whether there is evidence that supports the use of yoga to develop mindfulness and emotion regulation skills in children 4 to 12 years old.

2. Summary of findings

- The research on the use of yoga in children is limited, and the research that is available lacks rigorous methodology needed for generalizable conclusions.
- Yoga may be a promising, complementary therapy for children. It is used relatively widely but the research support is limited.
- There is some evidence that yoga programming can help develop mindfulness and emotion regulation skills in children.

3. Answer search strategy

- Search tools: University of Ottawa Library (PsychINFO, AMED-Allied and Complementary Medicine, Ovid MEDLINE®, Ovid MEDLINE® In-process & Other Non-Indexed Citations, PubMed, Scolars Portal), Google Scholar, EBSCO Host
- Search terms: yoga, mindfulness, emotion regulation, children, youth, mental health, health

4. Findings

Literature on the use of yoga to enhance children’s mental health is limited, and there is even less that is specific to yoga to develop mindfulness and emotion regulation skills (see Appendix A for a table summarizing relevant articles). Child and youth mental health concerns that have been studied include attention deficit hyperactivity disorder (ADHD), anxiety, and eating disorders (Kayley-Isley et al., 2010). Populations studied in the general medical setting include children with asthma, irritable bowel syndrome, and diabetes (Kayley-Isley et al., 2010). Other populations studied include healthy and “normal” children and children with educational problems, domestic/social problems, fitness problems, poor motor coordination, and low body satisfaction (Birdee et al., 2009).

The quality of evidence available on the use of yoga for children’s mental health is poor due to an absence of high quality research designs (Greenberg & Alexis, 2012), so the evidence is inconclusive (Greenberg & Alexis, 2012). More rigorous research is needed to address the use of yoga for children and adolescents (Sibinga & Kemper, 2010).

Limitations of the research include:
- Few randomized control trials (RCTs; Kayley-Isley et al., 2010; Greenberg & Alexis, 2012),
- Inadequate descriptions of randomization methods (Kayley-Isley et al., 2010; Sibinga & Kemper, 2010),
Yoga for mindfulness and emotion regulation

- Inadequate characterizations of interventions in terms of the types of yoga, content, and intensity (Kayley-Isley et al., 2010; Sibinga & Kemper, 2010; Greenberg & Alexis, 2012),
- Small sample sizes (Kayley-Isley et al., 2010; Sibinga & Kemper, 2010),
- Few studies describing the qualifications of yoga instructors (Kayley-Isley et al., 2010; Greenberg & Alexis, 2012),
- Inadequate descriptions of the outcome assessor’s blind status (Kayley-Isley et al., 2010)
- Lack of reporting on the adverse effects of yoga (Kayley-Isley et al., 2010; Sibinga & Kemper, 2010; Birdee et al., 2009),
- Lack of information on withdrawal/dropout rates (Birdee et al., 2009; Kayley-Isley et al., 2010; Sibinga & Kemper, 2010; Greenberg & Alexis, 2012),
- Inadequate reporting on appropriate data analysis (Greenberg & Alexis, 2012),
- Little focus on Western cultural settings (Greenberg & Alexis, 2012),
- Lack of sufficient power, validated/unbiased measures, and longer term follow-up (Greenberg & Alexis, 2012), and
- Lack of active control groups (Greenberg & Alexis, 2012).

Despite the state of the current evidence and the need for additional research, yoga is thought to be a promising complementary therapy for children and adolescents (Kaley-Isley et al., 2010) and the use of and enthusiasm for yoga have outpaced the research on yoga as a mental health intervention (Kayley et al., 2010; Greenberg & Harris, 2012). Furthermore, the high rate of utilization suggests that yoga is an intervention children are willing to try and sustain to some degree (Kaley-Isley et al., 2010).

4.1 General benefits of yoga for children

Yoga has been linked to several physical, emotional and psychosocial benefits in children. Reported benefits include:

- A positive impact on motor performance in children (Galatino et al., 2008; Chaya et al., 2012);
- An increase in working efficacy and overall ability to concentrate/focus (Galatino et al., 2008);
- A potential enhancement in academic learning through memory improvements (Galatino et al., 2008);
- An improvement in cardiorespiratory parameters (Galatino et al., 2008; Birdee et al., 2009; Chaya et al., 2012);
- An improvement in gastrointestinal functions (Chaya et al., 2012);
- A positive impact on socialization and stress management (Galatino et al., 2008; Sibinga & Kemper, 2010);
- A potential reduction in levels of fear and anxiety (Galatino et al., 2008; Sibinga & Kemper, 2010);
- An increase in long term emotional balance (Galatino et al., 2008);
- A decline in feelings of helplessness, aggression and an improvement in overall well-being (Galatino et al., 2008);
- An improvement in musculoskeletal parameters (e.g., flexibility and strength; Galatino et al., 2008; Sibinga & Kemper, 2010);
- An increase in physical fitness (Sibinga & Kemper, 2010; Chaya et al., 2012);
- An improvement in mood (Sibinga & Kemper, 2010)
- An improvement in attention and behaviour (Sibinga & Kemper, 2010; Chaya et al., 2012);
- An improvement in verbal/spatial memory and visual perception (Sibinga & Kemper, 2010; Chaya et al., 2012);
- An improvement in general mental health (Birdee et al., 2009; Chaya et al., 2012).
4.2 Mindfulness and emotional regulation skills

Mindfulness practice requires individuals to exercise volitional control over their physical and mental activity (Greenberg & Harris, 2012). The goal of mindfulness practice is to become fully aware of the moment-to-moment fluctuations of consciousness and to adopt an open and accepting stance to these experiences (Greenberg & Harris, 2012; Santangelo, 2012). Techniques are focused on sharpening concentration or attention, building emotion regulation skills to effectively manage stress, and gaining self-knowledge (Greenberg & Harris, 2012).

Emotion regulation is the extrinsic and intrinsic processes that are responsible for monitoring, evaluating, and modifying emotional reactions (Berking et al., 2008). Specific skills related to emotion regulation include: (1) consciously processing emotions and being aware of them, (2) identifying and labeling emotions, (3) correctly interpreting emotion-related body sensations, (4) understanding the prompts of emotions, (5) supporting oneself in emotionally distressing situations, (6) actively modifying negative emotions to feel better, (7) accepting emotions, (8) being resilient to and tolerating negative emotions, and (9) confronting emotionally distressing situations to attain important goals (Berking et al., 2008).

Emotion regulation is related to mindfulness in that it is a technique of focus on mindfulness practices, and the literature on yoga for mental health services focuses on both of these related concepts.

Yoga and meditation appear to be effective for developing self-regulation and stress management skills in adults (Jensen & Kenney, 2004). They have also been known to reduce perceived stress and improve mood in adults (Jensen & Kenney, 2004). Brain imaging and electroencephalography studies of meditation in adults have suggested that mindful-awareness practices can improve attention and emotional regulation, and enhance metacognition (Flook et al., 2010).

The efficacy of these mindful-based practices has received little empirical investigation in children (Santangelo, 2012). However, learning stress-reducing techniques such as meditation and yoga is suggested to be particularly important during childhood when lifelong habits are formed (Santangelo, 2012). Therefore, yoga and meditation have been recommended and used clinically for both children and adolescents and two recent reviews concluded that there is preliminary evidence for the efficacy of yoga for a variety of mental and physical outcomes (Jensen & Kenney, 2004).

There is enough empirical evidence to suggest that emotion-regulation skills are involved in the treatment of mental disorders and incorporating interventions that directly target these skills may improve the effectiveness of psychotherapeutic interventions (Berking et al., 2008). Kayley-Isley et al. (2010) suggest that yoga may help with children’s self-regulating abilities, which could be a key component to increasing mental well-being. They further mention that children can learn the skills to regulate and calm their bodies and emotions, and to increase their repertoire of healthy coping skills.

Preliminary evidence supports yoga as a means of developing mindfulness and emotion regulation skills that can lead to enhanced outcomes such as:

- Improved attention (Santangelo, 2012; Flook et al., 2010; Greenberg & Harris, 2012; Jensen & Kenney, 2004; Kayley-Isley et al., 2010; Harrison et al., 2004;) and concentration (Khalsa et al., 2012);
- Improved executive function (Diamond & Lee, 2011; Flook et al., 2010)
Yoga for mindfulness and emotion regulation

- Improved ability to stabilize emotions and an improved emotional status (Jensen & Kenney, 2004; Mendelson et al., 2010; Greenberg & Harris, 2012). Related results include improvements in anger control, mood (Khalsa et al., 2012), and social-emotional competence (Greenberg & Harris, 2012);
- Decreased anxiety (Sangtangelo, 2012; Mendelson et al., 2010; Jensen & Kenney, 2004; Greenberg & Harris, 2012; Kayley-Isley et al., 2010; Flook et al., 2010)
- Improved behaviour (Sangtangelo, 2012; Berger et al., 2009) and behavioural reactivity (Mendelson et al., 2010; Greenberg & Harris, 2012) including reduced oppositional behaviour, and reduced symptoms of obsessive-compulsive disorder and ADHD (Jensen & Kenney, 2004; Greenberg & Harris, 2012; Kayley-Isley et al., 2010; Harrison et al., 2004; Abdi et al., 2008)
- Improved ability to manage stress and coping skills (Greenberg & Harris, 2012; Khalsa et al., 2012; Santangelo, 2012)
- Improved self-regulation (Greenberg & Harris, 2012; Santangelo, 2012)
- Improved self-control (Sangtangelo, 2012), self-esteem (Sangtangelo, 2012), self-awareness (Mendelson et al., 2010), body satisfaction (Kayley-Isley et al., 2010), social self-concept (Kayley-Isley et al., 2010), optimism (Greenberg & Harris, 2012), self-confidence (Greenberg & Harris, 2012), and social skills (Flook et al., 2010)

There is emerging evidence that yoga as a mindfulness training practice can be a positive adjunct treatment for various mental health-related problems. Examples include:

- Children with ADHD have exhibited increases in attention/concentration and decreases in ADHD symptoms (Jensen & Kenney, 2004; Harrison et al., 2004; Kayley-Isley et al., 2010).
- Children with examination anxiety have shown reductions in aggression, helplessness in school, physical complaints, as well as an increase in stress-coping abilities and general well-being (Stuck & Gloeckner, 2005; Kayler-Isley et al., 2010)
- Children with eating disorders have demonstrated decreases in symptoms and reduced anxiety and depression over time (Carei et al., 2010)
- Children with emotional, behavioural, or learning difficulties have demonstrated significant improvements in their levels of self-confidence, social confidence with teachers, communication with peers, contributions in the classroom, and level of total difficulties (Powell et al., 2009). Results have also shown decreases in the involuntary stress response (Mendelson et al., 2010).

5. Next steps and other resources

Knowing what works and receiving training on an evidence-informed practice or program is not sufficient to actually achieve the outcomes that previous evaluations indicate are possible. A program that has been shown to improve mental health outcomes for children and youth but that is poorly implemented will not achieve successful outcomes (Fixsen et al, 2005). In order for a program to be evidence-informed, it needs to be applied with fidelity to the design and it needs to be implemented using supportive “drivers” related to staff competency, organizational leadership and organizational capacity. These drivers include assessing and monitoring the outcomes of your practice using evaluation or performance measurement frameworks, which are particularly important when there is insufficient evidence in the literature to guide clinical decisions. Choosing a practice is an initial step toward implementation, but the implementation drivers are essential to ensure that the program reaches appropriate clients, that outcomes are successful and that clinical staff members are successful in their work.
The Ontario Centre of Excellence for Child and Youth Mental Health has a number of resources and services available to support agencies with implementation, evaluation, knowledge mobilization, youth engagement and family engagement. For more information, visit:

http://www.excellenceforchildandyouth.ca/what-we-do or check out the Centre’s resource hub at
For general mental health information, including links to resources for families:
http://www.ementalhealth.ca
Yoga for mindfulness and emotion regulation

References


### Appendix A: Summary of research findings on yoga training in mental health

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Research Findings</th>
<th>Reference</th>
<th>Study Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
<td>Significant improvements found in 5 of the Connor Parent Rating Subscales (Oppositional, Global Index Restless/Impulsive, Global Index Emotional Lability, Global Index Total, and ADHD Index. Control group (participated in cooperative activities) showed improvements on the Connors Hyperactivity, Anxious/Shy, and Social Problems subscales. Both groups showed improvements in some of the parent-rated scales but no changes on the teachers scale. Positive dose response effect on a measure of attention for subjects who participated in more home-based practice and attended more sessions.</td>
<td>Jensen &amp; Kenney, 2004; (taken from Kayley-Isley et al., 2010)</td>
<td>A randomized controlled crossover treatment design examined the effect of yoga as a complementary treatment for 19 boys (8-13 years old) diagnosed with ADHD (most taking medication); intervention involved 20 sessions of weekly 1-hr yoga classes included postures, breathing practices, relaxation, training, and a yoga gazing concentration exercise;</td>
</tr>
<tr>
<td></td>
<td>Pre- and post-intervention results = decrease in ADHD symptoms on Conners Rating Scale, reduced dosage in stimulant medication reported at 6 weeks, and an increase in parent-child relationship quality in the treatment group.</td>
<td>Harrison et al., 2004; (taken from Kayley-Isley et al., 2010)</td>
<td>A non-randomized, quasi-controlled treatment study; 6-week Sahaja Yoga Meditation intervention evaluated with children (8-12) diagnosed with ADHD (most taking medication) and their parents. The 3 week intervention was a 90 minute guided meditation 2 times a week. In between sessions parents asked to lead child in meditation at home and keep record.</td>
</tr>
<tr>
<td></td>
<td>Results indicate reduction in ADHD symptoms on both attentional and hyperactivity scales.</td>
<td>Abadi et al., 2008; (taken from Kayley-Isley et al., 2010)</td>
<td>A nonrandomized, controlled treatment design evaluating the effects of an 8 week yoga program in a group of Iranian children(9-12 years old) diagnosed with ADHD; 45 minute yoga class (included 10 minutes of breathing practices, 25 minutes of beginner yoga poses, 10 minutes of relaxation) twice a week for 8 weeks.</td>
</tr>
<tr>
<td></td>
<td>Results were reported through patient satisfaction scores and interview comments, which were positive for all groups. Negative comments: did not like doing poses at home but enjoyed the class, and parents would have like more instruction before teaching at home.</td>
<td>Maddigan et al., 2003; (taken from Kayley-Isley et al., 2010)</td>
<td>Assessed the additive benefits of yoga and massage as adjunctive treatments to standard outpatient care for children diagnosed with ADHD. All participants received standard care and one group also received yoga exercise and another received massage. Yoga and massage interventions were 20 minutes, once a week, for 6 weeks. Parents were present during training sessions and were asked to provide massage or guide yoga practice at home.</td>
</tr>
<tr>
<td></td>
<td>Effect sizes of the intervention ranged from 1.5 to 2.7 for outcome on task behaviour; follow-up treatment gains decreased (0.77 to 1.95), but fell.</td>
<td>Peck et al., 2005; (taken from Kayley-Isley et al., 2010)</td>
<td>Yoga video was assessed as a means of increasing time on-task in a study of 3 elementary school children (grade 1 to 3) with attentional concerns. Practiced a 30 minute “Yoga Fitness for Kids” VHS tape twice a week for 3 weeks. Used a multiple baseline.</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td>Reference</td>
<td>Notes</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Participants showed significant reductions in aggression, helplessness in school, physical complaints, and an increase in stress-coping abilities and general well-being, but no significant reduction in school exam anxiety or increase in self-efficacy.</td>
<td>Stuck &amp; Gloeckner, 2005; (taken from Kayley-Isley et al., 2010)</td>
<td>Nonrandomized, controlled treatment design evaluating the effectiveness of the “Training of Relaxation with Elements of Yoga for Children” program based on Sivnanda yoga; participants aged 11 to 12 with high levels of school examination anxiety</td>
</tr>
<tr>
<td>Eating Disorders</td>
<td>The yoga group showed greater decreases in eating disorder symptoms (assessed by Eating Disorder Examination) compared to controls at 4 weeks post intervention and reported significantly reduced food preoccupation immediately after yoga sessions. Both groups maintained body mass index and evidenced decreased anxiety and depression over time.</td>
<td>Carei et al., 2010; (taken from Kayley-Isley et al., 2010; Sibinga &amp; Kemper, 2010; Greenberg &amp; Harris, 2012)</td>
<td>Pilot study assessing the potential benefits of an 8 week, individualized yoga treatment added to standard outpatient treatment for adolescents diagnosed with an eating disorder. Participants were 11-21 years old, primarily female (50 females, 4 males) and diagnosed with anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified. All participants received outpatient care plus one group also had yoga.</td>
</tr>
<tr>
<td>Emotional, behavioural, or learning difficulties</td>
<td>Yoga group demonstrated small, though significant improvements in levels of self-confidence, social confidence with teachers, communication with peers, contributions in the classroom and level of total difficulties on the Strengths and Difficulties scale.</td>
<td>Powel et al., 2009; (taken from Kayley-Isley et al., 2010)</td>
<td>Looked at the effects of yoga on self-worth and self-perception with the goal of improving self-concept; a non-randomized control treatment design evaluated Self Discovery Program with integrated elements of massage, yoga and relaxation for children 8-11 years with emotional, behavioral or learning difficulties in UK. Intervention was 45 minutes 1 per week for 12 weeks.</td>
</tr>
<tr>
<td></td>
<td>Compared to controls, yoga students reported decreases in involuntary stress responses, including lower scores on the subscales of rumination, intrusive thoughts, and emotional arousal.</td>
<td>Mendelson et al., 2010 (taken from Greenberg &amp; Harris, 2012)</td>
<td>Evaluated a yoga-based intervention program (pilot) to reduce social-emotional and behavioural problems in an underserved urban population. Inner-city 4th and 5th grade students were randomized to a control group or a 12 week yoga intervention 4 times a week, which included yoga postures, breathing techniques, and guided mindfulness meditation.</td>
</tr>
<tr>
<td>No specified disorder</td>
<td>Participants showed significant decreases in body dissatisfaction on bulimia subscales and an increase on social self-concept scale. No support found for the outcomes of drive for thinness, eating disordered attitudes/intensions, or perceived stress.</td>
<td>Scime &amp; Cook-Cottone, 2008; (taken from Kayley-Isley et al., 2010)</td>
<td>Prevention study using integrated intervention including yoga, relaxation, and teaching with normal 5th grades girls to assess impact on self-perception related to body image.</td>
</tr>
<tr>
<td>The participants demonstrated</td>
<td>The participants demonstrated improved negative behavior scores post-intervention compared to the non-yoga group.</td>
<td>Berger et al., 2009; (taken from Kayley-Isley et al., 2010)</td>
<td>Looked at the effects of yoga on self-worth and self-perception with the goal of improving self-concept; an uncontrolled pilot study examined the effects of an after school “Bent on Learning” program that included</td>
</tr>
</tbody>
</table>
Yoga for mindfulness and emotion regulation

<table>
<thead>
<tr>
<th>Yoga postures, breathing, relaxation, and meditation with 4th and 5th grade inner-city children. The yoga intervention was one hour per week for 12 weeks in groups of ~ 20 students.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Although there were no main effects of program on parent or teach reports of EF, there was a significant moderating effect of baseline EF, such that significant EF improvements were seen in intervention students with lower baseline. However, there were no objective tests of actual EF skills (only parent and teacher reports), and teachers were aware of intervention status.</td>
</tr>
<tr>
<td>Flook et al., 2010 <em>(taken from Greenberg &amp; Harris, 2012)</em></td>
</tr>
<tr>
<td>An RCT (pilot study) of the InnerKids program, an 8-week school-based curriculum of mindfulness activities for 2nd and 3rd graders that included short meditative practices focused on breath awareness and movement-based activities.</td>
</tr>
<tr>
<td>Schonert &amp; Lawler, 2010 <em>(taken from Greenberg &amp; Harris, 2012)</em></td>
</tr>
<tr>
<td>A mindfulnes program for 4th-7th graders was recently piloted in a randomized, wait-list control trial. This 10 lesson classroom-based program focused on mindful awareness of the senses, positive emotions, self-regulation, and goal setting. In addition to weekly sessions, teachers led students 3 times a day in brief segments of attention training and mindful breathing.</td>
</tr>
<tr>
<td>Khalsa et al., 2012 <em>(taken from Hartmann &amp; Vlieger, 2012)</em></td>
</tr>
<tr>
<td>The mental health of 120 secondary school students was evaluated in an RCT. Students completed a baseline and end-program self-report measures of mood, anxiety perceived stress, resilience, and other mental health variables.</td>
</tr>
<tr>
<td>Napoli et al., 2005 <em>(taken from Flook et al., 2010)</em></td>
</tr>
<tr>
<td>Evaluated a 24 week bimonthly mindfulness-based program (with substantial yoga component) in 194 elementary school children in grades 1 to 3. One half received the training and the other half a control activity that involved reading and quiet activities.</td>
</tr>
<tr>
<td>Santangelo, 2012</td>
</tr>
<tr>
<td>Single group study in 4 Israeli elementary schools on a yoga intervention was a 13 sessions over 4 months within the school curriculum.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Although there were no significant differences were indicated for other well-being outcomes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compared to controls, intervention students showed improvements in self-reported optimism, positive affect, and externalizing behavior, as reported by the teachers involved in the intervention. There was evidence of benefits in self-concept for preadolescent students but not for early adolescents. Teacher ratings also indicated improvements in student attention and social-emotional competence.</td>
</tr>
<tr>
<td>Participants showed statistically significant differences over time relative to controls on measures of anger control and fatigue/inertia.</td>
</tr>
<tr>
<td>The mindfulness program improved children’s selective attention and social skills as reported by teachers and reduced test anxiety according to children’s self-report.</td>
</tr>
<tr>
<td>Results reported improvements in children’s concentration, mood, and ability to function under pressure as evaluated by the school teachers.</td>
</tr>
<tr>
<td>Self-esteem and self-regulation increased in both groups. Intervention group was more likely to report greater appraisal of stress (perhaps due to a greater awareness from the process of</td>
</tr>
</tbody>
</table>
Yoga for mindfulness and emotion regulation

| Developing mindfulness or related to cognitive, emotional or social development | Outcomes. 4th and 5th grade girls were recruited from 2 public schools and randomly assigned to intervention or waitlist control groups. Intervention group met 1 hour a week for 8 weeks and completed 10 minutes of daily homework. |