

Breathe and Move

Effects of a 12-Week Yoga Curriculum on Pre-Collegiate And Collegiate Pianists

Numerous studies have demonstrated the cognitive and physical benefits of practicing yoga. Seeking to codify research surrounding the cognitive benefits of yoga, Hayes and Chase (2010, 31–47) completed a thorough review of literature and concluded that yoga can help reduce anxiety and stress. Brown and Gerbarg (2005, 711–717) explored how yoga might benefit other psychological disorders such as PTSD, phobias and substance abuse. Their results showed that daily yoga practice can enhance well-being, mood, attention, mental focus and stress tolerance.

The physical benefits of yoga have also been well documented. Parshad (2004, 191–194) analyzed research exploring its physical benefits and found evidence of improved muscular strength and flexibility, increased circulation and improved hormonal functioning. Stabilization of the parasympathetic nervous system was also observed. Diamond (2012, 16) draws similar conclusions in her research, concluding that primary care physicians should prescribe yoga as a means of improving physical and mental wellbeing.

Yoga practice also offers benefits to children. Galantino et al. (2008, 66–80) completed a systematic review of literature pertaining to

yoga and children, concluding that yoga has been shown to improve cardiovascular status, physical functioning and behavior. The researchers also noted improved concentration, focus and spatial memory in children. Jensen and Kenny's (2004, 205–216) research focused on attention and emotional control in boys diagnosed with ADHD, and they concluded that the role of yoga in stabilizing emotions and reducing oppositional behaviors makes it a complementary treatment to medication.

While the above studies focus on the benefits of yoga for the general population, studies of musicians have also shown that yoga can mitigate performance anxiety and feelings of negative evaluation by one's peers. Khalsa et al. (2009, 279) offered student musicians enrolled in the Tanglewood Institute a two-month yoga and meditation program. Students who enrolled in the program reported less performance anxiety and mood disturbance than the control group who did not enroll. They also reported fewer feelings of negative evaluation by their peers. Hogg (2001, 80–82) has noted that guitarists can use hatha yoga to improve elements of posture, flexibility, focus and stamina, and Lanzer (2009, 26–30) chronicles her experiences with using yoga to improve her own piano practice.

These studies have convincingly demonstrated the cognitive and physical benefits of yoga practice for musicians, but there remains a gap in understanding how incorporating a progressive series of yoga and breathing activities into weekly piano lessons could affect student behavior and technique among pre-college and collegiate pianists.

Research Question

The purpose of this study was to determine how a 12-week series of progressive yoga and breathing techniques influenced student behavior and technical development in both pre-college and collegiate pianists. Specifically, the researchers on our team sought to explore the following three-part question:

How does a 12-week progressive yoga and breathing curriculum impact:

- ▶▶ Piano students' verbal and physical response to yoga practice at the beginning of the lesson?
- ▶▶ The instructors' teaching language in transferring yoga concepts to playing?
- ▶▶ Piano students' approach to technique?

Methodology

With these questions in mind, our three-person research team designed a 12-week curriculum that contained a variety of progressive breathing exercises and yoga poses (See Appendix for the 12-week curriculum outline). We incorporated this curriculum into weekly private piano lessons with our own students. Two members of our team worked with pre-college pianists while one worked with collegiate students.

Each week, the researchers introduced a new breath/yoga pose into the lesson. Immediately following the yoga practice, all teachers proceeded with the technique portion of the piano lesson. At the conclusion of each lesson, students were asked to practice

the yoga poses at home using a pre-recorded video before practicing technique assignments (e.g. scales, arpeggios, Hanon exercises). Using a pre-recorded video of the breathing and poses each week served as a reminder and a guide for at-home practice and also ensured that all students followed the same breathing and movements. Approval for the study was obtained by the Texas Woman's University Institutional Review Board.

Data Collection and Analysis

A total of 15 students from the three researchers' piano studios participated in the study (five collegiate and 10 pre-collegiate). Data was collected via three methods: 1) student questionnaires, 2) parent questionnaires (for the pre-collegiate students) and 3) video recordings.

Student Questionnaires

Student questionnaires included a pre-study and four tri-weekly questionnaires. When students were too young to complete the student questionnaires on their own, parents facilitated the completion of the questionnaire.

The intake questionnaire was designed to provide the researchers with pertinent background information about each student:

1. Age
2. Previous yoga experience
3. Physical pain or limitations

Questions regarding previous yoga experience and physical pain or limitations were important because they informed researchers whether adjustments to language or yoga poses were necessary.

The tri-weekly questionnaires were designed to track progress in specific areas over the course of 12 weeks. Students completed these questionnaires immediately following

their yoga and piano technique practice during the lesson. Students were asked to respond to the following questions:

1. Did the poses make you more aware of your body during technique?
2. How was your posture during technique?
3. Were you aware of your breathing?

The second question allowed students to provide both free-written responses as well as complete a five-point Likert scale, with one labeled as “not so great” and five labeled as “great!” Using a Likert scale for this question provided researchers with quantitative means of tracking progress over time.

Parent Questionnaires

Four tri-weekly parent questionnaires were administered to parents of pre-collegiate participants. The questionnaires allowed the researchers to collect parental observations regarding their child’s approach toward practicing at home. In these questionnaires, parents were asked:

1. Did you notice a change in your child’s attitude towards practicing?
2. What were your observations of your child’s technique practice?

At the conclusion of the study, researchers compiled responses from all open-ended questions on the parent and student questionnaires. Each researcher then performed a qualitative analysis for all responses by extracting keywords and coding them into categories. The appearance of these keywords was tallied to uncover broad themes and gauge any progress that occurred throughout the 12-week study.

Video Recordings

In addition to administering the questionnaires described above, researchers video recorded the yoga and technique portion of each lesson during the 12-week period. The researchers agreed to incorporate yoga and

technique at the beginning of each lesson throughout the 12-week study in order to maintain consistency. At the conclusion of the study, each teacher watched all video recordings for their students and wrote observations about their students’ verbal and non-verbal behavior as well as their technique (e.g. wrist movements, hand shape, fluidity, etc.). As with the questionnaires, researchers performed a qualitative analysis by extracting keywords that appeared consistently. To ensure reliability, the researchers also exchanged one teaching video with each other and had extensive conversations to ensure similar concepts were being observed and coded with consistency. After establishing inter-rater reliability, the researchers grouped their observations into broad themes in order to understand significant trends.

RESULTS

Student Questionnaires

Results from the intake questionnaire indicated that only one participant had a regular yoga practice, while two-thirds of participants reported some experience with yoga. Four participants had no yoga experience (see Table 1).

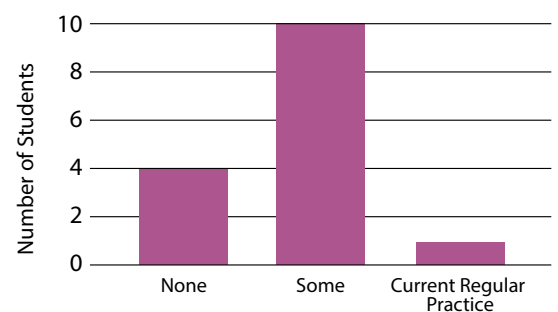


Table 1: Intake questionnaire: yoga experience

Thirteen out of 15 participants stated that they had no physical pain or limitations (as shown in Table 2). Of the two participants who reported limitations, no modifications to the 12-week yoga curriculum were required.

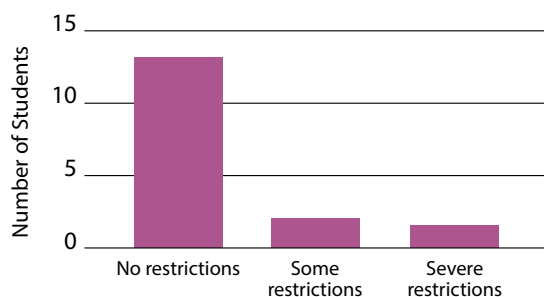


Table 2: Intake questionnaire: reported physical pain or limitations

Results from the tri-weekly student surveys showed increased awareness of breath and posture during the technique portion of the lesson. An interesting trend emerged from the week 6 and week 9 questionnaires. During these weeks, students reported worse posture than during week 3. By the final week of the study, however, participants overwhelmingly reported improved posture, with 93% of students rating their posture as either a 4/5 or 5/5.

These results (summarized in Table 3) might suggest that students' initial lack of posture awareness led them to report healthy posture at a higher rate during the first survey. After students began their yoga practice, the researchers hypothesize that students developed increased body awareness. This increased awareness could have led them to report poor posture on the two subsequent surveys. By week 12, the increased reports of healthy posture might signify that yoga practice was beginning to produce both posture awareness and improved posture.

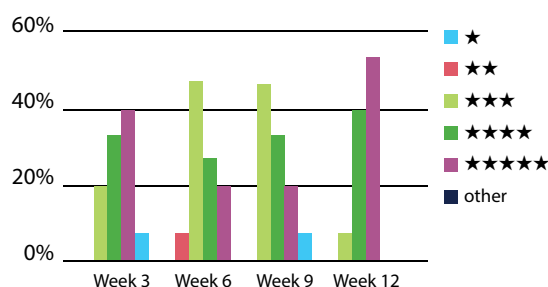


Table 3: Tri-weekly questionnaires: self-reported posture during technique

This hypothesis is supported by students' open-ended responses to their question-

naires. Collegiate students tended to articulate their written thoughts in a more detailed manner. The following statements from one collegiate student support the hypothesis that increased awareness may have resulted in this student noticing postural habits that may have been there from the beginning.

Week 3:

Posture rating: 4/5

Written response: none

Week 6:

Posture rating: 4/5

Written response: "Struggling with slouching still. I am more aware of my problem."

Week 9:

Posture rating: 3/5

Written response: "Still noticed slouching very often."

Week 12:

Posture rating: 5/5

Written response: "Much better than before. Still slouch sometimes."

Similarly, survey results for breathing awareness (summarized in Table 4) did not show an uninterrupted upward trend. However, when looking at the trend from week 3 to week 12, there was a clear upward trajectory in students who reported increased breath awareness, with 93% of participants reporting increased breath awareness during week 12.

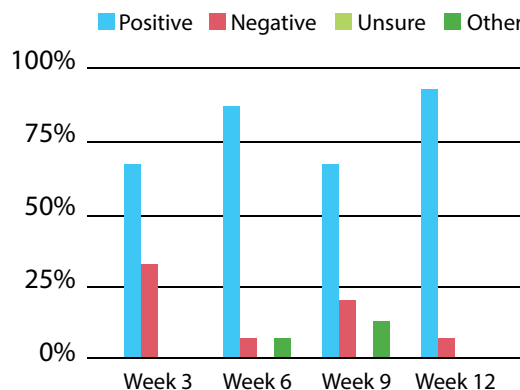


Table 4: Tri-weekly questionnaires: self-reported breathing awareness

Again, collegiate students provided detailed thoughts about their breath awareness throughout the study. When asked, "Were you aware of your breathing?" one student responded with the following statements:

Week 3:

"A little more when practicing alone I noticed I would breathe from remembering the habits of the yoga exercises."

Week 6:

"I am more aware when I am 'not' breathing and upon feeling the 'suffocating' feeling, then would breathe."

Week 9:

"Not all the time, but getting better at breathing when I need to."

Week 12:

"I am more aware of my breathing, especially feeling air [moving through] the chest. Taking the breath has become easier too."

These responses indicate an increased awareness of breath over the course of the 12 weeks.

Parent Questionnaires

While two parents indicated they did not perceive any change during their child's at-home practice, the rest of the parents commented on several improvements. More specifically, they noticed increased motivation, independence and confidence. They also commented that their child was calmer and more focused when practicing, and they perceived improved posture. Representative statements included:

- ▶▶ "I do see a positive change while she practices. It sounds more confident and clear."
- ▶▶ "Yes! Both children have been more willing to and even excited about practicing."

- ▶▶ "He hasn't been trying to negotiate with me regarding the length of his practicing, like he used to do a lot."

Parents also commented on their child's improved posture, calm demeanor and increased focus when practicing.

- ▶▶ "When he is calm his hand position and wrist motion is correct. When he is in a hurry both get sloppy."
- ▶▶ "When we do the breathing, he is more focused and his posture is better."
- ▶▶ "I noticed that he seemed to have a good sitting posture—back straight. I also noticed that he seemed to have really good hand positioning as well."

Video Recordings

While reviewing their teaching videos, the researchers compiled observations that addressed the three research questions.

How did the student respond to practicing yoga (verbally and physically)?

The majority of students responded positively to practicing yoga at the beginning of the lesson as indicated by both non-verbal and verbal cues. Researchers coded the students' behavior through analyzing the video-recordings of lessons. In order of significance, four themes emerged out of the analysis: positive behaviors (e.g. enthusiastic, calm, attentive, etc.), improved physical responses (e.g. increased range of motion, improved balance, etc.), behavioral challenges (e.g. tired, distracted, etc.) and mental benefits (e.g. enhanced concentration and greater breath awareness).

Students' verbal responses to yoga confirmed the researchers' observations during video analysis. Sample statements included:

- ▶▶ "I was aware of my breathing."
- ▶▶ "I noticed I was a little hunched."
- ▶▶ "Can I do yoga again?"
- ▶▶ "This actually feels really good!"

The combination of student responses (both verbal and non-verbal) indicated a net positive response to the 12-week yoga curriculum in terms of dynamic physical alignment, enthusiasm towards in-lesson participation and increased focus.

How did the instructor adapt their teaching language to help the student transfer yoga and breathing concepts to their technique?

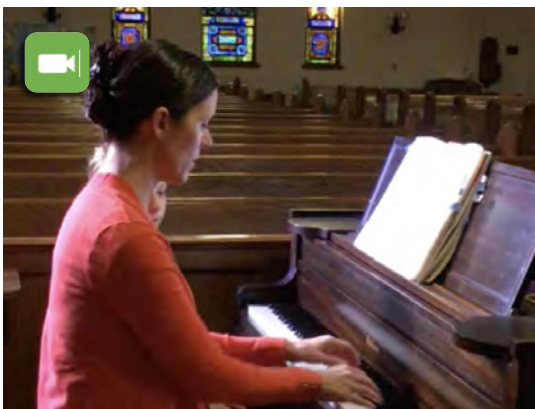
The instructors found that they consistently adapted their teaching language as a result of practicing yoga at the outset of each lesson. The phrases each researcher used fell into one of four broad categories: macro-posture, micro-posture, continuity of movement and self-awareness. An example was the teacher relating a continuous flow and crescendo/diminuendo in a scale to the breath. The student, as you can see in video 1, was able to improve their scale following the language adaptation. Table 5 contains a representative sample of phrases the researchers incorporated into their teaching.

Another example of the instructor adapting their teaching language can be seen in video 2. The instructor advised the student to “let the wrists take a bow,” and to “breathe with the wrists.” The student was able to improve their physical approach while playing a chord progression, using a more artistic gesture to achieve the desired sound.

Video 3 demonstrates how one of the instructors adjusted her teaching approach to provide a manual postural adjustment (with the student’s permission) and to remind the student to actively take a breath before playing.



Video 1



Video 2



Video 3

Macro-Posture	<ul style="list-style-type: none"> Imagine rain falling from your shoulder to your fingertips. The rain shouldn't get stuck on your elbow and go backwards, it should go all the way down to your fingertips. Find your most beautiful and tall seated position. Keep your mountain on top. Plant your feet on the floor like a tree.
Micro-Posture	<ul style="list-style-type: none"> Breathe with the wrists. Make a firm fingertip, then relax through your wrists. It's almost like you have little balloons on your wrist and they go <i>whew whee</i> every time you lift. Don't let your fingers "plank."
Continuity	<ul style="list-style-type: none"> Drop while exhaling. Play your scale with a continuous flow, just like a breath. Trace your crescendo/decelcendo like your square breathing.
Self-Awareness	<ul style="list-style-type: none"> Imagine your head is like a balloon. Feel centered on the bench. Does your arm feel free?

Table 5: Representative teacher phrases.

How did the student's approach to technique change during each lesson?

While students still exhibited technical challenges at the end of the study, researchers noted significant improvements in several areas. The most frequently cited areas of improvement were wrist fluidity and alignment as well as healthy hand shape. Perhaps as a result of these technical improvements, all three researchers repeatedly noted improved sound quality of students' playing at the conclusion of the study (e.g. rich sound, expressive phrasing, improved legato). As you can see in video 4, the fluidity and shaping of this student's scale improved after the in-

structor compared the crescendo/decelcendo with the concept of even inhalation/exhalation during square breathing. With respect to students' mental and emotional states, researchers consistently reported increased focus and confidence throughout the course of the study, which contributed to increased physical awareness both during and after the technique portion of the lesson.

Limitations

While survey results and video analyses indicated positive changes in students' technique after completing a progressive 12-week yoga curriculum, this study does contain limitations. A primary limitation is the small sample size of 15 students. A larger sample size would provide more data, resulting in greater reliability when drawing conclusions. Furthermore, this study did not contain a control group. The lack of a control group makes it impossible to determine whether students' technique would have improved similarly without the 12-week curriculum. Additionally, it is difficult to determine to what extent students' improvement was the result of their yoga practice as opposed to their increased practice of technique assignments. Finally, it should be noted that the researchers did not submit their teaching videos to an independent



Video 4

panel of external reviewers. Therefore, the video analyses may contain a positive bias because the researchers, as yoga teachers and practitioners themselves, were perhaps hoping to notice positive changes in their own students.

Future research should include a larger sample size and compare a control group with a variable group, similar to the Khalsa study cited above. Also, in order to ensure accuracy of observations from teaching videos, future studies should enlist external reviewers who are skilled teachers and who did not participate in the study.

Recommendations for the Studio Teacher

Incorporating yoga into the piano lesson can be helpful as a student learns to develop body awareness and a sense of mental and physical ease in their approach to the instrument. For students who may be prone to injury, incorporating a brief yoga practice into their piano lesson can help them increase awareness of how they use their body during technical exercises and musical gestures. For students who find it difficult to balance the mental and emotional aspects of performing, a regular yoga practice can help them manage performance-related stress and regulate their body's response to stimuli such as performing or creating videos for auditions.

A teacher need not have a yoga certification to incorporate simple breathing and gentle movement exercises in their lessons. It would be ideal if the teacher practiced the exercises on their own ahead of time to ensure clarity in their verbal instruction and physical demonstration. As students' awareness increases, it's possible that they might notice chronic aches and pains. If at any point the student brings up a concern related to physical pain or injury, the teacher should be prepared to refer their student to a medical professional for further evaluation.

For studio teachers who are unfamiliar with yoga and might be tentative about incorporating it into their studios, the researchers offer the following suggestions:

- ▶▶ Consider incorporating one breathing technique or one pose at the beginning of the lesson as a transition from the previous activity into the lesson.

- ▶▶ Young students should not be expected to hold poses for the same amount of time as adults.
- ▶▶ Try to withhold visual expectations of poses: How they feel is more important than how they look. Meet the student where they are.
- ▶▶ Due to underlying stressors, students may not be comfortable taking a deep breath. You may need to adjust the length of the breathing practices or slow down the pace of new material.
- ▶▶ Allow space for self-expression. Students may enjoy coming up with their own poses or renaming familiar ones (for example one of our students decided that mountain pose should be called "giraffe pose" because she was instructed to stand tall and extend the chest and neck).
- ▶▶ Use simple language. You don't need to use the Sanskrit words for the poses. The simpler the language you use the easier it will be for the student to relate.
- ▶▶ Keep this portion of the lesson fun and playful. Falling out of balancing poses is an opportunity to giggle (which coincidentally releases stress) and try again.

In video 5, you can see a simple breathing activity that can be incorporated at the beginning of the lesson, followed by an arm drop exercise. Incorporating yoga activities is not about getting them perfectly, but about using this practice to cultivate self-awareness and explore connections between movement at the instrument and the breath.



Video 5

Conclusions

Despite the limitations cited above, students' positive outcomes due to yoga practice support the systematic incorporation of yoga into weekly piano lessons for both pre-college and collegiate students. More specifically, these positive outcomes included improved technique on a macro-scale (i.e., whole-body postural approach), micro-level (i.e. wrist, hands and fingers), continuity in the movement and greater self-awareness. On a mental and emotional level, students demonstrated increased focus, higher motivation, greater independence with at-home practice and more confidence. Additionally, the researchers' language adaptation suggests that yoga practice can open new avenues for exploring technique instruction and connecting with students. While the 12-week curriculum designed by the researchers could be used as a model, it is likely that any focused practice, when done regularly, would result in increased physical and breath awareness among students. By extension, this increased awareness would likely result in improved posture, a more natural technique and better sound production. ◀◀

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Appendix 12-week Curriculum

Week 1

- ▶▶ Breath awareness: Arms up/down stretch while inhaling/exhaling

Week 2

- ▶▶ Breath awareness: Arms up/down stretch while inhaling/exhaling
- ▶▶ Yoga poses:
 - Mountain pose
 - Neck bends
 - Side bends

Week 3

- ▶▶ Breath awareness: Arms up/down stretch while inhaling/exhaling
- ▶▶ Yoga poses:
 - Mountain pose
 - Neck bends
 - Side bends
 - Chest opener
 - Forward fold

Week 4

- ▶▶ Breath awareness: Square breathing
- ▶▶ Yoga poses: Standing in mountain pose/neck bends/side bends/chest opener/forward fold/downward dog/plank/cobra/downward dog
 - Mountain pose
 - Neck bends
 - Side bends
 - Chest opener
 - Forward fold
 - Downward dog
 - Plank pose
 - Cobra

Week 5

- ▶▶ Breath awareness: Square breathing
- ▶▶ Yoga poses: Standing in mountain pose/neck bends/side bends/chest opener/Warrior I (both sides)
 - Mountain pose
 - Neck bends
 - Side bends
 - Chest opener
 - Warrior I (on both sides)

Week 6

- ▶▶ Breath awareness: Square breathing
- ▶▶ Yoga poses:
 - Mountain pose
 - Neck bends
 - Side bends
 - Chest opener
 - Warrior I (both sides)

Week 7

- ▶▶ Breath awareness: Three-part breath
- ▶▶ Yoga poses:
 - Sun salutation

Week 8

- ▶▶ Breath awareness: Three-part breath
- ▶▶ Yoga poses:
 - Sun salutation

Week 9

- ▶▶ Breath awareness: Three-part breath
- ▶▶ Yoga poses:
 - Sun salutation

Week 10

- ▶▶ Breath awareness: Balloon breath
- ▶▶ Yoga poses:
 - Sun salutation

Week 11

- ▶▶ Breath awareness: Balloon breath
- ▶▶ Yoga poses:
 - Sun salutation

Week 12

- ▶▶ Yoga poses:
 - Sun salutation

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