

Inhale-Exhale: Breathing through Song For People with Covid Syndrome Trial Report

To refer participants, sign up, or ask questions, please contact: amy@amysteggles.com

Inhale-Exhale is a patient-centred, non-prescribing, and innovative approach to Covid Syndrome treatment. It helps “long haulers” with breathlessness and the resulting anxiety. It is an online, eight-week course that helps participants (re)learn healthy breathing through breath and body awareness exercises, improved posture, and singing. Participants (re)discover their breath, find improved well-being, and connect with other people living with Covid Syndrome. For more information, see appendix A.

Summary of Findings

All participants had Covid Syndrome. Early results are promising:

- Most participants found the course helped with their breathing.
- Participants' anxiety scores improved, in two cases significantly.
- Participants generally had improved scores across the general wellness measures.
- Generally, people with better attendance, more website visits, and higher practice times improved more.

Qualifying Statements

This report uses data from the first five participants. It is understood that the results are early indicators only, because the results are not statistically significant and there was no control group. It is therefore understood that some participants may feel better or worse for reasons unrelated to the course, and further, that the increased body awareness nurtured by the course may result in participants not actually worsening, but simply becoming more aware of pre-existing problems.

Most demographic information is being withheld due the privacy concerns associated with a small sample size. Later, we hope to determine if varied groups of people respond differently to the course e.g. Do different genders respond differently to the course? Do people with specific symptoms get more return on investment from the course?

Questionnaires

The questionnaires were designed to match those used by English National Opera (ENO) and the National Health Service Trust/Imperial College London to make them as comparable as possible. The ENO questionnaires were in turn designed using existing medical scales:

- A visual analogue scale (VAS) to assess dyspnoea
- GAD-7 scale to assess anxiety
- RAND 36 to assess general health and wellbeing

See appendix B for the blank questionnaires.

Results

Demographics

At the time of writing:

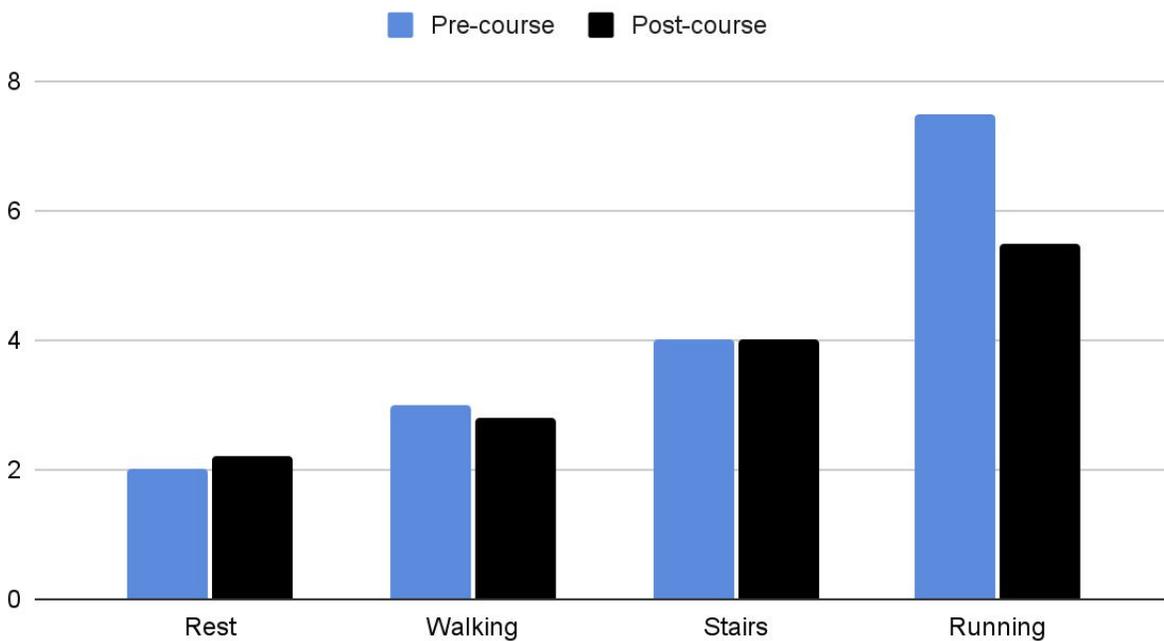
- Participants were from British Columbia, Ontario, and Quebec.
- Ages ranged from from 32 to 57 years.
- Participants had been experiencing Covid Syndrome for 12 to 20 months.

More demographic information will become available as participant numbers rise.

Breathlessness

- Lower scores are better

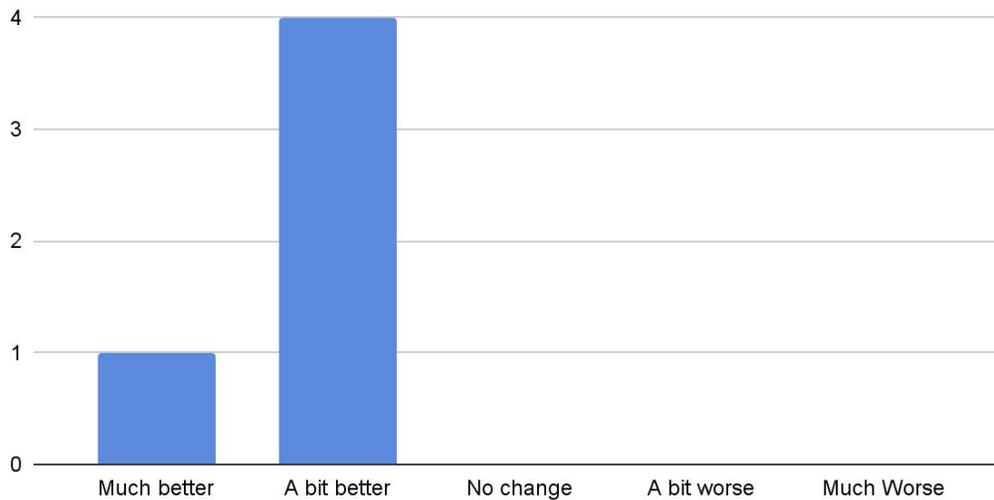
Average for all participants (Visual Analogue Scale)



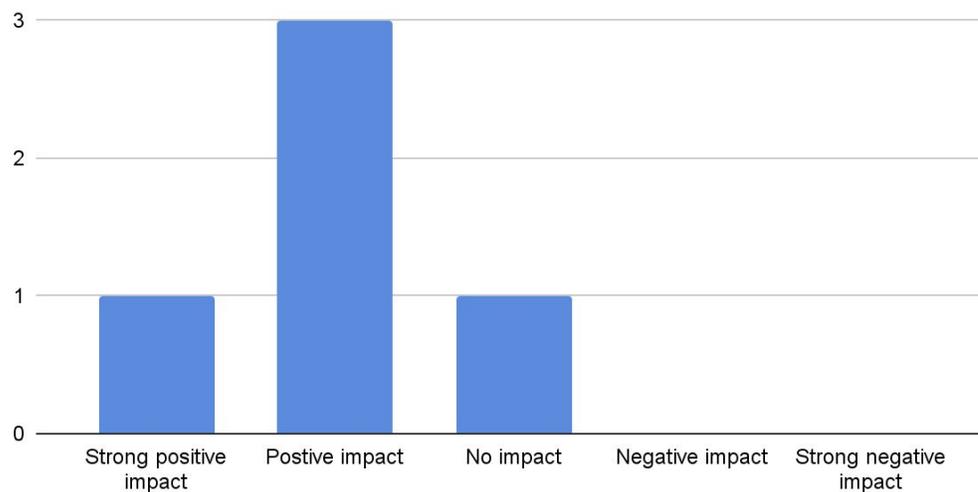
Results

Breathlessness Continued

How do you feel your breathlessness symptoms have changed in the last eight weeks?



To what extent do you think Inhale-Exhale has impacted your breathlessness symptoms?

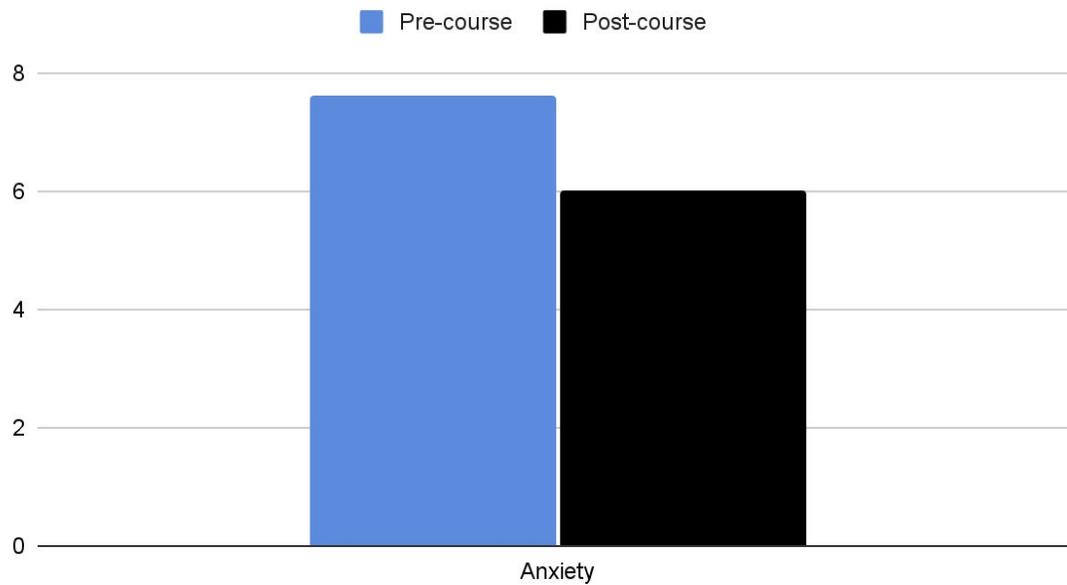


Results

Anxiety

- Lower scores are better

Average for all participants (GAD-7 Scale)

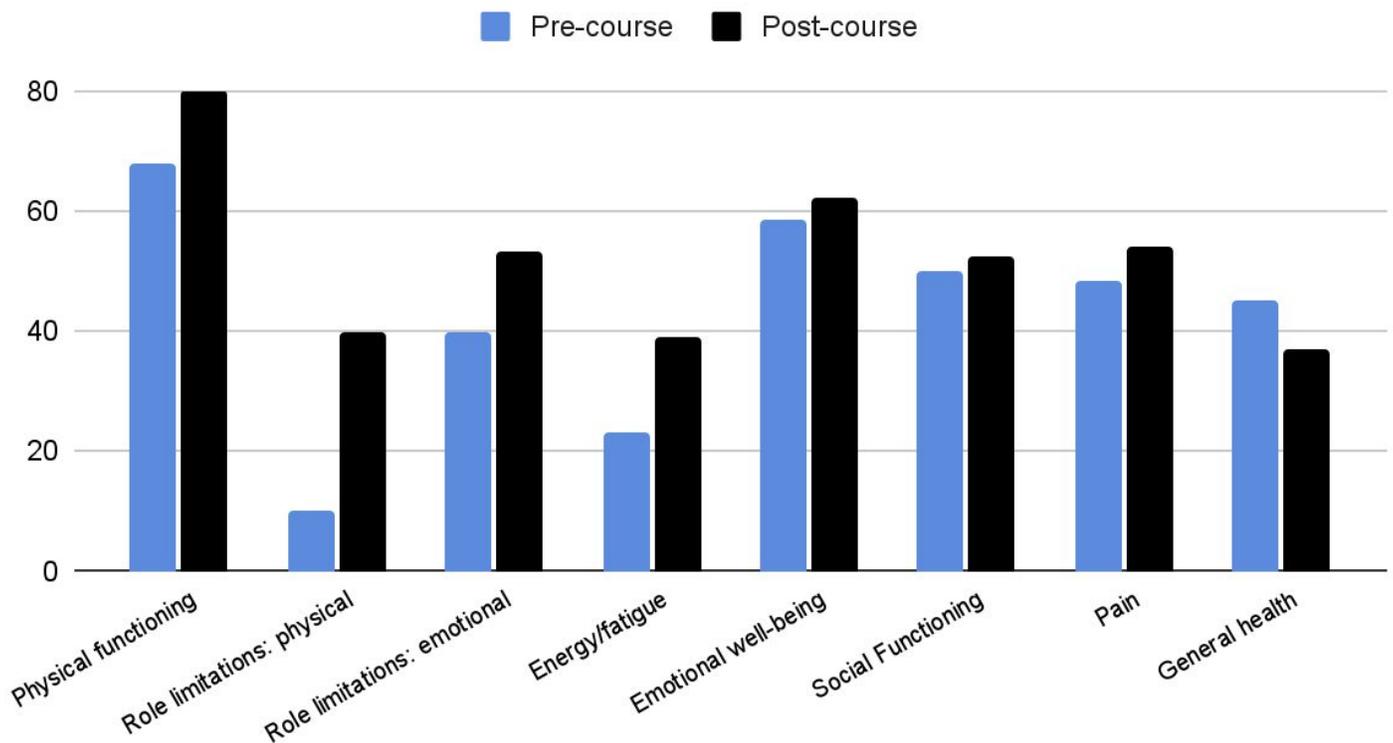


Results

General Health and Well-being

- Higher scores are better

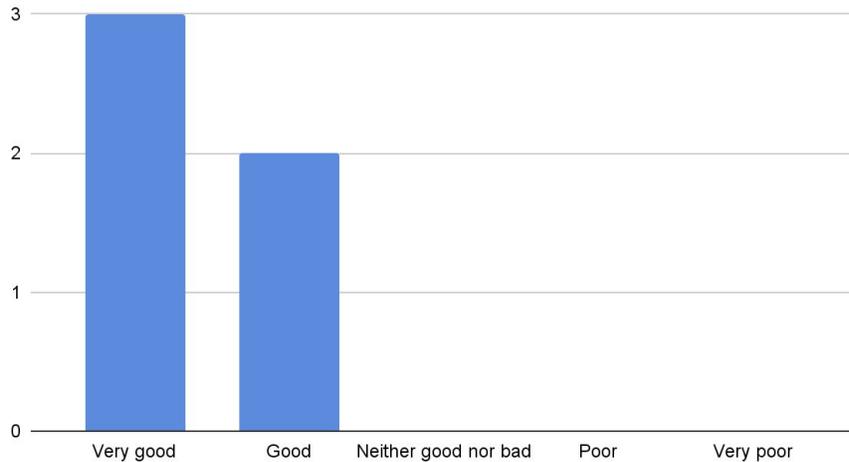
Average for all participants (RAND 36)



Results

Experience of the Course

How would you rate this experience?



"More holistic than I was expecting. It was helpful in calming my nerves and breathing more naturally. Helped me get out of my head and into my body. I can breath through things that come up in my day that would have previously set me back."

"I have thoroughly enjoyed the course and would highly recommend. I struggle with anxiety and the breathing exercises and body awareness have had a very calming effect on my state of well being. I find myself using the exercise for breathing and body posture spontaneously and if I wake during the night I can easily return to sleep with amy's voice in the back of my head walking through the breathing exercises."

"I feel like I've been able to re-establish a relationship with my breath. Breathing is still a challenge but it's getting easier!"

"I very much enjoyed this course and our weekly meetings. The course has improved my mindfulness around breathing and body positioning."

"It was really great to learn from Amy and also to connect with fellow long covid survivors."

Appendix A - More information on the course

Background

Of those people who contract COVID-19, anywhere from 2-25%^[1] do not recover after a few weeks. In fact, some are continuing to experience after-effects over a year later. This is being referred to as Long Covid, Covid Syndrome, or Long-Haul Covid.

According to a study released in the United Kingdom (UK), Covid Syndrome includes over 200 symptoms,^[2] making it a challenge to treat. Interdisciplinary medical teams are forming to better understand and treat the illness.

A common long-term effect of Covid Syndrome is breathlessness and the anxiety that stems from impaired breathing. In the UK^[3] and elsewhere,^[4] health-care professionals are finding that simple breathing exercises aid in recovery.

The *Inhale-Exhale* Program

What is it?

Inhale-Exhale is a patient-centred, non-prescribing, and innovative approach to Covid Syndrome treatment. It helps people with Covid Syndrome who have breathlessness and the resulting anxiety.

It is an online, eight-week course that helps participants (re)learn healthy breathing through breath exercises, improved posture, and singing.

Why run this course?

Life events, such as illness, can leave the body's autonomic nervous system in a state of partial and continual "fight-or-flight" mode. The deep, slow, and relaxed breaths learned through breathing exercises, and reinforced through singing, help rebalance the body into the opposite state of "rest-and-digest". Further, breathing muscles are like any other: if you exercise them, they become stronger.

- On an anatomical level, breathing and singing stimulate the vagus nerve, in turn regulating the autonomic nervous system, which in turn regulates respiration.^[5]^[6] In other words, healthy breathing begets healthy breathing, and poor breathing begets poor breathing.

[1] Reports vary on the number. It is too soon to say with accuracy how many people have developed and will develop Long Covid.

[2]<https://vancouver.sun.com/news/from-brain-fog-to-night-sweats-long-covid-has-over-200-symptoms-study-finds/wcm/488c29d9-83c1-4bf9-ab34-3e540dc38ae6>

[3] <https://eno.org/eno-breathe/about-the-eno-breathe-programme/>

[4] <https://www.theatlantic.com/magazine/archive/2021/04/unlocking-the-mysteries-of-long-covid/618076/>

[5] *The Voice and the Ear*, Alfred A Tomatis, Scarecrow Press Inc, 1987, pp 61-63

[6] *Breath The New Science of a Lost Art*, James Nestor, Roverhead Books, 2020, pp 148-150 in reference to Dr. Stephen Porges' Polyvagal Theory

Appendix A - continued

- On a chemical level, humming is an excellent way to create Nitric Oxide, a molecule that is necessary for delivering oxygen into cells. Humming is one aspect of the course. Further, carbon dioxide is required to attract oxygen to cells.^[7] In other words, breathing more and quickly won't necessarily increase the amount of oxygen in your cells, whereas the slow, measured breaths learned in this course will.

Who runs it and who is it for?

The course is administered and taught by Amy Steggles (Soprano, Singing Teacher, and Voice Coach).

At present, potential participants (anyone who has been experiencing Covid-19 for more than 3 months and whose symptoms include breathlessness and the related anxiety) partake in a two-part screening process before admission to the course.

Where is it?

The course is online and therefore available to anyone fluent in English.

When is it?

Courses are scheduled in Pacific Time and last an hour, plus time for group discussion and support after the lesson, once a week, for eight weeks.

How does the course work?

Singing, at its core, is the art and science of breathing well. Using simple lullabies as one tool, Ms. Steggles teaches body awareness, centred posture, and healthy breathing. Participants (re)discover their breath, find improved well-being, and connect with other people living with Covid Syndrome.

Participants do not need to be singers, speak languages other than English, or have any interest in music.

Further Info

- Amy's website:
<https://amysteggles.com/coach/>
- Globe and Mail Article:
<https://www.theglobeandmail.com/arts/music/article-opera-voice-coach-helps-long-term-covid-19-sufferers/>
- University of Western Ontario Article:
<https://news.westernu.ca/2021/08/helping-long-haulers-breathe/>

[7] Breath The New Science of a Lost Art, James Nestor, Roverhead Books, 2020, p 223 & pp 75-76

Inhale-Exhale Pre-Course Questionnaire

D #:

Date: _____

Privacy

To protect your privacy, do not include personal information below (e.g. name, phone number, home address etc.) or anything that could identify you. Quantitative data will only be used in aggregate, and no data will contain personal identifiers.

Question Categories

The following questionnaire has five categories of questions:

- **Demographics**
- **COVID-19**
- **Breathlessness**
- **Anxiety**
- **General Health and Well-being**

Demographics

Age: _____

Location: City, province (not address) _____

Sex: _____

Please only answer this set of demographic questions if you feel comfortable. (The answers are to help further refine who is getting the most from the course.)

Ethnicity: _____

Gender: _____

Sexual orientation: _____

Appendix B - blank questionnaires

Covid-19

Did you test positive for COVID-19? Yes No

If yes, when did you test positive for COVID-19? (month, year) _____

When did you first suspect you had COVID-19? (month, year) _____

Regardless of the above, what were your symptoms when you first contracted COVID-19? (e.g. sore throat, fever, cough...)

What are your symptoms currently? (e.g. fatigue, breathlessness...)

Were you hospitalized? Yes No

If yes, why?

Appendix B - blank questionnaires

Anxiety

Did your **first instance** of breathlessness provoke an emotional reaction? Yes No

If yes, can you describe it?

- Concern
- Worry
- Fear
- Panic
- Terror
- Other _____

Over the last two weeks, how often have you been bothered by any of the following problems?

Select one

Feeling nervous, anxious or on edge?

- Not at all
- Several days
- More than half the days
- Nearly every day

Not being able to stop or control worrying?

- Not at all
- Several days
- More than half the days
- Nearly every day

Appendix B - blank questionnaires

Worrying too much about different things?

- Not at all
- Several days
- More than half the days
- Nearly every day

Trouble relaxing?

- Not at all
- Several days
- More than half the days
- Nearly every day

Being so restless that it is hard to sit still?

- Not at all
- Several days
- More than half the days
- Nearly every day

Becoming easily annoyed or irritable?

- Not at all
- Several days
- More than half the days
- Nearly every day

Feeling afraid as if something awful might happen?

- Not at all
- Several days
- More than half the days
- Nearly every day

General Health and Well-Being

Select one

| | |
|---|---|
| In general, would you say your health is: | |
| Excellent | 1 |
| Very good | 2 |
| Good | 3 |
| Fair | 4 |
| Poor | 5 |

| | |
|--|---|
| Compared to one year ago , how would you rate your health in general now ? | |
| Much better now than one year ago | 1 |
| Somewhat better now than one year ago | 2 |
| About the same | 3 |
| Somewhat worse now than one year ago | 4 |
| Much worse now than one year ago | 5 |

The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

(Select One on Each Line)

| | Yes, Limited a Lot | Yes, Limited a Little | No, Not Limited at All |
|---|-----------------------|--------------------------|---------------------------|
| Vigorous activities , such as running, lifting heavy objects , participating in strenuous sports | [1] | [2] | [3] |
| Moderate activities , such as moving a table, pushing a vacuum cleaner, bowling, or playing golf | [1] | [2] | [3] |
| Lifting or carrying groceries | [1] | [2] | [3] |
| Climbing several flights of stairs | [1] | [2] | [3] |
| Climbing one flight of stairs | [1] | [2] | [3] |
| Bending, kneeling, or stooping | [1] | [2] | [3] |
| Walking more than a mile | [1] | [2] | [3] |
| Walking several blocks | [1] | [2] | [3] |
| Walking one block | [1] | [2] | [3] |
| Bathing or dressing myself | [1] | [2] | [3] |

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health?**

(Select One on Each Line)

| | Yes | No |
|---|-----|----|
| Cut down the amount of time you spent on work or other activities | 1 | 2 |
| Accomplished less than you would like | 1 | 2 |
| Were limited in the kind of work or other activities | 1 | 2 |
| Had difficulty performing the work or other activities (for example, it took extra effort) | 1 | 2 |

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)?

(Select One on Each Line)

| | Yes | No |
|---|-----|----|
| Cut down down on the amount of time you spent on work other activities | 1 | 2 |
| Accomplished less than you would like | 1 | 2 |
| Didn't do work or other activities as carefully as usual | 1 | 2 |

During the **past 4 weeks**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours, or groups?

(Select One)

- Not at all 1
- Slightly 2
- Moderately 3
- Quite a bit 4
- Extremely 5

How much **bodily** pain have you had during the **past 4 weeks**?

(Select One)

- None 1
- Very mild 2
- Mild 3
- Moderate 4
- Severe 5
- Very severe 6

During the **past 4 weeks**, how much did **pain** interfere with your normal work (including both work outside the home and housework)?

(Select One)

- Not at all 1
- A little bit 2
- Moderately 3
- Quite a bit 4
- Extremely 5

These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks . . .

(Select One on Each Line)

| | All of the Time | Most of the Time | A Good Bit of the Time | Some of the Time | A Little of the Time | None of the Time |
|---|-----------------|------------------|------------------------|------------------|----------------------|------------------|
| Did you feel full of pep? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you been a very nervous person? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt so down in the dumps that nothing could cheer you up? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt calm and peaceful? | 1 | 2 | 3 | 4 | 5 | 6 |
| Did you have a lot of energy? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt downhearted and blue? | 1 | 2 | 3 | 4 | 5 | 6 |
| Did you feel worn out? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you been a happy person? | 1 | 2 | 3 | 4 | 5 | 6 |
| Did you feel tired? | 1 | 2 | 3 | 4 | 5 | 6 |

During the **past 4 weeks**, how much of the time has your **physical health or emotional problems** interfered with your social activities (like visiting with friends, relatives, etc.)?

(Select One)

- All of the time 1
- Most of the time 2
- Some of the time 3
- A little of the time 4
- None of the time 5

How **TRUE** or **FALSE** is each of the following statements for you.

(Select One on Each Line)

| | Definitely True | Mostly true | Don't Know | Mostly False | Definitely False |
|--|-----------------|-------------|------------|--------------|------------------|
| I seem to get sick a little easier than other people | 1 | 2 | 3 | 4 | 5 |
| I am as healthy as anybody I know | 1 | 2 | 3 | 4 | 5 |
| I expect my health to get worse | 1 | 2 | 3 | 4 | 5 |
| My health is excellent | 1 | 2 | 3 | 4 | 5 |

Thank you for filling out this questionnaire.

To return it, please

- email it to: amy@amysteggles.com **OR**
- mail it to:
Amy Steggles
XXX
Victoria, BC

Inhale-Exhale Post-Course Questionnaire

ID #:

Date: _____

Privacy

To protect your privacy, do not include personal information below (e.g. name, phone number, home address etc.) or anything that could identify you. Quantitative data will only be used in aggregate, and no data will contain personal identifiers.

Question Categories

The following questionnaire has five categories of questions:

- **Use of the Course**
- **Breathlessness**
- **Anxiety**
- **General Health and Well-being**
- **Course Feedback**

Use of the Course

Select one

How many sessions did you attend?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

Appendix B - blank questionnaires

How many times did you visit the website outside of session time?

0-5

6-10

11-15

16-20

20 or more

How much time did you spend practising per week?

Less than 1 hour

1 hour

More than 1 hour. If more than an hour, how much time? _____

(turn to next page)

Appendix B - blank questionnaires

Breathlessness

Select one

How do you feel your breathlessness symptoms have changed in the last eight weeks?

Much better

A bit better

No change

A bit worse

Much worse

To what extent do you think Inhale-Exhale has impacted your breathlessness symptoms?

Strong positive impact

Positive impact

No impact

Negative impact

Strong negative impact

AS ABOVE

Anxiety

AS ABOVE

General Health and Well-Being

AS ABOVE

Appendix B - blank questionnaires

Feedback on the Course

How would you rate this experience? (Select one)

Very good

Good

Neither good nor bad

Poor

Very poor

Do you have any suggestions on how to improve the course?

How would you describe this experience and/or how has this experience helped you?

Thank you for filling out this questionnaire.

To return it, please

- email it to: amy@amysteggles.com **OR**
- mail it to:

Amy Steggles

XXXX

Victoria, BC