



## Panic Stations

### Module 11

## Breathing

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## Breathing and Panic disorder

As we mentioned in Module 1, for some people with panic, breathing may play a particularly important role in the development of intense panic symptoms. However, this may not be the case for everybody. You may even have noticed that in challenging your thoughts and behaviours related to panic that your general anxiety might have already decreased!

If you still have residual effects of anxiety, this module can help reduce the effects of overbreathing that often accompanies long-term anxiety. Overbreathing may contribute to your general levels of anxiety, which may mean that you are more “on edge”. Most of the research suggests that information contained in Module 9 is a very important aspect of managing panic attacks, therefore you might consider saving the breathing techniques until after you have given the exposure to physical sensations module a major effort. This will give you strong evidence that these sensations are not in themselves harmful. In this way you can effectively challenge your beliefs about the physical sensations. The last thing we would want is for this strategy to be used as a safety-behaviour - to try to avoid the physical symptoms of panic! So, it is extremely important that you learn to effectively challenge your unhelpful thoughts about panic through exposure **BEFORE** you complete this module.

### Introduction

In Module 1, we talked about the physical changes that can happen as a result of anxiety. One of these changes was an increase in the rate and depth of breathing. In fact, breathing plays an essential role in determining the body’s level of arousal. When our breathing rate increases, a number of other physiological changes occur that contribute to an increase in anxiety. The aim of this module is to discuss the fundamentals of breathing physiology to give you some idea about the role of breathing in anxiety. Then we’ll talk about how you can start to gain control over your breathing.

An important first step in understanding and controlling your own breathing pattern is to monitor your breathing rate.

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#### Check your breathing rate

Count your breathing rate for one minute, where a breath in and out counts as one breath.

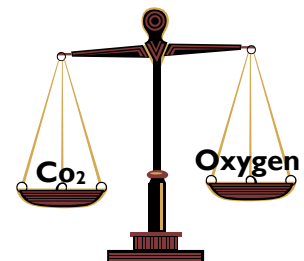
My breathing rate is \_\_\_\_\_ breaths per minute.

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### Breathing Physiology

We all need to breathe oxygen to survive. The lungs take in oxygen, where it used by the body, and expel carbon dioxide (CO<sub>2</sub>) which is produced by metabolic processes. In order for the body to run efficiently, it maintains optimal levels of both oxygen and carbon dioxide in the blood. Oxygen is maintained at very high saturation levels, and our oxygen levels generally only go below this optimal level if we cannot breathe in enough or if there is not enough oxygen available in the air. Carbon dioxide, on the other hand, is maintained at a lower saturation level, and needs to be actively protected from going both under and over the optimal range. Put simply, our body uses the amount of carbon dioxide that needs to be exhaled as a marker for our breathing rate.

The typical rate of breathing when calm and relaxed is around 10 to 14 breaths per minute. *How does this compare to your rate of breathing?*



When we exercise or exert ourselves, we breathe faster and more deeply in order to expel the extra carbon dioxide produced by metabolic changes, and this also allows us to obtain new oxygen as needed. When a person hyperventilates due to anxiety, however, they often experience an increase in breathing rate as the body prepares to act, but we do not exert extra energy and so we end up breathing out more carbon dioxide than is being produced. This results in levels of carbon dioxide that drop below the optimal saturation level.

Most of the body's mechanisms, including breathing are 'automatically' controlled, but breathing can also be put under voluntary control. For example, it is quite easy for us to hold our breath when swimming or speed up breathing when blowing up a balloon. Factors such as stress and our general mood can also change our breathing rate. Being able to voluntarily alter our breathing is good news for people who experience high anxiety symptoms. By learning how to maintain a controlled and relaxed rate of breathing, it is possible to reduce many of the symptoms that would otherwise follow on from 'anxious' breathing.

## THE EFFECTS OF OVERBREATHING

So how does low carbon dioxide cause other unpleasant physical symptoms? When our level of carbon dioxide in our blood drops, our body responds with a number of chemical changes designed to restore balance. The first is that the blood becomes more alkaline. The blood vessels begin to narrow and the amount of blood going to the brain is decreased. Together with tightening of the blood vessels, haemoglobin also binds more tightly to the oxygen. Thus, not only does less blood reach certain areas of the body, but oxygen is also less likely to be released to the tissues. This results in two broad categories of symptoms:

1. Firstly, some symptoms are due to the slight reduction in oxygen to certain parts of the *brain*. This leads to symptoms like dizziness, light-headedness, confusion, breathlessness, blurred vision;
2. Secondly, some symptoms are due to the slight reduction in oxygen to certain parts of the *body*. This leads to symptoms such as an increase in heart rate to pump more blood around, numbness and tingling in the extremities, cold clammy hands and muscle stiffness.

There are also other effects. Do you recognise any of the following?

- Overbreathing for extended periods of time requires more energy and effort. Prolonged periods of stress and anxiety may leave you feeling tired and exhausted.
- Overbreathing can leave you feeling hot, flushed and sweaty.
- Overbreathing might have led you to sigh or yawn a lot.



As with the other symptoms associated with anxiety, these changes are NOT HARMFUL.

## FACTS ABOUT HYPERVENTILATION

1. When a person is breathing very rapidly, or *hyperventilating*, they may experience these symptoms intensely. Hyperventilation can also be subtle – you might be breathing just a little more quickly over a long period of time. In this case, the carbon dioxide levels are chronically lowered and all it takes is a yawn, or an anxious thought, and suddenly you are having a panic attack.
2. Sometimes people might feel as if they are choking or they experience a smothering sensation, as though they are not getting enough air. Sometimes people are concerned that if they overbreathe for too long, they may eventually collapse or faint. Fainting almost never occurs as a result of overbreathing. When it does happen, it usually happens with people who have a history of fainting because there is often some other part of their biological make up that makes them more likely to faint.
3. Remember that hyperventilation is not dangerous. In fact, it's often used in medical testing.
4. Breathing patterns are an important part of the fight/flight response and are intended to protect the body from danger. If faced with a fight or flight situation, a state of overbreathing would not develop because the carbon dioxide and oxygen levels would be maintained at optimal rates.

## CHEST BREATHING AND STOMACH BREATHING

Generally, when you breathe you either use (1) chest breathing or, (2) stomach breathing.

### **Chest breathing:**

If you are troubled by anxiety in your life, chances are you're a chest breather. Chest breathing is shallow and often irregular and rapid. Anxious people may experience breath holding, hyperventilation, shortness of breath, or fear of fainting.

### **Stomach Breathing:**

The second type of breathing is usually used by people with little anxiety in their life, or those who are coping better with anxiety. This stomach breathing (abdominal/ diaphragmatic breathing) is used by new born babies and sleeping adults. Breath is drawn in to the lungs and exhaled as the diaphragm becomes smaller and expands. Breathing is even and not limited. The breathing system is better able to do its job of producing energy from oxygen and removing carbon dioxide.

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### ***Breathing Awareness Exercise***

Do you breathe with your chest or your stomach?

Place the hand you write with on the stomach between your lower ribs and belly button (navel). Put the other hand on the breastbone, just below the collarbones. Take a deep breath and notice:

*"Which hand moves the most?"*

*"Did you breathe in through your mouth or nose?"*

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If you breathed through your nose, your stomach probably expanded first, with little upper chest movement. This is the type of breathing that is most helpful for your body. On the other hand, you breathed in through your mouth, your upper chest probably raised first with little or no movement under the hand located on your stomach. This would indicate an unhelpful breathing style and might be contributing to the anxiety you may experience.

## **Gaining Control Over Your Breathing**

Gaining control over your breathing is an important skill to develop. This breathing technique will help you to (1) decrease some of the physical cues that you might be sensitive to, and (2) facilitate general relaxation through your breathing.

Try to practise the following exercise as often as you can. When you start, practise in non-anxiety situations such as in the lounge room at home, or when you're waiting for a bus and so on. Once you've mastered the technique you can try to use it to manage feelings of intense anxiety or panic. It's a bit like sport's practice – you want to master your skills before you get to the finals. For now, become as well practised as you can.

*\* Note: if you have breathing problems related to a physical illness, you should consult your doctor before doing breathing exercises if you have any concerns about the effects.*

## BREATHING PATTERN

When you do the exercise, try to find a comfortable chair and eliminate any potential interruptions. Sit comfortably, without crossing your legs. How you breathe is important, so consider the following:

- Relax your shoulders and upper chest
- With jaw relaxed, draw air slowly in through your nose
- **Breathe in** by relaxing and expanding your waist so your stomach puffs up. Check you are using stomach/diaphragm breathing by using the breathing awareness exercise.
- Do not take in deep breaths just stick to your own natural depth of breath that is smooth and easy.
- **Breath out** through your mouth, and let the air 'fall' out of your chest as the elastic recoil of your lower chest and diaphragm breathes air out effortlessly.
- If you find it hard to keep breathing low and slow, place a book on your stomach. This will help focus your effort.

## BREATHING TIMING

Once you're confident about your breathing pattern, it's important to concentrate on how many breaths per minute you are taking.

- Aim for a 4-in, 2-hold, 6-out cycle – breathe in for 4 seconds, hold for 2 seconds, then breathe out for 6 seconds
- If you have been breathing rapidly for some time, and this timing is difficult to start with with, you might try a 3-in, 4-out cycle. Start with what you can most comfortably slow down to, and then work your way up to the 4-in, 2-hold, 6-out cycle.
- When counting, you can add the word 'hundred' after each number so it roughly equals one second - ie. one- hundred, two-hundred, etc.).

Remember to focus on the *evenness* of your breathing pattern. Breathing out usually takes slightly longer than breathing in, with a relaxed pause at the end of the exhalation.

As you do the breathing exercise, try to keep count in your head – not only will it help to keep your breathing on track, it's also an important meditative aspect of the breathing retraining. What you might find if you stop counting is that your mind wanders, and it might wander right back to some anxious thoughts! If it does start to wander, though, just allow yourself the thought and then return to the counting.

## BREATHING PRACTICE

With practice this new breathing pattern will eventually become second nature and a good habit. At first, if you've been using the mouth/upper chest breathing habit, you might find the nose-stomach breathing technique somewhat unnatural. It usually takes quite a bit of practice to train your stomach muscles to be accustomed to this kind of breathing. It is important not to be hard on yourself if you fall back into unhelpful breathing habits. It is far better to concentrate on both the next breath and getting it correct.



## **Breathing Retraining**

1. Ensure that you are sitting on a comfortable chair
2. Take a breath in for 4 seconds (through your nose if possible)
3. Hold the breath for 2 seconds
4. Release the breath taking 6 seconds (through your mouth if possible).

### **Try the breathing retraining now.**

1. What was your breathing rate at the beginning of this module? \_\_\_\_\_ breaths per minute.
  2. Do the breathing retraining for 5 minutes.
  3. What is your breathing rate after using the breathing retraining? \_\_\_\_\_ breaths per minute.
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## **MONITORING YOUR BREATHING**

On the next page is a breathing chart for you to monitor your tension rate at suggested times during the day, before and after using the breathing retraining. Print this chart out and try to use it over at least the next two weeks. If you cannot do it exactly at the times suggested, choose an appropriate moment around that time of day (e.g. once in the morning, once in the afternoon, once in the evening). The daily record of the breathing retraining is designed to prompt you to practise this strategy. As mentioned, practice is a key element in developing a more relaxed breathing rate that becomes your regular pattern of breathing and will be particularly important to help calm you in anxious situations.

## Daily Record of Your Breathing Rate

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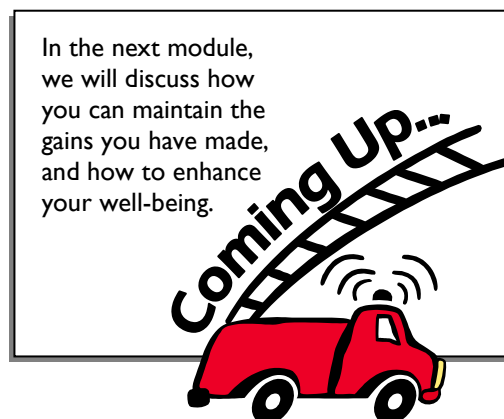
### Instructions

- Monitor your breathing rate at the times shown below.
  - If you have just done some form of activity (e.g. walking upstairs, etc.) that increases your breathing rate, take your breathing rate about 20 minutes after you have finished the activity.
  - Try to be sitting or standing quietly when you count your breathing. Don't try to alter your breathing rate as you are counting.
  - Breathing Exercise: a) put your writing hand on your stomach and the other hand on your chest, b) breathe in through your nose and out through your mouth (2 seconds in, and 3 seconds out) Remember... jaw relaxed, breathe low and slow. c) Do this for approximately 5 minutes three times per day.
  - Remember to: 1) monitor your breathing rate, 2) practise the breathing exercise, and 3) monitor your breathing rate again.
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	10:00 a.m.		2:00 p.m.		7:00 p.m.	
Date	Before	After	Before	After	Before	After
↓						

## Module Summary

- Breathing is a powerful determinant of physical state. It is the change in *balance* of carbon dioxide that is important: when we overbreathe, we breathe out too much carbon dioxide and saturation levels fall below the optimal range. When the body detects this difference, it produces reaction that result in symptoms such as dizziness, breathlessness, increased heart rate, and muscle stiffness.
- Overbreathing may play an important role in panic disorder. However, it is important to complete the previous modules to challenge unhelpful thoughts about panic symptoms through exposure so that you have strong evidence that these sensations are not dangerous. It is important to not use breathing control as way avoiding those sensations.
- The breathing retraining is a way for you to gain control over your breathing. It encourages you to
  - Change your breathing pattern, such as using stomach breathing instead of chest breathing
  - Change your breathing timing to slow down your breathing
  - Practise your breathing exercises so that your body becomes used to breathing in a more relaxed way
- The breathing retraining is a simple exercise that is best practised at quiet times when you have the chance to relax.
  1. Ensure that you are sitting on a comfortable chair or laying on a bed
  2. Take a breath in for 4 seconds (through your nose if possible)
  3. Hold the breath for 2 seconds
  4. Release the breath taking 6 seconds (through your mouth).





## About This Module

### CONTRIBUTORS

**Paula Nathan** (MPsych\*)

Director, Centre for Clinical Interventions

Adjunct Senior Lecturer, School of Psychiatry and Clinical Neuroscience, The University of Western Australia

\*MPsych/MApp Psych: Masters of Psychology (Clinical Psychology)

**Helen Correia** (MApp Psych\*; PhD)

Centre for Clinical Interventions

### Some of the material in this module was taken from

Nathan, P.R., Rees, C.S., Lim, L., & Smith, L.M. (2001). *Mood Management – Anxiety: A Cognitive Behavioural Treatment Programme for Individual Therapy*. Perth: Rioby Publishing.

### BACKGROUND

The concepts and strategies in this module have been developed from evidence based psychological practice, in this case, Cognitive-Behaviour Therapy (CBT). CBT for panic disorder is a type of psychotherapy that is based on the theory that panic disorder is a result of problematic cognitions (thoughts) and behaviours. There is strong scientific evidence to support that cognitions and behaviours can play an important role in panic disorder, and that targeting cognitions and behaviours in therapy can help many people to overcome panic disorder. Examples of this evidence have been reported in the following:

Royal Australian and New Zealand College of Psychiatrists Clinical Practice Guidelines Team for Panic Disorder and Agoraphobia. (2003). Australian and New Zealand clinical practice guidelines for the treatment of panic disorder and agoraphobia. *Aust N Z J Psychiatry*, 37(6), 641-56.

### REFERENCES

These are some of the professional references used to create this module.

Barlow, D.H. (2002). *Anxiety and Its Disorders: The Nature and Treatment of Anxiety and Panic (2<sup>nd</sup> Edition)*. London: Guilford Press

Craske, M.G., & Barlow, D.H. (2001). Panic disorder and agoraphobia. In D.H. Barlow (Ed.), *Clinical Handbook Of Psychological Disorders, Third Edition*. London: Guilford Press.

### FURTHER READING

There have been many other information resources written for people with panic attacks and panic disorder.

Barlow, D. H., & Craske, M. G. (2000). *Mastery of your anxiety and panic (3rd edition)*. San Antonio, TX: The Psychological Corporation. (ISBN: 0127850783)

Royal Australian and New Zealand College of Psychiatrists. (2003). *Panic Disorder and Agoraphobia: Treatment Guide for Consumers and Carers*. Available: <http://www.ranzcp.org/publicarea/cpg.asp> (click on "Panic Disorder and Agoraphobia"). Accessed Feb. 2004.

Zuercher-White, E. (1998). *An End To Panic: Breakthrough Techniques For Overcoming Panic Disorder (2nd Edition)*. Oakland, CA: New Harbinger Publications. (ISBN: 1567313760)

### "PANIC STATIONS"

We would like to thank Uta Juniper for the title of the InfoPax that this module forms part of:

Nathan, P., Correia, H., & Lim, L. (2004). *Panic Stations! Coping with Panic Attacks*. Perth: Centre for Clinical Interventions.

**ISBN: 0-9751985-8-0 Created: June, 2004.**