INTEGRATIVE SOLUTIONS

to build a better mood

YOUR COMPLETE, PRACTICAL GUIDE TO TREAT DEPRESSION AND ANXIETY USING PERSONALISED INTEGRATIVE THERAPY

Adrian Lopresti PhD

Integrative Solutions to Build a Better Mood

Your Complete, Practical Guide to Treat Depression and Anxiety Using Personalised Integrative Therapy

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Acknowledgements

There are many terrific therapies available that can help people improve their mental health and overall quality of life. Personalised Integrative (PI) Therapy is a collation of techniques and ideas developed from these therapies and therefore, would not have been possible without the efforts of dedicated researchers and clinicians in the field. The work of these individuals is acknowledged.

It is hoped that many people will benefit from the strategies covered in PI Therapy, and this would not have been possible without the experience I have gained from working with the many wonderful clients I have had the pleasure of meeting. It is from their own struggles, strength, and wisdom that I have been able to develop the foundations of PI Therapy.

I would also like to acknowledge and thank my wife and children who have patiently watched me spend hundreds of hours in front of the computer developing this program over the years. Their support is greatly appreciated. Also, to my friend and colleague, Stephen Smith, who has supported my efforts during this process and helped with the editing of this workbook, I would like to say thank you.

It is hoped that with the knowledge and skills you gain from PI Therapy it leads not only to improved mental health, but also a life full of meaning and purpose.

"An intelligent heart acquires knowledge, and the ear of the wise seeks knowledge"
Proverbs 18:15

"Great things are done by a series of small things brought together"
Vincent Van Gogh

Dr Adrian Lopresti

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Traditional Approaches to Treat Depression & Anxiety

Psychological therapy and pharmacological medications are the most commonly-used treatments for mental health disorders. There is a good body of research confirming that these interventions can reduce the suffering associated with depression, anxiety, and other mental-health disorders. Popular psychological therapies include Cognitive Behaviour Therapy (CBT), Acceptance and Commitment Therapy (ACT), Interpersonal Therapy (IPT), Schema-Focused Therapy, Dialectical-Behaviour Therapy (DBT), relaxation therapies, and psychodynamic therapy. The aim of most of these treatments is to modify unhelpful thoughts, beliefs, memories, and emotional coping strategies that can affect mood and mental health.

Pharmacological medications are also commonly used to treat mental-health disorders. These medications include antidepressants such as selective serotonin re-uptake inhibitors (SSRIs), mood stabilisers, and sometimes anti-psychotics. While we are still not totally certain how these medications work, it is most commonly believed that these medications modify specific neurotransmitters (brain chemicals) and hormones that can affect mood.

Although psychological and pharmaceutical interventions can be helpful for many people, they are far from perfect. In fact, they are equivalent in their efficacy and only 30 percent of adults will experience substantial benefit. Another 30 percent report moderate benefit, and the remaining 40 percent experience no benefit at all[1]. When these treatments don't work, more counselling sessions may be recommended, a new psychological treatment may be provided, or your medication dose may be increased, changed, or a new one added. Unfortunately, this approach is not very effective, particular when it comes to medications where there is a greater chance of worsening side effects.

About PI Therapy and How it Differs From Other Treatments

Personalised Integrative Therapy (PI Therapy) differs from psychological and pharmacological interventions as it aims to increase treatment success by utilising a multi-targeted approach. Psychological and pharmacological interventions may form a part of the treatment offered in PI Therapy, but they are not the only strategies used to enhance mental well-being. In PI Therapy, practitioners support changes in several domains. As shown in the figure on the next page, PI Therapy promotes changes in the following domains: psychology and coping skills; diet and nutrition; lifestyle and environment; social and spiritual; and biological and medical. PI Therapy is a treatment for depression and anxiety that adopts an integrative or 'holistic' approach to mental-health care. As will be outlined, it is based on several guiding principles.

Principles of PI Therapy

Multi-targeted approach

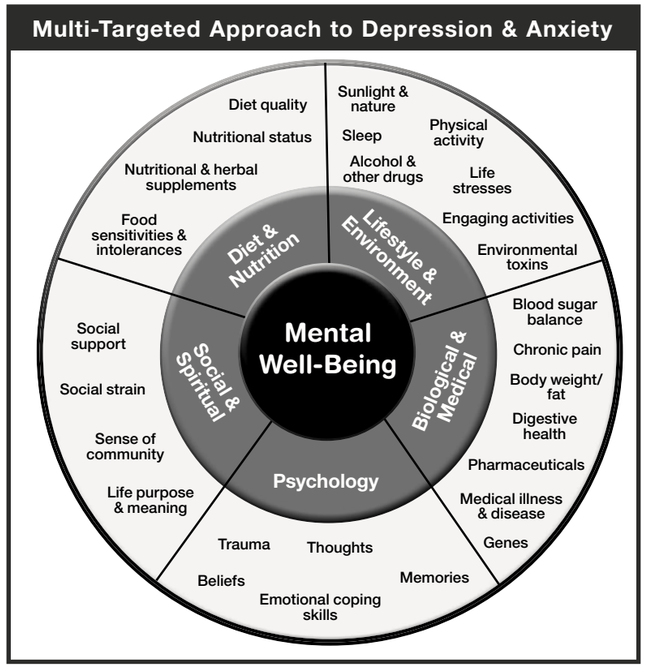
Rather than targeting just one area (e.g., medication or psychological skills), PI Therapy aims to improve mental health by promoting changes in several different areas. It is believed that many small changes in different areas are more effective, and often easier to achieve, than a dramatic change in a single area.

Changes are 'personalised'

In PI Therapy the targeted areas of change, and the intensity of change, are unique to each person. They are influenced by the areas in most need of change, the skills required to change, a person's motivation to change, barriers to change, and an individual's previous experience at change.

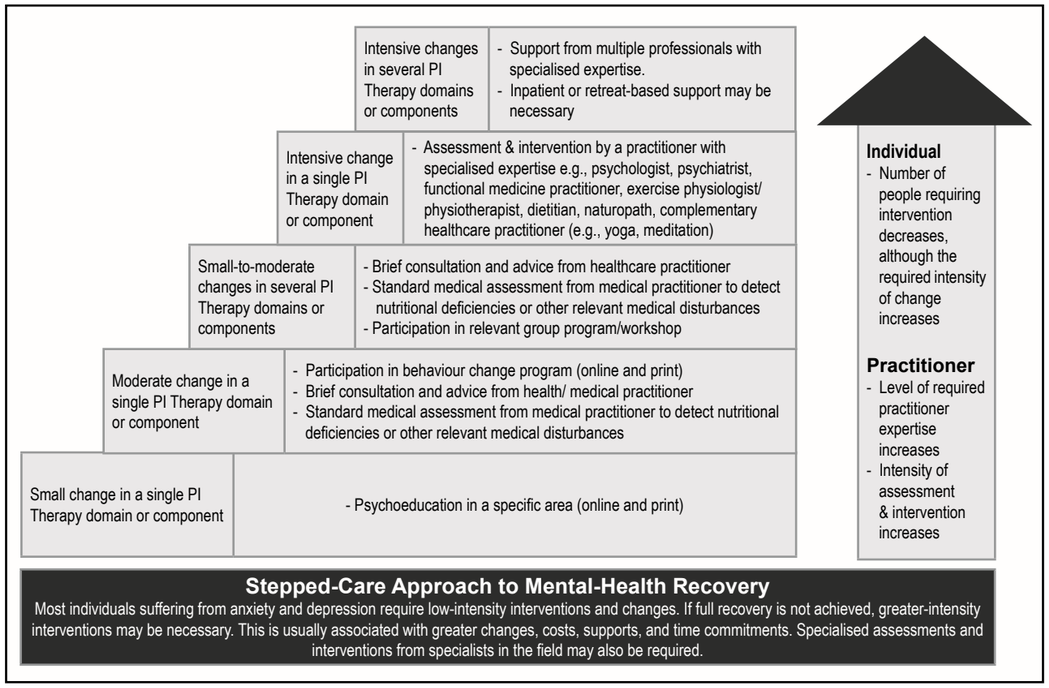
Treat causes not symptoms

Diagnostic labels such as 'major depressive disorder', 'panic disorder', and 'post-traumatic stress disorder', are not so important in PI Therapy. The key is to identify an individual's unique causes of mental-health problems. Having a diagnosis does not tell us anything about the unique factors that might be affecting someone's mood. Rather, efforts should focus on identifying and treating causes.



Stepped-care approach

In PI Therapy the intensity of interventions may increase over time (see the figure below). If sufficient mental-health improvement is not obtained after foundational changes, more intensive interventions may be introduced. For example, dietary changes, exercise, and psychological interventions will become more intensive over time if adequate mood improvements do not occur. If, at the end of this program/workbook, full symptom resolution does not occur, recommendations for further individualised assessments and treatments are covered in chapter 12.



How to Use This Workbook

There are several ways that you can use this workbook to help improve your overall mental and physical well-being. The options are outlined below:

Option 1

1. Identify your unique causes of depression and/or anxiety. This can be achieved by completing the checklist on page 14. In addition to this, it is recommended that you complete the online version of the Identification of Depression and Anxiety Causes Questionnaire (IDAC-Q). More details about the IDAC-Q are included in the next section.
2. After you have identified your unique causes(s), complete the exercises in the relevant chapters or sections associated with your identified cause(s). For example, if diet and coping skills are rated as potential causes, then complete those chapters first. For additional benefits, it is also helpful to work through all chapters in this workbook, but first concentrate on the causes that are most relevant to you.

"No matter which causes you identify, it is recommended you read chapter 2 (physiological disturbances associated with depression and anxiety) and chapter 3 (behaviour change and goal setting)."

Option 2

1. Work through each chapter in this workbook in a step-by-step fashion and complete the associated exercises. You may choose to change the order in which you work through each chapter based on how relevant or important you believe the section may be for you.

Option 3

1. If you are seeing a PI Therapy-trained practitioner, use this workbook based on his or her recommendations.
2. If you are seeing a health practitioner not trained in PI Therapy, use this workbook in conjunction with the treatment you are receiving from him or her. However, it is recommended that you inform your practitioner that you are using this workbook as a resource so that he or she is aware of its content
3. If you are receiving psychological therapy from a mental-health practitioner, you can concentrate on working through the other PI therapy domains (i.e., diet and nutrition; lifestyle and environment; social and spiritual; biological and medical). The same applies if you are receiving services from a medical-based practitioner. Simply work through the other relevant PI Therapy domains.

Some the resources used in this workbook can be downloaded at:
www.pitherapy.com.au/workbook_handouts

Identify Your Unique Cause(s) of Depression and/or Anxiety

Research confirms that depression and anxiety can be caused by several dietary/nutritional, lifestyle/environmental, psychological, social/spiritual, and biological/medical factors. Although our mental health can sometimes be caused by a single factor, often there are multiple possible causes. Identifying your unique cause(s) and making personalised changes are essential for improving mental health. You can identify your unique causes of depression and/or anxiety in the following ways:

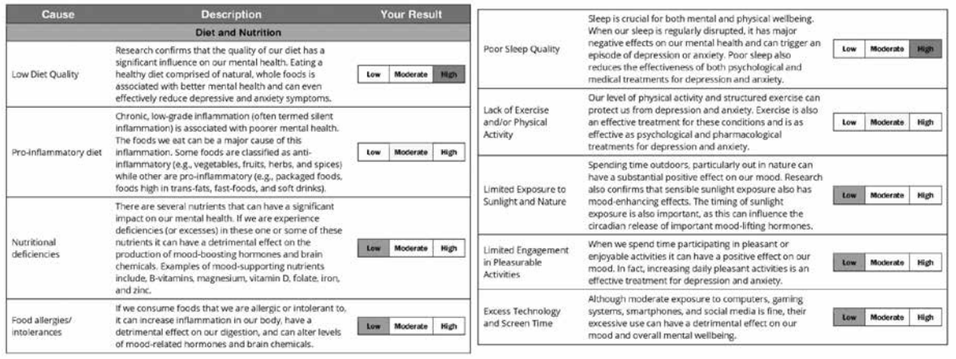
1. Complete the 'Identification of Depression and Anxiety Causes Questionnaire (IDAC-Q)'. The IDAC-Q is a 130-item, online questionnaire that helps you identify your unique cause(s) of depression and/or anxiety. It assesses components within the domains of: (1) Psychology & Coping Skills; (2) Diet & Nutrition; (3) Lifestyle & Environment; (4) Social & Spiritual; and (5) Biological & Medical to identify your cause(s) of depression and anxiety. A report is then created that you (and/or your treating practitioner) can use to develop an effective integrative treatment plan. Sample pages from the 5-page report are shown on the next page.

Visit www.pitherapy.com.au/questionnaire to complete the IDAC-Q.

2. Complete the checklist, 'My Potential Causes of Depression and/or Anxiety', located on the next page. Although you may not be able to accurately identify all causes, completing this checklist can lead you in the right direction. If you are uncertain about a cause, answer 'unsure'. You can then refer to the relevant section in this workbook to help work out if it may be a cause for you. It is best to use this checklist in conjunction with the IDAC-Q which is a far more comprehensive way to identify your causes.

3. If you are receiving treatment from a health practitioner, work with him or her to help identify your unique causes. It is recommended you still complete the IDAC-Q and the 'My Potential Causes of Depression and/or Anxiety' checklist. You can then share your results with your practitioner to help guide your treatment plan.

Sample pages from the IDAC-Q report



Cause	Description	Your Result
Diet and Nutrition		
Low Diet Quality	Research confirms that the quality of our diet has a significant influence on our mental health. Eating a healthy diet comprised of natural, whole foods is associated with better mental health and can even effectively reduce depressive and anxiety symptoms.	Low Moderate **High**
Pro-inflammatory diet	Chronic, low-grade inflammation (often termed silent inflammation) is associated with poorer mental health. The foods we eat can be a major cause of this inflammation. Some foods are classified as anti-inflammatory (e.g., vegetables, fruits, herbs, and spices) while other are pro-inflammatory (e.g., packaged foods, foods high in trans-fats, fast-foods, and soft drinks).	Low Moderate High
Nutritional deficiencies	There are several nutrients that can have a significant impact on our mental health. If we are experience deficiencies (or excesses) in these one or some of these nutrients it can have a detrimental effect on the production of mood-boosting hormones and brain chemicals. Examples of mood-supporting nutrients include, B-vitamins, magnesium, vitamin D, folate, iron, and zinc.	Low Moderate High
Food allergies/ intolerances	If we consume foods that we are allergic or intolerant to, it can increase inflammation in our body, have a detrimental effect on our digestion, and can alter levels of mood-related hormones and brain chemicals.	Low Moderate High

Poor Sleep Quality	Sleep is crucial for both mental and physical wellbeing. When our sleep is regularly disrupted, it has major negative effects on our mental health and can trigger an episode of depression or anxiety. Poor sleep also reduces the effectiveness of both psychological and medical treatments for depression and anxiety.	Low Moderate **High**
Lack of Exercise and/or Physical Activity	Our level of physical activity and structured exercise can protect us from depression and anxiety. Exercise is also an effective treatment for these conditions and is as effective as psychological and pharmacological treatments for depression and anxiety.	Low Moderate High
Limited Exposure to Sunlight and Nature	Spending time outdoors, particularly out in nature can have a substantial positive effect on our mood. Research also confirms that sensible sunlight exposure also has mood-enhancing effects. The timing of sunlight exposure is also important, as this can influence the circadian release of important mood-lifting hormones.	Low Moderate High
Limited Engagement in Pleasurable Activities	When we spend time participating in pleasant or enjoyable activities it can have a positive effect on our mood. In fact, increasing daily pleasant activities is an effective treatment for depression and anxiety.	Low Moderate High
Excess Technology and Screen Time	Although moderate exposure to computers, gaming systems, smartphones, and social media is fine, their excessive use can have a detrimental effect on our mood and overall mental wellbeing.	Low Moderate High

EXERCISE: If you have completed the IDAC-Q, enter the results of your potential causes in the relevant sections below

My Unique Cause(s) of Depression/ Anxiety as Identified by the IDAC-Q		
GREEN There is a low risk that this cause is affecting my depression and/or anxiety	**YELLOW** There is a moderate risk that this cause is affecting my depression and/or anxiety	**RED** There is a high risk that this cause is affecting my depression and/or anxiety

CHECKLIST: My Potential Causes of Depression and/or Anxiety

	Unsure	Very unlikely	Unlikely	Neutral	Likely	Very Likely	Relevant chapter in workbook
Diet and Nutrition							
Poor diet quality							chapter 5
Nutritional deficiencies							chapter 5
Food intolerances and sensitivities							chapter 5
Lifestyle and Environment							
Sleep problems							chapter 6
Physically inactive							chapter 7
Limited sunlight exposure							chapter 8
Limited time outdoors or in nature							chapter 8
Limited engagement in pleasurable activities							chapter 8
Excess screen time, social media, or technology use							chapter 8
High stress							chapter 8
Excess environmental toxin exposure							chapter 8
Limited participation in relaxing or soothing activities							chapters 8 & 9
Psychology and Coping Skills							
Ineffective coping skills							chapter 9
Unhelpful thoughts and beliefs							chapter 9
Social and Spiritual							
Limited social supports							chapter 10
Excess social strain							chapter 10
Lack of purpose or life meaning							chapter 10
Biological and Medical							
Suffer from medical conditions							chapter 11
Side effects from pharmaceutical medications							chapter 11
Avoidance of potentially beneficial medications							chapter 11
Sex hormone imbalance							chapter 11
Thyroid hormone imbalance							chapter 11
Blood sugar imbalance							chapter 11
Obesity or excess weight							chapter 11

Keep Track of Your Progress

As you progress through this workbook and complete the relevant exercises it is expected that you will experience improvements in your general mood and overall well-being. Completing a questionnaire on a regular basis can be an effective way to track your progress. On the next page is a validated mood questionnaire known as the Depression, Anxiety, and Stress Scale (DASS-21). This questionnaire is public domain and has been made freely available by the University of New South Wales (http://www2.psy.unsw.edu.au/dass/). It is recommended that you complete the DASS-21 every week to track you progress. A blank copy of this questionnaire is available in the appendix of this workbook for you to make copies. You can then track your scores in the table on page 16. Simply place a mark in the relevant cell indicating your score for the week. A separate table has been created for each score calculated from the DASS-21 (a blank copy is also included the appendix). Alternatively, **visit www.pitherapy.com.au/dass** to complete an online version of this questionnaire that automatically calculates and tracks your results.

DASS-21

Please read each statement and enter 0, 1, 2 or 3 in the **relevant white cell** to indicate how much the statement applied to you over the PAST WEEK. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all | **1** Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of the time | **3** Applied to me very much, or most of the time

	Depression	Anxiety	Stress
1. I found it hard to wind down			
2. I was aware of dryness of my mouth			
3. I couldn't seem to experience any positive feeling at all			
4. I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)			
5. I found it difficult to work up the initiative to do things			
6. I tended to over-react to situations			
7. I experienced trembling (eg, in the hands)			
8. I felt that I was using a lot of nervous energy			
9. I was worried about situations in which I might panic and make a fool of myself			
10. I felt that I had nothing to look forward to			
11. I found myself getting agitated			
12. I found it difficult to relax			
13. I felt down-hearted and blue			
14. I was intolerant of anything that kept me from getting on with what I was doing			
15. I felt I was close to panic			
16. I was unable to become enthusiastic about anything			
17. I felt I wasn't worth much as a person			
18. I felt that I was rather touchy			
19. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)			
20. I felt scared without any good reason			
21. I felt that life was meaningless			
Add up your scores for each column. Each total score provides a total measure for Depression, Anxiety, and Stress.			
Total			

What do the scores mean?	Normal	Mild	Moderate	Severe	Extremely Severe
Depression: Measure of low mood, sadness, hopelessness, life purpose/meaning, and interest/involvement in activities.	0-4	5-6	7-10	11-13	14+
Anxiety: Assesses physical anxiety symptoms such as changes in breathing and heart rate, trembling, dry mouth, and worry about panic.	0-3	4-5	6-7	8-9	10+
Stress: Measure of difficulty relaxing, nervousness, agitation, irritability, over-reaction to events, and impatience.	0-7	8-9	10-12	13-16	17+

Reference: Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety Stress Scales. (2nd. Ed.) Sydney: Psychology Foundation.

Progress of my DASS-21 scores

DEPRESSION Score

	1	2	3	4	5	6	7	8	9	10
21										
20										
19										
18										
17										
16										
15										
14										
13										
12										
11										
10										
9										
8										
7										
6										
5										
4										
3										
2										
1										
0										
	Weeks									

ANXIETY Score

	1	2	3	4	5	6	7	8	9	10
21										
20										
19										
18										
17										
16										
15										
14										
13										
12										
11										
10										
9										
8										
7										
6										
5										
4										
3										
2										
1										
0										
	Weeks									

STRESS Score

	1	2	3	4	5	6	7	8	9	10
21										
20										
19										
18										
17										
16										
15										
14										
13										
12										
11										
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3										
2										
1										
0										
	Weeks									

CHAPTER 2

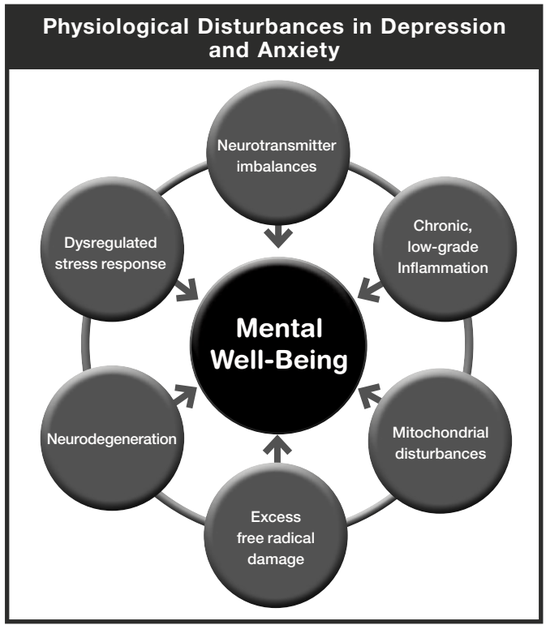
Physiological Disturbances Associated With Depression & Anxiety

1. Neurotransmitter imbalances
2. Dysregulated stress response
3. Chronic, low-grade inflammation
4. Excess free radical damage
5. Mitochondrial disturbances
6. Neurodegeneration
7. How to normalise physiological disturbances

Physiological Disturbances Associated With Depression & Anxiety

Depression, anxiety, and other mental-health disorders are associated with disturbances in several biological processes in the body. These are summarised in the figure below and include:

- Neurotransmitter imbalances
- Dysregulated stress response
- Chronic, low-grade inflammation
- Excess free radical damage
- Mitochondrial disturbances
- Neurodegeneration

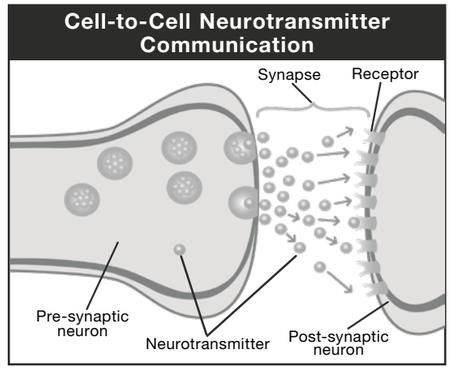


Each of these processes all affect each other which can lead to an escalation of problems over time. For example, inflammation affects neurotransmitter balance, increases free radical production, affects mitochondrial function, and reduces important proteins essential for the growth and plasticity of neurons. Excess free radical production also exacerbates inflammation, affects mitochondrial function, damages brain cells and influences neurotransmitter production. All these inter-relationships can lead to a snowballing effect where disturbances intensify over time.

There is no simple way to improve all these physiological processes and that is why a multi-targeted approach is essential. Research has confirmed that many of these disturbances are influenced by psychological, dietary, environmental, and lifestyle factors, which is why PI Therapy targets these areas.

Neurotransmitter Disturbances

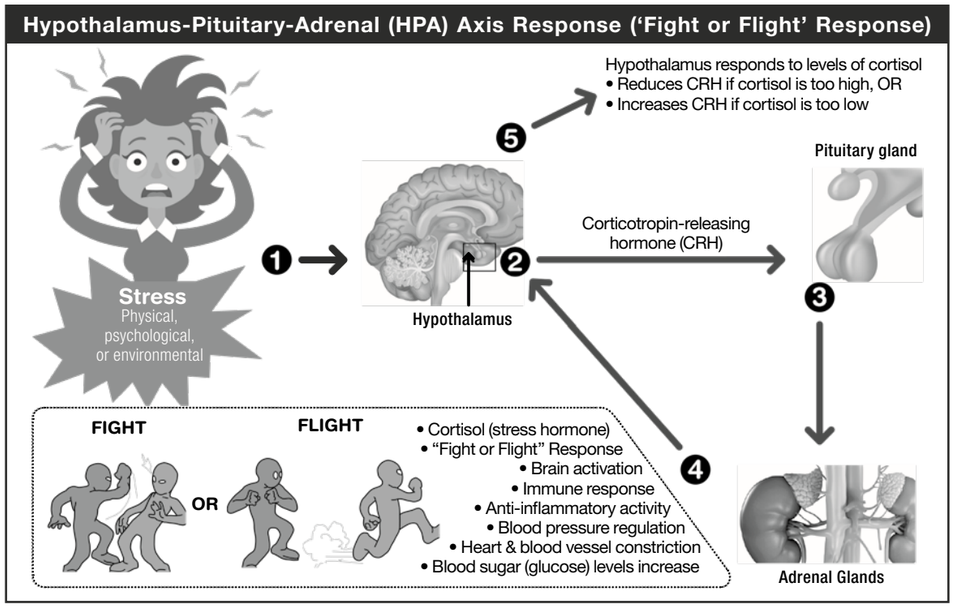
Neurotransmitters are chemicals that transmit signals across a synapse from one neuron (presynaptic neuron) to another, 'target' neuron (post-synaptic neuron). The neurotransmitter binds to a receptor on the post-synaptic neuron resulting in either an inhibitory or stimulatory action (neurotransmitters are stimulatory, inhibitory, or both). Neurotransmitters are important for cell-to-cell communication and too much, too little, or problems with receptors are associated with many diseases. Disturbances in neurotransmitter activity are the most popular biological theory for mental-health problems and the reason for the popularity of psychiatric medications, particularly antidepressants[1].



The most common neurotransmitters implicated in mental health disorders are:

- Serotonin – low levels are believed to result in anxiety and depression.
- Dopamine – this is our feel-good neurotransmitter. Low dopamine levels are associated with depression, attention problems, and addictions. High dopamine is linked with bipolar disorder and schizophrenia.
- Noradrenaline – low levels can lead to depression and attention problems, while high levels can increase anxiety.
- Gamma-aminobutyric acid (GABA) – low levels of this neurotransmitter are strongly associated with anxiety.
- Acetylcholine – this neurotransmitter is believed to affect memory and attention.
- Glutamate – excess levels of this neurotransmitter can increase anxiety and may be associated with schizophrenia and bipolar disorder.

Dysregulated Stress Response



Responding to stress is essential for our survival. It keeps us alive and helps us respond instinctively to a stressor. This process, known as our 'fight or flight' response, helps us deal with danger and is triggered by the communication between different organs in our body. Parts of our brain, known as the hypothalamus and pituitary gland, instruct our adrenal glands to release hormones (e.g., cortisol) to help our body respond

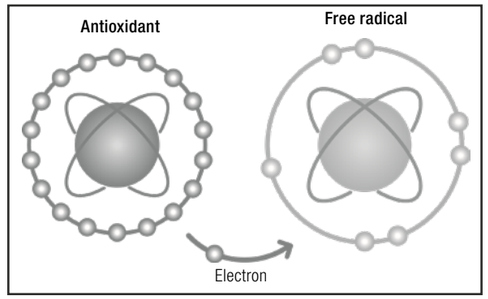
to the stress. This communication pathway is known as our HPA axis (Hypothalamus-Pituitary-Adrenal axis) and is summarised in the figure on page 19. Cortisol has numerous functions in the body and typically during danger, helps our body to either 'fight or flight'.

While this HPA axis response is imperative for our survival, many people with mental-health problems have dysregulated HPA axis activity[2]. This could mean an over-active HPA response, leading to excess levels of cortisol circulating in their body. Alternatively, some people can have an under-active HPA axis response, which leads to insufficient levels of cortisol. When it comes to our HPA axis, balance is the key, not too much or too little.

Chronic, Low-Grade Inflammation

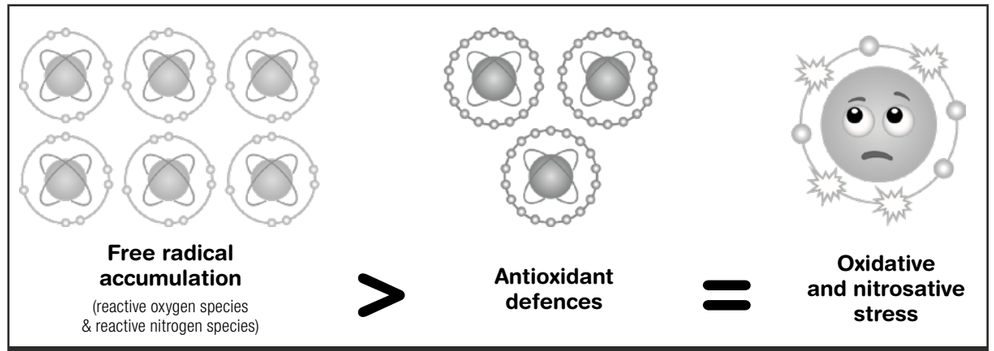
Inflammation is a necessary part of the body's response to injury and infection. It consists of cellular responses that help protect us from pathogens (germs) such as bacteria, viruses, or fungi; external injuries like scrapes or foreign objects (for example a thorn in your finger); and exposure to chemicals or radiation. Without inflammation we cannot fight disease or heal from infection or injury. An acute inflammatory response is associated with several signs including redness, swelling, pain, heat, and loss of function. However, mental-health problems are associated with chronic, low-grade inflammation[3]. This inflammatory response can linger for months to years and may not be associated with any of the signs of acute inflammation. That is why it is often called 'silent' inflammation. Chronic, low-grade inflammation can damage bodily organs, with the brain being particularly susceptible.

Excess Free Radical Damage (Oxidative & Nitrosative Stress)



Free radicals are unstable molecules with an unpaired electron. They are produced during normal cellular metabolism and have several important functions in the body. For example, at low levels, free radicals are involved in our defence system to help fight against disease. However, at high levels, free radicals can cause damage to all our cells and organs. Excess free radical production can occur when we are exposed to a range of lifestyle and environmental factors. Fried foods, excess alcohol, tobacco smoke, pesticide exposure, excess sunlight exposure, and pollution all produce free radicals. High levels of stress and suffering from a medical disease such as diabetes, obesity, cancer, and/or cardiovascular disease can also increase free radicals. Many diseases are associated with increased inflammation which is also a potent inducer of free radical production.

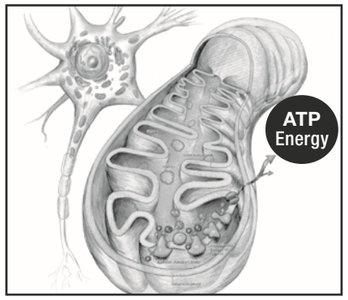
To guard against free radicals, we require antioxidants. Antioxidants quench free radicals by donating an electron to stabilise the free radical. Antioxidants can be produced endogenously (within our body) or exogenously (outside our body). Endogenous antioxidants include many antioxidant enzymes such at superoxide dismutase, glutathione peroxidase, and catalase. Our body also produces antioxidants such as glutathione, alpha lipoic acid, and coenzyme Q10. We can also increase antioxidant levels in our body by consuming high-antioxidant foods. Vitamins C and E, selenium, zinc, and flavonoids are derived from an array of foods including fruits, vegetables, herbs, spices, nuts, and seeds.



The Process of Oxidative and Nitrosative Stress

Unfortunately, many people with mental-health problems have low circulating levels of antioxidants and produce too many free radicals[4]. This may be due to dietary, lifestyle, and/or environmental factors. Genetics can also play a part as many people may have genes that do not produce antioxidant enzymes efficiently. As shown in the figure above, when free radical production is greater than antioxidant defences, a state known as oxidative and nitrosative stress (O&NS) results. This leads to a deterioration in cellular and tissue activity over time. Our brain is particularly susceptible to the damaging effects of O&NS.

Mitochondrial Disturbances



Mitochondria are one of many tiny structures, known as organelles, located in our cells. Mitochondria have several functions but are most often known as the 'engine room' of our cells. They are responsible for producing energy (ATP) to enable our cells and organs to function. They are also involved in cell division, cell growth, cell death, and neuroplasticity. They also influence neurotransmitter production and via the process of producing ATP, are the main endogenous source of free radicals. Mitochondria are found in all cells although numbers vary based on the metabolic demand of the cells. Due to their high energy utilisation, our muscle tissue, brain, and liver contain the highest number of mitochondria.

Mitochondrial disturbances have been found in people with mental-health disorders[5]. This means that the energy production required for essential biological processes is impaired. When mitochondrial function is disturbed it can also result in excess production of free radicals, affect neurotransmitter levels, and damage brain cells.

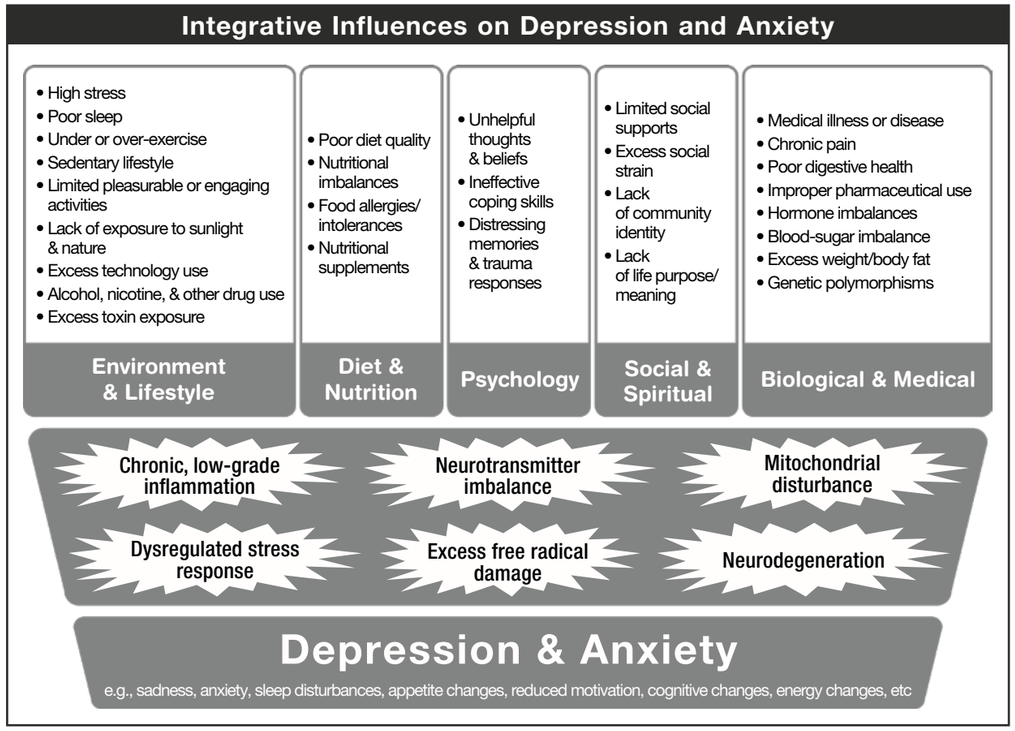
Neurodegeneration

It was previously believed that when our brain is damaged it is unable to repair itself. Whether the damage is from disease, an accident, or simply the process of normal ageing, it was thought that neurons could not regrow. However, it has now been confirmed that the brain is indeed modifiable (known as neuroplasticity) and certain brain regions are able to regrow. Eating a healthy diet and engaging in regular physical activity are some ways to help rebuild brain tissue. This is because these activities increase levels of brain-building proteins

known as neurotrophins. Neurotrophins are essential for supporting the growth, survival, and differentiation of neurons. One neurotrophin important for brain support is known as brain-derived neurotrophic factor (BDNF). Levels of BDNF have been found to be lower in people with psychiatric disorders. As time progresses, having low levels of BDNF can negatively impact the brain's ability to build and repair itself. In fact, studies have indicated that as the number of depressive episodes increases in adults, neuronal degeneration increases. The balance between neuronal repair and growth from neurotrophins is overrun by brain degeneration, leading to a state of 'neuroprogression.' Mental-health disorders are associated with reductions in brain volume, and there are volumetric changes in various brain regions including the hippocampus, amygdala, prefrontal cortex, anterior cingulate, and basal ganglia[6].

How To Normalise Physiological Disturbances

It is often incorrectly believed that the only way to treat biological problems is by using biological or medical interventions. However, this could not be further from the truth. While many of the physiological disturbances associated with mental-health problems are influenced by medical and physical factors, they can also be strongly affected by lifestyle, environmental, social, psychological, and dietary behaviours and habits[7]. In the figure below, components of PI Therapy are detailed. All these components have a significant effect on one or more physiological disturbances. Consequently, by making positive changes in these areas you will be able to normalise your biology.



CHAPTER 3

Behaviour Change & Goal Setting

1. SMART goals
2. Overcoming barriers to behaviour change
3. Managing high-risk times, people or situations
4. The importance of self-monitoring

Develop SMART Goals

Changing our behaviour can be difficult. It becomes even harder when we are suffering mentally or physically. That is why it is important to spend time learning how to develop effective goals that can increase the likelihood of change. Identifying your unique barriers to change is also important. This will help you plan strategies to minimise or overcome those barriers.

If we don't allocate adequate time and attention to goal setting, behaviour change becomes less likely. Research shows that how we set goals is important, and the acronym 'SMART' can be used to help establish effective goals that support behaviour change.

Specific • Measurable • Action-Oriented • Realistic • Time-Limited

Specific: Goals should be specific, broken down into small steps, and detail how, when, where, and with whom, it will be done.

× *General goal: Eat healthier*
✓ *Specific goal: Eat 2 pieces of fruit every day*

Measurable: Goals should be described in sufficient detail so that you (or others) can assess whether it has been achieved. If someone read your goal and had to assess whether you achieved the goal, could he or she do this?

× *Unmeasurable goal: Increase exercise*
✓ *Measurable goal: Walk for at least 30 minutes, 5 times a week*

Action-Oriented: Goals should involve changes in behaviour. This means that it involves actionable steps that you are striving for.

× *Non-action-oriented goal: Think more positively*
✓ *Action-orientated goal: Write down 3 things I am thankful for every day*

Realistic: Goals need to be realistic and attainable. If a goal is too difficult and/or requires too much change, it is less likely to be attained. It is better to gradually increase the intensity of the goal over time rather than expect one big change at once. Questions that should be considered include: Based on your current behaviour, current skills, support system, and life circumstances, is the goal realistic? Also, is the goal within your control or do you need to rely on others to achieve it? Have you also considered any barriers that might stop you from achieving the goal and can they be modified?

× *Unrealistic goal: (If not currently exercising) Exercise every day for at 60 minutes*
✓ *Action-orientated goal: (If not currently exercising) Take the stairs at work rather than the lift*

Time-Limited: Goals should be time-bound, where a specific time is set to achieve the goal. Detail the hours, days, or weeks you are striving for.

× *Unspecified time-limited goal: Spend time outside in nature*
✓ *Time-limited goal: For the next week, eat breakfast every morning outside*

Overcoming Barriers to Behaviour Change

While setting SMART goals are important for increasing the likelihood of change, there are also several personal, social, environmental, lifestyle, and physical factors that can potentially reduce our likelihood of change. If you are finding it to difficult change your behaviour, lack the motivation to change, or keep reverting to old habits, it may be helpful to complete the 'Health Behaviour-Change Checklist' on the next page. This checklist can help you identify potential barriers preventing you from either starting or maintaining changes.

Health Behaviour-Change Checklist

Complete the checklist below by: (1) Detailing the behaviour you want to change; (2) Detailing the outcome(s) or goal(s) you are hoping to achieve by changing the behaviour; (3) Placing a mark in each column associated with each statement; (4) Listing potential solutions to overcome identified barriers to change. If you are seeing a mental-health practitioner you may want to develop potential solutions with him or her.

Behaviour you want to change (your SMART goal):

Outcome(s) or goal(s) desired from behaviour change and/or the outcome(s) you are attempting to avoid:

	NA	Very Low	Low	Neutral	High	Very High
Your level of confidence that you can change the behaviour						
Your strength of belief that you have control over the behaviour						
Your strength of belief that change will lead to your desired outcome(s) specified above						
The level of value/importance you place on the desired outcome(s) specified above						
How much you want to get better						
How many cues or triggers there are in your environment to engage in your current behaviour (stay the same)						
How many cues or triggers there are in your environment to engage in your new, desired behaviour						
The level of reward or reinforcement there is for engaging in your current behaviour (staying the same)						
The level of reward or reinforcement there is for engaging in your new, desired behaviour						
Your level of perceived costs of engaging in your current behaviour (staying the same)						
Your level of social pressure/influence to engage in your current behaviour (staying the same)						
Your level of social support to engage in your new, desired behaviour						
Your strength of role models to support change						
The impact of your culture or family upbringing						
The level of environmental barrriers to change						
The level of physical, medical, or health barriers to change						
The level of emotional barriers to change						
The level of professional supports you have to change						

List below any factors you have identified that may be adversely affecting your likelihood of change	List below any potential solutions to overcome these barriers

Managing High-Risk Times, People, or Situations

There are times or situations that can make it more difficult to stick to desired behaviours. Identifying these high-risk times is important so we can develop effective management plans. As you work through each chapter in this workbook and develop goals for change, think about any particular places, times, people, and physical or mental health states that can make it more difficult for you to stick to your desired goals. If you identify any, record these in your self-monitoring form under the 'initial or future planning required' column. Here are some examples of common situations or settings that can make it more difficult for people to stick to their goals:

- Being around certain people
- A specific time of the day
- In a specific place, setting, or environment
- In a specific mood state e.g., sad, anxious, overwhelmed, or bored
- In a specific physical state e.g, hungry, tired, or in pain
- During a particular time of the year e.g., Christmas or holidays
- After a particular kind of day e.g., after a long day at work

It is important to remember that during your journey toward change, lapses will likely occur. These are times when you may revert back to old behaviour patterns. For most people, the issue is not the lapse, but the response to the lapse. Whether a lapse turns into a full-blown relapse is influenced by your thoughts and beliefs about it. If you see it as a common experience, are not too hard on yourself, and learn from the experience, it can actually be quite positive. However, if you beat yourself up about it, then giving up is going to be more likely. Be aware of your self-talk during these situations, as it can have a significant influence on your likelihood of ongoing change.

The Importance of Self-Monitoring

A final important ingredient associated with behaviour change is self-monitoring. When people record their goals and regularly monitor how they are progressing with them they have an increased chance of successfully changing. It is therefore important to write down your SMART goal(s) and regularly monitor your progress toward them. Although it depends on the specifics of the goal you have set, daily monitoring is usually recommended. As a result, it is strongly recommended that you record your goals in the self-monitoring forms included at the end of this workbook. It is also important to list any initial or future planning you need to do to help you overcome or minimise barriers, deal with high-risk situations, or respond to lapses. There are 10 weeks of Goal-Monitoring Forms at the end of this workbook to help you track your progress. In addition, you can monitor your progress by downloading a goal-monitoring application on your smartphone or computer. A sample example goal sheet is included below:

Goal-Monitoring Form

Goal	Initial or future planning required	Days						
		Mon	Tue	Wed	Thu	Fri	Sat	Sun
Drink no more than 1 soft drink a day	*- Reduce availability of soft drinks at home*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Eat at least 3 servings of vegetables a day	*- Purchase different vegetables so that they are in the home.* *- Add vegetables to dinner*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Participate in a brisk walk for at least 30 minutes, 5 times this week	*- Buy a pair of comfortable shoes* *- Ask Michelle if she wants to walk with me* *- Walk in the morning before it gets too hot*	*No*	*Yes*	*Yes*	*Yes*	*Yes*	*No*	*Yes*
Start taking B vitamins, probiotic, fish oil, and saffron capsules	*- Go to the health-food store or pharmacy tomorrow to purchase the supplements* *- Keep supplement bottles on kitchen bench as a reminder*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Go to bed before 10pm every night	*- Keep an alarm on my phone to remind me*	*Yes*	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*

CHAPTER 4

Improve Your Diet & Nutrient Levels

1. The food and mood connection
2. Mood-lifting nutrients
3. How diet and nutrients affect mood
4. Inflammatory foods and mental well-being
4. Food allergies and intolerances

The Food and Mood Connection

Research into the relationship between diet and mental health has confirmed that what we eat can have a significant effect on our mood and overall mental well-being. Eating a healthy diet can reduce the risk of ever suffering from depression and anxiety, and may effectively improve mood in people already suffering from these conditions[1]. In terms of healthy diets, most of the research has investigated the effects of a Mediterranean-based diet on depression and anxiety. The findings so far have been impressive. People who eat a traditional Mediterranean diet have a significantly reduced risk of suffering from depression, anxiety, and even the more chronic mental-health disorders such as schizophrenia and bipolar disorder[2]. A Mediterranean diet is comprised of a high intake of fruits, vegetables, whole grains, legumes, nuts, olive oil, herbs and spices; a moderate intake of fish, poultry, eggs, cheese, yogurt, and red wine; a low intake of red meat; and an infrequent intake of sugary and processed foods (the characteristics of a Mediterranean diet are included at the end of this chapter). On the other hand, eating a Western diet comprising packaged and processed meals; foods high in added sugar; take-away foods, soda drinks, and a limited fibre intake increases the risk of mental-health problems. Given the strong link between the body and brain, what we eat not only affects our physical health but also has a profound impact on our mental health.

LOWER risk of depression and anxiety associated with HIGHER intake of:	HIGHER risk of depression and anxiety associated with HIGHER intake of:
✓ Mediterranean-type diet ✓ Fish ✓ Fruits and vegetables ✓ Whole grains ✓ Olive oil ✓ Low-fat dairy foods ✓ Anti-inflammatory foods ✓ Foods high in antioxidants ✓ Moderate caffeine intake (depression) ✓ Dietary flavonoids (compounds that occur naturally in plant foods including fruits, vegetables, grains, herbs, and beverages)	✓ Red and/or processed meat ✓ Refined grains ✓ Sweets ✓ Take-away foods ✓ High-fat dairy products ✓ Soda drinks ✓ Energy drinks ✓ Inflammatory foods ✓ Artificial additives and sweeteners

Mood-Lifting Nutrients

Our mood is not only affected by the quality of our diet but can also be influenced by our body's nutritional balance. If we are low in essential nutrients it will greatly impact our body's ability to produce mood-lifting hormones and neurotransmitters. Additionally, an excess intake of certain nutrients can adversely affect our mental health. Although all nutrients are likely to have an influence on our mental health, some of the primary nutrients are listed below:

- **B vitamins** – these have hundreds of roles in the body and low levels of most B vitamins have been found in people with depression and anxiety[3]. Vitamins B_3, B_6, and B_{12} are particularly important for mental health.
- **Folate** – while this is a type of B vitamin (vitamin B_9), it is often discussed separately to the other B vitamins. Folate is often low in people with depression, and supplementing with folate may have a positive effect on mood[4]. Some people have genes (known as a polymorphism) that reduce their ability to convert folate into its active form in the body. This disturbance is called a methylenetetrahydrofolate reductase (MTHFR) polymorphism. Folate needs to be converted into its active form to be used by most enzymes in the body.
- **Magnesium** – this mineral is essential for the activity of hundreds of enzymes in the body. Low magnesium levels have been found in people with depression and anxiety. Magnesium levels may be low due to a low dietary intake, although high stress (physical or mental) can also reduce magnesium stores. Magnesium supplementation can also have positive mental-health effects[5].
- **Zinc** – this is another mineral required for hundreds of enzymatic reactions in the body. Low zinc levels have been found in people with depression[6]. There has not been a lot of research investigating the effect of zinc supplementation on mood, although given its many roles in the body, having adequate levels is likely to be important.

- **Omega-3 fatty acids** – this nutrient is derived mostly from fish but is also found in nuts and seeds. There has been a great deal of research examining the role of omega-3 fats on mental health with most of it confirming its crucial role. Lower omega-3 levels have been found in people with depression and other mental health disorders. Most of the clinical trials investigating the effects of supplementation with omega-3 fish oil have been positive[7].
- **Iron** – low levels of iron can affect energy levels as it is required for the transport of oxygen throughout the body (it is a component of haemoglobin, the oxygen-carrying protein in red blood cells). When iron levels are clinically low, a diagnosis of iron-deficient anaemia results. Children, menstruating women, and older-age adults are susceptible to low iron levels. People on vegetarian diets are also at increased risk of low iron levels.
- **Vitamin D** – a deficiency of vitamin D, which is mainly derived from sunlight, can have a negative effect on mood. Low levels have been found in people with depression and may increase the risk of seasonal depression (often referred to as seasonal affective disorder or the 'winter blues')[8].
- **Protein/ amino acids** – when we eat protein our body breaks it down into amino acids. Amino acids are the building blocks of mood-lifting neurotransmitters such as serotonin and dopamine. In particular, the amino acids tryptophan, tyrosine, and phenylalanine are important for mood. Research has shown that if you expose a person with a history of depression to a diet low in tryptophan (required for serotonin production), it significantly increases his or her risk of relapse[9].

These are the primary nutrients that can affect our mental well-being, although this list is not exhaustive. Being deficient, or having excess levels of most vitamins, minerals, fats, and amino acids, are likely to affect our mental and physical well-being. Other nutrients of note include copper (excess levels in particular), selenium, coenzyme-Q10, vitamin E, and calcium.

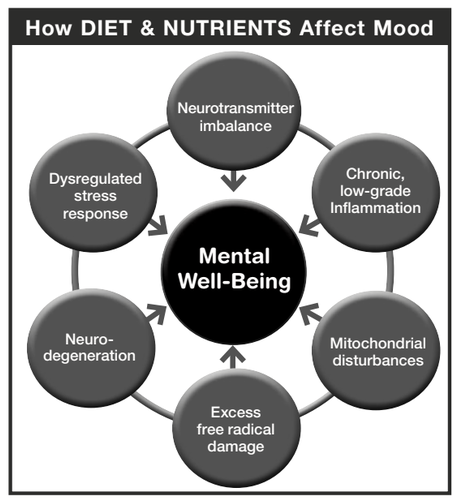
EXERCISE: Assess your intake of mood-lifting nutrients by completing the "Sources of Important Mood-Lifting Nutrients Checklist" at the end of this chapter (page 34)

RECOMMENDATION:

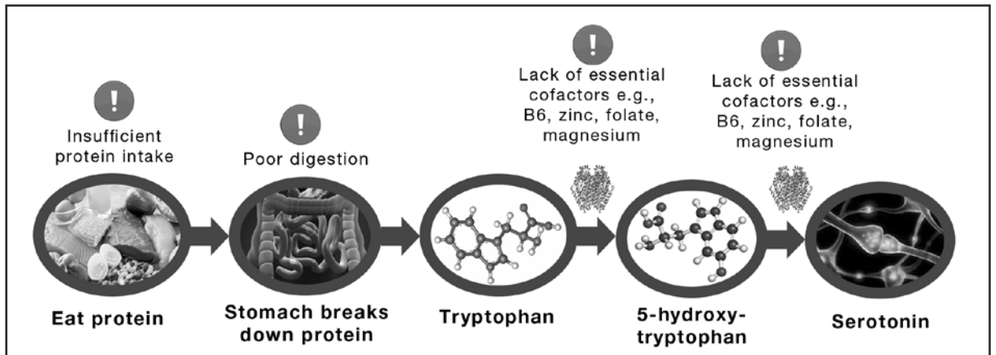
If you suspect that you may be low in some of these mood-lifting nutrients, it is recommended you undergo some blood tests. Examples of commonly-used blood tests include iron studies (your ferritin score is a measure of your iron stores), vitamin B_{12}, vitamin D, and folate. There are also specialised nutritional tests that can also be arranged by a nutritional or functional medicine practitioner to help identify nutrient deficiencies (see chapter 12 for more details).

How Diet & Nutrients Affect Mood

The quality of our diet and our nutritional balance is important because of its effects on all the physiological mechanisms associated with mental health[10]. These are outlined below:



- **Neurotransmitter production and activity** – as shown in the figure below, nutrients can affect the production of neurotransmitters such as serotonin. The amino acid, tryptophan, derived from protein, starts the process. Therefore, if we eat a diet low in protein, tryptophan levels will be reduced. In the second step, protein is digested and broken down into tryptophan. Healthy digestion requires good levels of zinc, so if you are low in it, then the digestive process is affected. Tryptophan is then converted into 5-hydroxytryptophan (5-HTP) and then to serotonin. Enzymes such as tryptophan hydroxylase and amino acid decarboxylase are required for this conversion. These enzymes require healthy levels of vitamin B6, zinc, folate, and magnesium, just to name a few. If we are low in these nutrients, then the conversion into serotonin is impaired. A similar process occurs for dopamine production, except phenylalanine and tyrosine are the amino acids required to begin the process.



The Relationship Between Diet, Nutrients, and Serotonin Production

- **Inflammation** – the foods we eat can have an anti-inflammatory or pro-inflammatory effect in our body. A Western diet is comprised of mostly pro-inflammatory foods while a Mediterranean diet contains many anti-inflammatory foods. Foods that we are intolerant to can also increase inflammation and therefore, may have a negative effect on our mental health. This will be covered in the next section. In one study it was shown that women eating an anti-inflammatory diet had a 20% lower risk of developing depression compared with women eating a pro-inflammatory diet[11].
- **Antioxidants/ free radical damage** – foods such as fruits, vegetables, herbs, and spices are loaded with antioxidants. Therefore, consuming a diet high in these foods will have a positive effect on antioxidant activity. Conversely, eating foods high in sugar, trans fats, additives, and artificial flavours can increase free radical production.
- **Mitochondria** – the quality of our diet affects our mitochondrial function. Western diets impair mitochondrial function while a healthy diet enhances their activity.
- **Stress response/ HPA axis activity** – our diet can also affect the activity of our HPA axis. This is paradoxical because a Western diet, which is pro-inflammatory, increases levels of cortisol (which serves as an anti-inflammatory hormone). Unfortunately, excess cortisol can negatively affect stress and mood.
- **Neurodegeneration** – certain foods also influence levels of neurotrophins such as BDNF. For example, omega-3 fatty acids increase BDNF, while a high-fat intake (mostly of bad fats) lowers BDNF.

Inflammatory Foods and Mental Well-Being

Research has confirmed that foods and nutrients can influence inflammatory processes in our body. As a result, many foods can be classified based on their inflammatory effects in our body. Anti-inflammatory foods and nutrients include magnesium, curcumin (from turmeric), omega-3 fatty acids, saffron, garlic, zinc, and the B vitamins. Pro-inflammatory foods include foods high in refined sugars, white breads and pasta, and foods high in artificial colours and additives. Research has also confirmed that consuming a high-calorie diet can be very inflammatory. For a more comprehensive list of anti-inflammatory foods and nutrients, refer to the "Anti-inflammatory Foods and Nutrients Checklist" at the end of this chapter.

As there is a strong link between inflammation and mental health-disorders, researchers have investigated the effects of inflammatory foods on depression and anxiety. Overall, the results have confirmed that eating an 'anti-inflammatory diet' is associated with a reduced risk of developing depression and anxiety. However, eating a 'pro-inflammatory diet' increases the risk. In fact, the results from almost 50,000 adults showed individuals eating a pro-inflammatory diet compared to an anti-inflammatory diet had a 23% higher risk of depression. This association was particularly strong in women[12].

EXERCISE: Assess your intake of anti-inflammatory foods by completing the "Anti-Inflammatory Food and Nutrients Checklist" at the end of this chapter (page 35)

EXERCISE: Assess your overall diet quality by completing the "Diet Quality Checklist" at the end of this chapter (page 36)

Food Allergies and Intolerances

It has been said that, "One man's medicine is another man's poison". This is certainly the case when it comes to food. Some people can eat a specific food and have no problem, while another person may experience a fatal reaction. There is increasing research suggesting that food allergies and intolerances may be more common in people with depression, anxiety, and other mental-health problems[13]. This may contribute to symptoms of depression and anxiety as food intolerances can contribute to inflammation and may have detrimental effects on digestive health.

While food allergies are easy to identify, given their rapid and severe onset, identifying food intolerances can be more difficult. The table below details the common characteristics and symptoms associated with food allergies and intolerances. Some of the more common food culprits are listed below:

- ✓ Gluten (protein found in wheat and related grains)
- ✓ Peanuts
- ✓ Fish & shellfish
- ✓ Soy
- ✓ Tree nuts (e.g., walnuts, pecans, almonds)
- ✓ Strawberries
- ✓ Corn
- ✓ Milk/ dairy
- ✓ Eggs
- ✓ Citrus fruits
- ✓ Nightshades (e.g., eggplant, tomatoes, capsicum)
- ✓ Monosodium glutamate (MSG) (additive code 621, but avoid 620 to 625). This is bad for everyone!

FOOD ALLERGY	FOOD INTOLERANCE
Characteristics	
✓ Usually comes on suddenly ✓ Small amount of food can trigger a response ✓ Happens every time the food is eaten ✓ Can be life-threatening	✓ Usually comes on gradually, sometimes 24 to 48 hours later ✓ May only happen when a lot of the food is eaten ✓ May only happen if the food is eaten often ✓ Is not life-threatening
Common Symptoms	
✓ itching, burning, and swelling around the mouth ✓ runny nose ✓ skin rash (eczema) ✓ hives (urticaria – skin becomes red and raised) ✓ diarrhoea, abdominal cramps ✓ vomiting, nausea ✓ chest pain ✓ swollen lips or tongue, which can make it hard to breathe ✓ swollen face, including swelling of eyelids and face ✓ anaphylaxis or anaphylactic shock	✓ nervousness, tremor ✓ tiredness ✓ sweating ✓ heart palpitations ✓ headache or migraine ✓ diarrhoea ✓ burning sensations on the skin ✓ tightness in the face and chest ✓ breathing problems ✓ gas, cramping, stomach bloating, or mild nausea ✓ heartburn

Are there any foods you may be intolerant to?

In the section below, list any foods you think you may be intolerant or allergic to. If you are not sure, take note of the symptoms in the previous table and monitor their occurrence over the next few weeks. Take note of any foods that might be linked to their onset and record them below.

Chapter Summary

Eating a healthy, anti-inflammatory diet can reduce the risk of ever developing depression and/or anxiety, and can effectively improve symptoms in people currently suffering from those conditions. Included in this chapter are several questionnaires and exercises to help you better assess the quality of your diet, and the potential of nutrient deficiencies and food intolerances contributing to your mental-health issues. It is important that you complete the exercises and questionnaires in this chapter to help you better develop effective diet and nutritional goals for change. To help support your goal setting, included at the end of this chapter are the information sheets 'Modified Mediterranean Diet' and 'Ingredients for a Mood-Boosting Smoothie'. While setting your goals, it is important to consider your unique circumstances, which includes your motivation level. Remember that even small dietary changes can have positive effects on your mood over time.

You are encouraged to review some of the questionnaires, exercises, and information sheets in this chapter to help set SMART goals for change. Create 3 to 5 goals for change (refer to chapter 3 on goal setting and behaviour change) that you can aim for every week. Setting more dietary goals is fine, however, it is important that they area realistic and achievable. Below is a summary of tasks and topics covered in this chapter.

Chapter Topics and Tasks

	Mark if completed
1. The food and mood connection	
2. Mood-lifting nutrients	
- EXERCISE: Sources of Important Mood-Lifting Nutrients Checklist	
3. How diet and nutrients affect mood	
- EXERCISE: Anti-Inflammatory Food Checklist	
- EXERCISE: Diet Quality Checklist	
4. Food allergies and intolerances	
- EXERCISE: Are there any foods you may be intolerant to?	
5. EXERCISE: Develop diet, nutrition, and supplement goals	
- INFO SHEET: Modified Mediterranean diet	
- INFO SHEET: Ingredients For A Mood-Boosting Smoothie	

Develop Goals to Improve Your Diet and Nutrient Levels

1. **Brainstorm POTENTIAL diet, nutritional, and supplement changes you could make.** Based on the topics, exercises, and questionnaires included in this chapter, list potential changes you could make over the coming weeks and months in the section below. Some ideas to consider include:
   - Increasing your intake of anti-inflammatory foods
   - Decreasing your intake of pro-inflammatory foods
   - Increasing your intake of foods high in mood-lifting nutrients (also consider getting a blood test)
   - General dietary improvements (based on the diet quality checklist)
   - Identifying and avoiding food you may be intolerant to
2. **Develop Your Weekly SMART Goals:** Using the potential goals you have listed below, set some SMART goals you will work on this week. It is recommended you set 3 to 5 goals for change. However, more goals are fine if you believe they are achievable. Write these SMART goals in the relevant column in the Goal-Monitoring Form (6 weeks of Goal-Monitoring Forms are included at the end of this workbook on pages 154-165).
3. **Plan Ahead:** When you set your goals, consider any planning or things you need to do to help you achieve your goal. Also, think about any potential barriers to change and how you will overcome these. Write your plan in the relevant column on the Goal-Monitoring form.
4. **Track Your Progress:** Place this workbook somewhere you can regularly see it. It is also a good idea to make a copy of your completed Goal-Monitoring Form and place it somewhere as a reminder (e.g., on your fridge). At the end of every day (or at another time convenient to you) record how you went in achieving your goals. If you were not successful with a specific goal don't be hard on yourself; just think about what went wrong and how you can prevent it from happening the following day.

Potential Diet & Nutritional Changes I Could Make