

## **Reviews of *Sustainable Medicine***

This book grabbed my attention from the first page and kept me fascinated right to the very end. Dr Myhill sees many of the current 'diagnostic' and 'treatment' practices in modern medicine to be unsustainable because they do not actually deal with the real underlying causes of ill health. This argument is explained so clearly and carefully that it is impossible to disagree with it. God! I hope the medical profession sit up and listen.

Dr Myhill at one point describes this book as "...the end result of 30 years of trial and error". This description doesn't come close to the achievement that it represents. She has managed to pull off the near impossible and has packaged up an overall blueprint for good health. This blueprint can help patients recover from a wide range of conditions and forms a platform for future good health. It's a tour de force!

If you are sick of being sick then this book could transform your life. However, it can also be used by people who are fit and well in order to remain so to a ripe old age.

Paul Robinson, Author of *Recovering with T3*

Dr Myhill addresses the principle causes for the current epidemic of chronic diseases in the Western World and outlines in her unique, no-nonsense way how to explain, prevent, diagnose and successfully treat those conditions for which conventional medicine currently only has an ever increasing amount of potentially dangerous medicines to offer.

This book is an invitation for patients and practitioners alike to move away from a culture of ignorance, restrictive guidelines and blame and to make informed decisions and take responsibility for their own health again.

Dr Franziska Meuschel MD, PhD, ND, LFHom

This is Sarah's *Principia*; the science, the medicine and the understanding are all hers. My contributions as Editor were limited to the typographical, the organisational, and some of the quotations. It was a pleasure to be involved in this project both to witness how a truly unique, caring and great mind comes to an understanding of the labyrinth of modern disease processes and then also to be party to the thought patterns that the said mind undertakes in order to develop sustainable treatments for those diseases. It is not for the Editor to advise the reader, but I shall break with protocol; perhaps it is personal to me, but I gained most from this book by reading it in one sitting and would suggest that, if possible, others do likewise. Thereafter one can 'dip in' at will. Your Good Health!

Craig Robinson MA (Oxon) ACA

# Sustainable Medicine

Whistle-blowing on  
21st-century medical practice

*'This book is dedicated to my lovely patients who embraced my practice of medicine and stuck with me even when my ideas were rotten ones.*

*Bless them all! I am so sorry that it took me so long to start to identify the paths to recovery.'*

# Sustainable Medicine

Whistle-blowing on  
21st-century medical practice

Dr Sarah Myhill MB BS



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*'If I have seen further it is by standing on the shoulders of giants.'*

Sir Isaac Newton (1642–1727)

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Dr Ellen Grant put me right early on over the dangers of the Pill and HRT. I spent hours talking to Dr Dick van Steenis and learned so much about pollution of the environment and its medical consequences. I believe that between them these two doctors, in recent history, have done more for the Health of the Nation than any others.

The giant amongst the giants is Dr John McLaren-Howard, from whom I have learned more than from all others put together. I can ask the difficult questions but it takes a genius to come up with answers which are clinically applicable, relevant and available. His knowledge is encyclopaedic and he is so generous with his time and energy.

Dr Norman Booth had sufficient faith to collate hundreds of

## Acknowledgements

statistics and apply the necessary academic rigor to turn those into publishable material to demonstrate the power of nutritional medicine. Thank you, Norman!

I judge the worth of a lecture or a book by the degree to which it shapes my thinking and changes my clinical practice. New ideas which have been original, instructive and helpful have come from:

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Medical practice is called that for good reason – the poor patients suffer whilst we doctors practise. A million thanks are due to my long-suffering patients who put up with, and stuck with, the difficult regimes that I imposed on them. It is the patients who do not respond to the bleedin' obvious who suffer most but from whom I have learnt most.

Finally, a major thank you to Terry Ellison, who built and maintained my website with his expertise given free and freely, and to my editor Craig Robinson, first-class mathematician and logical brain, who helped me to turn my clinical meanderings into an understandable and coherent form. I would not have won my intellectual battles without his brilliant and logical mind.

# Who am I?

I qualified as a doctor from the Middlesex Hospital Medical School in 1981 (Medicine with Honours). I went straight into NHS General Practice and worked there for 20 years. Since 2000 I have worked as a private GP. For 17 years I was the Honorary Secretary of the British Society for Ecological Medicine ('the Society', renamed from the British Society for Allergy, Environmental and Nutritional Medicine), a medical society interested in looking at causes of disease and treating through diet, vitamins and minerals, and through avoiding toxic stress.

My interest in the causes of disease and the underlying mechanisms of such started with chronic fatigue syndrome (CFS/ME). Together with Dr John McLaren-Howard of Acumen Laboratory and Dr Norman Booth of Mansfield College, Oxford, I co-authored three scientific papers studying the link between CFS/ME and mitochondrial dysfunction. These papers were published in the *International Journal of Clinical and Experimental Medicine* in 2009, 2012 and 2013 (1,2,3) and are described more fully in my first book, *Diagnosing and Treating Chronic Fatigue Syndrome – it's mitochondria not hypochondria*.

Although these papers concerned CFS, they were also, in a deeper sense, the crystallisation of my clinical experience, spanning decades of treating many other modern diseases. The combination of my academic ventures, along with the associated practical applications across the full range of these diseases, led me inexorably to some key conclusions.

## Who am I?

The ideas on mitochondria contained within my CFS medical papers dovetail, in a biologically plausible way, with emerging ideas on immune activation and inflammation as causes of disease. What had become clear to me over the years was that the vast majority of modern disease could be explained in terms of the twin drivers of poor energy delivery mechanisms and inflammation. Both of these drivers of disease are a consequence of modern Western lifestyles, as characterised by nutritional deficiencies, toxic stress and infectious loads. So evolved this book, *Sustainable Medicine*, as a way of explaining the applications of the ideas, as expounded in my academic writings, to many other modern disease processes.

In reality, of course, I have been writing this book in my head for the entirety of my medical career. It is the summation and culmination of who I am and what I do. I am a naturally inquisitive person and, with the help of my patients and their intelligent questions and unfaltering desire for answers, I hope that the results of my curiosity contained in this book may help the many sufferers of modern diseases, far too many of whom currently languish on long-term 'symptom squashing' medications.

I have two daughters, Ruth and Claire, now grown up and working. My hobbies have all to do with daughters, horses, dogs and gardening. In the winter I hunt, in spring and autumn I go team-chasing with occasional point-to-pointing. I run annual long-distance rides across and around Wales. These are for big kids, like me, and younger versions.

**Dr Sarah Myhill**  
2015

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# Preface:

## It's all about asking the question 'why?'

*I keep six honest serving men  
(They taught me all I knew)  
Their names are What and Why and When  
And How and Where and Who.*

Rudyard Kipling (1865–1936)

*'Lets start with the bleeding obvious – when all else fails, use  
your brain.'*

Dr Ada Marion Dansie, Medical Consultant to  
George Bernard Shaw

Five years at medical school followed by one year in hospital jobs do little to prepare a doctor for the real world. I had no answers to the early questions thrown up by NHS General Practice – 'Why do I have high blood pressure?' 'Why do I get such awful headaches?' 'Why am I depressed?' Correct conventional answers to these questions are deficiency of, respectively, anti-hypertensive drugs, painkillers and SSRIs. But this is not the 'why' of the matter. Indeed, it is hardly even the 'what' of the matter. Masking the symptoms does not explain them. The clues, which the symptoms represent, have been missed and the investigative detective work, which should have resulted from those clues, has been left undone.

*'The world is full of obvious things which nobody by any chance  
ever observes.'*

## Preface

Sherlock Holmes (*Hound of the Baskervilles*)  
by Sir Arthur Conan Doyle)

One year on and I was breast-feeding my daughter Ruth. She had terrible three-month colic and all I could do to lessen the screams was to walk round the house, all night, with her in my arms. My husband Nick's reaction was, 'You're the effing doctor – you sort it out.' He was right. It was not until I stumbled across advice for me to give up all dairy products that the problem was resolved. So too was my chronic sinusitis and rhinitis. At the time this was a momentous and life-changing discovery – but this information was nowhere to be found in the medical textbooks.

Thirty years later, this common cause and effect is still nowhere to be found in the medical textbooks. I worried about not knowing causation. I had been trained to elicit clinical symptoms and signs and recognise clinical pictures, but actually what patients wanted to know was why? What did they need to do to put things right? My standard line had been, 'Well, let's do a blood test and come back next week.' This gave me time to rifle anxiously through my lecture notes and textbooks looking for answers. The answers my patients wanted were not there. It came as a great relief to me to find out that my patients really did not mind me telling them I did not know! Thankfully, they rated my ability to care higher than my ability to know all the answers. Thankfully, too, they were happy to help me with my researches and act as willing guinea pigs with the dietary and lifestyle experiments that actually addressed the root causes of their problems.

The investigation of a patient should be like a detective story – 90% of the clues come from the history and 10% from the examination. Tests may confirm or refute the hypothesis – because every diagnosis is just a hypothesis. Then, once the diagnosis has been further corroborated by test results, it has to be put to the ultimate test. The ultimate test is response to treatment. Is the patient better? If not, then the diagnosis is wrong.

## Preface

*'exitus acta probat' (The result validates the deeds.)*

Ovid (43 BC-AD 17/18)

The word doctor originates from the Latin verb 'doceō', meaning 'I teach'. My job is to teach my patients to heal themselves and supply them with the necessary tools to do so. The doctor should be the interface between the hard science and the idiosyncratic patient – the practice of medicine is an Art.

Doctors routinely confuse the making of diagnoses with what are merely the descriptions of symptoms and clinical pictures, neither of which constitute a true diagnosis. Examples include hypertension (aka high blood pressure), asthma, irritable bowel syndrome and arthritis, all of which terms are in fact descriptions of symptoms and none of which is an actual diagnosis of the underlying cause. Clinical pictures include Parkinson's disease, heart failure and Crohn's disease, but these are convenient titles simply to slot patients into symptom-relieving categories which do little to reverse the disease process or afford a permanent cure. Symptom-relieving medication postpones the day when major organ failures result. **This is unsustainable medicine.**

My early days in NHS General Practice were exciting. I learned to expect miracles as the norm! I watched a child's 'congenital' deafness resolve on a dairy-free diet; I saw patients with years of headaches see relief from cutting out gluten-containing grains; I saw women with chronic cystitis gain relief from cutting yeast and sugar from their diets. A proper diagnosis establishing causation has obvious implications for management and potential for cure. What was so astonishing to me was that when I tried to communicate my excitement and experiences to fellow doctors they could not have been less interested and dismissed me as a 'flaky quack'!

However, the greatest challenge came from seeing and treating patients with ME/chronic fatigue syndrome (explored in my book *Diagnosis and Treatment of Chronic Fatigue Syndrome*). This was – and still is – the elephant in the room. There was absolutely no doubt



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that these patients were seriously physically unwell. I saw Olympic athletes, England footballers and cricketers, university lecturers, airline pilots, tough farmers, fire fighters and Gulf War veterans reduced to a life of dependency by debilitating pathological fatigue.

Over time I concluded that I would never be able to write a book about what really helped my patients because it would be out of date as soon as it had been written. However, I now believe that although I do not know, and will never know, all the answers, I do at least have sight of most of the elephant. At least I am asking the right questions and have a chance of recognising some of the answers when they present.

*'...dans les champs de l'observation, le hasard ne favorise que les esprits prepares.'* (In the field of observation, chance favours only the prepared mind.)

Louis Pasteur (1822–1895)

In this book I hope to paint a recognisable picture that will both deliver the intellectual imperative and reasoning behind my ideas and also inspire readers to make the difficult lifestyle changes that will result in long-term good health. But the devil is in the detail – and the detail can be accessed at my website (<http://drmyhill.co.uk>), which in the last three years has received over six million hits. This will be constantly updated as I learn more.

What has been so unexpected is that the answers to treating ME/chronic fatigue syndrome have shed a whole new light on other common medical problems such as cancer, heart disease, dementia and other such degenerative conditions. What follows in this book is a blueprint for good health for all your life. It is the end result of 30 years of trial and error, largely the latter. I hope I am working towards the 'bleedin' obvious'.

*'I'm not young enough to know it all.'*

Oscar Wilde (1854-1900)

# How this book is organised

Since we can no longer rely on the medical profession to guide us to a healthy lifestyle we must do it ourselves. This can be achieved only by a true understanding of the underlying mechanisms by which Western diets and lifestyles impact on health and create disease.

The idea of this book is to empower people to heal themselves through addressing the root causes of their diseases. (If doctors also find it helpful in improving the health of their patients, I will be doubly gratified.) I hope that what follows is a logical progression from symptoms to identifying the underlying mechanisms, and the relevant interventions, tests and tools with which to tackle the root cause of those symptoms. This is how any garage mechanic would fix a car – first ask the driver what appeared to be wrong with the vehicle (symptoms) and then have a look for tell-tale signs to obtain a working diagnosis. Having established the mechanisms by which things are going wrong, the mechanic is in a position to cure.

Of course, the responsible driver does not wait for something to go wrong. By feeding his car the best possible clean fuel and oil, undergoing regular servicing and driving with due care and attention, he will ensure his car motors on for hundreds of thousands of miles. This is disease prevention.

My job as a doctor is to apply good science to the art of healing. It is my duty to provide the necessary information to allow people to live to their full potential through identifying root causes of

## How this book is organised

disease and treating them with logical interventions. In practice this is a two-pronged approach. Initially we have to identify and correct those aspects of modern Western lifestyles that are so damaging to health. The big issues are diet and nutrition, sleep, exercise, pollution and infection avoidance. Ideally we should all put in place interventions now, before symptoms appear and before these problems trigger pathology.

Preventative interventions include:

1. Stone-Age (Paleo) diet (staple foods: meat, fish, eggs, vegetables, nuts, seeds, salad, berries; occasional treats: dairy, grains, fruit)
2. Multivitamins, minerals, essential fatty acids
3. Sleep
4. Exercise
5. Sunshine and light
6. Reduce the chemical burden
7. Sufficient physical and mental security to satisfy our universal need to love and care, and be loved and cared for
8. Avoid infections and treat these aggressively.

These eight measures are what I call the 'Basic Package' and these should be applied in all cases regardless of the current state of health of the individual concerned.

However, none of us lives the perfect life. It is like the old Irish joke – when the traveller asked the way to Dublin, he was told by the local, 'If I were you I wouldn't be starting from here!' We do not seek medical help until we have a problem. So this book will start with symptoms because it is through having those, and a desire to regain our well-being, that we find the strength to put in place the difficult dietary and lifestyle regimes to restore full health.

What this means in practice is that not only is the Basic Package required but also so are the 'Bolt-on Extras' which

## How this book is organised

tackle established symptoms or pathologies. So the last section of this book starts from a disease perspective, revises what has gone before and details the tricks of the trade that have evolved proven and safe techniques.

For the sake of brevity, this guide does not linger on the fine detail. This book then is an introduction, a starting place and, perhaps most importantly, a signpost for those patients who wish to take control of their own health. To do otherwise than this, and to try and write a book which covered every situation for every patient, would make for a dull old read. Furthermore, with experience my ideas and advice will not stand still and so the fine detail of such a book, were it attempted, would need constant updating. I make no apology for this state of affairs as, being old and female, I'm allowed to change my mind!

# Introduction

## Whistle-blowing on 21st-century medical practice

Doctors are dangerous. In the USA, healthcare-system-induced deaths are the third leading cause of the death after heart disease and cancer\* (4). When doctors go on strike, death rates fall, and when they return to work, death rates rise (5). However, this effect pales into insignificance when compared with the intellectual neglect demonstrated by doctors failing to understand, recognise and prevent the two major causes of death – namely, heart disease and cancer. The worst example of this neglect is the nonsense propagated by doctors that a high-fat diet results in high cholesterol and consequently in heart and arterial disease – indeed, this has become the popular accepted wisdom. Yet it is completely wrong! It is sugar, fruit sugar, refined carbohydrates and grains that are driving the epidemics of arterial disease, heart disease and cancer. The failure of the medical profession to recognise and act on this is a crime against humanity.

These collective failures mean that it is more dangerous to follow your doctor's advice on diet and take symptom-suppressing medication than to smoke 20 cigarettes a day.

\* According to several research studies in the 1990s (1), a total of 225,000 Americans per year have died as a result of their medical treatments:  
12,000 deaths per year due to unnecessary surgery  
7000 deaths per year due to medication errors in hospitals  
20,000 deaths per year due to other errors in hospitals  
80,000 deaths per year due to infections in hospitals  
106,000 deaths per year due to negative effects of drugs.

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The greatest modern health hazard is metabolic syndrome. This is the clinical picture that results from Western diets and lifestyles. It is easy to diagnose – simply look in the supermarket trolley. If it is largely composed of bread, cereals, biscuits, pasta, fruits, crisps, sweets, chocolate and alcohol then its owner, and his/her family, has metabolic syndrome. The early symptoms include having to eat very often, not being satisfied with a meat and vegetable meal until a sweet pudding has been eaten, having to snack regularly and eating or drinking to relieve stress. Fatigue, mood swings and insomnia follow. Doctors get involved when these apple-shaped people are found to have high blood pressure and high cholesterol. There follows an inevitable progression to diabetes, heart disease and cancer. We now know arthritis and osteoporosis are long-term effects of metabolic syndrome. Alzheimer's disease too – this has been renamed 'type III diabetes'.

Most doctors have no grasp of the above progression. They fail to appreciate that carbohydrates are eaten in an addictive way. The intellectually risible 'food pyramid' (which places carbohydrates at the bottom as staple foods, with meat and eggs at the top as occasional extras), is evolutionarily incorrect and upside down. Symptom-suppressing drugs and lack of attention to causation together accelerate the underlying degeneration; people become patients on the slippery downhill slope to disease and death. It is entirely predictable that the National Health Service will become overwhelmed.

The British National Health Service is a wonderful institution, with laudable aims and excellent resources. It is staffed by lions but led by intellectual donkeys. These donkeys are the drug-prescribing doctors who fail to identify the root causes of disease. Instead of even attempting to make a proper diagnosis, they simply prescribe symptom-suppressing drugs. We experience symptoms for good reasons – they protect the body from damage. Symptom-suppressing drugs allow us to function, but do so at

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the expense of accelerating the underlying disease process. Pain-killing drugs mean joints are damaged faster and so surgery to replace joints is required sooner (6). Symptom suppression and accelerated damage result in a snowballing effect of disease, and so more drugs are needed to suppress side-effects. As just one example – acid-blockers to suppress gut symptoms relieve the discomfort but result in low stomach acid, which is a major risk factor for osteoporosis and stomach cancer.

Someone with a stone in their shoe would feel the pain and remove the stone. By contrast a doctor would first prescribe a pain killer to restore normal walking. However, the stone would erode the foot and infection would follow – so an antibiotic would be prescribed. Infection rarely clears where there is a foreign body and so gangrene would ensue, followed by amputation. Crutches or a wheelchair would be prescribed. The dignified, independent person would become a dependant patient facing long-term disability and premature death.

Again, the treatment of asthma has switched what was once a benign, self-limiting condition to a life-long pathology requiring life-long symptom-suppressing medication. Indeed, when asthma is poorly managed, patients die. Conventional treatment means first the blue inhaler, next the brown inhaler, then both. No thought is given to the causes of asthma, which may be allergy (to foods, inhalants or chemicals), pollution or hyperventilation.

If symptom-suppressing drugs are ineffective, then a further line of defence is to blame the patient. Psychiatrists call this ‘somatisation’ – people are imagining their symptoms. This is a highly successful method of preventing these patients from ever returning to that ‘diagnosing’ doctor again because the patient, quite rightly, loses faith in the doctor’s abilities and looks elsewhere for answers. However, from the doctor’s perspective, they (usually) never see this patient again and so they wrongly assume that their ‘diagnosis’ of somatisation has satisfied the patient. The doctor is left with the false impression that the

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patient is cured and pats himself on the back for a job well done. Worse than this though is what happens if the patient persists, returns to the doctor and does not accept the somatisation 'diagnosis'. In that case, the patient is blamed, once again, but this time for being a 'difficult' patient, or even for having views which are resistant to the 'cure' being offered. The phrase 'false illness beliefs' is a common one which is then thrown at such patients. Nowhere is this more apparent than in the treatment of chronic fatigue syndrome – my area of special interest. This was the subject of my first book – *Diagnosis and Treatment of Chronic Fatigue Syndrome - it's mitochondria, not hypochondria*. The complete failure of doctors to identify and treat the underlying physical causes of this condition is a disgrace to the medical profession. It has dehumanised hundreds of thousands of potentially healthy people and consigned them to a life of misery.

The undergraduate and postgraduate education of doctors converts intelligent, motivated, caring teenagers into unquestioning, narrow-minded, one-size-fits-all doctors. These young people have all these fine attributes 'educated' out of them. Medical education is a brain-washing process which stupefies and petrifies the ability of the individual doctor to think independently. These disciplined minds become blinkered to see only avenues of treatment as laid down by the pharmaceutical symptom-suppressing approach. The job of the doctor is to understand the science of the body and convert this 'raw knowledge' to the art of treating individual patients, each of whom has a unique constitution that requires a tailored approach. Indeed, this is where the challenge, the pleasure and the fun of medicine lie. Nothing is so rewarding as the grateful patient whose health has been restored; health is like money – you don't know you've got it until you've lost it!

Drug companies were launched on the back of antibiotics – miraculous life-saving magic bullets which have saved millions of lives. This led to a general belief, happily adopted



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by the population, that all ills could be dealt with by pills. Symptom-suppressing drugs were found to bring immediate relief of pain, fever and misery. Massive drug company profits ensued. In modern Western society, money trumps truth. The drug companies used their new-found wealth to capture the intellectual and moral high ground through manipulation of drug trials. Either such trials were set up to achieve a desired outcome or adverse outcomes were not published. Doctors achieve academic success and promotion through drug company bank-rolled research – often the drug company reps ghost-write the academic papers. If doctors fail to conform to the above expectations they risk loss of job and status.

Doctors who fail to toe the drug-industry-driven, conventional-medicine, symptom-suppressing line are singled out for special attention by the Establishment. Dr David Healy was the subject of professional opprobrium when he flagged up how SSRI antidepressants could trigger suicidal and violent behaviour in some patients. Dr Wendy Savage, in the 1980s, was a pioneer in working to abolish the sausage-machine process of childbirth, where women were not permitted any say in how their babies would be delivered. She suffered at the hands of jealous colleagues who saw their institutions threatened – she was suspended from her job and suffered years of prosecution until she fought back successfully to reinstatement. Dr Rita Pal whistle-blew on North Staffordshire Health Authority a decade before it was found guilty of gross neglect of elderly patients. She was struck off the Medical Register by the General Medical Council as a result of her honesty and integrity. I too have faced 11 years of GMC prosecution and seven GMC hearings simply because my ideas on medicine lay outside conventional medical practice – at least I have to be thankful that I live in the 21st century; earlier heretics were burnt at the stake!

Conventional medicine increasingly is being bypassed by intelligent patients who wish to understand the underlying

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patho-physiological mechanisms which are causing their ill health. Indeed, I often find myself writing the diagnosis of 'PMITD' in the margin of my clinical notes ('patient more intelligent than doctor').

In addressing these issues in this book I am whistle-blowing on current medical practice. This Emperor has no clothes.

*A child cries out, 'But he isn't wearing anything at all!'*

Hans Christian Andersen (1805-1875)

# Chapter 1

## Symptoms

**– our early warning systems which protect us from invaders and from ourselves**

In this chapter I cover the following areas:

1. Symptoms – our early warning system
2. Fatigue – the symptom that arises when energy demand exceeds energy delivery
3. Symptoms that arise from poor energy balance
4. Pathology that arises if poor energy balance symptoms are ignored or masked
5. Pain – not all pain is bad: some is necessary to remain physically fit and well
6. Inflammation symptoms: infection, allergy, auto-immunity
7. Toxic symptoms – usually head/foggy brain, depression, psychosis
8. Deficiency symptoms
9. Hormonal symptoms.

Remember: The detective work starts with symptoms.

### **1. Symptoms – our early warning system**

The best clinical clues come from symptoms and 90% of the diagnosis comes from the patient's history. The commonest symptoms are pain and fatigue.

### ***Symptoms are desirable and therapeutic***

These two symptoms, pain and fatigue, are essential to protect us from ourselves. We all experience these symptoms on a daily basis – they tell us what we can and cannot do. Without these warning symptoms we would keep going until we dropped, either because the energy delivery ran out (so the heart and brain would stop) or because we would wear out (healing and repair occur during sleep and rest). We ignore or suppress these symptoms at our peril.

Many other symptoms arise downstream of these two most common issues. This happens because we ignore the early warning signs that pain and fatigue represent, or interfere with them, or try to suppress them. Often pathology arises as a result of adopting this ‘ignore, interfere and suppress’ type of medicine.

For this reason, symptoms should always prompt us to ask the question ‘Why?’

Collections of symptoms may provide further clues as to causation.

## **2. Fatigue – the symptom that arises when energy demand exceeds energy delivery**

*‘Annual income twenty pounds, annual expenditure nineteen pounds nineteen and six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery.’*

Mr Micawber from *David Copperfield*.  
Charles Dickens (1812–1870)

Fatigue is the symptom that arises when energy demand exceeds energy delivery. This means there should be a two-pronged approach to treating fatigue – improve energy delivery systems and identify mechanisms by which energy is wasted.

### **3. Symptoms that arise from poor energy balance**

The symptoms that arise from poor energy balance may be described as 'mild' or 'severe' and the following checklists can be used as a rule-of-thumb to decide where you are on the generalised fatigue scale.

#### ***Mild symptoms***

The patient will:

- Become an owl – won't be able to get up in the mornings, sleeps in at weekends.
- Start to use addictions to cope with fatigue – especially caffeine, sugar and refined carbohydrates.
- Have to consciously pace activity – and look forward to rest time and sleep.
- Dread Monday mornings, if in employment.
- Lose the ability (or it will become an effort) to enjoy himself.
- Treasure 'chill out' time in the evenings.
- Lose usual stamina – will not be able to achieve normal levels of fitness.
- Experience a decline in muscular strength.
- Become irritable, experience mild anxiety and low mood – these symptoms are imposed by the brain to prevent us spending energy frivolously. Having fun means spending energy.
- Feel mildly stressed – this symptom of stress arises when the brain knows it does not have the energy reserves to deal with physical, emotional and mental demands.
- Experience joint and muscle stiffness – for tissues to slide over each other with minimal friction requires them to be at just the right temperature. Poor energy delivery means the body runs colder.

These symptoms are often seen as part of the ageing process. This is because mitochondria, which are the engines of cells that generate energy, are also responsible for the ageing process. Numbers of mitochondria fall with age. So as we age we have to pace our activities. This is because our body's ability to generate energy reduces hand in hand with the falling numbers of mitochondria. The obvious corollary is: look after the mitochondria and slow down the ageing process.

Energy **delivery** is all about the **collective** functioning of mitochondria, the thyroid gland, the adrenal glands, the liver, the gut, the heart and the lungs, together with the all-important diet. Together these are responsible for producing the energy molecule ATP. ATP is the currency of energy in the body and a molecule of ATP can buy any job, from muscle contraction to a nerve impulse, or from hormone synthesis to immune activity. Without ATP none such is possible.

### **Severe symptoms**

The patient will experience:

- **Poor stamina** – One molecule of ATP is converted to ADP and recycled back to ATP via mitochondria every 10 seconds. If this recycling is slow, then poor stamina (mental and physical) and muscle weakness will result very quickly.
- **Pain** – If you run out of ATP because mitochondria cannot keep up with demand, then there is a switch into anaerobic metabolism with the production of lactic acid. One molecule of glucose, burned aerobically in mitochondria, can produce 32-36 molecules of ATP (depending on efficiency). Anaerobic production generates just two molecules of ATP together with one molecule of lactic acid. It is very inefficient. Furthermore, to clear the lactic acid requires six molecules of ATP. This

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is a particular problem for my CFS patients who simply do not have the energy reserves to clear the lactic acid and therefore suffer prolonged lactic acid burn. When this occurs in the heart, patients are told they have 'atypical chest pain', whereas what they are actually experiencing is angina.

- **Slow recovery from exertion and delayed fatigue** – As ATP (adenotriphosphate) is drained, the body can employ another metabolic trick. Two molecules of ADP (adenodiphosphate – that is, two phosphates) combine to form one molecule of ATP (three phosphates) and one of AMP (adenomonophosphate – that is, one phosphate). This is called the 'adenylate kinase' reaction. The good news is that we have another molecule of ATP. The bad news is that AMP is poorly recycled and drains out of the system. The body then has to make brand new ATP. It can do this from a sugar molecule, but this involves a complex and time-consuming piece of biochemistry – the 'pentose phosphate shunt'. Thus there is delayed fatigue. This symptom is one that characterises the clinical picture of pathological fatigue (that is, CFS) because more severe tissue damage starts to occur at this point of very poor energy delivery.
- **Foggy brain** – The brain is greatly demanding of energy. At rest it consumes 20% of the total energy generated in the body. Poor energy delivery results in foggy brain, poor short-term memory and difficulty multi-tasking and problem solving.
- **Dizzy spells** – These too are symptomatic of the brain running out of energy. This is commonly due to low blood pressure or blood sugar levels suddenly dropping.
- **Very low mood and depression** – ATP multi-tasks! It is not just the energy molecule but also a neurotransmitter in its own right. To be precise, it is a co-transmitter –

neurotransmitters such as dopamine, GABA, serotonin and acetylcholine do not work unless ATP is present. Disorders of mood such as anxiety and depression would be much better treated if energy delivery issues were tackled.

- **Anxiety and the feeling of severe stress** – These feelings arise because sufferers know they do not have the energy to deal with expected and unexpected demands. Anxiety creates another vicious cycle because this kicks an emotional hole in the energy bucket and interferes with sleep.
- **Low cardiac output** – The heart is a pump which again demands energy. If ATP is not freely available, then it cannot pump powerfully. Weak beats result in poor circulation. The heart tries to compensate by beating faster, but this too is energy demanding. Energy delivery cannot keep up and so blood pressure falls precipitously. Clinically this means my severe CFS patients cannot stand for long, or sometimes even short, periods of time. These patients often have to lie down. Rest is much more restful if we lie down! In addition, there is a vicious cycle present here. Low cardiac output compounds all the above problems of poor energy delivery because during periods of low cardiac output fuel and oxygen delivery are additionally impaired. So mitochondria go slow simply because they do not have the raw materials to function well. This is just one of the many vicious cycles I see in CFS.
- **Intolerance of cold** – No engine works with 100% efficiency. Some energy is always lost as heat and this helps to keep us warm. Core temperature is often recognised as a particular symptom of hypothyroidism, but it is actually a symptom of poor energy delivery of which hypothyroidism is a part. Being cold results



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in another vicious cycle – enzymes need heat; roughly speaking a 10 degree rise in temperature doubles their rate of reaction. Being cold means that mitochondrial enzymes, thyroid enzymes and adrenal enzymes, all essential for function, will run slow.

- **Intolerance of heat** – One method of heat control is to pump blood to the skin. The skin is the largest organ of the body and pumping blood round the skin increases cardiac output by 20%. This explains why we all fatigue more quickly on hot days and why exposure to high levels of heat is unsustainable for my severe CFS patients.
- **Variable blurred vision** – The muscles of the eye are energy demanding and so if energy delivery is poor, CFS patients will be unable to contract eye muscles to allow the lens to focus.
- **Light intolerance** – The retina, weight for weight, is the most energy-demanding organ of the body. It consumes energy 100 times faster than the rest of the body. This is because the business of converting a light signal into an electrical signal requires massive amounts of ATP. Light intolerance is a feature of severe CFS. It is also a feature of migraine which, I suspect, also has energy delivery as one possible cause. We cannot generate energy without producing free radicals and these damage tissues. I suspect this explains the high incidence of eye pathology with ageing, such as cataracts, glaucoma and macular degeneration.
- **Noise intolerance** – Again, the business of converting vibrations of air and bone molecules into an electrical signal for the brain to interpret is greatly demanding of energy.
- **Shortness of breath** – If energy delivery at the cellular level is impaired, the brain may misinterpret this as poor oxygen delivery and stimulate the

respiratory centre to breathe harder. This may result in hyperventilation which actually makes the situation worse. Hyperventilation changes the acidity of the blood so oxygen sticks more avidly to haemoglobin, thus worsening oxygen delivery. Shortness of breath may also result from heart failure, respiratory distress and anaemia.

- **Susceptibility to infection** – The immune system is greatly demanding of energy and of raw materials such as zinc, vitamin C and selenium. A common cause of this symptom is also hypochlorrhydria because we need an acid stomach to absorb minerals.
- **Loss of libido** – This makes perfect biological sense – procreation and raising children requires large amounts of energy.

#### **4. Pathology that arises if poor energy balance symptoms are ignored or masked**

Organ damage and organ failure arise as a result of ignoring or masking poor energy balance symptoms.

- **Heart failure** – Symptoms usually come before organ damage, but not always. The kidney, for example, suffers in silence. However, if symptoms are ignored, then organ damage will result. Fatigue is the symptom that arises when energy demand exceeds energy delivery and when this occurs at the cellular level, levels of ATP (the energy molecule) within cells will fall. If levels of ATP fall below a critical amount, this triggers cell apoptosis – that is, cell suicide. Indeed, this is part of the ageing process – we literally lose cells and our organs slowly shrink. If the situation becomes critical, either because total energy delivery fails or the number of cells declines, we develop organ failure and ultimately die. It is this process which

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prevents us from living forever. A common organ failure that results in death is heart failure – we are currently seeing an epidemic of heart failure, which I believe partly stems from the prescription of statins. One of the side effects of statins is that they inhibit the body's own production of co-enzyme Q10, which is an essential co-factor in normal mitochondrial function. (Interestingly, the benefits of statins seem to have little to do with their effect on cholesterol levels – any benefit appears to arise because biochemically they look like vitamin D. Vitamin D is highly protective against heart disease, cancer and degenerative conditions. Statins are a particular hate of mine.)

- **Dementia** is brain organ failure. Essentially this arises when the speed at which nerves process electrical signals slows down. That process is enormously demanding of energy. A major cause of dementia is arteriosclerosis, due to poor oxygen and fuel delivery to the brain. I suspect statins are also partly responsible for our epidemic of dementia.
- **Poor immunity** – The immune system is enormously demanding of energy and this probably explains why elderly people are much more likely to die from infection than younger people, simply because they do not have the energy to power the immune system to fight infections effectively.

### 5. Pain

Remember, not all pain is bad: some is necessary to remain physically fit and well. Pain is the symptom that protects the body from damaging itself. Its function is to make us stop so as to prevent further damage and rest the painful area so that healing and repair can take place. Leprosy causes digits and

limbs to be lost simply because the condition destroys nerves. The body cannot protect a numb limb from damage.

Modest amounts of pain are essential for good health. The body is very efficient – no energy resources are wasted. This has been an essential policy for evolutionary success – we have to be intrinsically lazy. However, in our modern world of plenty we become lazy because we can. Pushing the system (which in Nature occurs at least once a week during a predator-prey interaction) generates pain as a result of lactic acid burn together with mild wear and tear of muscles, connective tissue and joints. This modest pain is a powerful stimulus to lay down new tissue with its new complement of mitochondria, and this increases physical fitness. The difference between weak and strong, little and large muscles is the number of mitochondria.

Astronauts cannot remain long in space because there is no gravity and no mechanical stress on bones – they quickly develop osteoporosis and muscle wasting. Putting a patient to bed is dangerous for the same reasons.

### ***Causes of pain***

In taking a history from a patient I constantly think mechanisms – the idea is to establish such mechanisms because this has implications for treatment. The nature of the pain may provide useful clinical clues. Useful categories of pain include:

- **Mechanical** – In mechanical pain with tissue damage (which may arise additionally from subsequent inflammation), the sensitive coverings of organs are irritated. The pain from a broken bone comes from the periosteal membrane that covers the bone. The pain of an inflamed or ruptured gut (peritonitis) comes from the peritoneal membrane that wraps round the gut. The meninges covering the brain are highly sensitive and the pain of meningitis is severe. Pleural membranes that

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surround the lungs when inflamed cause intense pain on breathing – called pleurisy. A feature of these pains is that the patient immobilises the area – any movement makes things much worse. Patients keep the affected area very still because movement is excruciatingly painful.

- **Muscle spasm from smooth muscle** ('unconscious' muscle, such as in the gut, womb and bladder) – This produces some of the most severe pains. Examples include labour pains, renal colic (from stones), gall stone colic (from stones in the gall bladder), bowel colic from wind, constipation, adhesions or other such blockage. These spasms are mechanically caused as the muscles try to move an obstruction. A feature of this pain is that often movement is helpful and the patient is restless. The pain is 'colicky', that is to say the severity waxes and wanes.
- **Muscle spasm from skeletal muscle** is often extremely painful. I suspect this is often misdiagnosed as 'pinched nerve' pain. Often the pain occurs following a minor movement, not enough to cause any damage. It starts suddenly and is described as lancinating, knife-like, sharp or like an electric shock. The sufferer is completely floored. After a few minutes it settles, but any awkward movement may provoke it again. Cramp, stiff neck and 'stiff man syndrome' are examples of acute muscle spasm which may be due to allergic muscles, mineral imbalances, dehydration or acidity.
- **Lactic acid burn from poor energy delivery** – In this event there is a switch into anaerobic metabolism with the production of lactic acid, and this causes pain. It starts with a dull ache and, if not relieved, will continue up to the severe pain of a myocardial infarction requiring morphine for relief. Athletes experience this daily and it allows and limits peak performance – no pain, no gain! Lactic acid burn in the heart is angina. The feature of this

pain is that it comes with exercise and is relieved by rest, only to come again with exercise. However, in patients with very poor energy delivery (such as CFS) the lactic acid burn may be very persistent and not recognised as such. The best example comes from CFS patients who develop chest pain – actually this is angina, due not to poor blood supply but to poor mitochondrial function. Acute unremitting lactic acid burn as caused by an arterial obstruction causes severe pain such as that experienced in a myocardial infarction, pulmonary embolus or acute arterial obstruction. I suspect one mechanism of the pain of migraine has to do with poor energy delivery to the brain. Indeed, many of my CFS patients describe chronic headache which I suspect is lactic acid burn in the brain.

- **Muscle and joint stiffness** – This is a common but greatly overlooked cause of discomfort. The tissues do not slide smoothly over each other and the friction results in a sensation of stiffness as the body tries to protect itself from sudden movements. The person has to ‘warm up’ slowly before attempting action. Inflammation (such as in allergy) may cause this. I suspect that mineral imbalance is also a cause since so many patients respond well to topical magnesium applied to the skin.
- **Inflammation** is nearly always painful, although mild inflammation may present with a lesser pain symptom of itch. Inflammation is characterised by pain, swelling (with the potential for mechanical irritation), heat, redness (due to increased blood flow) and loss of function (as the body protects itself by shutting down that department). Inflammation pains are often described as ‘burning’ in nature – often worse in the mornings and improving as the day progresses. My patients who have inflammation from silicone implants often describe the pain as burning. ‘Throbbing’ is a feature of inflammation.

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Increased pressure makes the pain worse – for example, the person with a severe toothache or sinusitis finds their symptoms are worse when lying down. The symptoms of inflammation may be reduced with cooling and may be worsened by heat.

- **Inflammatory pain at rest** (for example at night) I suspect is healing and repair pain. The body cannot heal and repair unless the organ is rested and shut down. Healing and repair involve the immune system and inflammation.
- **Nerve pain** can be electric shock-like and markedly dependent on position or movement, implying a compression issue. (Anyone who has banged their ‘funny bone’ (the ulnar nerve at the elbow) will recognise this.) The pain follows the area that the nerve supplies, so a careful mapping of the pain gives useful anatomical clues. Sciatica typically starts in the buttock and radiates down the back of the leg. Carpel tunnel syndrome involves the thumb, index, middle and part of the ring finger, sparing the little finger. It may arise because the nerve is pinched which can be a mechanical problem or because of swelling of soft tissues from inflammation (often due to allergy) or myxoedema (severe underactive thyroid). Tic douloureux (or trigeminal neuralgia – that is, severe pain in the side of the face) is, I suspect, due to allergic nerves – the mechanism may be similar to allergic muscle: sensitisation due to mechanical or infectious trauma and an inflammation maintained by allergy. This may be allergy to foods, microbes, chemicals and so on.

All pain is perceived more where there is fear, anxiety, depression and loss of hope – the mental and emotional state is critical. That is why it is so important to put the patient in control of the diagnostic process.

Intuition is a wonderful thing. In my experience, the untrained patient often makes a remarkably accurate diagnosis. I always listen very carefully to pain descriptions because this is very helpful in establishing causation.

*'Listen to your patient, for he will give you the diagnosis...'*

Sir William Osler (1849-1919)

The key to treating pain is not to mask it with pain killers but to ask the question 'why?' before the clinical picture becomes blurred. Once pain has become longstanding and chronic many of the above mechanisms come into play and it is more difficult to tease out the different strands that need tackling. Other vicious cycles then cut in.

One final point in this section is **malaise**. Many patients struggle to explain this feeling – it is a feeling of not being well. I suspect it reflects low-grade tissue damage and poor energy delivery resulting in low-grade inflammation. This may not show up in standard blood tests. It may be reflected in a cell-free DNA test – this is a measure of cell damage. Malaise is very common in CFS patients who cannot pace their activity because they do not even have enough energy for house-keeping duties (basic gut, liver, kidney, heart, brain etc function). Some products of inflammation impact directly on the brain resulting in 'illness behaviour' – again this is a protective mechanism to allow rest and protect one from oneself!

## **6. Inflammation symptoms: infection, allergy, auto-immunity**

Inflammation is characterised by the cardinal symptoms of pain, swelling, heat (redness) and loss of function. Think inflammation if there is this combination of symptoms. But this begs the question as to the cause of inflammation. We all know



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the obvious one – infection. But allergy and auto-immunity also result in inflammation and may cause almost any symptom. Historically, syphilis was said to be ‘the great mimic’, producing almost any symptom and pathology. This has been replaced by allergy and in the future auto-immunity will be a major player – currently one in 20 Westerners has an auto-immune disease (see page 267).

The living organism that we are is potentially a free lunch for others. We fight a constant ‘arms race’ against invading microbes and parasites. Indeed, it could be argued that all disease processes that involve inflammation are part of this arms race.

Many occasional symptoms exist to physically expel or kill invaders. These same disease processes are invoked where there is allergy. Acute symptoms are most likely to be infectious, with chronic or recurring symptoms being allergic and/or auto-immune.

### ***Symptoms of acute inflammation***

These include:

Fatigue – This is an essential symptom to enforce rest so that the immune system has the energy to fight back

Malaise and ‘illness behaviour’ – Men seem much better at this than women (ho ho!)

Fever – Most microbes are killed by heat

Swollen lymph nodes (‘glands’)

Mucous and catarrh – These physically wash out microbes

Runny eyes – Ditto

Coughing and sneezing – These physically blast out microbes in the airways

Airways narrowing, wheeze, asthma – This results in the air we breathe becoming more turbulent so microbes are thrown against and stick to the mucous lining of the airways to be coughed up and swallowed and killed by an acid bath of a stomach

Vomiting – This is an essential defence against food poisoning and microbes that have been inhaled (which are coughed up and swallowed)

Diarrhoea – Ditto

Colic – Ditto

Cystitis – Emptying the bladder of urine clears out microbes.

So, for example, looking at a hay fever sufferer. Without clinical details, I might diagnose a cold. Looking at an inflamed patch on the skin, without clinical details, I might not be sure if this was allergic eczema, sunburn, chemical burn, infected cellulitis, viral or auto-immune rash! The patient's history is vital.

With acute infection such as 'flu it is potentially dangerous to use symptom-suppressing medication, which interferes with these natural defences. It has the potential to make problems much worse. I would caution against prescribing symptom-modifying medication which interferes with the body's natural processes of eliminating microbes. Indeed, I suspect this is why we are currently seeing epidemics of post-viral fatigue syndromes.

***Allergy and auto-immunity – consider with more chronic symptoms***

Allergy is today's great mimic and can produce any symptom, including all of the above.

Whilst any antigen can cause any symptoms (Dr John Mansfield

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described a case of osteoarthritis of the hip due to allergy to house dust mite), common things are common. Chronologically, symptoms often start in the nose and throat (ENT) and extend to the gut, brain and then any other organ. If a symptom has become chronic then I would consider the following allergens in order of likelihood:

**ENT symptoms** such as catarrh, deafness, glue ear, snoring and obstructive sleep apnoea, voice changes, cough – Allergy to dairy products, yeast (fermenting gut)

**Tinnitus** – Allergy to food or gut microbes (I suspect this may also contribute to age-related deafness – Beethoven went deaf following salmonella infection). Caffeine may cause tinnitus by a toxic reaction

**Irritable bowel syndrome** – Allergy to foods and upper fermenting gut problems

**Inflammatory bowel disease** – Allergy to foods and upper fermenting gut problems

**Asthma** – Allergy to food, biological inhalants and gut microbes

**Headache** – Allergy to aspartame, dairy. Caffeine may cause a toxic headache

**Migraine** is the typical allergic headache, but there are other causes notably poor energy delivery and toxic reactions from vaso-active amines

**Eczema and urticaria** – Allergy to food and gut microbes

**Acne and rosacea** – Allergy to gut microbes and food

**Interstitial cystitis, chronic prostatitis/epididymitis, vulvitis** – Allergy to gut microbes, especially yeast

**Arthritis** – Allergy to foods and gut microbes

**Allergic muscles, tendons, connective tissue** – Allergy to dairy, gluten and gut microbes

**Fatigue** – Allergy to gluten grains.

Furthermore, one can be allergic to anything under the sun, including the sun. In considering allergy problems, I think of groups of allergens as causes of problems which may be:

- Foods and food additives
- Biological inhalants – house dust mite, pollens, animal danders, moulds and others
- Chemicals – toxic metals, pesticides and volatile organic compounds (perfumes and such) and others
- Microbes in the gut and elsewhere – yeast, bacteria, viruses, parasites, worms and possibly others.

The above sensitivities may be worsened by other pro-inflammatory or irritant factors – notably:

- **Electromagnetic radiation** – Electrical sensitivity is a real and growing problem, with adverse reactions possible to mobile phone masts, Wi Fi, computers, TVs and so on. It appears the mechanism of this is by activating voltage-gated calcium channels to make membranes more irritable.
- **Noise pollution and infrasound** – Wind turbine syndrome is a real condition with additional problems of amplitude modulation. The mechanism of damage is two-fold: firstly, sleep deprivation; secondly, infrasound sets up resonant frequencies within body cavities causing disturbing symptoms of headache, unease, agitation, vibrations, vertigo and gut disturbances.

## 7. Toxic symptoms

Food is dangerous stuff. If you look at life from the point of view of a plant it does not want to be eaten, so it has evolved many poisons to protect it from such. Examples include lectins, alkaloids, alkylating agents (such as glycosides in cycad that cause motor neurone disease), mycotoxins and so on.

By contrast, meat and meat fat are non-toxic – animals have evolved other systems of defence; they can run away! I suspect the main ways in which meat may be toxic arise from the cooking of meat and fat at high temperatures, which results in toxic trans-fats being produced, or the fermentation of protein where there is upper fermenting gut (see page 275); both of these are complications of recent evolutionary changes. When humans learned to cook and to farm, this introduced a new range of toxins as the carbohydrate-based foods that are farmed (grains, potatoes) may be fermented in the upper gut to a range of alcohols, D lactate, hydrogen sulphide and others.

Humans have evolved a fabulous detoxification system in the gut, liver and blood stream to cope with these natural toxins. However, we are all inevitably exposed to further unnatural toxins (see page 312) from the outside world because it is so polluted. I have yet to do a fat biopsy or test for toxic metals and find a normal result. Many of these toxins cause problems because they may:

- inhibit energy delivery systems (with all the symptoms that arise from such)
- act as adjuvants to switch on allergy to other substances, and indeed this is the basis of vaccination. There may be pro-inflammatory effects (such as, from toxic metals (used in vaccines)), organophosphates, or diesel particulates (these can switch on sensitivity to pollen)
- act as an antigen and switch on direct allergy to itself (for example, nickel allergy)

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- block hormone systems – For example, our epidemic of type II diabetes partly results from hormone-receptor blocking with insulin resistance. Bromides, fluorides and toxic metals inhibit thyroid hormone receptors
- act as hormone mimics (organochlorines have oestrogen-like effects – they can change the sex of crocodiles)
- switch on cancer (for example, toxic metals, pesticides, VOCs)
- switch on prion disorders (for example, toxic metals and organophosphates).

However, some toxins are *directly* toxic. The commonest manifestation of such direct toxic stress is in the brain. These toxins include:

Sugar and refined carbohydrate may result in the fermenting gut; this too may produce hangover-like symptoms

Alcohol – from drinking the stuff; we all feel poisoned with a hangover

Caffeine – too much is toxic

Prescription medication

Drugs of addiction.

One potential problem is the ‘fermenting brain’ as described by Professor Nishihara (7). His idea here is that microbes, probably from the gut and/or the outside world, get into the brain and ferment neurotransmitters into amphetamine- and LSD-like chemicals. Clinically, this would present with a huge range of psychiatric and psychological symptoms.

## 8. Deficiency symptoms

Where there are single gross deficiencies in calories, vitamins,

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minerals and essential fatty acids, a clear clinical picture emerges. We all know the story of scurvy, with gum disease, infection, neuropathy and death. Gross vitamin B3 deficiency results in the memorable dermatitis, diarrhoea, dementia and death. However, it is very unusual to see such singular pictures in clinical practice. However, many people are suffering from multiple minor deficiencies of vitamins, minerals and essential fatty acids which present with fatigue (see page 46), pain (see page 304), inflammation (see page 285) and inability to detox efficiently (toxicity symptoms).

### **9. Hormonal deficiencies**

Adrenal hormones and thyroid hormones together with hormones involved in blood sugar control are all part of the body's energy delivery systems and deficiencies would present with the symptoms described on page 176.

Sex hormones are essential for procreation. This is a process greatly demanding of energy and resources. If energy delivery systems are faulty, with deficiencies of essential nutrients together with toxic stresses, then sex hormones will suffer downstream, resulting in multiple symptoms of loss of libido, impotence and infertility, with women additionally suffering PMT and gynaecological problems. As I said at the start of this chapter, remember that the detective work starts with symptoms.

### **Focusing on symptoms**

Symptoms, their chronology and the circumstances which trigger or relieve them, provide important clues as to the biochemical, immunological and hormonal lesions that underlie them. Collections of symptoms to indicate problems are dealt with in the relevant sections ahead. Tests provide useful supporting evidence. Identifying the mechanisms has obvious implications for treatment.

Symptoms are the starting point for any diagnosis. I regard a good patient history as one that includes:

**Listening carefully** to the patient's account of his/her symptoms – Even the words chosen are illuminating. For example, if the patient says s/he feels 'toxic', 'poisoned' or 'hung-over', s/he may be describing the fermenting gut or a toxic exposure. Patients with problems following silicone implants often describe their muscle pain as 'burning'. Indeed, 'burning pain' points to inflammation.

**Establishing the chronology of symptoms** in order to work out causation.

**Childhood problems and stresses** give clues about immune and psychological programming. Chemical toxicity and vaccinations impact on both because many are immune adjuvants and affect neurodevelopment.

**Family history** – Problems run in families and, indeed, so do answers to problems.

**Mitochondria** come down the female line, so I often see mother–daughter or mother–son combinations, both with CFS. Mitochondria also determine longevity, so look to your mother for this. **Gut flora** comes down the female line – we acquire mother's gut-friendly, immune-tagged, safe microbes at the point of birth, possibly in utero.

**Problems of the immune system** – such as allergy, auto-immunity and cancer – run strongly in families.

**What is known already** – This includes allergies to foods, biologicals (house-dust mites, animals, pollens, moulds, etc), chemicals (perfume, cleaning agents, cosmetics, etc), metals (nickel and jewellery), microbes (post viral infection syndromes) and electrical sensitivity.



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**Response to treatments already tried** – Some people only feel well taking antibiotics; this could point to allergy to fermenting bacteria in the gut. Others feel terrible on antibiotics; this could point to allergy to fermenting yeast in the gut.

**Diet** – It is easy to pick the carbohydrate addicts – they often miss breakfast, graze on carb snacks through the day and supper is their biggest meal. Individuals with gluten allergies tend to use cereals, bread, biscuits, cakes, pasta, pizza etc as staple foods. Individuals with dairy allergies tend to love all dairy products. (I once had a patient, before I could try anything, inform me that when he died he would like to take a cow to heaven with him. He loved milk, butter, cheese, cream and yoghurt! The diagnosis was easy.)

**Drinks** – I always ask about drinks and how much of them is drunk. These are often high carb, with fruit sugars, artificial sweeteners and other such. Those containing caffeine or alcohol are diuretic. An alcoholic is one who drinks more than his doctor!

**Environmental exposures** – Foreign travel, sexually transmitted diseases, food poisoning and vaccinations may all switch on inflammation.

**Occupational exposures** – These may include pesticides (e.g. farmers, fumigators, gardeners, pilots and cabin crew, vets); toxic metals (e.g. deodorants, jewellery, dental amalgam); volatile organic compounds, or 'VOCs' (e.g. polluting industry, air fresheners and cleaners, vehicle fumes, central heating and cookers, smokers/smoking, aerotoxic syndrome).

As a doctor who spends her life talking to patients, I am

good at pattern recognition in order to identify the underlying mechanisms that have resulted in the clinical picture that sits in front of me. However, everyone is an expert in their own bodies and minds and, given the right clues, can work out these mechanisms themselves. This is the point of this book.

Having used symptoms to come to a working diagnosis, we then need to put that to the test using appropriate investigations, choosing the relevant tools to treat and, most importantly, assessing the response to treatment.