

Understanding energy

Post-Covid fatigue



Contents

Introduction	3
What is energy?	4
Why is it important to manage energy?	5
What do we need energy for?	6-8
How energy is used	9
Energy...some analogies	10-12
Energy patterns	13-14
Improving energy supply	15-17
Important points	17
Summary	18
Energy measurement and worksheet	18-19
Activity diary	20-21
References and acknowledgements	22

Introduction

Understanding how your body produces energy and how you use your energy, is the crucial first step in managing chronic patterns of fatigue. You are reading this booklet, as its likely you are continuing to experience ongoing fatigue, and this is likely to be having a significant impact on your life.

We hope to give you the confidence in taking your first steps to making changes and taking positive actions to influence and restore balance and we encourage you to trust in your body that it will try and help you along the way.

If you keep doing what you have been doing, to try and manage fatigue, and you are no better, then it makes sense to try a new plan!



What is energy?

The word 'energy' means 'The power and ability to be physically and mentally active' (Cambridge Dictionary, 2020)

Albert Einstein also said that "Everything is energy".

The study of thermodynamics states that energy cannot be created but must be transferred or converted from one form to another.

Our bodies are complex organisms, and it takes a lot of energy to maintain efficient and coordinated functioning. Like a car runs on petrol as its source of energy, our bodies require fuel in the form of chemical energy.

This chemical energy is produced by the mitochondria and stored in a small molecule called ATP (adenosine triphosphate), known as the 'energy currency' of the cells. When we are in good health and our body is working in synchronicity, our cells generate ATP in a biological process which in turn creates readily releasable energy when it is needed.

In order to enable the cycle of energy, various reactions are required such as metabolism, converting the food we eat into energy to run cellular processes, and respiration, providing oxygen to the cells at a rate adequate to satisfy the body's metabolic needs.

Metabolism and respiration are just two important biological processes contributing to the state of HOMEOSTASIS which is regarded as the key to good health.

Homeostasis maintains many physiological variables. These include:

- Temperature
- Blood pH
- Blood sugars
- Water balance
- Blood pressure
- Ion balance

Homeostasis also relies on a balance between the sympathetic and parasympathetic branches of the autonomic nervous system.

Why is it important to manage energy?

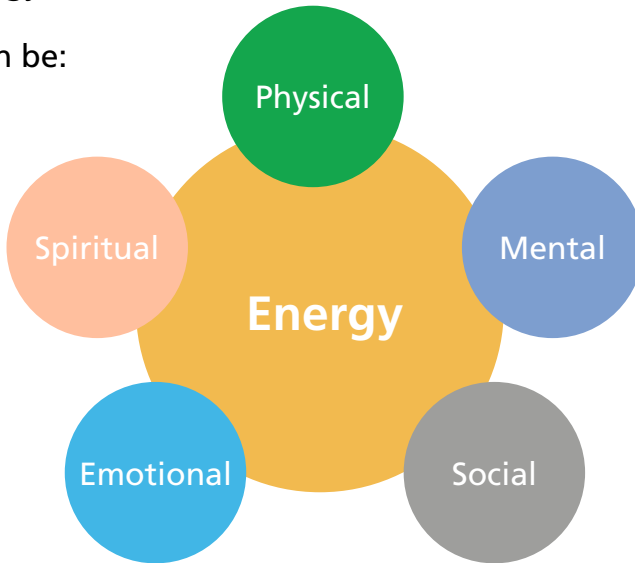
Following a period of illness, such as from a virus for example, the body begins to be ready to get back on track, but often due to the constant demands of our life and potentially vicious cycles of coping (in an attempt to be better), this can lead to poor management of the available energy and place increasing stress on the body's systems.

Every task we undertake from getting out of bed each morning to undressing for bed at night requires energy. It is a simple question of 'supply and demand'. If our energy supply is low or disrupted and activity levels are high, the body cannot meet the demands of our life. Low energy levels mean that even minimal activity can lead to prolonged periods of fatigue.

What do we need energy for?

Energy is used by the body in many ways, not just for physical tasks, so we encourage you to think of everything you do as using energy.

Energy can be:



Physical energy

Required for every movement and action we perform, we use physical energy in all our tasks and activities, and for all our bodily functions such as breathing, eating and sleeping as well as exercising, working, even sitting and watching TV or reading. We need stamina and endurance, strength, and fitness to repeatedly perform these physical actions.

Mental energy

Our brain is 2% of our weight but consumes 20% of our energy! A surprisingly large amount of our energy is required for cognitive activity whether we are always aware of it or not. Our brains are constantly active, thinking, attending to and processing information, filing short- and long-term memories, planning tasks and activities, subconsciously and consciously coordinating all our bodily functions.

Social energy

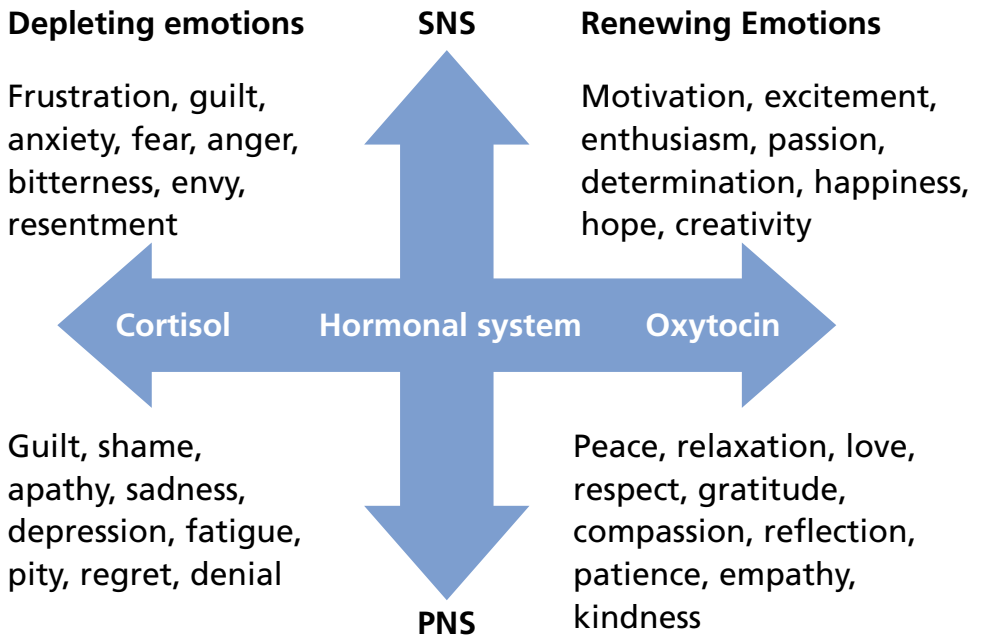
As social animals we all need to deal with people, in our families, at work or college, on the phone or social media. Even going to the shops requires interaction with others which uses our energy.

You may start to notice that interaction with some people can affect your energy positively and with others it can be affected negatively. Just as our own energy can affect others around us. We might want to start considering the balance of social contact in terms of 'drains v radiators', that after being with some people we feel energy depleted and with others, we feel more that our energy is more restored.

Emotional energy

The emotions you experience daily have a significant impact on the energy system. Emotions are part of being human, but they are primarily driven by our thoughts which use energy and can be a contributing factor in day to day energy levels.

There is a powerful link between the way you feel emotionally and the physical effect this can have on your body. For example, if you feel guilty for sitting and resting, it may cause a physical reaction in the body i.e. muscle pain due to tension.



Spiritual energy

We need energy to remain true to our values in life, to be self-aware and make sense of the changing world around us. As humans we are constantly processing new information and making sense of how this affects us and our beliefs.

This may also include finding meaning in relationships and following a particular path in life, engaging in activities we enjoy that are meaningful and purposeful to us, as well as experiencing love and acceptance for who we are.

How energy is used

As explained above all activities require use of physical, mental, social, emotional and spiritual energy. Take a moment to consider the activities you do on a day to day basis (keeping an activity diary to track this is a good starting point) and complete the chart below:

Energy chart

Physical	Mental	Social	Emotional	Spiritual

Ask yourself:

- What do you use the most – physical, mental, social, emotional or spiritual energy?
- Looking at your diary and chart - is there a balance?
- How much value/enjoyment to you get from what you do?

We will refer to your activity diary again later in the booklet.

Energy ... some analogies

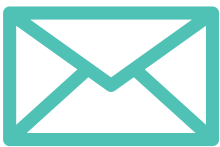
Analogies can be a helpful way to think about your available energy levels. Different analogies appeal to different people, so here are a few examples



A helpful way to think about your energy supply is to think about an energy 'jug'. Inside your jug is your energy, which due to a chronic pattern of fatigue is much lower than before. Every day you give different amounts of your energy to all the things that your body and mind must do.



The 'battery analogy' is where people use the comparison of having a faulty 'battery', to explain to others how they feel when they have fatigue and why they can't just recover when they rest or sleep like healthy people do when they are 'tired'.



The 'envelope analogy'. This is where you consider your energy levels as being contained in an envelope. When you use all your available energy, the envelope will be empty.

For the next part of this booklet we are going to use the battery analogy. We will use the jug analogy later when discussing how to improve energy supply.

The human battery

People often associate the concept of energy with 'batteries' and will describe having fatigue as making them feel like they have a 'flat battery'.

However, in the human body this 'battery' is not in one organ nor does it involve just one biological process. As so many of the body's systems have a role to play in producing or mobilising energy, there are many factors that influence our energy levels:

- Our respiratory and circulatory system transport oxygen into and around the body providing energy
- The digestive system releases energy from food
- Hormones can regulate our energy supplies
- Our nervous system instructs the body parts to function and use energy

People experiencing chronic fatigue often describe having fluctuating levels of energy and that even on a 'good day' energy levels are still significantly lower than before becoming unwell. This can be illustrated on the battery by a low level of charge.

Many people with chronic fatigue describe having highly active lifestyles before they became unwell. They are often people who like to be 'doing' and find it difficult to completely relax and unwind. They may prioritise the needs of others before themselves. Perhaps they like to 'get the job done' and complete work to a high standard.

This can make it difficult to leave a task unfinished, or even to attempt activities, if they think they are not able to give it their best.

If this describes you, it could mean that despite having low energy levels, on the days that you feel you have some energy, however small, you may try and do as much as you can or push past your limits.

If this triggers fatigue that results in being able to do very little, feelings of guilt or worthlessness can creep in if you feel bad that you are unable to do all those things you used to do.

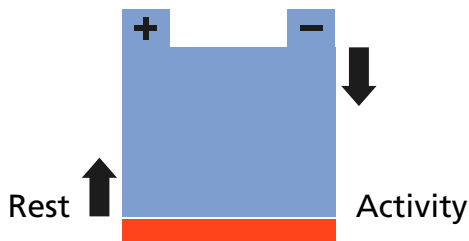
Energy patterns

Boom and bust

It is natural that when the energy is there, you may want to be as active as possible. However, this can 'flatten the battery' and there is no choice but for people to rest or stop activity so they can 'recharge' their battery. This is often called a 'boom and bust' pattern of activity.

Over-resting

Alternatively, some people try to avoid flattening the battery by staying within very small activity levels, which means they are resting more than they are doing. This helps to avoid the flat battery situation but means they can feel stuck at this level and may worry about how to do more in case the battery starts to go flat again.



Emergency energy

We also have back-up emergency supplies of energy that we use when we are in a crisis or when we need to push ourselves hard to do something important to us. In a crisis, we can use our body's emergency response system - 'fight or flight' to produce short-term supplies of energy. At these times, our sympathetic nervous system is activated. Some people describe this as 'running on adrenaline'.

This may help us to get through the situation but will increase our fatigue levels afterwards as the body tries to recover from this. For example, if there was a fire in your house, you would have a sudden boost of energy to help you to get out.

Sometimes using emergency supplies of energy to give us an additional boost can be helpful, as it may enable us to do something we really want to do, for example attend an all-day event such as going to a wedding. This may lift our mood, so we feel better in ourselves. However, if you were relying on your emergency supply of energy all of the time it wouldn't help your recovery, just like eating some chocolate cake when you are dieting - you can get away with it sometimes but not all of the time!

Managing energy

You can manage your energy by trying to use it to its best effect. The intention is to avoid flattening the battery and allow opportunities to build energy levels over time. This is done by using smaller amounts of energy over time and spreading the total energy used over longer periods. This may mean prioritising the most important tasks or finding alternative ways to do things which can conserve or reduce the energy required.

Increasing energy

You can help to recharge your battery by resting in-between periods of activity. People often believe that sitting or lying down is rest. It is important to understand the difference between stopping physical movement and actually resting.

For example, you may have stopped a physical activity, but if you are sitting down worrying about something or what activity you need to do next, you will not be resting your mind.

Learning how to relax your mind and body through engaging in relaxation strategies will help the production of energy.

Improving energy supply

A helpful way to think about your energy supply is what we call the 'Jug of Life'. Inside your jug is your energy. Every day you give different amounts of your energy to all the things that your body and mind need to do. Some things will take more of your energy supply than others, such as fighting an infection or dealing with stress. But there are other things in life that increase energy.

We can look at this through the Jug of Life. How full our jug is, depends on a healthy balance of output and input.

Output

Stress
Housework
"Have to's"
Paperwork



Input

Fun
Socialising
Achievement
Relaxation
Good nutrition

Ask yourself:

In the box below make a list of key things that help with the supply of your energy and the main areas of demand on your energy.

Output (demands on our energy)	Input (supply us with energy)

Look at the list of output demands:

- Is each one absolutely necessary?
- What would happen if you didn't do it?
- If you must do these, can you prioritise them into an order?
So you can focus on one task at a time.
- Can you change the state of mind you are in when you are doing the task, so instead of feeling stressed and overwhelmed you could try doing the task mindfully or in a more relaxed state?
- Could anyone else help you with these tasks?
- Do you prioritise input or only output?

Ask yourself:

- Do I flatten my battery or am I stopping before this happens?
- Could I use my energy differently or more effectively?
- When I rest, do I really relax or just sit/lie down?
- Is my mind restful, or am I still using emotional energy even when I am resting?

Important points to remember

- If you are breathing air and eating food, your body makes energy
- Energy is used physically, mentally, socially, and emotionally in the body
- What impacts on the flow of this energy in our body can be a multitude of factors from boom/bust patterns, excessive stress/worry, sleep difficulties, poor posture and movement, shallow breathing patterns, being too sedentary and inactive, or a poor diet
- Learning how you use your daily energy (physically, emotionally, mentally, socially, and spiritually) will give you greater insight and empower you to do something positive towards improving it
- Take your time...give yourself the necessary space and time to figure out how you are spending your energy
- Think about what supplies you with energy (your healthier Jug of Life)
- Notice and celebrate the rewards your body gives you for listening to what it needs

Every journey starts with a single step

Summary

This booklet has introduced you to energy...you will be more aware of how your body utilises energy and that energy is needed for all types of activity – physical, emotional, mental and social and that engaging in activities we enjoy - spiritual - can also increase our energy supply.

Energy measurement

Using the worksheet below, write a list of all the activities that you currently do as part of your daily routine. Also include activities that you would like to do but are currently not doing (think of those you may have written in your supply list).

Then work through your list, and tick whether you think each activity would be high, medium, or low, in relation to its energy requirement for you.

If you would currently rate everything as high, then it would be more helpful to consider how you would have judged them pre- fatigue.

You can assign an activity to more than one category if you feel that other circumstances may determine how much energy the activity would require. For example, if you felt that walking could be high, medium or low, depending on whether you were walking around the house, going to the shops, or going on a strenuous walk then you might tick all three. This list will be different for everyone.

Energy measurement worksheet example:

Activity	High	Medium	Low
Getting dressed		x	
Washing up	x	x	
Phoning a friend		x	x
Paying bills / organising money	x	x	
Watching TV			x
Driving the car	x		

Your list:

Activity	High	Medium	Low

Activity diary

It would be helpful to complete an activity diary to record your daily activities over the period of a week. There is a blank one on the next page.

- Write the time it took next to each activity to show how long each activity lasted
- Make sure you record rest/relaxation periods through the day and the time you get up and go to bed
- Using a traffic light system highlight the activities as high (red colour) medium (orange colour) or low (green colour) energy demand
- Use the fatigue scale to rate your fatigue as you go through the day. Think of 10 as the worst you have felt since experiencing fatigue and 1 as no fatigue. As you record each activity in your diary think about how far along the scale between 1 and 10 you are at that time

Note – This is not a scientific measure and cannot be used to compare your fatigue to that of others. However, over time it will help you to assess if your fatigue levels are reducing.

For example:  High  Medium  Low

Times	Monday	Tuesday
7.00-8.00	Asleep	Asleep
8.00-9.00	Woke 8.30am. Lay in bed worrying for 30 mins (9)	Woke, read a bit in bed (7)
9.00-10.00	Breakfast got dressed (6)	Breakfast had a shower (8)

Your list:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
7am							
8am							
9am							
10am							
11am							
Noon							
1pm							
2pm							
3pm							
4pm							
5pm							
6pm							
7pm							
8pm							
Late evening and overnight							

Patient Advice and Liaison Service

For information about CPFT services or to raise an issue, contact the Patient Advice and Liaison Service (PALS) on Freephone 0800 376 0775, or e-mail pals@cpft.nhs.uk

Out-of-hours service for CPFT mental health service users

Please call NHS 111 for health advice and support.

If you require this information in another format such as braille, large print or another language, please let us know.