Preventing & De-escalating Central Sensitisation

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VERSION 1.2 (DRAFT)

The information you will read here is based on about 10 years of application in clinical practice, and will eventually be part of a larger introduction to Trauma and self-resourcing. To keep the document short, there is little explanation as to *why* I am suggesting the particular route described here. This is an issue, because if you understand *why* you're doing something, it becomes far more meaningful. So what you are reading is a stop-gap measure (whilst the much larger task of writing a complete book is in progress) - to provide a simple DIY technique that will reduce central sensitisation. The method is useful in all cases of pain lasting more than a few weeks – and will also provide substantial help in cases of trauma, and in many other circumstances too.

I strongly recommend that you do not attempt to deviate from the instructions, or add any knobs or bells, or confuse it with any meditation or mindfulness that you already practice.

Central Sensitisation (CS) is a condition in which the central nervous system has become hyperaroused and hypersensitive to some kind of stimulus. Usually CS occurs in cases of chronic pain – and in fact the term is usually used specifically for pain. However, CS also applies to similar conditions affecting other senses – e.g. Tinnitus. It can also be argued that CS is a version of a wider kind of systemic hyper-arousal that can include anxiety and PTSD.

The whole point of CS is that the *cause* does not increase – or might even go away – but the way that the brain, the mind, the senses, (or even the immune system) work together conspires to make it seem as if things are getting worse and worse. *Experientially* they *are* getting worse. But with CS, this does not correlate with real tissue or nerve damage or external danger etc – it's almost as if the pain or anxiety is a sound coming from your music centre and someone is inexorably turning up the volume.

Mechanism

There are several feedback loops in the brain that are designed to give us critical survival information on a) things that we want more of, and (b) things that we wish to avoid. To this end, the sensory system is programmable through

i. how we use our attention / what we place it on, and

ii. what mental-emotional state we happen to be in.

Everything that can be sensed is given a set of flags that determine what priority it will be given in future – i.e. the degree to which our brain will automatically send our senses and awareness towards it, and what "volume" the sensory control knob is turned to.

This programming is based on placing "significance flags" on anything that we might sense… Whatever we place our attention on most gets more flags. And if we are in mental-emotional states that define a survival-related topic, then a lot more flags are attached.

The two basic mental-emotional states that produce the greatest number of flags are :

1. **Fear / anxiety / disgust / repulsion** (related to things that we wish to avoid).
2. **Curiosity / Gratitude / Appreciation / Enjoyment** (related to things we want more of).

So SC occurs when there is fear (or some similar emotion) of pain – which places a high number of emotive flags. Oour problem-solving culture tells us that we have to pay attention to the biggest noise. And we are not generally trained how to to *choose* where we place our attention. Therefore, our attention gets drawn frequently towards the pain – thereby placing more flags and (by default) telling our sensory system that we want to know more about this sensation. Obviously, a feeling of distress will place more flags than a neutral emotion.

The result of the attention plus the distress - is that the brain directs our attention towards the pain more often, and every time that we obey this, more flags are placed in. After a while, the sensory control centre starts to turn up the volume. Over time may the brain may even make new neural connections or even increase the number of nerve fibers (because if the amount of information traffic along these nerves).

The high signalling rate associated with an emotion of distress may also create what is called

facilitation – where a nerve root becomes inflamed. Then secondary pains start to occur in other parts of the body that are connected to the same spinal nerve root.

It is easy to see how, over time, if the sensory feedback loop is not properly managed, this can escalate : with pain (or Tinnitus) levels gradually getting greater and greater. The higher they get, the more the distress, the more flags get placed – and so on.

Summary so far

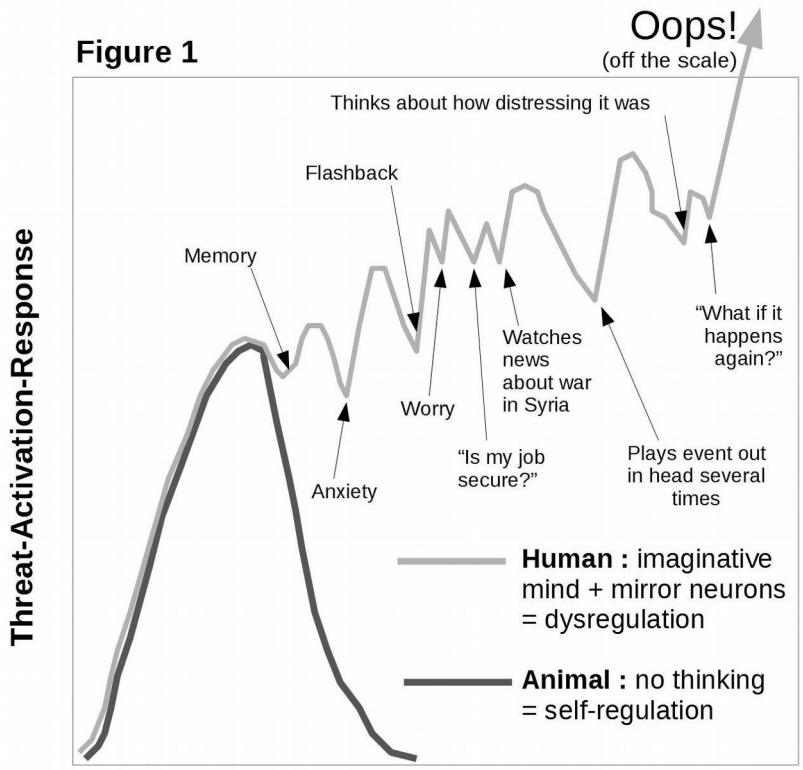
What has been described above is an escalation caused by the behaviour and use of mind and senses that our culture and society tend to encourage. The instructions we have been given (or not given) in our society/culture work well provided that most things are as they should be. But these ways of using the brain and senses do NOT work if there is constant danger, pain or any other constantly stressful environmental factor. So it is important to learn a new way of using the brain which does not enter a catastrophic feedback loop.

"Be empty of worrying.
Think of who created thought!
Why do you stay in prison
When the door is so wide open?"
~Rumi

The Solution : 1. preventing it happening in the first place

The Brain and senses do not just work on their own with no maintenance. As conscious "drivers" of this vehicle we call a body, one important task we have is to help our primitive brain know whether we are safe or not. The fact that we can think and have an imagination has created the possibility for strong destructive feedback loops to be set up – in a way that animals do not experience. An animal when presented with pain or trauma will react - and then if given a chance and not interfered with – will self-regulate. The only difference between humans and animals - is that we think and imagine and tell ourselves stories. The primitive brain does not understand the difference between these stories and the real thing. So if the primitive brain and its important survival functions are not proactively managed, problems such as CS can occur. And this may even have a negative impact on the ability of the body to self-heal, or trigger physical illnesses ("somatisations").

Figure 1



The main thing that we do wrong when we use out mind and senses is that we focus on what is "the problem". This is a cultural thing, because there are some cultures – e.g. several tribes who live in the arctic tundra – who do not experience central sensitisation. And physical illness is also uncommon.

So all this culturally-driven problem solving - is a problem.

In short, the "safety meter" in your brain notices if you are constantly focussed on problems and not spending much time paying attention to what is good in life. If the overall balance is

towards problems, this is interpreted in the deep, primitive brain as living in a very dangerous environment – which changes how the senses work, and also makes fundamental changes to the immune system and various other important parts of your physiology.

Ideally, to be self-consistent, I would write this guide in a way that does not even mention "the problem". However, in that kind of language it would not be understood in anything like the kind of depth necessary to have any effect.

There are some simple principles that you need to know :

1. Whatever you focus on or place your attention on will get bigger – via sensory and neurological feedback loops
2. You have a ***choice*** as to where you put your attention – so you do not have to allow the biggest noise to call you all the time
3. You also have a certain amount of choice as to the mental emotional state that you experience. Emotions cannot be "made up", but if they happen, you can choose how much priority to give them, and most importantly, how much ***Meaning*** to give them.
4. "Good" flags can be set by deliberately using the mental-emotional range **Curiosity / Gratitude / Appreciation**, and the more "good" flags are set, the less priority the "bad" ones will have.
5. Your body is a friend, and as a friend, it needs certain attention to cultivate that friendship.
6. It is the primitive (non-conscious) brain that is most important in most cases of central sensitisation. Dealing with this is NOT the same as dealing with cognitive processes. It is like having a wounded and scared animal (or child) inside us. Our responsibility is to recognise that as adults we provide a compassionate support that will help this wounded part to realise that it is safe. When it realises it is safe, then it will stop hurting (and the pain experienced consciously will also go).

Basic principles

From these basic principles (above), the following “life-rules” can be inferred – as instructions for using your senses and your attention :

- Your body needs to be appreciated. Shift your awareness to it regularly – and especially to the sensations that tell you that you are alive and healthy. (more on this later)

- Your job is to do “reality checks” for your primitive brain... If your body or mind get over-reactive to something, then it's important to do a reality check and say “just how bad is this, on the grand scale of things?” If the answer is “Not that bad”, then you know that you're not in immediate danger of annihilation – there is nothing out there that is going to eat you in the next 10 minutes – so why not refocus and find something to be aware of that brings you a feeling of appreciation and pleasure?

- If there really is a problem, then do something about it ASAP, so it's not there – or recognise that it's not something that you can do anything about, and refocus.

- Basically – train yourself to be appreciative of the world around you and appreciative of your body.

Notes on appreciation

Everyone knows what that glow of appreciation is when you are in the presence of something wonderful. A clear sky, or an ancient tree, or a beautiful flower, or a baby that is just starting to crawl. Maybe none of these give you a warm glow inside, but you can remember a time or situation or place when you did feel it – and remember what it was that prompted that glow... This glow is "Appreciation". If you inspect it carefully you'll find that it also contains a subtle kind of gratitude. Not the kind of gratitude that owes something in return or that makes you feel unworthy, or regret that it might not last long – but rather a feeling that there is nothing owed – just that it is wonderful this (whatever it is) is in the world and you are able to experience it for a few moments.

The more things that you can find to appreciate in your life and then spend some time with the feeling of appreciation, the more stable your nervous system will become. It's the small everyday things that make the most difference, because we can be constantly reminded of their presence throughout the day.

Notes on what a healthy and alive body feels like

Physical "health" is a physical experience. It is NOT a "comfortably numb" feeling – and neither is it a feeling of something not being quite right. In between these two extremes of "absence" and "loud noise", there is a middle ground of sensation in the body that says "here I am and I'm alive, and everything is OK". So when focussing on health, remember to filter out these two extremes when you start to be aware of your body. If you find a part of your body that is numb, blank, absent, dizzy, or disconnected, then

- recognise that numb, blank, absent, dizzy are sensations in their own right – so you don't need to look any further!
- acknowledge it (because it's your body),
- wish it the best from your heart (as best you can), and then
- say to yourself "what else is there?"

So you can let go of this part of the body, and go elsewhere to find sensations of health.
Similarly, if you find a loud noise – pain – then

- acknowledge it (because it's your body),
- wish it the best from your heart (as best you can),
- check – do I need to do something about this right now? - if you do, then DO IT! If

not, or if you cannot do anything about the pain right at this moment, then

- be a little curious – where is it, what does it feel like – but only spend a few seconds doing this - then
- say to yourself "what else is there?"

So you can let go of this part of the body, and go elsewhere to find sensations of health.

If you filter out the two extremes, you are left with all the sensations that say "I am healthy". These might just be contact sensations (pressure, warmth, texture of surfaces, space and air round your face, solidity and texture of whatever is supporting you, sensations of clothing, etc). Or they might be very physical sensations – muscle texture, or blood, or pulsing, or the shape and position of bony joints, or the various sensations of teeth and softness inside your mouth (etc). Or they might be more subtle sensations – tingly, fizzy, electric, buzzy, airy, cottonwooly presences (etc). Or maybe just a sense of being energised, and having the capacity to move. There are many, many possibilities. Health also tends to feel light more than heavy, and move-able rather than excessively dense and rigid.

Notes on the importance of depth of experience

If you have a few minutes, it is well worth deepening your awareness of healthy sensations. The more you can turn on your curiosity and explore the "where" (in 3 dimensions) and the "what" of healthy sensations to get more and more detail, the deeper this "message" goes into the corners and depths of the primitive brain, and the more positive effect it has on your health.

The whole point of the exercises I describe here is that we are deepening the communication between your conscious mind and the primitive parts of your brain that run your physiology.

Notes on emotions

Emotions are also physical sensations – they are not just thoughts. So appreciation is a "positive" emotion, just as curiosity is a positive mental state. When we feel appreciation or become genuinely curious about the world, then the message that is detected by our primitive brain - is that ***we are safe***.

Emotions are supposed to move freely through our body and awareness, and then go, once their message has been "heard". This is how a baby or a child or an animal will handle emotions – they feel them 100%, and then the emotion (like all other sensations in the body) eventually changes.

If (e.g.) anxiety is being felt, then forget the mental storyline, and experience what it feels like

in your body. Smile at it. Welcome it. Acknowledge it, and notice if it is a real and proportionate response to what is happening around you. If it is – then the anxiety was there for a purpose – to bring your attention to danger. If it is not proportionate to your surroundings, then what you are feeling is a memory, in which case, just ask "what else is there? … where in my body am I NOT feeling this?"

You will find that there are parts of your body that are not anxious at all. In this way, it is possible to manage emotions, so that the body and deeper parts of the brain are not receiving a message that you are in immediate danger of death. Safety is always relative, and as long a we are relatively safe, then life can go on. If we let our primitive survival alarms know that we are safe enough, then they will become calm, and well calibrated to reality.

If for some unfortunate reason you end up in pain through an injury or illness – if you apply the above rules, then the pain will not escalate into central sensitisation. And it is far more likely that (as a result of applying those rules) your body will be more able to heal itself.

Notes on the breath

Your breath can be a useful way to help find sensory and physiological stability and a general awareness of safety. If you are already quite well emotionally resourced, and feel generally safe, then it is possible to use the breath. If there is anxiety, then the breath tends to become short and the lungs tend to only inhale and exhale at the top or bottom. Then an increasing reservoir of carbon dioxide builds up - which then creates a state of physiological anxiety! This is yet another feedback loop in the body.

So using the breath : first, focus on achieving a very deep exhalation and let your body breathe itself on the inhalation. Repeating this several times, and then after about 10 breaths "helping" the inhalation to be full for about 3 breaths will help to clear stagnant carbon dioxide, and replenish the lungs with oxygen. This can produce a sense of energised calmness. The effect can be increased if you follow this clearing-out with a couple of minutes of 10 second breath cycles. i.e. 10 seconds = 4 seconds out, 1 second pause, 4 seconds in, 1 second pause.

Do NOT attempt to use the breath if you are feeling very anxious, or if your breathing is permamently restricted to the top of the lungs. If you are not sure about either of these, better not to bother counting the breath at all.

But it is still always useful to exhale long and deeply to clear out any stagnant air.

Notes on Distraction

Many people mistake the above instructions (and the ones below) as distraction. This is not distraction – though distraction is *also* a useful tool in managing pain. In distraction we attempt to avoid something that we do not like. This can create dissociation if the avoidance is done in any forceful or fearful way.

So the filtering process described above is a very gentle decision that **"Yes – I am aware of that, and I simply choose to place my attention elsewhere".**

If any level of force is used in this decision, or there is a fear or dislike of what has been sensed, then a polarity is set up in the body-mind, and this polarity tends to lock the dissociation in – rather than releasing it. Since the primitive brain is very "forgiving", it is perfectly OK to distract or wilfully or even forcefully place your attention elsewhere, or deliberately (temporarily) increase numbness because that is more comfortable.

But <u>not</u> when doing the exercises described here!

The Solution : 2. normalising Central sensitisation once it has occurred

The above rules still apply.

The only problem is how to get back out of the hole that has been accidentally dug.

One difficulty that has to be overcome in CS is that the body (or at least part of it) has become the enemy, and the sensation that comes form that part is feared, loathed or hated – sometimes to the point that people would gladly cut it off to get rid of the pain.

The first mistake is to identify and equate the pain with that part of the body. The pain and the body are different things. You need your body to live, and so long as you are alive, your body will do its best to keep *itself* alive and to function as well as it can. This is a natural biological imperative.

On the other hand, ANY sensation is potentially ephemeral. Sensation is supposed to change, and so if the circumstances are correct, it *will* change. The entire purpose of sensing is to derive meaning so that we can move … so the sensation, no matter how strong, is inevitably an *interpretation* by some part of your nervous system. NOTE : this is very different from saying “it's all in your mind” - because the brain that does the interpretation is NOT the one that you think with. Consider also that if nocioceptors are firing (i.e. there is tissue damage) this part of the body itself is in pain – it is not trying to harm you or make you suffer – but it is suffering. So the first change that can be made is to

- unpick the idea of pain from the particular part of the body that it is occurring in
- start to think about how you would care for a friend if they were in pain, and begin to consider that part of the body as a friend who is in pain, and have some compassion for it

The second “mistake” is not actually a mistake – but rather, the natural response to pain is that we attempt to withdraw from whatever is painful. If your hand were in a flame, you would withdraw it. So this is the second hurdle that has to be overcome, because if there is pain inside our body, we attempt to withdraw from it. Any kind of chronic (long term) *internal* withdrawal of this kind results in dissociation. I repeat that this is not your “fault” - because withdrawal is a natural reflex response. The fact that we have such powerful brains means that this natural reflex must be managed, so that it does not become a permanent feature of

how we are.

In central sensitisation, it is the *dissociative withdrawal* that tends to maintain the pain or maintain whatever is causing the pain. I have seen two people in my clinic who had pain rating 7/10 or higher for over a decade – and when they were taught how to stop dissociating, the pain completely disappeared. Admittedly, these were extreme cases. But in almost every case, dissociative withdrawal is one factor causing the pain to stay. And paradoxically (dissociation is supposed to mean numbness – which should mean reduced pain), the dissociation leads to the pain intensifying. I have seen many more cases where the pain-related dissociation was preventing complete tissue healing after an injury, and when the dissociation was reduced, the tissues repaired quickly.

This is a powerful demonstration of the mind-body connection. The body needs to be integrated with the mind so that it can properly function in every way that it is supposed to function.

A trauma-adapted mindfulness sequence

1. Preparation, settling in

Start by being aware of the room around you. Become curious about little details that are of interest – pictures, windows, reflections of light – whatever gives you some small sense of appreciation.

Now look round and check that the room is safe. This might sound a little OTT, but it is necessary to deliberately check that you are safe. Spend a few minutes just checking out the corners, getting a sense of where you really what to be so that you feel safest and most supported. Get yourself as comfortable as possible.

Repeat the first step - being aware of the room around you. Become curious about little details that are of interest – pictures, windows, reflections of light – whatever gives you some small sense of appreciation.

Now place your attention on your body, and say "Here we all are, together – we are safe". Feel if your body responds. It may not change at all, but it might "hear" what you have just said, and relax in some small way, or become more energised. If some part of your body does respond, then smile at it internally.

2. Core observe-response sequence

What we have just carried out is a standard communication pattern :

Aware – Gesture – Response – Acknowledgement

This pattern will be repeated time and time again...

- **Aware** – we become aware of the general state of the body-mind, not taking much time – it's just *"this is how I feel at the moment in a very general way"* - with some emphasis on healthy sensations. A one-or-two-second check-in to the mental and emotional and physical status-quo.
- **Gesture** – we send a message to the body : there are many ways to do this – through awareness, through movement, through accessing a memory, etc.
- **Response** – we become aware of how it responds (if at all – it might not respond –

that's OK – over time it will begin to respond. If you feel no response, this is a very good reason to persist).

- **Acknowledgment** – If there is any kind of response to the gesture we have just made, we acknowledge the body's response… This deepens the quality and depth of communication (between your mind and the body's physiology) that has just occurred.

The whole point of all of this is to communicate that you are safe - as deeply as possible into the physiology of the body, so that the nervous system has a "reality check", and then recalibrates itself to the safety of your real world. It is not possible to just say "I am safe" - that message has to be accompanied by real emotions that confirm this, and real points of sensory attention that also confirm it. This cannot be done in a disturbed, over-busy or open public space, because so far as the primitive alarms of your brain are concerned, these are not particularly safe places.

3. Settling deeper into the body

Now change your focus to the sounds around you... Notice the normality of these sounds, identify them one at a time. Be also aware of the space around you, again consciously noticing the safety of the soundscape you are in.

Now place your attention on your body, and say **"Here we all are, together – we are safe".** Feel if your body responds. It may not change at all, but it might "hear" what you have just said, and relax in some small way, or become more energised. If some part of your body does respond, then smile at it internally.

Coming in a little further – this time to the sensations that tell you that you are in physical contact with the chair, clothes, etc and most importantly that your body is physically held and supported and is warm enough.

Now place your attention on all the "healthy" senations you have so far – superficial ones, plus any parts of you that feel warm or have responded to you so far by relaxing. Smile at all of them (but nowhere else) and say **"Here we all are, together – we are safe. Thankyou".**

Feel if your body responds. If some part of your body does respond, then smile at it internally.

Now we move a little deeper .. and at this point you can begin to scan your body, remembering to apply the filtering method… Usually we might start at the feet and work up, but the choice is entirely yours. In cases of pain it is best, if possible, to start at the opposite end of the body. So moving one piece at a time, the enture body is scanned using the gesture-response sequence described above. This whole-body scan can take anything from a couple of minutes through to over an hour, depending on how much detail you choose to go into.

If you find a part of your body that is numb, blank, absent, dizzy, or disconnected, then

- acknowledge it (because it's your body),
- wish it the best from your heart (as best you can), and then
- compassionately say to yourself **"what else is there?"**

So you can gently let go of this part of the body, and go elsewhere to find sensations of health.

Similarly, if you find a "loud noise" – pain – then

- acknowledge it (because it's your body),
- wish it the best from your heart (as best you can),
- check – do I need to do something about this right now? - if you do, then DO IT! If not, or if you cannot do anything about the pain right at this moment, then
- be a little curious – where is it, what does it feel like – but only spend a few seconds doing this - then
- compassionately say to yourself **"what else is there?"**

So you can gently let go of this part of the body, and go elsewhere to find sensations of health.

If these two extremes are filtered out *without being frightened of them or being forceful in any way*, then what is left are sensations of health.

Now place your attention on all the "healthy" sensations you have so far – superficial ones, plus any healthy internal sensations, plus parts of you that feel warm or have responded to you so far by relaxing. Smile at all of them (but nowhere else) and say **"Here we all are, together – we are safe. Thankyou".**

Feel if your body responds. If some part of your body does respond, then smile at it internally and say “Welcome home”.

Spend a few minutes becoming more curious about where ONLY the sensations of health are in your body. Then come back out – being aware of the support, the sounds, and then looking at the room...

If you keep your attention clearly directed towards sensations in the middle zone of health, then at the end of the exercise you will most likely feel softer, more relaxed, probably also more energised, and pain levels may have reduced.

4. Important note for meditators

If you have any mindfulness or meditation experience, be aware that a sharpened awareness is a very two-edged sword if there is pain (or its opposite, numbness). In which case you must take particular care to stay in the middle zone I describe by not spending too long questioning what you are aware of when carrying out the filtering exercise. If you stay in numbness or pain saying *“do I filter this or not?”* or *“I can stay with this even though it is pain”* or *“there is no sensation but what if I look a little deeper?”* - this is a deviation form my instructions (and I recommend that you do not deviate). Numbness, blankness and absence are sensations in their own right – so if you feel any of them, you *have* felt a sensation, and it is good to move on to something else.

5. Making it a daily practice

Repeat this exercise at least once every day – and keep “welcoming home”, acknowledging and appreciating any part of your body that becomes more alive or more connected (not numb) or which is no longer in pain.

This is a basic-level foundation, and can have remarkable effects if practiced carefully and compassionately. To this foundation, it is possible to add various extra tweaks that can further deepen its effect, and I will eventually be teaching these in an online seminar.

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ADDENDUM :
Working proactively with the Vagal system and hindbrain

IMPORTANT : There are no quick fixes that apply to everyone. *Some of these may work for you, others may not. You have to decide for yourself which create a more "relaxed-and-alive" state. Remember that relaxed-and-floppy/inert is NOT useful in this situation!*

The Vagal nervous system should have a high adaptive "tone", and all the suggestions below can create this effect. They are largely based on NMT (The Neurosequential Model of Therapy, devised by Dr Bruce Perry).

1. If you are not over-sensitive to cold, then a quick splash of cold water on the hands and face creates a useful refreshed and relaxed state by resetting the Vagal system. I find this a useful thing to do regularly during the day.

2. Another simple way to calm the brain is to lightly meld the hands to the front and top of the head (hands symmetrical to the eyes, fingertips just touching) – and then gently stroke backwards, bringing the hands off the head and round to the front. Almost as if you are smoothing the brain out, wiping off any dirt, and then flicking it off to the front of the face. Repeat 3 or 9 times. I like doing this in the shower every morning.

3. The following activities involve ***rhythm, movement and socialisation*** (often 2 or 3 of these three key ingrediants combined together), which also bring a sense of safety to the socialisation functions of the hindbrain :

   Music (especially in groups), Gentle jogging in groups, Singing (especially in choirs), Movement and Dance – e.g. ballroom or folk dancing (but not to very fast driven beat music[1]), Yoga, Pilates, Massage, Drumming, Horseriding and pets (or looking after animals of any kind), Art classes

1 A lot of modern music is designed to stimulate the Adrenal system by by using a heavy driving beat faeter than 60 bpm (faster than 1 beat per second). This kind of music will NOT help you to self-regulate.