

[Cancer Rehabilitation Project].
{Restorative and Therapeutic Yoga for Cancer}

yoga for well-being:-
Using the evidence to develop practise

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Introduction.

“There is nothing permanent except change.”

***[Heraclitus of Ephesus,
Greek Philosopher.]***

As a practising physiotherapist for many years, as well as a practising yoga student, I've often dreamt about how these 2 important aspects of my life could blend, support, and balance each other. Then the shocking news that one of my longest and bestest friends, Julia had a terminal diagnosis of pancreatic cancer. I felt like a comfort blanket had been snatched from under my feet and I was sprawled in a mess on the floor: - how on earth did she feel? In typical calm honest and dignified fashion, she had to make the biggest choices and decisions ever: - she chose not to have aggressive treatment that would only at best, give her a bit longer with horrible side effects and she wanted to ensure quality of life to the very end. She did this with such grace and dignity [and humour!], I felt humbled but also bathed in a sense of calm and peace, whenever I was with her. In a complete flash, I knew I HAD to stop doing the difficult course my managers had pushed me into- to stop wasting my valuable time-and to focus my energies into the positive aspects of my life, including yoga. And so with a natural inevitability, 2 weeks after Julia died peacefully at home, my yoga teacher casually mentioned in a class, that there was a 2 year teacher training course commencing in an ashram in the Welsh hills, if anyone happened to be interested. I knew instantly that this was the gift I had to take; it was so unquestionable, I didn't need to stop and think, it felt like my dharma.

Within the ensuing months leading up to the course, I thought more deeply about Julia's diagnosis and passing and how bonded I felt with her, when I would sit and gently massage her lymphoedematous limbs, encouraging her to focus on her diaphragmatic breathing-to open up her deep lymphatics from a therapeutic perspective, but also to soften the focus and direct the awareness to a deeper gentler level within [this was never spoken verbally, as Julia would tease me about being 'a little bit naïve' and anyway, it would have changed the emphasis]. I could see the softness and stillness coming into Julia's body with a gracious acceptance that I felt compelling and powerful. And so I knew with an unspoken conviction that I had to work towards combining my work

and yoga. As a lymphoedema specialist, I already work with a majority of people with a cancer diagnosis and so could see the genuine benefits that many could gain from instilling yoga on their journey. How to convince the NHS that the therapeutic value should be embedded within the treatment choices along the cancer journey would be more challenging! The frustrating thing was that I have an incredibly supportive manager, who has always been very keen to support this additional qualitative person centred approach, as long as we could back it up with evidence.

What is Cancer?

'Cancer is a fact of life' Prinster 2014, P. 30].

Cancer arises when abnormal cells divide in an uncontrolled way: - it is a malfunction of the most basic unit, the cell. The information given out by the genes in a cell to tell it to grow abnormally, will cause it to divide abnormally, and produce abnormal cells, resulting in tumour formation. Because cancer arises from cells of the body, it tricks the immune system to not responding to protect and cleanse the body.

"A cancer cell acts like an out of control teenager!"

Prinster [2014. P. 31]

In the UK, 1 in 2 people will have some form of cancer in their lifetime [Cancer Research UK-Ref 2], and 1 in 4 will eventually die from it. So, from this, it is important to remember that cancer is NOT a death sentence, but should be looked on for most people as a manageable disease- managing the cancer rather than it managing you.

"Talking about cancer can be uncomfortable, but not talking about it in frank terms makes cancer a terrifying mystery' Prinster [2014. P. 79].

Cancer covers about 200 different diseases and although 1 in 2 will develop cancer, the most common forms of cancer are preventable or treatable through early diagnosis. Language around cancer can be confusing, but basically, all cancers are tumours but not all tumours are cancers. A tumour is any sort of body swelling and can be benign [clumps of cells arising from tissue such as muscle, nerve or fat] and most importantly doesn't spread to other parts of the body, but that is not to say that they don't cause harm- benign brain tumours for example can be extremely dangerous. Malignant tumours are cancerous and can be divided into carcinomas [affecting the surface lining of an area of the body [e.g. in the skin such as malignant melanoma, breast cancer, prostate cancer] or sarcomas affecting the tissue such as bone cancer-osteosarcoma.

Metastases is when cancer cells are thrown off to other places in the body and damage surrounding tissues or spread via the blood or the lymphatics as their wall lining is so thin:- because the lymphatics are all over the body, it is a very common way for cancer to spread to form secondary tumours called metastases. The lymph nodes may slow this process down for a time and equally the treatment of a spreading

cancer can depend on the spread in the lymph nodes. Banks [2004.P.1.1].

*Cancer attacks our ability to fight disease- **The Immune System.** The Immune System is made up of many internal organs and systems: - the Lymphatic, Endocrine, Respiratory, Cardio-Vascular, Nervous, Musculo-Skeletal, Digestive and Respiratory Systems, all held together by the Skin, the biggest organ of the body. The incredible interplay and delicate but constantly moving, adjusting interaction between these systems keeps us healthy and balanced at all times-homeostasis. With a cancer diagnosis, many of these systems may be affected, which will upset the homeostasis of the body, making it harder to be restored.*

Emotional Effects of Cancer and associated treatments: -

Anxiety. Fear. Uncertainty. Anger. Threat/self-esteem [who am I?]. Blame. Guilt. Depression. Hopelessness. Denial. Acceptance. Stress. Insomnia. Emotional pain.

“Being Positive” shouldn’t mean avoiding reality: -equally, fear isn’t negative, its about being realistic...’It is as it is’. Depression may be caused by not facing the feelings and emotions that arise....” When I try to suppress or force myself to change my feelings, the more I push them, the more they push back” [Ref 11].

In relation to stress and cancer, Timothy McColl [Ref 6] states that there is not a lot of evidence that stress causes cancer, but it increases the odds of dying from the disease.

“ We have an awkward relationship with our mental and emotional lives- we need to learn to open up to these thoughts and emotions, even if they are painful [Ref 12].

“ Denial leads directly to repression which traps our precious energy and gives our buried emotions even more power over us” [Ref 11]

Physical Effects of Cancer and associated treatments: -

Fatigue. Anaemia. Compromised immunity. Pain. Changes in appetite/Changes in body size/shape. Loss of libido. Fertility. Sleeping

problems. Body weakness. Strength. Stiffness. Poor balance and coordination. Breathlessness

'Prevention better than cure'.

The most common forms of cancer are known to be preventable by simply adopting a healthier lifestyle. There is a direct correlation between the increase in cancer rates in the western world and diet and weight. Obesity is defined by the World Health Organization as having a BMI [body mass index] greater than 30. Obesity reduces a person's life expectancy by 9 years and is also the cause of many different types of cancer: - 1 in 10 cancer deaths are obesity related and 1 in 7 cancer deaths in the over 50's is caused by obesity: - weight loss can reduce the risk of getting these cancers...maintaining a healthy body weight could prevent up to 100,000 cases of cancer in the UK/year. By losing 10% of your body weight, you can halve the risk of dying from different diseases. When fat is stored in the abdominal region, it wraps around the bowels, stomach liver, and pancreas increasing the risk of cancer: - fat toxins in the blood are now being blamed for different cancers. Obesity also acts as an obstacle in the fight against cancer, from diagnosis to treatment [it is harder to define and diagnose cancer through ultra sound scans for example, with extra layers of fat to go through].

So, diet should be low in saturated fat and red meat. A high fruit, vegetable, nut and high fibre diet is particularly good in reducing the risk of bowel and stomach cancer- recent scientific research shows that this diet can prevent 1 in 5 cases of cancer. Tomatoes, vitamin E and selenium can help prevent prostate cancer

Good levels of physical activity go hand in hand with a good diet and there is increasing evidence linked in particular with prostate cancer, breast cancer and colon cancer [13-14% are related to sedentary lifestyle choices]. Research shows that there are convincing links between lifestyle choices and food you eat: - scientists believe that as many as 30-40% of new cancers could be prevented by healthier lifestyle choices as cancer can take up to 20 years to develop. Banks [2004.P. 6.2]

What is Yoga?

'Yoga is as scientific as it is spiritual'

Prinster [2014. P.30]

The word yoga is derived from the Sanskrit word 'yuj' which means 'to join', which means unity or oneness. By harmonising our energy and breath, we can begin to learn to meditate to help access insight and understanding...Yoga helps to cleanse the quality of our present moment Mandala Ashram YTTC [2015-2017]. The science of yoga begins to work on the outermost aspect of our being or personality, the physical body, which is familiar to us and a practical place to start, thereby bringing the different bodily functions into alignment so that they work for the good of the whole body, Mandala Ashram [2015-17] and Saraswati [2013. P. 11].

In " The Science of Yoga" Broad, [2012. P. 15]. Broad says" yoga seems to hold out the promise of increasing not only our life span, but our health span" and that 'many of yoga's truths surely go beyond the truth of science'. This essence of life, in all it's different forms and dimensions, seems to me, to be key in the quest of life generally, which I feel personally has been illuminated on my YTTC journey- it is one of the most exciting aspects of the course. I love the depth and broadening perspectives that the YTTC has given me; a gift that I naively wasn't prepared for, but has helped me in all aspects of my life including, and perhaps most importantly my professional development, when working with cancer patients.

Yoga works on all aspects of our being from the physical, emotional, vital, to the spiritual. Mandala Ashram YTTC [2015-17].

Originally a sadhaka would practise hatha yoga for many years to prepare himself for the awakening of kundalini, but the western world seems to have forgotten this underlying aim, preferring to focus on the health related benefits associated with yoga such as reducing stress, improving flexibility, balance and strength and helping us to relax. Swami Muktibodhananda [2012.P.14], reminds us "as one practises hatha yoga techniques, one's physical and mental potential begins to increase and unfold." I believe that this is the path that many western yoga students find their way along: - perhaps initially embarking on yoga for personal health gains, but then developing a deeper more subtle awareness through pranayama and meditation perhaps, of the more profound effects that yoga may naturally unfold. We know that

with steady yoga practise, our proprioceptive abilities go deeper- the ability to feel what's going on in the body: - the ability to perceive and conceive our environment. We begin to acknowledge that the physical act of keeping still can require as much mental and physical effort as moving the body-perhaps more. Learning to control the breath can invite a window into learning to control the mind.

Practising different asanas can have specific beneficial effects on our physical bodies. For example, spinal rotations [twists], create physical compression and affect the movement of fluid through our systems, as well as massaging and toning the internal organs [the squeeze and soak effect, described by Iyengar], whereas forward bends may be more directed towards opening and lengthening soft tissues through the back of the body, as well as compressing/massaging the internal organs. Developing and improving our balance has enormous benefits in terms of strength and proprioception, but also demands a sense of focus, which ultimately suggests a calming of the mind. And so it stands to reason that a way of improving our balance can also come about by calming the mind, which may be more accessible for some people by pranayama [breath] work- the use of the breath for purification and stilling the mind. Pranyama helps to refine nadis-energy levels Mandala Ashram YTTC [2015-17]. As one develops a better understanding of different aspects and benefits of the various pranayama options, then this in turn naturally helps to calm the mind, improve concentration and focus the awareness more within. And then this will enable us to begin to appreciate the value of meditation, a sense of steadying yourself internally:- if you start to harmonise body, mind and spirit, life will naturally improve Mandala Ashram YTTC [2015-17]. Integral to yoga is appreciating the importance of 'letting go' or relaxing. This can be at a physical level, which for many of us, in our busy demanding and over stimulated lives, doesn't come easy. So, in a yoga class, to pause, 'have a breather' between asanas and learn to simply 'let go' is as important as the asanas themselves: - this is integral to any yoga class. As a physiotherapist, we learnt that 'maximal relaxation gives maximal contraction', in other words, to get the most out of each muscle group, those muscles must be able to lengthen and release. This stands to reason as when a muscle relaxes, the 'new' blood can be absorbed back into the body of the muscle, thereby providing the nutrients and oxygen vital for healthy muscle activity. Conversely, contraction of a muscle group will squeeze out the waste products and by-products of cellular metabolism and support this cycle of interdependent muscle health.

Somehow, in our western culture, we seem to associate the idea of 'relaxation' as being lazy, indulgent, non-productive and therefore wrong. Relaxing the body also helps to relax the mind. If the mind is relaxed, then it will be more receptive to the benefits of meditation. Through meditation, we are able to take our consciousness to different parts of our mind and move away from intellectualization. Meditation helps to develop our sense of detachment [vairagya]. When I first learnt about this, I found it difficult to appreciate the quality of vairagya, somehow it seemed self-centred and a rather selfish approach to life. But through my own practise, I have learnt to appreciate the value lying in, again release of the ego from your endeavours in life, to let go of any expectation, without it impacting on you too much, Mandala Ashram YTTC [2015-17]. It's not an easy quality to explore, but important to develop, specifically on a cancer journey, if possible. Ultimately by confronting our deep-rooted fears and anxieties that manifest in the lower mind, greater happiness in life can be attained Friedeberger [1996.P. 30].

We know that our state of mind can be a reflection of our physical body and vice versa. It is embedded in all ancient yogic philosophy to therefore ensure that we harmonise the body, mind and emotions.

The 3 Gunas or qualities of nature are: -

Tamas-dullness or disillusionment procrastination

Raja-active, passionate.

Sattwa-a peaceful balanced state. Mandala Ashram YTTC [2015-17].

The joy of yoga practise is the continual readjusting to these changing gunas- homeostasis.

Yoga And Cancer.

“yoga teaches us to listen-really listen to the mind as well as the body and it’s sensations, the breath and its sensations....to learn what’s really going on”Prinster 2014.P.88].

In yoga, disease originates from an imbalance in body/mind/spirit.

DISEASE....Dis=inability of a non functional state

Ease=harmony of body/mind.

“ A cancer diagnosis opens doors for us: We can use the threat to motivate ourselves to learn how our bodies and minds work” Prinster [2014.P.26]

The koshas and their relevance to illness and cancer:-

1] Annamaya kosha [physical body]...poor diet, unhealthy lifestyle-> **dis-ease**

2] Pranamaya kosha [energy body]...over exhaustion/lethargy-poor immune system-> **dis-ease**

3] Manomaya kosha [mental body]...negative states of mind lower the immunity-> **dis-ease**

4] Vijnanamaya kosha [the wisdom body/unconscious mind]....

*Tamasic lifestyle maybe related to past lifestyle eg jealousy completely affects your behaviour/attitude to life/life approach-> **dis-ease***

5] Anandamaya kosha [blissful body]...state of pure Sattwa [balance & peace] and cannot be affected by the tamas.-> **healthy eased yogi!**

Yoga follows principles of movement, [the body is built to move!] resistance, gravity, [we have developed over time to be bipedal and so all our external and internal organs have evolved to cope with the effects of gravity- not sitting in a chair for long periods of the day! I remember a powerful discussion with a medical consultant regarding management of a bariatric woman of 59, who has been bed –ridden for 5 years, but says she wants to walk, yet lacks a sense of will-power and motivation, despite the best endeavours of a whole team of allied health professionals to support her objectives, reminding me of this evolutionary importance, and how we all have to take responsibility for

our lifestyle choices and move away from the paternalistic medical model....] and the relaxation response.

Yoga poses that involve weight bearing on the bones [e.g. standing and balance asanas] increase the active resistance of our bones against gravity, thus improving bone health. One of the unfortunate bi-products of conventional treatment of cancers, such as hormone therapy can cause osteopaenia [pre-cursor to osteoporosis] and osteoporosis and therefore guided mindful weight bearing asanas will encourage formation of osteoclasts and osteoblasts which are needed to increase bone mass. As well as awareness of osteoporosis, there is also the concern over bone metastases, which could mean that a yoga student may come to a class with spinal metastatic fractures, which are 'controlled and stable'. Of course this can be alarming, but in my experience, open clear lines of communication with the student and if possible, the medics involved, help to clarify what modifications may be appropriate: - it is that useful and completely appropriate saying- "it all depends...." Mandala Ashram YTTC [2015-17!]

Yoga can assist in lymphatic drainage and venous return [the fluid systems in the body], which keeps our immune systems strong and aids expulsion of waste and potentially harmful toxins.

The nervous system is integral to how we perceive and receive our environment [proprioception], and is key for good physical balance as well as mental balance. The connective tissue that runs throughout the whole body embeds and supports neural tissue. Radiotherapy and surgery both produce scarring within the tissues and this can restrict the dynamic nature of nervous tissue, causing pain and restricted movement. Moving and holding asanas with awareness and use of the breath will facilitate a release of this tightness.

The cardiovascular system is also key to a healthy immune system [as well as opening of anahata chakra], and flowing asanas [eg surya namaskar] as well as inversions, will aid venous return as well as provide fresh oxygenated blood to the brain, helping with concentration, fatigue and clarity of mind.

In yoga, we can learn to let go of physical and emotional pain [suffering], we can learn to become detached from the pain by being detached from the physical body [vairagya], by being a witness to these feelings [Drahta bhava [awareness]... "when the normal thinking mind is at rest, we can access the subconscious mind and see life as it is, enabling us to change and allow the flow of life to happen or unfold.... "Yoga can encourage and support us to enquire into death and to help us prepare for death." Fishman [2012].

" Practising yoga develops the steadiness and inner strength that enables us to cope with all the obstacles that are put in our path, and to use them as stepping stones to greater knowledge and deeper awareness" Dharma [2016. Courage with Cancer course notes].

The Relaxation Response is a key vital component in yoga; it cannot be underestimated or undervalued. In the 1960's, Dr. Benson of Havard Medical School proved that the brain can be stimulated to create relaxation [the relaxation response] which changes our physical and emotional responses to stress, facilitated by the parasympathetic nervous system. Prinster [2014.P.53]

" The autonomic nervous system is divided into the sympathetic system, which is often identified with the fight/flight response, and the parasympathetic.... the relaxation response. When you do yoga-the deep breathing, the stretching, the movements that release muscle tension, the relaxed focus on being present in your body-you initiate a process that turns the fight/flight system off and the relaxation response on. That has a dramatic effect on the body. The heartbeat slows, respiration decreases, blood pressure decreases. The body seizes this chance to turn on the healing mechanisms" [Richard Faulds].

" Yoga makes economic sense, not just for individuals.... The entire country" McCall[2007.P. 90].

Timothy McColl cites a study in 2004 by Dr. Lorenzo Cohen published in 'Cancer' journal that found that a Tibetan style of yoga which included gentle movements, breathing techniques, guided visualisation and meditation, significantly improved the sleep of 19 people suffering with lymphoma, compared with a control group, which improved their ability to get to sleep quicker, sleeping longer, reduced use of sleeping tablets, and reducing depression, fatigue, anxiety, and a number of unwanted thoughts.

Yoga, like other forms of exercise appear to improve our thinking due to increased oxygen and blood flow and increasing levels of neurotransmitters like endorphins, especially dopamine that improve mood and aid motivation.

Tara Prinster [2014. P. 41], cites the importance of exercise in cancer referring to a 2005 study in Boston linked exercise to cancer recovery during and after breast cancer treatments. They found that exercise reduced common side effects and enhanced mood as well as measuring over time, how 3-4 hours of walking/week can reduce the risk of breast cancer related death by 90%.

" I started radiation and chemotherapy after surgery, and although my body was too tired to move, I kept yoga in my daily life by meditating

and pranayama practise.....when I completed my treatments, I began to incorporate different movements...as the weeks progressed I started to feel stronger...I felt an overwhelming sense of gratitude...I had a different appreciation for life and what is truly important....I began to notice the smallest things. This joy that entered my heart has allowed me to cherish the smallest things and to speak the truth freely.”
Prinster [2014.P.47].

Benefits of Yoga in Cancer-the evidence: -

The value of practising yoga is in cultivating an acceptance of what is happening now-we need to sit and 'be' [Ref 12]

Yoga detoxifies the body and strengthens the immune system:- we know that the lymphatic system is key here and that the lymphatics, unlike the cardio-vascular system doesn't have a central pump [the heart] to move fluid from the superficial system [just underneath the surface of the skin] to the deeper systems, where there are valves called lymphangions to push the fluid. Primarily therefore, this system depends on movement. This can be activated by diaphragmatic breathing [there is a large chain of deeper lymph nodes that lie underneath the diaphragm, which helps create a negative pressure, thereby creating a 'draw' from superficial to deeper systems]. We know that the immune system is made up of all the body's systems, and together, they are 'on the look out' for a new or returning cancer cell. Chemotherapy and other cancer treatments can disrupt this system, by reducing the white blood cell count thus increasing the chances of infection. On a molecular level, recent research has found that yoga causes an improvement in gene expression [information from a gene is used to make a functional gene product] within lymphocytes [immune cells], increasing their production. Prinster [2014.P.33]

Asanas and movement will stimulate the blood flow and muscle activity to direct fluid again through the whole body, thereby promoting the release of toxins into the system and so detoxifying the body and strengthening the immune system.

Yoga strengthens the body:- through cancer treatments such as surgery, radiotherapy, chemotherapy, people often suffer the effects of fatigue and muscle atrophy/weakness. This is because the treatment attacks healthy cells such as bone, muscle and organ cells, as well as the fast-growing attacking cancer cells. Because in yoga, body weight can be used to support, activate or resist movement through self awareness focus and breathing ['easy breath gives easy movement'], as well as use of props, it minimises the risk of damage or harmful pressure which is more likely in for example, going to the gym, using weights etc. that could occur on weakened bones.

Bone Strengthening: - Changes in bone density can be an on-going problem in the cancer [recovery] journey, as well as the ageing process.

The balance between osteoblast [bone building cells] and osteoclasts [bone absorbing cells] is altered resulting in osteopaenia [reduction in bone volume], the precursor to osteoporosis [reduction in bone mass]. A study in Hong Kong in 2004 Prinster [2014.P.53] identified that weight-bearing activities were beneficial in accruing peak bone mass and optimising bone structure. However, it is imperative to avoid high impact activities. Balance asanas with proper preparation for example which focus on alignment and weight bearing will have a very positive effect.

Fishman [2009] has provided a pilot study looking over 2 years at bone density of the hips and spine of 117 subjects divided into a control group [receiving 'normal treatments'] and a group that additionally received yoga sessions. The outcome showed that consistently the yoga group had significant gains in bone density and that some in the control group had lost bone density. Fishman [2009].

Yoga increases flexibility: *-a lot of cancer treatments create scar tissue that limits joint and muscle range. Chemotherapy and hormone therapy can create joint stiffness, affecting functional daily activities. Slow gentle movements with the focus as always, on alignment and the use of the breath help to regain flexibility and release scar tissue. This can include passive restorative poses, which will also lengthen muscles, giving less pain and more confidence to move.*

Yoga increases spinal strength: *- loss of the natural curvature of the spine [that beautiful 'S' shape] limits and crowds the space necessary for stomach, lungs, intestines and heart function. This will affect the flow of oxygen and nutrients at every cellular level including the removal of harmful toxins. In yoga, we learn that length gives strength and with all asanas, this relies primarily on correct and natural spinal posture, which is a constantly changing and dynamic process. It is however key to avoid over stress on the spine [so letting go of the ego to minimise the risk of harm-AHIMSA].*

Yoga helps manage weight changes:- *Yoga provides a gentle and safe way to manage weight. It can be slow and restorative during on-going treatments or changes in symptoms, [and when weight loss is more likely] or more active, therefore calorie burning for cancer survivors [who may be on long term hormone treatments or steroids that can increase weight]: - 'it is a mistake to coddle survivors, treating them as sick.... I remember attending a yoga class with my bald head and the teacher encouraging me to lie in restorative poses and not participate in the active yoga class. I felt isolated, ashamed and annoyed...." Prinster [2014.P.74].*

We know that weight gain is a main cause of recurrence as well as cancer incidence; therefore weight control should be positively promoted at every opportunity. Yoga can help without pointing the finger and improve self-esteem in a welcoming physically accessible and inclusive way.

Yoga can help manage pain: - *“ Until advanced stages, most cancers do not cause pain...it is the treatments and their side effects ...not the cancer itself” Prinster [2014.P.75]. With this in mind, supporting students through body and mind awareness will help them to understand the changes in the body and how they can tune into different sensations which can affect the sensation of pain or perhaps altering alignment of bodily structures will change the dynamic nature of the experience of pain. And we know that pain always has an emotional context too. Street et al [2010], conducted a RCT over 12 weeks looking at whether changes to mood, anxiety and GABA levels were specific to yoga as opposed to other forms of physical activity. Mood & anxiety scales were taken at 1,4,8 & 12 week periods, as well as MRI scans at 1 and 12 weeks, as well as a scan taken immediately after a yoga session and the control group involved in going for 60 minute walks 3 times a week.*

The results showed that the yoga group had significantly improved mood, reduced anxiety and improved thalamic GABA levels compared to the control-walking group.Streeter et al [2013]].

Yoga helps manage fear and anxiety: - *following a cancer diagnosis, treatments and on-going life, there is often an undercurrent of anxiety, fear and uncertainty. This can impact on mood, causing depression and affecting sleep quality and a downward spiral of different physical and psychological symptoms can unfold, effecting on-going health and well-being. Buffat et al [2012], looked at RCTs and performed a meta analysis of the effects of yoga on both the physical and psychological outcomes in cancer patients and survivors, comparing yoga with non exercise or waiting list control groups and found that out of 16 publications of 13 RCTs, there were consistently large reductions in distress, anxiety, mood and depression, moderate reductions in fatigue and moderate improvements in quality of life, emotional function and social function. They also concluded that a recent review of 10 studies demonstrated that yoga maybe as effective as exercise for improving health outcomes such as blood glucose levels, lipids, fatigue, pain and sleep in healthy people and in people with diabetes and Multiple Sclerosis. Buffet et al [2013].*

A 2013 study published in the Journal of Clinical Oncology reported that 90% of cancer survivors who participated in a yoga programme saw improvement in their sleep quality. Prinster [2014.P.76]

Yoga enhances empowerment and well-being:- *Suzanne Danhauer conducted research in 2009 and looked at random trials studying the effects of yoga on emotions and found that over 50% of her subjects found an increase in positive emotions such as calmness and a sense of purpose Prinster.[2014.P.79]. These benefits will ultimately increase an overall sense of well being as well as empowerment. Not only surviving with resilience, but surviving and thriving has often been described by cancer survivors- a sense of reinventing yourself and having the opportunity to completely change your life: - knowing that life will never be the same, but this doesn't have to be a negative thing. It can be life enhancing.*

Mackenzie et al [2013], conducted a 7 week trial of weekly yoga [1 ¼ hours] on 66 cancer survivor participants, [most at stage 2 or 3 of breast cancer lymphoma and colorectal diagnoses] who were assessed, pre, post, 3 month, 6 month follow ups within a clinical cancer setting for health related quality of life scores, psychological health, stress on symptoms, fatigue and sleep. The results showed a linear improvement in energy over time, which is very important, as fatigue is a big element of cancer and associated conditions, treatments etc. The mindfulness aspect of yoga helped to reduce a non-judging of inner experiences and the ability to let go of emotions without having to act on them. This was associated with yoga's focus on developing skills of awareness, non-judging and non reactivity, which helps to reduce stress and improve mood:- this is stated in the study as different to other types of mindfulness where one is encouraged to observe and describe one's experiences.

In Timothy McCall's book, [2007.P. 2012], he cites Jnani Chapman's Approach for those cancer students who still feel the effects of their cancer treatments, as well as those who want a more vigorous practice further down the recovery route. What her philosophy builds on is to go slowly slowly and to start with a specific tuning in process, she calls the Witness Practise: -

1] Conscious awareness of the body from the crown to the tips of the toes.." simply saying hello, as if you are taking an inventory as a completely disinterested party.

2] Emotional Awareness...notice of there are any feeling bubbling up for you that want to be acknowledged. Whatever's present, let it be.

3. Bringing your awareness to your thinking level-notice any habitual patterns of thinking or recurrent themes.

4. Awareness of your energy levels-? Tired? restless? Combination of the 2 or ? Relaxed and peaceful.

5. Awareness to the breath without controlling it: - how long is the breath in? How long is the breath out?

6. Awareness back to the physical body. Rest for 1 minute.

She then continues with a gentle Asana practise with breath awareness and then Pranayama, followed by Meditation and Yoga Nidra, specifically including her students to “invite harmony and balance, patience and perseverance, peace and joy to every cell, every muscle, every tissue, every organ and every system in your body”.

In her section on ‘Special Considerations and Modification’, she avoids breath retention as she feels there is a need to access as much oxygen as possible to improve lymphatic drainage and oxygenation of all tissues. I don’t agree with this:-on the YTTC course [2015-17], we have learnt about the powerful impact that pranayama in all its different components can have. Breath retention helps control the elimination of carbon dioxide, as well as triggers the natural cycle for inspiration, both of which will increase the intake of oxygen through the natural breath.

Yoga improves sleep patterns: - As well as disruptions in normal sleep patterns, the consequences of undergoing treatments related to cancer impacts on postural alignment, comfort and pain levels, all of which can also disrupt sleep levels and quality for between 30-90% all cancer survivors.. Mustian et al [2013], looked at 410 survivors, and using the Pittsburgh Sleep Quality Index, measured global sleep quality, subjective quality, daytime dysfunction, wake after sleep onset, sleep efficiency and medication use at post intervention compared to standard core participants. These participants then engaged in YOCAS- a standardized yoga session including a combination of Hatha and Restorative Yoga, with the focus on non judgement, observation to the present experience for the purpose of attending to both internal and external impressions. All participants also had diaries to record their activity levels, as home practise for all groups was expected.

The yoga group reported an exertion rate of ‘moderate [3.4], while the control group reported an exertion rate of ‘very weak [1] in the intervention period

The baseline reading for both groups initially in relation to sleep was 9.00-> clinically impaired sleep.

The result indicated clinically improved sleep quality for the yoga group, compared to the control group and 100% of yoga participants would recommend yoga to other cancer survivors. The yoga group had

reduced their sleep medication by 21% as opposed to 5% for the control group.

Yoga improves fatigue levels: - One of the most debilitating effects of cancer and its treatments that people report is the impact of fatigue, which is consistently described as something completely different to 'normal' fatigue or tiredness.

A study of 44 women who had been diagnosed with breast cancer, were split into 2 groups and one group were then given 75 minute sessions of Restorative Yoga. Because the outcome of the classes showed such consistent improvement in fatigue levels and mental health with reports of a positive impact on spirituality [feeling calm and peaceful], the control group were then invited to also have Restorative Yoga sessions.

Yoga Nidra in Cancer Survivors: -

"Yoga is holistic: it heals by making us whole". Friedeberger, J [2008].

Yoga Nidra is a practise that can greatly benefit those on the cancer journey. The practitioner should not try and concentrate, but only maintain a relaxed awareness on the directions given by the instructor. Cancer brings an onslaught of different overwhelming emotions- anxiety, terror, anger, grief, despair, fears for one's future and for loved ones and as Friedeberger J [2008] states, Yoga Nidra can help quieten the commotion down and so give rise to an opportunity to reflect more calmly on the situation; it may support an opportunity to examine one's life and heal more deeply

'In healing cancer, enormous sustained endurance and will power are necessary....Yoga Nidra maximises the individual's own conscious efforts to become healthy and whole and so Yoga Nidra is an effective form of Cancer Therapy... the sankalpa resolution remains affirmative and significant, even if the cancer is terminal' [Friedeberger J 2008]. Pritchard et al [2009], conducted a study of 22 cancer patients receiving yoga Nidra over a 6 week period, once a week, as well as providing students with practise CDs to use daily at home. The mean perceived stress scale pre -study = 17 and post study=12.28. This result indicates a significantly effective stress reduction technique which is easy to perform, and relatively inexpensive.

Friedeberger,2008] describes Yoga Nidra as helping us to 'let go'....it develops detachment [vairagya]and works to free blocked energies and so it can help us accept the reality of a situation ...seeing 'the thing' as

it is. She describes the rotation of awareness as being an opportunity to let go and not to hang on as it forces you into the present, a sense of the consciousness of time as finite. The pairs of opposites is another opportunity to adopt the niyama of vairagya:- to stand back a little and learn what is going on inside and not be afraid:- the sensations, unpleasant painful treatments won't last forever....'let them go'... She describes the visualisation aspect of yoga Nidra as an opportunity for the imagination to roam freely to access and release samskaras [past impressions] and so allow openings for new experiences. The process for all, but more specifically for cancer students is a sense that yoga Nidra can help lose the power of trapped emotions and fears there may be in relation to cancer. Because J. Friedeberger is an experienced yoga teacher as well as a cancer survivor, her descriptions and reactions to the yoga Nidra process are particularly enlightening.

A Pilot Scheme to Assess the Benefits of Yoga for Cancer Patients and Staff.

“ Our efforts to observe yama and niyama give us the inner strength, conviction and faith to meet the challenges we face and to learn the lessons they hold for us”. [Friedeberger, J. [1996].

To me, the above quote illustrates the natural integrity of yoga and within the field of cancer, the relevance is as important for both patients and staff: - if we can deliver yoga classes with the same ethos for both, then, as well as providing support, it will also facilitate a sense of going along a similar path together.

With the support of 2 wonderful managers in the NHS, I have been fortunate enough to deliver a 6-week pilot of classes for staff and cancer patients. We were keen to have some simple qualitative outcome measures that may help to reflect benefits or feelings experienced along the way:- these were MYMOP [Measure Yourself Medical Outcome Profile] and a simple pre & post 3 question qualitative questionnaire [Appendices 1-4]. Both sessions lasted for 1-¼ hours.

Yoga for Cancer: -

The selection of patients for the pilot was dependent on staff referral, to which I had no control. The patients referred were generally palliative and so, although initial recruitment identified 4 students, this then reduced to 2, due to rapidly deteriorating health. Although initially disappointing, I soon realised that in fact, what I was delivering was a tailored clinical yoga session for the remaining 2 people.- I found this incredibly rewarding, and again, knowing that the managers were all for providing qualitative support, there was no problem about this. However, what I also found, was that my therapeutic experience working with other patients on the wards, in clinics etc. began to change.

Patient diagnoses ranged from inflammatory breast cancer with brain metastases and neural plexopathy, to metastatic pancreatic cancer, metastatic brain tumours, and oncological breast cancer patients. Symptoms identified included tiredness and fatigue, balance, forgetfulness, reduced flexibility, anxiety.

Aims identified by patients for the sessions included improve flexibility; learn how to relax, to exercise, breathing more regularly, to be suppler.

The 6-week outcomes showed improved flexibility, more relaxed, more awareness of breathing and moving.

Outcomes relating to balance and fatigue didn't improve. However, this was due to deteriorating prognosis and commencement of palliative chemotherapy. I felt humbled to be able to continue to provide sessions for 1 individual who says 'it's the only thing I am doing at the moment that makes me feel normal'.

A gentleman I was seeing on the ward with terminal cancer, but a strong spirit, was developing worsening respiratory control, relating to pressure on the lungs from the disease spread & pressure. He was really receptive to gentle breath control with PMA 1 movements and then said to me "I haven't been outside for 6 weeks-I want to see the sky again". I managed to persuade the ward physio team to take him outside in a wheelchair [with his oxygen & catheters etc] to feel the warm breeze on his face. He loved it. The next day, he died. The young physio was devastated, but I gave her a big hug and told her she had given him the best parting gift, and to feel honoured.

My first class was with 1 lady who had terminal brain metastases, able to walk, but with perceptive processing difficulties, not obvious from first 'sight'. She was very keen to lie on the floor etc, and although functionally able, had great difficulty processing the information to enable her to get there. However the effort [on both our sides!] was really worth it, as she loved lying on her back and watching the clouds gently passing overhead against the blue sky, seen through the big roof window. I came away having learnt so much from that session: - to feel ok about abandoning the lesson plan, to simply 'be' and keep the awareness with the moment by moment joys of life-the moving clouds, the sun on your face lying in relaxation: - also to do relaxation a lot earlier on, to allow time for externalisation slowly, with ahimsa, with awareness of the here and now in its truest sense.

What was fascinating in week 2 was having another student who also had brain metastases, allowed M. to use visual cues from D., thus participate more fully in the yoga class: - the processing of information was now supported by watching and copying at the same time as hearing the instructions.

D. has found the pranayama work very challenging but at the same time extremely rewarding. I think the coordination of movement with breath provides an unexpected dimension for her to concentrate on, which she persistently stays with. At the end of each session, she feels

completely relaxed and transported and keeps saying how much she Loves yoga! She tells me that she is aware of feeling more open across the front of her chest-opening of anahata chakra. She has in fact started to bring her husband which initially, I wasn't sure about, [wasn't in the remit], but quickly realised that the value for her was including him in her quality time, something simple and special that they could do together and always have as a positive memory through her current rocky difficult journey.

Personally, I have had to learn to constantly adapt my expectations [don't have any.... its not about me!] and therefore delivery of a session: - yesterday for example, D. found she couldn't move into ardho mukha svanasana, due to the impact of her chemo treatment affecting her balance, fatigue and strength. We had a chat about it and I now know that next week's session must be restorative biased, but with more asanas in standing: - I will be developing the class around Yoga Nidra. I had also assumed I would be working with a bigger group, but am pleasantly reassured that my managers are completely supportive of the value for 1 person being as important as for 4 or more.

Yoga for Staff: -

4 staff attended over a 6week period.

Symptoms identified included:- mental, physical, flushes, sinus trouble, poor body tone, joint stiffness, low energy, tension, poor balance.

Aims identified included: - improved flexibility in body and mind, tone up, increased energy, more relaxed, reduced flushes.

The 6 week outcomes showed improved relaxation and ability to switch off, feeling more positive, more flexible, reduced stiffness, better response to flushes, less nasal congestion,[helping with choir singing], improved overall well-being.

Outcomes for 1 staff member relating to balance continued to be on-going,,with recognition for the need to focus on this relating to a past injury and surgery.

All staff indicated that they would like the course to continue and appreciated the opportunity to share their time together in an informal but supportive environment.

Discussion: - Whilst initially disappointed that I didn't have more cancer students, this unique opportunity has been nurturing and empowering in a way that I hadn't completely anticipated. It has opened up many future possibilities and developed skills and

confidences for many of us that were involved-it feels like the start of an exciting journey...

Final Thought & Comments: -

On reflection of the last 2 years and having gone through this process of producing a project towards my diploma YTTC, I have realised how lucky I am to have been given so many opportunities along the way. Combining a very demanding intense full time job in the NHS alongside the YTTC course has been very challenging. However, it has also been an extremely rewarding and nurturing journey. I feel in fact that as a glove fits a hand [or, is it the other way around...?!], opportunities have presented themselves along the way, and not without a fight and sheer grit and determination, am I truly feeling I can see the beginnings of a path opening up. Yesterday, I went for an interview and have been fortunate enough to be successful in getting a 2 year seconded post for a day a week through Macmillan, as a Physiotherapist in Cancer Rehabilitation. The provision of the pilot scheme for staff and cancer patients that I undertook has also resulted in the manager of day hospice services to request that this service continues, perhaps developing for terminally ill people. What has also been incredible too, is that these 2 managers have also seen and supported the value and importance in providing support for staff working in this extremely rewarding but demanding area of health.

I know in my heart, that without the anchor [but float too!], that the YTTC has given me, I may have lost sight of the vision that has now begun to bear fruit, as the course has not only, given me the tools to continue to provide yoga for cancer in the NHS, but it has also kept me grounded, given me an inner sense of calm and provided a daily inspirational cleansing, as well as the strength to continue to move forward. The expectation of teaching classes has also potentially opened up an opportunity to set up a yoga class for cancer in the community through adult education: - I hope that I may be able to get health and education to truly 'marry'- to develop a supportive cohesive framework in the future for cancer survivors to reap the amazing rewards that yoga can instil. Perhaps it is more than a coincidence that my tendency over the past few weeks, has been working through the sides of the body: - opening up to new possibilities....

"Your hand opens and closes and opens and closes. If it were always a fist or always stretched open, you would be paralyzed. Your deepest

presence is in every small contracting and expanding, the two as beautifully balanced and coordinated as bird wings”.

Rumi.