

2016 U3A Course based on

Dancing With the Unknown

A Book about FEELINGS and the Everyday Experience of MIND and SOUL

Session 5 – May 2, 2016

In previous sessions I was using my own personal experience as an example of the two fundamental difficulties we face when we are overwhelmed by bad feelings. Whether we're feeling unhappy, angry, depressed, anxious or just vaguely unwell, the root of it so far as our mind is concerned is that we are experiencing (1) dissatisfaction with ourselves and/or (2) dissatisfaction with our relationships. At its best our mind enables us to feel comfortable with ourselves and to enjoy secure loving relationships. Its function is to keep us connected to our world in a way that is good for us as individuals and good for our world as a whole so we can both **be and belong**.

This need to be and belong is a fundamental principle that applies to all living things, known in biology as *autonomy* and *connectedness*. Autonomy is the amazing, self-governing, internal process whereby we are creating new versions of ourselves all the time; connectedness is the absolutely essential coupling that we must make with all our surroundings, including the other people in our lives. The person I am is always changing, but I will always **be** me – that's my biological identity. It is also a biological necessity that I **belong** to the outside world to try to get my needs met, both physical and psychological.

The point I want to emphasise today is that *these two cannot both be completely satisfied*. Hence life will always be an effort for both our mind and our body; it will always be something we have to work at - life 'wasn't meant to be easy' they say. We rely on our mind to keep the difficulties to a minimum and maximise the enjoyment and satisfaction (which is what this Course is about). Today I'm going to talk more about two things that have an important bearing on this: the idea of **love** as a biological necessity and the experience that we call **stress**. The fourth chapter of the book is called ***The Importance of Stress***.

Again I want to explain the biological principles that I think help us to understand what stress means in terms of our everyday experience. The biology I explained last time is only useful if it helps us to understand our own mind – what works well and what turns out badly – as happened to me. As I said it helped me in my life to have this biological explanation. And whenever I lose sight of these basic principles, today, I am more likely to get into trouble and suffer, again, either or both of those two threats to wellbeing – dissatisfaction with self and concern about relationships.

Julian Short, in his book *An Intelligent Life*, suggested two key words that I think capture beautifully and simply what we can do to address these two problems, which affect everyone, by the way. The two words are **kindness** (for the good of our relationships) and **dignity** (for the good of our self-esteem). I will come back to these later in the Course when we are looking at more practical details about our self-esteem and the issues that affect our relationships.

In our everyday experience we take the functioning of our mind for granted and we don't think about how it works, but what we do notice from time to time is something called *stress* and we think of it as being imposed upon us by our world. It's a feeling that our circumstances have become too much of a burden at this time and we are suffering to some extent because of this. We want the stress to be removed from our lives because it's uncomfortable and we know that

people get sick if they encounter too much stress. Now, this is not a very clear way of thinking about stress and it makes it harder for us to manage it. Let me take you back to the biology.

Being and belonging – autonomy and connectedness – can't both be completely satisfied. They are both important and they need each other, but they are also competing interests. Too much autonomy inevitably weakens connectedness and ultimate connectedness would destroy our autonomy. So there has to be compromise at all times. Your exact needs as an individual can never be completely fulfilled through your state of belonging with the rest of the world. There has to be some difference and therefore some tension because you would cease to exist as a person if you were perfectly equilibrated with your surroundings. That nice sense of individuality and the subtle challenges of connecting well that make life interesting are also its basic requirements.

That unavoidable tension is what we call stress. Life is accompanied by stress at all times. It is a constant and necessary part of the process of living. But its level varies enormously from being hardly noticeable a lot of the time to being very severe at other times. The better we adapt to our circumstances the less stress we feel. When life becomes challenging stress makes its presence felt and our mind is motivated to do something about it. If we can't adapt better the stress gets more severe and prolonged and that is when it can be harmful.

This is a subject dear to my heart because I spent much of my working life doing research into the causes and consequences of stress. I worked mostly with farm animals on the physiology of the stress response and the way this affects the animal's behaviour while some of my colleagues measured the effects on the health of the animal. Most of the hormones involved are the same as in humans and some of the effects are similar, too, but there are special features of the human stress response that are useful to know about and I will be explaining these today.

The physical demands on your body are one kind of stress and the greater the load you are under the more work you are required to do. The mind's role is to manage this and know when to stop and rest before you reach the limit of your physical capacity. Similarly with stress from heat or cold or deprivation of water or food we must work out what action to take to try to overcome this problem or it will eventually destroy us. But most of our everyday experience of stress is more subtle than that and it is the core business of our mind.

Most everyday stress occurs in the form of psychological and behavioural adjustments that we need to make in order to be and belong. Our mind is designed to deal with the threats to our autonomy and the obstacles affecting our relationships in such a way that we feel okay; our efficacious responses to stress are what ensures our wellbeing. I'm suggesting in this Course that we need **love** to do this well, but my main point is that *our mind is designed to use stress to our advantage rather than suffer from it*. Yet we are often told today to avoid it wherever possible because it's dangerous for our health.

So why is it that stress has such a bad press today? I've been thinking about this for a long time, but a recent book by Kelly McGonigal called *The Upside of Stress* helped me to appreciate the historical development of the thinking about stress. The word first came into the medical vocabulary in 1935 when Hans Selye's research in Canada showed that laboratory rats he had deliberately traumatised developed stomach ulcers and problems with their immune systems in a reaction that involved over-activity of their adrenal glands. He was a physician as well as a researcher and he came to see this kind of adrenal response as a possible predisposing cause for some of the non-infectious diseases that his patients developed, which was an important insight.

He knew that external demands are inevitable and that this is a normal coping mechanism – in fact he defined stress as the non-specific response of the body to any demand – but it wasn't long before the real interest in stress became what happens if the body can't cope. None of us encounter anything like the kind of stress that Selye's rats endured yet we fear stress anyway. A new field of stress-related pathology sprang up and the fact that it's quite difficult to pin down the exact cause

of many diseases anyway made it a fertile ground for research and speculation. Questions like what amount of stress will be harmful have proved very difficult to answer right to this day.

Twenty years before Selye's research a famous physiologist, Walter Cannon, had described an animal response to threatening stimuli that he called 'fight-or-flight' in which the hormone adrenalin plays an important part. It causes the heart to beat faster, blood pressure to rise and muscles to prepare for action. Even though humans are rarely threatened so directly and fighting or fleeing is hardly the best way to deal with stress anyway, people were found to be experiencing this kind of physiological response, abnormally, in their daily lives and one of the consequences was heart disease. This added to the fear of stress.

It's quite true that severe stress, especially when it's prolonged, causes us significant harm and makes us more likely to get sick in other ways such as respiratory infections, heart attacks, anxiety disorders and depression. But a lot of the hype on the internet and in the popular press that suggests stress is 'killing people' is very misleading. It's not a healthy use of your mind to feel that you are *suffering* from stress because it is a natural physiological resource designed to *help you adapt* to whatever is happening.

It's interesting that, in surveys, people who say they have very meaningful lives also say there is more stress in their lives than others might have and they see a link between the two. They get their sense of meaning in part from meeting challenges successfully, which requires extra effort and skill, but brings satisfaction. Post-traumatic stress disorders have become more widely recognised today and they can be very debilitating and difficult to treat, but research has shown that those most prone to this condition are not, on the whole, the people who respond most sensitively to stress; they tend to be those whose physiology is less reactive to external stimuli – in other words, the 'tough guys' – though not always.

The perception that one is stressed often comes from situations in one's workplace or the responsibilities associated with close family relationships. What starts out as a nervous feeling when you are racing to meet a work deadline, facing a difficult interview or about to give a presentation can become a worrying psychological strain if it is not relieved fairly quickly or if it keeps happening. Family dynamics create feelings of pressure that build up if they are not resolved. What all stressed feelings have in common is that, in the short term, we can either draw strength from them or make them worse depending on the way we think about the situation. Some people who play sport, for example, play better when they are under the most pressure while others play their worst at that time.

Research shows that adverse outcomes from stress depended more on people's attitudes to it than it did upon the level of stress. Regarding it as a challenge instead of a threat and utilising the short-term resources it offers led to better outcomes. To do this one has to have confidence in oneself and a sense that other people believe in you too. For many of us this strength of mind is hard to find and so our fate is that the accumulation of short-term stresses will become a prolonged (*i.e.* chronic) kind of stress from which you can't seem to escape, which is where stress does its damage.

This idea of a positive attitude toward stress has an important caveat. It does not mean that trying harder with self-will is necessarily a good idea. One of my saving graces that I mentioned earlier was that I didn't fear stress too much, but on the other hand my stubborn self-reliance was also what was preventing me from getting well. To know when to push on with something and when to back off and rest is a fundamental challenge for our mind and a recurring theme in this Course. The answer to that question is never easy to find.

My own research started at a time when there was a wave of new methodologies for measuring hormone levels in blood samples so we tried to explain everything in terms of which hormones were involved and how they affected one another. Mostly I measured cortisol from the adrenal gland, which is still regarded as a key indicator of stress. We also measured other hormones

including endorphins from the brain and earlier I was measuring oxytocin, before we knew anything about its interesting role in coping with stress. There are dozens of different hormones involved in every adjustment that the mind or body makes to external demands.

None of these is a villain by nature; they all have beneficial roles to play, in the first instance at least. If the levels remain high for too long, cortisol in particular, can cause harm to your immune system and has been implicated in mental illness as well. Stress also causes some down-regulation of hormones that are important in the longer term, but not essential during periods of high demand, so if the stress is not lessened at some stage that could end up being harmful. But in the short term cortisol is required to mobilise energy resources and use them more efficiently as the physical or mental demand increases. Others of particular interest today are DHEA (dihydroepiandrosterone) that strengthens the nervous system generally, other nerve growth factors, testosterone that builds muscle, endorphins (the natural opiates) that reduce pain and produce feelings of wellbeing, and oxytocin that eases anxiety and promotes trust and strong social bonds.

Most of the stress we encounter begins as a short-term experience and the situations I studied were of this kind also. That initial stress response may last for a few hours at the most after which the hormone levels return to normal. The important thing is that there are no long-term consequences from these fairly brief experiences of stress. It is the chronic kind of stress – such as severe overcrowding or confinement for long periods – that damages an animal's health. And it's the same for humans because that kind of stress directly affects the immune system. The hormones that influence our mind and the hormones and cells of our immune system have a strong two-way interaction, which is why emotions and health are so closely related. An interesting, though fairly technical, book about this is *The Balance Within* by Esther Steinberg.

Much has been made in more recent research of the fact that certain parts of our brain are physically altered by stress. The brain's ability to change its structure that we now call neuroplasticity can lead to remarkable feats of healing or it can be a debilitating decline in brain function – it works both ways. It is no surprise that our brain changes with every experience of stress as part of our normal adaptation and this can affect our cognitive abilities so that confusion is felt or a temporary loss of memory, but for this to become a significant change in our brain the stress needs to have persisted for days and weeks, not hours.

What we need to avoid, therefore, is prolonged stress. This could happen because the stressor is relentless and one can't escape or, more commonly, because one's responses to short-term stress did not provide relief so the effects accumulate over time. It is the health-giving function of our mind to reconnect us at every moment in a reasonably effective manner. As long as we don't get 'stuck' in doing this we should be able to use each stress response to our advantage.

I know there are uncomfortable situations from which it seems almost impossible to escape such as chronic illnesses that involve pain, fatigue and depression and these are a huge challenge for the imagination to find ways to keep one's life flowing and not give up in despair. People suffering from fibromyalgia were found to have a weakened stress response, but whether this is a cause or a consequence of the disease is not known. Even with long-term illnesses there is still benefit in keeping in touch with the feelings of everyday stress because this is our natural adaptation process. And, fortunately, humans actually have some different ways of dealing with stress that are far more subtle and effective than those available to any other animal.

The crucial difference between humans and animals is in our Autonomic Nervous System (ANS) that I need to explain in more detail. Here we are looking at the immediate stress response – the so-called fight-or-flight involving adrenalin. The ANS, which is the involuntary part of the nervous system, is the hub of the stress response – and therefore of the mind itself – because its task is to help us adapt by guiding our re-connections in each moment and it does this, for the most part, subconsciously. The ANS is a primitive part of our nervous system, but we humans have evolved

a new addition to it that is our greatest asset for handling stress.

The researcher most responsible for bringing this to our attention is Stephen Porges, an American physiologist, whose work is summarised in a book called *The Polyvagal Theory*, which is highly technical, but a very important book if you want to read more deeply about this. He took a broad biological approach, as I do, to study the evolution of the stress response and used this to explain what is different and special about the experience of stress in humans.

Much earlier in evolution, cold-blooded animals like lizards had a rudimentary ANS as their survival system. It could pep them up or shut them down and they coped with stress mainly by shutting their metabolism down altogether as in hibernation during winter or the ‘freeze’ response (death-feigning) that helped to protect them against predators. We still have those immobilising nerve fibres as part of our vagus nerve running from the *back* of our brain stem to many of our organs including our heart. They are the slowing or *soothing* part of our ANS (properly called the parasympathetic) as distinct from the *arousing* part that involves adrenalin (known as the sympathetic).

By the time mammals had evolved, such a drastic shutdown was highly inappropriate as a survival mechanism because the larger brain needed a constant supply of oxygen; in fact animals and newborn babies can die this way from sudden shock. Therefore the arousing part of the ANS had been beefed up to produce the fight-or-flight response. These nerve fibres mostly connect to the brain through the spinal column and they stimulate heartrate, blood pressure and respiration to deal with the emergency. Thus the primary response to stress had evolved from a basic immobilisation to a form of mobilisation.

The mammals also introduced the suckling of their young that was an enormous impetus for what Stephen Porges calls our ‘*social engagement system*’ about which I will be saying much more. I think Porges’ ‘*polyvagal theory*’ is the key to understanding the stress response in humans because it gave us a new way of thinking about the ANS. We have additional vagus nerve fibres running from the *front* of the brain stem to our organs that I refer to as the ***new soothing ANS*** and we have these because we needed more options than simply speeding up or shutting down to cope with the kinds of stress that we face all the time, especially in our social interaction.

This new soothing ANS gave to humans an entirely new level of intimacy for social engagement because it enables *immobilisation without fear*. This kind of trust became absolutely crucial in recent human evolution because the only way we could survive against external threats was by banding together. Nursing of the newborn was the precursor for the distinctly human behaviour of hugging or holding one another close and enjoying intimate body contact; the mother-infant relationship is the evolutionary basis for what we call relationships of love. The hormone, oxytocin, that enables milk letdown for suckling works closely with the new soothing ANS to promote trust and close inter-personal bonding in the human mind. Porges referred to love very aptly as ‘*an emergent property of the mammalian ANS.*’

So we humans now have three different levels of stress response available to us and if the highest level isn’t working we shift to the next one down. Our best strategy for handling stress is through loving social engagement, which will be the subject of much of the second half of this Course. The connecting of our minds and bodies with other humans maintains the necessary fluidity in our adaptation process. Any experience that feels stressful can be better handled if you can talk to someone about it – not seeking judgments or opinions, just for the flowing connection – and Porges also showed that body movement, facial and vocal expression and interactive play are some of the best antidotes for post-traumatic stress. They exercise our unique social engagement system that is especially designed to deal with the kinds of stress that humans experience most often.

But in everyday life we often resort to the superseded fight-or-flight mode when we perceive some kind of threat. This works to some extent, but the side effects may be harmful. The third alternative

is worst of all; people can become so stressed that their minds shut down altogether. It is the new soothing ANS that at least keeps humans alive in this situation whereas animals that do not have this are more likely to die from the initial shock of the stress response as happens for a mouse when it is first caught by a cat. The new soothing ANS is the last part of the nervous system to develop during pregnancy so babies that are born prematurely are at greater risk from any kind of stress in their early life.

Even though the animals I worked with have a less developed ANS, they are also highly social and we found that their health and productivity was better in moderately stressful situations if they were with familiar pen-mates. Another research group reported that stressed rabbits benefited from daily handling by humans compared to those that were left alone, which is a bit harder to explain. We know without doubt that hospitalised humans benefit from having a relationship with pet dogs and cats and we all know the value of a cuddly teddy bear for a child.

Inappropriate ways of coping with stress almost certainly contribute to problems we have with our mind. Whereas animals utilise the stress response in a natural way, we are inclined to think too much about it. And it isn't the most dramatic events that are the main problem – it's the everyday small adjustments whereby stress can accumulate over a period of time if the routine responses that we choose are not effective. Instead of acknowledging our feelings honestly with other people we often choose a variation of fight or flight in the form of an argument or an escapist mindset. Instead of trusting in the broader scheme of things we make premature judgments, attempt to control, and try even harder to sort out the details. I know it isn't easy to change these habits.

We need stress and to utilise it well we must draw on our relationships with other people and try to deal with it situation by situation so we keep moving on with our lives. If we love what we are doing our connectedness will be more positive and, instead of the energy-sapping kind of fear, we are more likely to feel the impetus of excitement that is the positive aspect of fear. Dark times such as I had close down one's imagination. This makes us more likely to neglect social engagement and the subsequent isolation makes it harder to see that *we need to connect more* with the world, not less, in order to feel better. To be stuck in anything is bad, whether it is depression, anxiety or suffering from stress. Our mind needs to flow from each present moment to the next without forming too many eddies and pools and the best catalyst for that is our interaction with other people.

Towards the end of my career I got to apply my research to problems that arise in human communication, which provided more evidence that the social interaction that generates shared meaning is the most natural and beneficial stress response. I tried to capture this idea in a musical play I wrote in 1989 called *Stress: The Musical*, the libretto of which is on my website.

To sum up: yes, stress does cause problems for many of us, but this is because it becomes prolonged, not because it is a bad thing in the first place. The function of our mind is to engage wisely and the experience of stress, even with its fear and unpleasant feelings, is motivating us to engage and showing us how to do so. In the second part of today's session I will talk about the fact that it does need lots of love to go with it.

BREAK

The fifth Chapter in the book is called ***Love as an Idea***. It introduces into our story a way of thinking about love that follows directly from what I've been talking about for the biology of mind and stress.

Love is number one. It's the most written about, sung about, thought about and desired feeling, emotion or state of mind. Poets can describe the nuances of the mind much more meaningfully

than scientists do, but even they have never explained love exhaustively. I'm sure there will always be more we will want to know about the experience that we call love. We won't ever be able to capture it in words or concepts.

But if we are to include love in our understanding of the proper use of the mind we will need to attach some kind of meaning to it. It's been common in the past to divide it up into different kinds of love. In ancient Greek the word *agape* was used to describe the highest form of totally selfless love such as might exist between God and mankind, which differed from brotherly love or parental love. This became *caritas* in Latin, meaning charity, in many Christian writings. In Buddhist language there are several different words for love with an emphasis on loving kindness and compassion. The idea is that love has so many facets to it and is so rich it needs a range of different words to describe it adequately. What I'm suggesting here is that it is useful to have one simple definition of love to use as a base – a foundation – for all the other ways we talk about it and all its variations in our experience. In the context of this Course love is something we **experience** in our feelings; that includes the joy of romance, but also many simple practical aspects of living in a partnership, having a family and so on. Later there is a Chapter called Everyday Love.

Because love is so diverse and rich in our experience I think it helps to have a base definition to work from as a starting point and this comes from the fundamental challenge of trying to achieve both being and belonging at the same time. This was the idea of love as a biological necessity that was pioneered by Maturana several decades ago. It's an unsentimental scientific definition of love that I think explains why it is so crucial. An inability to reconcile being and belonging would have made it very difficult to maintain our humanness; without love we may not have survived as a species. It is probably only recently in our evolution that love came to be regarded as a virtue or enjoyed as romance, but before that it was built into the operation of our mind as the only way to guarantee that we could manage our autonomy and our connectedness without one destroying or severely damaging the other.

Maturana defined love again recently as the '*fundamental sensory, operational and relational condition . . . that makes possible our human living.*' Amongst psychologists who have written about love my favourite is Erich Fromm who wrote *The Art of Loving* amongst other books. He said that, because our feelings of separateness are '*the source of shame . . . guilt and anxiety,*' the connecting power of love is no less than '*the answer to the problem of human existence.*' Those feelings of separateness that he said call for '*reunion by love*' are built into our nature as living beings; they underpin our autonomy and compel our connectedness. The task of our mind is to connect us as worthy individuals in a way that suits others as well so what better way to define love than in terms of this phenomenon of being and belonging?

Fromm defined love as '*a union under the condition of preserving one's integrity.*' Maturana used to say it was a relationship in which both I and the other could be the legitimate other (and I) at all times – the kind of coupling that conserves, and even enhances, our individual identities. And I wrote in my earlier book, *Mind and Love*, about the kind of loving relationship that respects and cares for others as it strengthens one's own autonomy and feeling of self-worth.

This sounds good, but we still have to deal with everyday stress, so the ideal of a complete union or perfect love is unattainable – as it is also in poetry, philosophy and spirituality. But having such an ideal shows us where to look for direction in our everyday experience of mind. I think the proper use of our mind boils down to *learning about love*. Our social engagement system is not a luxury we could do without – it is the most crucial element in our ability to stay alive in the first place and then cope with stress and enjoy the best possible feelings every day. We arrive in this world with an innate expectation of being loved and if we did not receive love in a practical way from the beginning we would not survive. Throughout our lives it remains our greatest need.

Describing love as an idea, as with any scientific explanation, threatens to rob it of its subtle beauty because we tend to forget about the mystery once we have a definition of something. But being

our most fundamental and unrequited yearning, love is the epitome of mystery and never lets us forget our mind's relationship with the unknown. In the poetic language of Sam Keen: '*the problem of the meaning of life is solved in the mystery of love.*' The mystery remains, but at least we know where to look to find meaning.

When I was trapped in those dark times I did not think that I was loved and, once we are adults, if we look only to other people to tell us we are loved, that is what will happen. But it's a fact of life that you don't need another person to tell you to experience love. This raises the question: where else could the feeling that you are loved come from? Love is such a fundamental need that we all experience it and we could not do without it, yet its source remains a mystery. To put this another way we can say that love seems to come from the unknown. This is not entirely scientific because, ultimately, love is a certain attitude that one must take – it is a part of my belief system. I believe in love. That does not mean that experiencing love requires no effort on our part. To fail to acknowledge love and to make no effort to practice it is the most life-destroying attitude any human being could ever have.

I think there are many misconceptions about love that we will look at in future sessions. One is that it exists only between two people, but of course we all experience strong satisfying relationships with many aspects of our world. Love is not necessarily personal because it is present before you even have a person on whom to bestow it and it remains even after that person has died. It seems to me that it exists to meet our most basic biological requirements – in other words to support life itself – because it is the principle that makes *being and belonging* sustainable. The poet and songwriter, Leonard Cohen, called it '*the only engine of survival.*'

Just as stress is the inevitable consequence of being alive, love is the available antidote to stress and therefore our most vital need. I hope I have given you some idea that there is a scientific explanation for the fact that living is something we have to work at and the effort that we all need to make can be best described as the effort to practice love in everything we do. More than this a scientist can't say because the rest is shrouded in mystery. In the next session I will come back to what I was saying earlier about the need to acknowledge the unknown because it is very important. I didn't know this for a long time, but I think I have a better life today because I do know it. Amongst many mysteries who can explain the fact that the more love you give away the more you seem to have in your life? The point is we don't need to have an explanation for everything.