Welcome to our 11th module in this online course in the Genie In Your Genes. Today our topic is one of my favorite subjects in the world, happiness. How do we become happy or at least happier? I have had lots of time to think about happiness over the course of my life. I began my life as a pretty miserable, depressed person. When I was 15, 14, 13, 16, mid teenage years, I was so depressed that hardly anyone wanted to hang around me except rather depressed people, which didn't improve my mood much at all. I'd look at people who are happy, because obviously there weren't people who were depressed, I'd think are they faking it? Is that real? Can people actually feel that way? And I began to then model my behavior on theirs. I thought, "Okay, I'll just do what they do and say what they do. Even if I don't believe it, I'll say those things and act that way and we'll see if that makes a difference." And it actually began to shift me bit by bit by bit.

I can't say I'm automatically an eternally happy person at this point in my life, but I can say that most of the time I'm pretty happy, and when I'm not happy I have tools in my disposal to nudge me in the direction of happiness. Now, the pursuit of happiness has been one of the central issues of human existence for centuries. Most religions, most philosophies have as their focus the increase of happiness, how do we become more happy? How do we ameliorate the conditions, like anxiety, depression and stress which drive us to unhappiness?

Now, one of the things I'm talking about here is becoming happier. Not necessarily happy or unhappy, but happier than you are now. Happiness is not like a light switch going from dark to light. Either you're unhappy or you're happy. It's more like a dimmer switch, where you turn the knob and gradually the light goes from dark to light via an infinite number of intermediate gradations.

So my goal in this course is to have you become happier, to turn your dimmer switch a little further toward the light side and to know how to nudge yourself more in that direction when you're not feeling good. So happiness can be thought of as a continuum from dark to light. And what people are to do is nudge yourself in the direction of positive feelings, positive emotions and things that make you feel happier and in a better state of mind.

Many things in the human body and in nature do lie on that kind of continuum from light to dark, or from one extreme to another. Very few things are of the either/or, black or white variety. One of the items on that continuum is our stress hormones. And for convenience, I summarize them with two hormones, cortisol, your main stress master hormone and DHEA, your main relaxation and cell repair hormone. So you want to have lots and lots and lots of DHEA in your body. It promotes cell regeneration and cell signaling. If you have lots of cortisol in your body, that uses the same two biological building blocks as a DHEA. And then you have less DHEA if you're cannibalizing those biological components to make cortisol. So you don't have either DHEA or cortisol. You have a ratio between DHEA and cortisol that's somewhere along that continuum.

Now obviously, if you have more cortisol and less DHEA, then the genes that contain the blueprint for
cortisol, the code for cortisol, must be more highly expressed and the genes that code for DHEA must be less highly expressed. So gene expression is also on this kind of continuum. If you're producing more of hormone, that means that the genes that code for this hormone are more highly expressed and the genes that code for the opposing hormone are suppressed, or silenced. That's a really important concept to grasp. Many things in nature, many things in biology, and many things in your emotional realm are on a continuum. They aren't a stark contrast between light and dark. Over the last decade, researchers have begun to draw fascinating links between emotion and gene expression.

In one study that I mentioned earlier, we looked at the work of Moshe Szyf at McGill University in Canada and his work with rats. He found that baby rats that were nurtured by their mothers had very different responses to stress when they were adults than rats that hadn't been nurtured by their mothers. And all the genes that helped us handle the stress response that dampen our overreaction to stress were turned on in the nurtured rats, but not in the non-nurtured rats who are more fearful and anxious when confronted by stress.

Dr. Szyf began to ask himself then about the possibility of examining humans and figuring us out. Now, you can't take a whole group of babies, neglect them, not nurture them, and compare them, dissect their brains to see what's turned on and turned off by way of gene expression in their emotional brain, their mid-brain. But he came across a way of performing a similar experiment in an ingenious way. He compared the brains of people who died in accidental deaths. They were average, happy, non-psychotic people. He compared these to the brains of schizophrenics who'd committed suicide, and he found an absolutely enormous difference. The schizophrenics had all the same stress dampening genes as the normal people had. All the equipment to dampen stress was there in their emotional brains, just like the brains of normal people, but it was all shut down. All those genes were highly methylated.

We think back to earlier parts of the course, remember that methyls are groups of molecules that stick to genes, and so it's like a zipper with bubble gum stuck to it. You can't unzip the zipper. You can't unzip the DNA strand because it has these chemicals adhering to it that stop the zipping process from happening. That's the methyl group.

And so they had all the stress dampening equipment in their emotional brains, all those stress damping genes that normal people have, but they were heavily methylated. He called it hypermethylation. And what he said in that paper was that he believed that their adverse childhoods had resulted in the turning off in the hypermethylation, in the silencing of those stress damping genes. They were just turned on all the time and they'd lost their brain’s natural ability to dampen the stress signals that were coming in from the environment.

There has been a lot of research in the past decade on this link, the interrelationship between mood, psychological mood, between gene expression and also the link between those factors and early childhood nurturing. In one study of 177 boys that were incarcerated in a juvenile detention center, they had a gene which predisposes them to PTSD. But they also had neglectful or absent mothers, and this seems to have triggered the expression of that gene. So it takes both the gene and also an environmental influence often to trigger states like depression.

One way of thinking about the neurotransmitter dopamine is as your motivational hormone. And you
can think of serotonin as your satisfaction hormone. So dopamine means, "Got to get it. I'm motivated. I'm going for the goal." And serotonin means, "Ah, I've got it. I feel so good now. I've climbed the mountain." So those are the relative roles those two neurotransmitters play in the function of your brain.

So in those boys, higher levels of dopamine were associated with that neglectful parenting. This is also found in many other studies. Children tend to be more anxious, more depressed, have higher levels of PTSD and other negative behaviors if they have neglectful parenting, absent parents, and adverse childhood circumstances. Now, you'll notice that I'm lumping together very disparate psychological diagnoses.

The bible of diagnosis psychology is the "Diagnostic and Statistical Manual of the American Psychiatric Association", otherwise known as the DSM. And the DSM classifies psychological problems into different classes, different groups, and often makes very minute distinctions, so you can read there about factitious disorder. You can read there about vascular dementia. And the process of reducing psychological conditions to these narrow categories has reached its art in the DSM.

Unfortunately though, biology doesn't look like that. While to a psychiatrist all of these different distinctions might be apparent, to a biologist they're not apparent. So if you take the brain of somebody who's anxious and compare it to the brain of somebody who's depressed, what you'll see is substantially the same. You'll see disorder in the emotional brain. You'll see a dysregulation of the autonomic nervous system.

When you think about our evolutionary biology, how we evolved, it makes perfect sense. When your distant ancestor, Ogg, was sitting on a tree stump digesting his dinner and a lion came by, Ogg didn't think, "Hmmm. Am I anxious that the lion is in the vicinity? Or am I depressed about the possibility of becoming the lion's lunch?" Ogg did not pause to consult the DSM and discover which disorder he had. Ogg jumped to his feet and ran like crazy to get out of there. That's the evolutionary need to escape. When our fight or flight is engaged, all kinds of shifts happen in our body, and our emotional brain doesn't care about anything other than survival.

Another great 20th century medical pioneer was a doctor named Hans Selye. And what struck him was that, as he walked through the wards of his hospitals, as he examined patients, they were often diagnosed, again, with different medical conditions. And he noticed there were certain symptoms that were common to virtually all of them, things like rashes, things like digestive upsets, things like skin tone were common to people, regardless of the medical diagnosis. And he coined a term to describe this common syndrome, he called it stress. He said these people are stressed, and that stress seemed to be affecting their whole bodies, regardless of the diagnosis for which they've been admitted to hospital. So there's this tension in medicine and psychology between the reductionist, looking to reduce our symptoms into smaller and smaller slices and the holistic physicians and psychologists, who look at the function of the human being as an entire organism.

Now, one pair of studies really rocked the scientific world and showed us how much of an influence we have over our genes. The first was performed at Harvard Medical School by Herb Benson and his colleagues. What he did was he taught people a phenomenon called the relaxation response and he taught in the relaxation response to relax your body and your mind. In fact Herb Benson developed the
relaxation response in direct response to Hans Selye's noting that people were stressed. Herb Benson said, "What can I do that will reverse stress and reverse the course of all the ailments that stress brings with it?" He came up with the relaxation response.

It's now been studied extensively over the past 50 years. But what he did with a group of people was he measured their gene expression before and after he taught them the relaxation response, and he compared that to a second group who had already learned it before. He found, of course, that there were significant genetic changes between the people who knew how to relax and those that didn't. But what he also found was that just eight weeks after learning the relaxation response, the genetic profile of those who hadn't learned it before changed and improved to substantially match the gene expression profile of those that had been long time relaxers. He found that over 1,500 genes were being shifted by learning how to relax.

Another groundbreaking study was performed by Dean Ornish who made a front cover of "Time Magazine" a few years ago with his program for reversing heart disease. This time he was looking at men with prostate cancer, and what he did was he got together a group of men who, rather than getting conventional treatment which involves surgery and perhaps hormonal injections, he had them undergo a very simple lifestyle intervention. They just changed the way they lived. They did smart things, like they learned to meditate. They did an hour a day of moderate exercise, and they changed their diet to include more vegetables and fewer processed foods. Those three changes, a more sensible diet, a little bit of exercise, and meditation or other kind of contemplative practice each day, wound up making a huge difference with over 500 genes changing expression, including those that code for prostate cancer genes. He found there was a down regulation of prostate cancer genes, a down regulation of breast cancer genes. Now what he also found was really exciting because he found regulation of many of the positive genes that help us live longer lives, help ourselves communicate and regenerate and support our immune system. So all kinds of helpful genes were up regulated, even as the ALCO genes, the cancer genes were down regulated.

There's now a whole new class of research looking at a fast eating molecule called telomerase. Telomerase is what composes the tail ends of our chromosomes. Telomerases, these are strings of this molecule, and they function much like the stopper does at the end of a zipper. So if you unzip your shirt or your jacket, then there's a little device at the end that stops it unraveling all the way. That's a telomere. In much the same way, when our cells divide and our DNA splits, there is that stopper of the telomere that stops unraveling all the way.

Now this kind of biological function comes at a cost, because each time the cell divides, one of those pairs of telomeres falls away. And when that strand of telomerase gets too short, the cell dies. You can't do anything to keep that cell alive once it hits that limit, called Hayflick limit, then the cell dies. So we have this range of telomerase with which we're born. Those telomerases shorten as our cells divide. When that strand gets too short, the cells die. The length of those telomere tails gets shorter by about 1% a year, and this is a very stable kind of change. In fact, biologists reckon that the drop in telomere length maybe the most single reliable predictor of cell aging. So telomere studies are now being done on aging, and we're noticing that there's a big difference between people's biological age and their chronological age in some cases.
In one study, the researchers looked at highly stressed older people who had adverse childhoods, and they found that their levels of telomeres, their levels of telomere... I'll start from... In one study of highly stressed older adults.

In one study of older adults, the researchers looked at telomere length, and they found that those who had had adverse childhoods had shorter telomeres. Not just a little bit shorter, but that childhood adversity translated into between seven and 15 years less of life. In other words, their telomeres had shortened to the point where their life expectancy was dramatically lower than people who had not had those adverse childhood experiences.

In another study of adults who are 30 years old comparing stressed to unstressed people, the difference between their chronological age and their biological age, when compared to non-stressed people, was five years. In other words, chronologically they were the same as their 30 year old peers. Biologically, this huge gap had opened up shown by their telomere length in their chances of a long and healthy life.

I've been looking more and more into the link between telomere length and happiness, and there is both good and bad news. For example, the children of unhappy mothers were born with shorter telomeres than the children of happy mothers. So even maternal influence is affecting lifespan in the womb. It's that pervasive.

Now, as far as happiness goes there's a lot of good news. An analysis of 30 studies by Dutch researcher Ruut Veenhoven found that happiness contributed over a decade to your lifespan. Happy people were more likely to moderate their weight. They were less likely to smoke and drink excessive alcohol. They noticed disease symptoms earlier and to prompt action. So in all kinds of ways, happy people had an edge which showed up in dramatically longer life spans.

Not only is happiness healthy, it's also contagious. You can catch it from the people near you. If, for example, you have a happy friend, your happiness is likely to be 15% greater than if you don't. In fact, even having a friend of a happy friend, two layers out, your happiness will increase by 10%. And even three layers out, having a friend of a friend who's happy. That will increase your happiness level by about 6%. This is according to a very large long-term study called the Framingham Heart Study. So it is well worth surrounding yourself with happy people.

My wife has a funny scale she uses. She says, "What's your number, Dawson?" And what she means is on a scale of zero to 100, where are you? Are you a 75, a 95, an 87? And everyday we have this funny game we play. We say, "What's your number?" So our kids, and even our grandkids get stuck into this game. What's your number right now? Then, of course, if you're an 87, the next question is, "What would it take to make you over 90?" You then think about that, and often, just becoming mindful, asking the question will raise you over 90. So play this happiness game with other people. It is lots of fun, and it works to remind yourself of the possibility of happiness.

Now one research question that follows from this is if you had a lousy childhood, are you condemned to carry those epigenetic effects with you the rest of your life? Are you condemned to a life of misery and depression, with shortened telomeres, shortened lifespan, decreased resistance to disease, and all the other sequels that follow from that? And the encouraging answer from the early research on this topic is
no, you aren't. That can all be reversed.

In one study, researchers took mice who'd been stressed when they were very young. And they found, typically, that those stress dampening genes had been methylated, just like the rats in the Szyf study. But when those mice that exposed later on to a nurturing, enriched environment, those methyl groups began popping off those genes, and the mice began to return to a normal state.

In another study, by Richard Davidson, he looked at meditators, people who are experienced in mindfulness meditation. He compared them, after just one day, to people who engaged in leisure pursuits, and he found out that the meditators have had many positive gene changes in the course of their mindfulness. Among those improvements, their genes that code for pain control were up regulated. Their genes that code for immune function were up regulated. And a host of other beneficial genetic changes as a result of the epigenetic effects of mindfulness meditation.

So the scientific evidence continues to pour in that positive states, positive, emotional and spiritual states, have an enormous effect on our bodies. We can take wherever we are on that continuum of happiness and move ourselves more in the direction of being happier people. Doing so has an enormously beneficial effect on our bodies, on our cells. We also know how to do this. We know that positive attitude, positive intentions, a positive outlook on life has beneficial effect. We know the techniques like EFT and EMDR psychology have a beneficial effect. We know that meditation, especially mindfulness meditation, can help us shift the expression of many genes. Laughter, feeling good. In one study of diabetic men, 27 beneficial genes were up regulated by a healthy dose of laughter. So buy those joke books, go on those joke websites, learn to meditate, do all the things that are possible within your power to nudge your gene expression in a positive direction. You can join a house of worship, volunteer for a charity, surround yourself with positive people. And if you have stinkers in your life, get rid of them. You don’t need those people. They're holding you back. They’re weighing you down. At least you can minimize your contact with depressing or angry people.

So take positive charge of your life, and by taking positive charge of your happiness, you’re taking positive charge of your health. These kinds of inventions are so good for us that conventional medicine is now waking up to the fact that they’re there, and starting to look at them and even implement them in large scale treatment settings. For example, the giant Kaiser Permanente HMO chain, now has meditation classes, yoga classes, healthy family classes. Many of their psychology practitioners use techniques like EMDR, like EFT to help their clients recover.

I visited the giant MD Anderson Cancer Center in Houston and again found that there are energy medicine technique and practice there. There are energy psychology techniques in practice there. As I travel to medical conferences, I am struck by how many personnel in the Veteran’s Administration have become really discouraged by the lack of success with conventional treatments for PTSD. They’re now turning to energy psychology, especially EFT, for better and faster way than the drug and conventional therapies that were previously at their disposal.

Now again I’m not knocking drugs, I’m not knocking surgery. I think that the advances of modern medicine are fantastic and that, when used appropriately, they can make a huge difference in our health and well being. But when you have a headache do you go first to the medicine cabinet, or do you first to
mindfulness or tapping? When you have a minor ailment, when you have a cough or respiratory distress, by all means get it checked out by your doctor, but also share with your physician or your nurse that you have energy medicine tools at your disposal. Try those as well as conventional medicine. I know, for example, I take a bunch of supplements in the morning, and one thing I do is as I put my supplements in a little pile to take them, I simply bless them. Now, is that changing the chemical composition of the supplements? Is it imbuing them with some kind of divine subtle energy? I don’t really think so, but it’s changing my attitude. It’s engaging my belief system. It’s engaging my placebo effect. If my doctor prescribes me medication, then as I take the medication, I imagine it clearing out the disease. So in this way you can take the best of conventional medicine, you can marry it with the best of alternative medicine and engage the placebo response, energy medicine, meditation, mindfulness, belief optimism, all these intangibles to turbo charge the effect of everything you’re doing.

So I believe that the best doctors, the best hospitals in the future will use combination of conventional medicine, alternative medicine, that when you go in for a pain, when you go in for perhaps a minor ailment, that your doctor will ask you about your spiritual practice, your degree of social support. Do you know mindfulness? Do you know tapping? So that you have all these as tools at your disposal.

What I’d like to see is that conventional medicine marry alternative methods and offer patients the best of all possible worlds. If you have both of these at your disposal, then you have a full range of healing potential and you can offer your body and your mind the best possible combination of therapies. Anytime you rely on one therapy, or one set of therapies, of necessity, you are ruling out the beneficial potential of others. So look at the whole spectrum of options, both alternative and conventional. And more and more doctors, more and more nurses, more and more of psychotherapists, more and more psychiatrists, I’m happy to say, are noticing the potential of these kinds of possibilities, these kinds of treatments. In the past, we used to think that meditation, EFT, tapping, energy medicine and tools like that were soft. They were just kind of these imaginary feel good techniques that perhaps made people feel a bit better but had no real hard medical evidence behind them.

But what we’re now we’re doing, with the availability of tests for gene expression, telomere length, we’re now subjecting those to hard scientific scrutiny. We’re finding that they’re tremendously beneficial. They are potent epigenetic interventions, changing the expression of genes to your body, often not just one gene or ten genes but hundreds or even thousands of genes and help you to live a longer and happier life.

So I encourage you to find every possible excuse to do good, to feel good, to engage in acts of kindness to others and to yourself. Meditation is an act of kindness to yourself. Tapping is an act of kindness to yourself. And even find all kinds of ways of being kind, loving, generous to other people.

The other day we’re at a restaurant. I was with my kids and my wife, and I just smiled at the lady who was making omelets and said, “That was a delicious omelet. Thank you ever so much.” She startled and looked up like this and gave me a huge radiant smile. Suddenly, she was mindful of the service and the gift of what she was doing. And I made a conscious choice to do that. I didn’t have to, I could have walked right by her like the other hundred people in the line had done, but instead I took a moment to acknowledge her. It cost me absolutely nothing. Most acts of kindness, most acts of altruism cost you absolutely nothing. And yet, they’re affecting your health and they’re spreading that, layer by layer by layer around you, as we saw in the Framingham Heart Study. So take the deliberate action that requires new life, to
implement being an optimistic person to nudging your happiness further along like a continuum for joy, and your body will thank you, and for the rest of your life you'll not only be happier, you'll be healthier as well.

Let’s look now at the Tapas acupressure technique or TAT, one quick and easy way of shifting your degree of triggering and stress. What you do is you assume a very simple position while you think of a series of possibilities. What you do first is you put three fingers, one in these two spots, the third in the middle of your forehead, like this. Put your other hand over the back of your neck. This is called the occipital ridge of your skull. While you’re doing this, you close your eyes, and then ask yourself the following questions. Notice any shifts in your body. Is your breathing shifting? Are your muscles relaxing? Are you feeling better in some way? Usually, as you resolve each of these questions, you’ll feel a shift in your body. So go ahead and think about an event or a situation that bothers you. Give it a score on that handy scale from zero to ten, with zero being no emotional distress and ten being the maximum possible emotional distress.

You’ve now got your event, you’ve now got your number. Write those two down and then assume this pose. And now think about this following series of questions. While holding the pose, think about the problem or event. Give yourself a moment, and notice if any changes occur in your breathing, your muscular tension, or your body while holding the pose and thinking about the event.

Now take a breath and think about the opposite of the problem. This bad thing happened, but I’m safe now. Feel that feeling of safety and distance from the event while holding the pose. Take another deep breath. Then imagine that all the origins of this problem or event are healing now. Another breath. The places in my body where this problem or event is held are healing now. Another breath. The parts of me that benefited from my having this problem or experiencing this event are now healed. Another breath. I forgive everyone I blamed or I hurt as a result of this problem or event. Deep breath. I forgive everyone who hurt or blamed me as a result of this problem or event. Another deep breath. I now integrate this healing throughout my body, my mind, and my spirit. This healing is now fully integrated across every dimension of my body, my mind, and my spirit forever. And one last deep breath.

Didn’t that feel good? Now notice in your body and your mind when you think about that negative event now, what number are you? Write down your new number and the chances are it will have dropped quite a bit. If not, you can do TAT again, you can try EFT, and what you’ll find at the time is that your degree of emotion triggering around these issues goes way down and you start to feel a whole lot happier.