

INTRODUCTION



EVERYONE EXPERIENCES HAPPINESS differently. For one person it means running barefoot through the dewy grass, for another it's holding his baby in his arms. Sex can make people happy, as can a new outfit, a hotdog or Mozart's Concerto No. 13 for Piano and Orchestra. There are also people who find happiness in the very absence of all of this, as when a Zen monk experiences bliss by losing himself in emptiness.

What kind of a feeling is happiness? Katherine Mansfield described a rapturous moment as being like a glowing slice of sun that one has suddenly swallowed. We all chase after this sensation, but it comes over us when we least expect it—only to disappear before we have a chance to enjoy it fully. Once again there is no time left to look at happiness more closely and to uncover the rules that govern the game it plays with us.

In the spring of 2000 I visited the brain researcher Vilayanur

xiv

S. Ramachandran. This brilliant and eccentric Indian-born scientist had caused a stir with his theory of a “God module” in the brain. He'd also cured amputees of their phantom pains by having them look into a set of ingeniously arranged mirrors! *Newsweek* named him a member of the “Century Club,” one of the hundred most influential people to watch in the new century. We discussed people's lack of self-understanding, while he paced back and forth in his office among models of the brain, telescopes (he's an amateur astronomer) and statues of Hindu divinities: Ramachandran is a man who cannot sit still even for a moment. Suddenly he exclaimed in his melodious, Indian-inflected English, “And we don't even know yet what happiness is.”

That observation was the catalyst for this book. I wanted to know what happiness is. My own search for positive feelings certainly played a role in my hope that we could find happiness if we only knew where to look for it. I was also motivated by curiosity, which is an occupational disease of biologists and journalists—and I am both.

The deeper I dug into the subject, the more I read, the more I spoke with scientists, sages as well as ordinary people in Asia and in the West, the more convinced I became of a discovery that surprised even me: Ramachandran was wrong. We now know a great deal about what happiness is. Most of what we know, however, is very hard to find, scattered among countless scholarly articles, many of them difficult to learn about. There are other discoveries that have not even been published yet—to say nothing of new insights being gathered and described in a way that anyone can understand and put to use. That is what I hope to achieve with this book.

Perhaps you're surprised to read that happiness—this complex, seemingly divine feeling—can be scientifically researched. We see nothing strange in the study of *unhappiness*. Clinical psychologists have long attended to unpleasant feelings, and for the past

two decades or so brain researchers have become increasingly knowledgeable about the origins of anger, fear and depression. An entire industry that sells pills against pathological dejection profits from their discoveries, as, indeed, do countless patients. But for a long time happiness was more or less shrugged off.

This has changed only recently. Brain scientists have begun to direct their interest towards positive feelings, and they are making rapid and impressive progress. Much of what until relatively recently was still science fiction is reality in today's laboratories. New imaging techniques enable us to observe the brain as it thinks and feels. They allow us to see, for example, how joy arises in our brain when we think of someone we love. Molecular biology reveals what subsequently transpires within our ten trillion brain cells, and psychological experiments show how these internal changes affect our behavior. We are forming an understanding of the ways in which positive feelings come into being.

We are now beginning to answer questions that people have always asked themselves. Is happiness more than simply the opposite of unhappiness? Is it genetic? Does the feeling of anger pass if you vent it? Is it possible to prolong the good moments? Does money make people happy? Can we stay in love with the same person all our life? What is the greatest happiness?

Central to answering these questions are two fairly recent insights of brain research. One concerns the parts of the brain that produce a sense of well-being: our brains have a special circuitry for joy, pleasure and euphoria—we have a happiness system. Just as we come into the world with a capacity for speech, we are also programmed for positive feelings. This discovery will shape our understanding of mankind as powerfully as Freud's theories of the deep unconscious did in the last century.

The other, still more surprising discovery is that the adult brain continues to change. Until a few years ago scientists believed that the brain, like bones, was fully grown by no later than the

end of puberty. But exactly the opposite is true: the circuits in our brain are altered whenever we learn something, and new connections are forged in our network of nerve cells. Using the right microscopes, we can even see these transformations within the skull. After you have read this book, your brain will look different than when you started.

These changes are triggered by thoughts, but even more by emotions. This means that with the right exercises we can increase our capacity for happiness. Much as we can learn a foreign language, we can train our natural aptitude for positive feelings.

Fascinated by the discoveries of genetic research, we've tended for some time now to understand all our individual characteristics in terms of genes and chromosomes. It's easy for us to overlook the fact that we develop our genetic inheritance only in interaction with our day-to-day lives. Our happiness depends at least as much on our environment and our culture as on our genes, which is why this book considers not only the brain as a source for happiness but also the cultural influences and the daily occurrences that set these processes in motion.

The role culture plays in our perceptions of happiness is evident even in differences among languages. Sanskrit, the language of ancient India, for example, contains over a dozen words for as many different ways to express our English "happiness."² The other Western languages, too, lag well behind the abundance of positive sensations of which we are capable.

A study comparing American students and the inhabitants of a city in India provides persuasive evidence of the way in which these differences can play out. Both groups were shown a silent video in which certain gestures were demonstrated by two masters of Indian dance. These were accompanied by a random listing of their meanings—joyful surprise, relaxed satisfaction after a completed task, or shy excitement. For the Indians this list consisted of a few appropriate words.³ While the young

Americans had no difficulty in matching the correct description to the gestures of happiness, they lacked the specific vocabulary and required long circumlocutions to identify feelings for which the Indians needed only a few appropriate words. It seems, then, that our brains are capable of feelings that go more or less unrecognized in Western culture.

We pay a heavy price for this disregard of happiness. More than every fourth American suffers at least once in his lifetime from a psychological disturbance, and in the course of a year nearly one out of ten experiences a depression lasting several weeks.⁴ Over 30,000 people in the U.S. commit suicide every year. In other parts of the world, suicide rates are much lower.⁵

The incidence of serious depression is rising quickly—in the United States as in almost all industrial countries. Above all, this illness is affecting ever more children, adolescents and young adults: today the risk of depression for young people is three times higher than it was ten years ago.⁶

The mental suffering experienced in the industrialized countries is spreading to other parts of the world.⁷ Within twenty years depression will affect more women the world over than any other illness, whether physical or mental. Only cardiac and circulatory illnesses will do more harm to men.⁸ Depression is threatening to become the plague of the 21st century.

Far from everyone who is unhappy suffers from mental illness. Nonetheless, sadness is much more closely related to depression than was long assumed, for both result from similar processes in the brain. They're worth combating. The epidemic of depression shows how urgently we need a culture of happiness.

"Joy is the transition of mind into a state of perfection," according to the Dutch philosopher Baruch Spinoza. "Pain, on the other hand, is the transition to a lower state."

But joy affects the body at least as much as it does the mind. Unhappiness destroys the body. Happiness strengthens

it. New studies shed light on the connections between body and mind that scientists have long overlooked. Persistent fear and despondency are dangerous to health because they cause stress. And stress increases the risk of dying of a heart attack or a stroke, to take only two examples. By contrast, someone who has learned to contain his dark moods and to fortify his sunny ones is also taking care of his body. Positive feelings counteract stress and its consequences for health. They even stimulate the immune system.

They increase mental productivity even more. In terms of the brain, thoughts and feelings are two sides of the same coin: happy people are more creative, and, as many studies show, they solve problems better and more quickly.⁹ Happiness makes people smart, and not just momentarily, but permanently. Positive feelings stimulate growth in the nerve connections in the brain—happiness and new mental associations go together.

Finally, happy people are also nicer people. They are more aware and more likely to see the good in others. They are more likely to act altruistically, and they are more successful mediators in resolving conflict.¹⁰

Thus happiness can be both one of life's goals and the means to a better life. Negative moods limit people, whereas positive feelings expand options. Happiness brings vitality.

In order to find happiness, you have to know what it is. This book will take you on a journey of discovery to positive feelings. You will learn many tips to help you apply new neuroscientific discoveries towards a happier life. But this isn't a self-help book in the usual sense. I want to explain causes, not to hand out easy answers, for every person's happiness is, after all, as unique as her personality. Our brains are built according to the same model, so we all experience pleasure and joy similarly, but what specifically triggers these feelings differs from one person to another. This is why generalized advice is of little use. In the

end, everyone has to find her own way to happiness. This book is to be a kind of travel guide to make that journey possible.

In the first part of the book, you'll learn how happiness comes about and why nature invented positive feelings. At the center of these chapters is an account of how our brain can make us happy and bring negative emotions under control. Like muscles, these systems can be trained. The brain can reprogram itself, changing its structure not only through external experiences but also by learning about its own feelings. Surprisingly, many of the new scientific discoveries confirm age-old wisdom, which is why the first part of the book ends with a short comparison of the legacy of insights transmitted from ancient Greece and Rome as well as Eastern cultures.

The second part of the book explores the anatomy of the passions. The experience of pleasure, the joys of discovery, love, and sex have much in common, and yet they come about in different ways and serve different ends. These basic feelings are congenital and have developed over the course of millions of years. We can observe some of them in relatively simple creatures like mice and even bees. Passions are rooted so deeply within humans and animals that it is pointless to want to get rid of them, or even to change them. What is important is that we learn to live with them, living so that we can extract as much pleasure and as little pain as possible from evolution's programs. The last chapter of this section offers suggestions for making this possible.

Evolution has also equipped humans, unlike insects and rodents, with a highly developed cerebrum. We are built to steer our inborn drives, pleasures and fears into well-ordered pathways. The third part of this book deals with these accomplishments of consciousness and the means we have of putting them to use. Whether we see the famous glass as half full or half empty has much more influence on our feelings than

xix

do the actual contents of the glass. The ability to consciously steer our thoughts and feelings gives us a powerful tool against sadness and even depression. But the cerebrum enables us to do still more: unlike animals, we can experience feelings of freedom, a sense of openness, receptivity and oneness with the world. We can be in rapture over the play of light on the surface of the sea, and we can lose ourselves completely in an activity. Directed perception and concentration are the keys to such moments of euphoria. Possibly these mental states even explain how mystical experiences come about in people's minds.

An important source of happiness lies in the optimal development of our talents and potential. But no one lives for himself alone. For this reason the fourth and last part of this book looks at the conditions that must exist in society in order for citizens to engage—in the words of the Declaration of Independence—in “the pursuit of happiness.” Where there is a sense of community, justice, and control over our own lives, the chances that an individual can lead a happy life are good.

The question, then, is how society as a whole, as well as every individual in it, can create a culture of happiness. Two thousand years ago the sages sensed that it would be possible for people to increase their happiness. Today, thanks to the astonishingly productive field of neuroscience, there is no longer any doubt: we can learn to be happy.

xx

CONTENTS



INTRODUCTION	000
PART ONE: HAPPINESS: WHAT IS IT?	000
1. <i>The Secret of Smiling</i>	000
2. <i>Positive Feelings as a Compass</i>	000
3. <i>The Happiness System</i>	000
4. <i>The Malleable Brain</i>	000
PART TWO: THE PASSIONS	000
5. <i>Origins in the Animal Kingdom</i>	000
6. <i>Desire</i>	000
7. <i>Enjoyment</i>	000
8. <i>The Dark Side of Desire</i>	000
9. <i>Love</i>	000
10. <i>Friendship</i>	000
11. <i>Passion: A User's Manual</i>	000
PART THREE: A STRATEGIC CONSCIOUSNESS	000
12. <i>Conquering our Shadows</i>	000
13. <i>The Power of Perspective</i>	000
14. <i>Rapturous Moments</i>	000

THE SCIENCE OF HAPPINESS

PART FOUR: A HAPPY SOCIETY

15. <i>The Magic Triangle</i>	000
EPILOGUE: <i>Six Billion Paths to Happiness</i>	000
NOTES	000
BIBLIOGRAPHY	000
ACKNOWLEDGMENTS	000
INDEX	000