Art Cure

The Science of How the Arts Transform Our Health

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Do we need art?

Russell stood with his hand on the door, wondering whether to go in. It just wasn't his scene. He was only here because his doctor had told him to come.

It had started with a stroke. He'd been walking home from work when the blood supply to the base of his brain became blocked and the world careened sideways. He'd had to relearn to walk, to talk. There had been months lying in bed staring at the ceiling and panicking about his future. He'd developed back pain so bad he couldn't sit up. He'd lost his job, his relationship with his partner fell apart, he couldn't play with his son any more, he put on weight, he couldn't sleep. When he did sleep, his breathing kept stopping, so he had to wear a mask over his head at night, blowing air into his lungs to keep his airways open. His doctors prescribed dozens of pills, but new problems kept accumulating. He felt himself spiralling down into depression.

When his doctor first wrote the prescription for eight weeks of art classes, Russell thought for a moment it was some sort of joke. How was art supposed to help? But he didn't feel he had anything to lose any more, so he opened the door.

The first class wasn't as bad as he'd expected. He didn't paint, just watched the others in the class. But somehow just being around the paints, the colours, and the calming atmosphere had an impact, and on his way home he noticed his breathing was slower and deeper and he felt a bit calmer than he had walking in. The next week wasn't as daunting. He recognised a few of the other people. Again, he didn't do any art. But that night he couldn't sleep, so he snuck outside and sat in the shed in the garden, doodling little caricatures of the

people in the art group. In the third class, he picked up a paintbrush. Russell's still not sure how things escalated so rapidly after that, but a few weeks later, he found himself standing in front of the art group to announce an idea he'd had: to paint portraits of them all.

I first met Russell at 6 a.m. in the basement cafeteria of a Premier Inn in Manchester. We were both waiting to go on television for the *BBC Breakfast* news show to talk about a new proposal to roll 'arts on prescription' across the National Health Service. Over cups of instant coffee, I tried to grasp the magnitude of the experience he was telling me about.

At the next check-up, Russell explained, his doctor was pleased with his progress. His mood had improved and his pain levels were lower. Even his blood pressure was better. The art class gave structure to his week, and he found himself looking forward to it. At the following check-up they started to review his medications – the doctor didn't feel he needed as many. His sleep was better too.

As his portraits neared completion, Russell approached the Museum of Gloucester to ask if they would allow him to host an exhibition of the paintings in their café. He called the exhibition 'We're All Mad Here'. His classmates and his doctor were amongst those who attended. He received his first commission shortly afterwards – a nurse who had come to the exhibition wanted him to paint her children. That was just the beginning.

In the decade since, Russell Haines has exhibited his artwork all around the UK, from Gloucester Cathedral to the Tower of London. His pieces sell for thousands of pounds (if you can get your hands on one fast enough). He's been leading his own classes back in the community too, and his doctor has been referring more patients to him. He doesn't take any pills nowadays. He hasn't even had to visit his doctor in over a year.

I asked him, 'How great a change do you think those art classes actually made for you? How big of an impact are we talking?'

He didn't miss a beat.

'They saved my life.'

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Do you remember the first album you bought? The photograph you loved so much you framed it? The show that you spent hours queuing to get tickets to? The poster you had above your bed when you were growing up? I probably don't have to try too hard to convince you that we are all – in some way or another – consumers of the arts. Our tastes may differ: your music may be my noise, my street art your graffiti. But we all engage. In fact, we do more than that. Have you ever hummed a made-up tune in the shower? Doodled in your notebook when you should have been working? Taken a photo on your phone? Danced (however awkwardly) at a party? Improvised a bawdy limerick? However much you might resist the labelling, protest that you're not 'artistic' or 'creative', the evidence is to the contrary. We are also all producers of art. We are a planet of 8 billion artists.

Tangible evidence of our artistic prowess as a species can be traced back 40,000 years. Around this time, a remarkable evolutionary development meant that *Homo sapiens* became capable of performing three advanced cognitive processes at the same time: mentally conceiving an image, intentionally communicating this image, and attributing meaning to it. This resulted in the first physical examples of art that still survive today: stone figurines, bone flutes, animal-skin drums, cave paintings, heel prints in rhythmic patterns. Art subsequently accompanied human beings as they spread across the globe. Every culture and society has art. We use it to express every emotion, every experience: love, hatred, war, politics, peace. Art awakens our passions, causing public outcries, protests and riots. Humans idolise artists as demigods, make pilgrimages to see them perform. Artworks are preserved for thousands of years to enshrine their beauty, bought for more than their weight in gold, and sent for preservation on the moon. Art is so incomprehensibly beautiful it has inspired more art about itself. On average, we read 700 books in our lifetime, watch 5,000 films and listen to 1.3 million songs. Over 300 million of us attend a live music event each year. The global cultural sector provides nearly 30 million jobs worldwide and has an estimated worth of $4.3 trillion a year. As a species, we are obsessed.

Yet despite this obsession, for most of the past 40,000 years we have failed to reach a consensus and provide a coherent scientific answer to a fundamental question: is art good for us? Not in the vague sense of being positive and pleasant, but actually having tangible, meaningful effects on our health?

It's a question that has bewitched some of the greatest thinkers in history. Among the Greek and Roman philosophers, Aristotle argued that theatre could restore balance to the heart, Pythagoras is credited with using music to purify the soul, and Boethius believed music could rebalance fluids in the body – all actions thought to make people 'well'. Persian philosopher Ibn Sina referred to the arts more than 150 times in his encyclopaedia of medicine. And Italian philosopher Marsilio Ficino argued music could cure melancholia. We also find the arts embedded in every medical tradition. The ancient Egyptians believed engraved gems, bone statues and drawings could dismiss evil spirits responsible for illness. The indigenous Indian medical system of Ayurveda promoted the use of soft sounds and pleasant sights to aid digestion. In Arabic medicine, the arts were prescribed to improve sleep. In fact, anecdotes of the healing powers of the arts across the past two millennia abound. Music, dance and art have stopped wounds, quelled plagues, restored the ability to walk, cured tarantula bites and even awakened patients from the dead.

The problem with all of this, as you may have surmised, is separating the wheat from the chaff – identifying the credible reports of genuine health benefits amidst the myth, magic and superstition. But in the past few decades, science has come to the rescue with an explosion of research studies – over 30,000 empirical papers published to date, cataloguing a remarkable body of evidence.

My own journey to discovering this evidence arose when I found myself unable to choose between arts and science. We often talk about the two as though they're strangers, but in fact many of the most famous scientists and medics across history have also been artists, and vice versa. The distinction between art and science would

barely have been comprehensible to the likes of Leonardo da Vinci or Robert Hooke. But the pursuits of such lauded figures as these were little consolation to me at the age of seventeen when I was deciding what to study at university.

I plumped for the arts and went to read music at Oxford University, performing in my spare time as a pianist for the radio station Classic FM. But I couldn't shake the science. I attempted to analyse pieces of music using mathematical formulae, wrote essays comparing the structure of music to biological cells, and dug up obscure archival records about the use of music in medical contexts. In my second year, when an opportunity arose to do an internship delivering arts workshops in a paediatric hospital as part of a new programme called 'Singing Medicine', I couldn't have signed up any faster. In my postings, first at Birmingham Children's Hospital and then at Oxford's John Radcliffe Hospital, I worked on neurology, cardiology, oncology, and palliative care wards, singing with the children to distract them during injections and dressing changes, cheer them during examinations, connect them with their life outside the hospital and give brief moments of respite to their exhausted parents. I absorbed every detail I could about the inner workings of a hospital – the science of how care was delivered, the rhythm of ward rounds, the rigours of infection control, and the careful dance of staff–patient interactions.

When I left university, I fell into my dream job: designing and implementing a performing arts programme at the Chelsea and Westminster Hospital in London. For three years, I ricocheted between wards, setting up weekly concerts in the atrium, recorded music in surgical waiting areas, dance classes for stroke patients, concerts on the HIV ward and singalongs for dementia patients, and developing partnerships for the hospital with arts organisations from the Royal College of Music to the Chickenshed theatre company to Rambert Dance Company. But I felt an increasing frustration. What I was doing was seen by many of the staff and patients as 'entertainment' staged between long periods of television watching. Yet what I was seeing was quite different: the surgical patient

whose panic attack stopped when she saw the digital arts light box we installed; the child with burns who was so distracted by the dance performance he didn't need the morphine; the patient in intensive care whose blood pressure decreased when we played his favourite music. I wanted to know why this was happening – to analyse the processes occurring in the brains and the bodies of these patients that might explain the effects I was seeing.

So I left the hospital to pursue science. For the next few years, I immersed myself in psychology, immunology and statistics. I spent my time completing psychiatric questionnaires with patients; learning to collect saliva samples and process them in the lab to identify levels of stress hormones and immune markers; and writing reams of statistical code on my laptop. I covered the walls of my room with diagrams of the brain, classifications of immune cells and anatomical drawings of hormone glands. I eventually graduated with a PhD from University College London (UCL) in psychoneuroimmunology, my thesis charting the effects of music on stress hormones and inflammatory markers in different patient groups. Over the years since then, I have worked in universities and hospitals, running clinical trials (just like those carried out for drugs) on the medical impact of the arts, conducting lab experiments to 'zoom in' on the psychological and biological mechanisms behind these health benefits, and analysing dizzying amounts of data from hundreds of thousands of people tracked over decades of their lives to quantify the impact of the arts on the health of societies as a whole. I now lead the Social Biobehavioural Research Group at UCL, where I am Professor of Psychobiology and Epidemiology, and my team and I spend our days discovering the incredible ways that the arts (and other social behaviours in our lives) impact on our health. In 2021, the World Health Organization designated us the first-ever WHO Collaborating Centre for Arts and Health.

Over the next few hundred pages, I will share with you the science that has mesmerised me for the past fifteen years. I'll be taking you on a journey through the astonishing scientific evidence for how

arts can improve your health, stave off illness and disease and help you live a longer and fuller life. We'll be sampling every flavour of arts activity that can affect our health – from the micro-moments of creativity we engage in, sometimes unnoticed, in our daily lives, to bespoke arts programmes and creative arts therapies delivered for specific patient groups, to the gigs we go to on our weekends and the cultural festivals we take part in. When I say 'the arts', we really will be taking in all of the arts, from classical music to hip hop, ballet to salsa, galleries to graffiti, as well as pottery, soundscapes, interior design, heritage sites, photography, museums, animations, books and films.

We'll begin our exploration in the mind, uncovering some of the stunning findings about how our mental health and well-being can be improved through arts engagement. Like how people with depression experience nearly twice the improvement in symptoms if arts therapies are added to standard approaches such as medication and psychotherapy. And how regularly going to the theatre, live music events, museums and galleries could nearly halve your risk of developing depression over the next ten years. It's natural to be sceptical about all this. We wonder whether improvements take place merely because we want them to happen – the consequences of wishing ourselves better or enjoying the short-term high of a placebo. But our biological markers tell a different story: one of reward circuits, stress hormones and neurotransmitters.

Diving deeper into the brain, we will uncover another host of remarkable effects. We are innately artistic, and in our early years the arts shape the architecture of our brains, nurturing core cognitive skills like language and fundamentally altering the size and functioning of different brain regions. The arts build the resilience of the brain against the ravages of diseases like dementia, helping us to preserve our cognition for longer and unlock forgotten memories. Art activates brain regions involved in diverse functions like movement and builds new neural pathways around brain injuries. Participating in the arts, whether through dance, music or magic tricks, can help all our movements be faster and more efficient,

whether we're exercising or doing motor therapies for brain injuries or disease.

Zooming out to look more widely at the body, we will discover the role the arts can play in hospitals, from helping babies in intensive care gain weight and leave hospital sooner to reducing the need for sedatives and anti-anxiety meds in surgery. Arts even reduce the amount of opioids we need for acute and chronic pain. In fact, there is no physiological system art does not affect. When we breathe deeply for activities like singing, we improve the strength of our respiratory muscles and increase our exercise capacity. When we dance, we experience decreases in blood pressure, glucose levels and stiffness in our arteries. Arts engagement even improves immune activity and affects the expression of our genes, as well as helping us stay physically fit and functioning, free from disease, for longer – extending what we call our 'healthspan'.

Health also isn't something that just happens to us. It's performative. Our behaviours can have dramatic influences on our health. If children engage in art workshops, choirs, book clubs, dance classes, drama groups or bands, they're less likely to be lonely or develop behavioural problems, to commit crimes or use marijuana or tobacco. Arts build vital life skills, from self-control to self-esteem, empathy and motivation. They keep us more socially connected and less sedentary, all of which add up to affect our future health. Art helps us not only to survive but to thrive and flourish. In fact, it's not actually any exaggeration to say the arts could save your life. From preventing suicides to helping stop epidemics to even increasing our life expectancy, the arts can be the difference between life and death. But we're not ready to talk about life and death yet. You'll say I'm being sensationalist. And this book isn't about sensationalism – it's about science.

And I want to be clear – the arts are most definitely not a panacea. In fact, there are examples of the arts doing far more harm than good, even deliberately being used to cause damage to health. Surrealist artwork, death metal music and K-pop have all been used as horrendous means of torture. The arts can also inadvertently cause

harm, from loud music exposure accelerating hearing loss, to arts perpetuating stereotypes or stigma surrounding certain health conditions, to stories encouraging harmful behaviours. Used in the wrong way, the arts can even become a tool for excluding some people within society and for wielding social power. We must also challenge the hype – I'll be dismantling absurd stories about music killing cancer cells, increasing the IQ of babies and curing terminal illness. The science I will be sharing is a sharp divergence from such fiction, but the findings are no less awe-inspiring.

Yet there is something I find quite baffling. Despite this enormous body of research, surprisingly little has made its way into public conversation. Instead, the evidence has remained a bizarrely well-kept secret. We're bombarded with information about how to live longer, healthier lives – cut your sugar, eat your vegetables, eliminate ultra-processed foods, quit smoking, moderate your alcohol, go for your health screening, get your daily exercise, take supplements, don't stress, go to sleep. But how often have you seen dance, go to an art gallery or read a book included in this list? These are probably the most enjoyable pieces of health advice we could follow, but they are rarely given. In fact, the idea that the arts might have a practical purpose for our health is looked upon suspiciously, a sign of a decreased appreciation of art for its own value – 'art for art's sake'.

At the same time, we as societies are becoming increasingly disengaged from the arts. If you look back just a few centuries ago, everyone, all around the world, told stories, sang and danced as a natural part of everyday life. But we have taken this ubiquitous human behaviour and commodified it – turned it into a luxury. Folk arts practices are disappearing, and in many societies the traditions that used to bring us together to participate in the arts as communities are fading from memory. It is eighty years since the United Nations declared access to the arts a human right, but arts engagement in many societies is heavily imbalanced, with the wealthiest (and healthiest) participating the most. Every time we face periods

of austerity, funding for the arts is the first thing to go. We haven't considered the health ramifications of these decisions – every pound we cut in investment in the arts has consequences for health and healthcare systems.

So this book is a vehement challenge to this way of thinking. The arts are not a luxury; they are an essential. Instead, I will outline my vision for a different society – one that values and supports the arts and artists.

But my real focus of this book is you. My goal is to fundamentally change the way you value and engage with the arts in your daily life. Over the past decade, I've been working with governments all around the world on schemes to 'prescribe' the arts to people – to give people a written prescription, like we would a drug, to go to a choir or join a dance class or listen to music, just like the scheme Russell took part in. The health benefits of the arts are really that strong. But I don't want you to have to visit a doctor before you discover these health benefits. So I'm going to share them with you here.

In each chapter of this book, we'll explore a different aspect of health: well-being, mental health, brain health, movement, stress and pain, healthy behaviours and longevity. I'll take you through the science of the benefits the arts can have, whether you're healthy or dealing with illness. Often, it's the extreme stories – the studies involving people going through personal crisis, undergoing surgery or in intensive care – that actually teach us the most about how we can benefit from the arts in our day-to-day lives. And I won't just tell you what the arts do to us, but how. Because the more you understand about the ways different flavours of arts experiences affect your mind, brain, body and behaviour, the more you'll know how to apply the arts in your own life to maximise your health. Yes, doctors can 'prescribe' the arts – I'll share a 'daily dose' of my recommendations at the end of each chapter. But the whole point is that the arts are not a simple pill. They're one of the most diverse, complex and personal behaviours we can engage in – one of the crowning glories

of our species' evolution. Ultimately, you need the knowledge of the incredible science to write your own arts prescription.

Some of what I suggest may sound daunting, and both tangible and invisible barriers might be holding you back. In the final chapters, we'll examine these barriers and the ways to dismantle them. I'll take you on a tour of the science of behaviour change and help you explore why it is you might not be making the most of the arts in your life. I'll share some simple principles that could help us all increase our healthy 'dose' of the arts and reap more benefits. We'll see why we should all pursue as many aesthetic experiences of as great a diversity as we can. Why we should allow art to make us feel exhilarated, intoxicated, elated. Because it is fundamentally, measurably good for us.

Art – as you'll see – alongside diet, sleep, exercise and nature, is the forgotten fifth pillar of health.