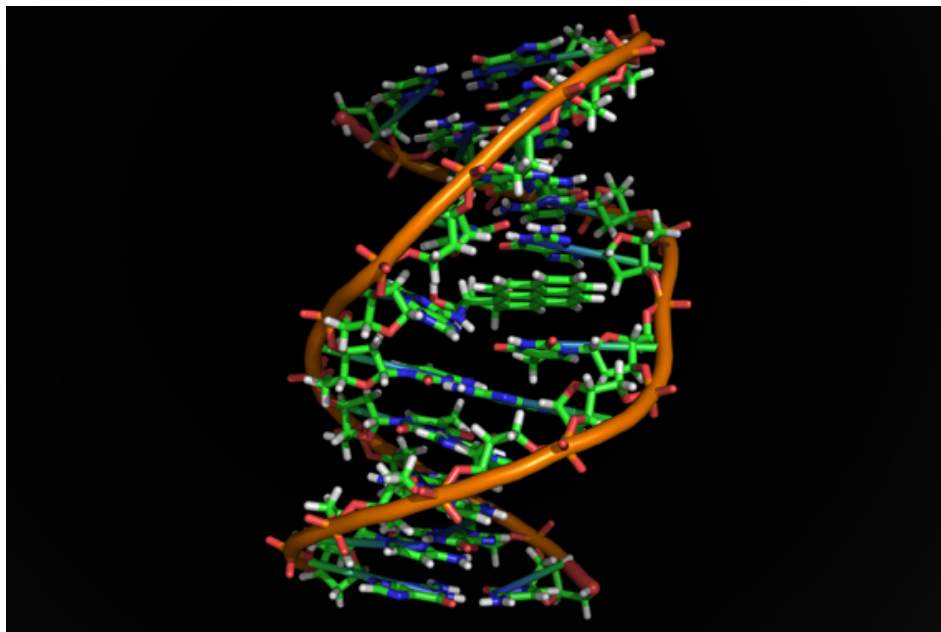


Jon Danzig's World

Stories, ideas, thoughts and videos of Jon Danzig

TUESDAY, 4 NOVEMBER 2014

We are chemistry, so do humans have free will?



• DNA - the building block of life, based on complex chemistry

Doctors now believe that a type of medicine - called **dopamine receptor agonists** - can cause some patients to become compulsive gamblers, binge shoppers or sex addicts.

It's thought the drug causes this adverse reaction by over-stimulating the '*pleasure seeking*' chemistry of the brain. But many people find this hard to believe: how can a drug alter your behaviour against your will? If you do bad things, that's your choice, and we shouldn't blame a drug. After all, don't humans have '*free will*'?

And yet, we are all composed of chemistry that controls *everything* we do. If your body's chemistry changes, because of say a serious illness, or a profound injury, or the effects of a powerful drug, is it so difficult to believe that your behaviour and personality could consequently change too?

Trillions of chemical reactions are simultaneously taking place in our bodies *every single second* of our lives. The very instructions for how we're built – DNA or 'deoxyribonucleic acid' – is chemistry at work, uniquely codified in each of us to formulate the individuals that we are. The DNA contains instructions that drive the metabolic chemical processes in our bodies which keep us alive.

We breathe, move, sense, grow, repair, reproduce and digest because of a concoction of chemicals automatically at work during day and night, awake or asleep.

Our thoughts and ideas are also chemistry at work. Our brain is composed of about 100 million nerve cells called neurons, interconnected by trillions of connections called synapses. Just one thought, occurring within a

ABOUT JON DANZIG



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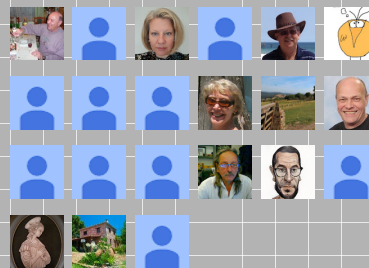
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few hundred milliseconds, involves a chemical signal from the synapses spreading to billions of neurons in several dozen interconnected areas of your brain.

And not just thoughts – but feelings and emotions too. They may seem profound, and yet, all feelings and emotions are also at their base a series of chemical reactions.

Everything we do, everything we feel, every function of our bodies, every thought, every memory, all our actions and responses, are down to chemistry: clever chemical multiple messengers that react and interact and drive who we are, how we are, and what we are.

• Just a thought - it's all down to chemistry

We are chemistry.

Even before modern medicine deciphered the chemical code of human existence, philosophers argued whether we truly have *'free will'*. We now know that chemicals control our functions, but can we as sentient, intelligent beings control those chemicals? Who's in charge?

Jean Paul Sartre, arguably the greatest philosopher of the last century, had no doubt. *We're in charge*. The concept of **'freedom'** was central to Sartre's thinking and dominated his political and philosophical works. There is no God, considered Sartre. People are 'free beings' and are therefore completely on their own, and totally responsible for everything about themselves, including all their conscious thoughts and actions.

Even when freedom is limited, wrote Sartre, there is still freedom of choice. For example, a prisoner is free because he or she can control whether to attempt to escape.

According to Sartre, any human who tries to dismiss their actions because *'that's just the way I am'* is deceiving themselves. Being a human, in the opinion of Sartre, brought both freedom and responsibility, and therefore free choice in the decisions one makes as a human.

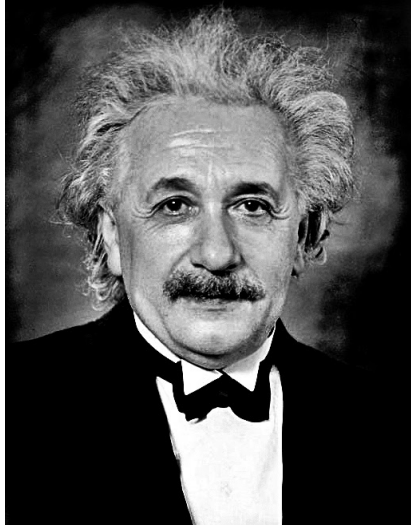
This was succinctly summarised in Sartre's 1943 work, from *L'Être et le Néant* (*Being and Nothingness*), in which he wrote:

"Man can will nothing unless he has first understood that he must count no one but himself; that he is alone, abandoned on earth in the midst of his infinite responsibilities, without help, with no other aim than the one he sets himself, with no other destiny than the one he forges for himself on this earth."



• Sartre: All humans have free choice and free will

On the other hand, **Albert Einstein**, another giant of the last century and arguably the greatest scientist of all time, had an opposite view. He was a **determinist** - the doctrine that all events, including human action, are



- Einstein: There is no free will

determined by causes that we cannot control.
In other words, we don't have free will.

Einstein summarised this in his famous quote, '*God doesn't play dice*', meaning that all actions have a pre-determined reaction as a result of laws fixed by our '*creator*'.

In Einstein's view, *everything* that happens in our universe, from the actions of atoms or planets or gravity, or indeed humans, is predictable. Not entirely predictable to us, as we simply don't have the knowledge. But if possessed with all knowledge, all actions and reactions can be known and foreseen.

Wrote Einstein:

"Everything is determined, the beginning as well as the end, by forces over which we have no control. It is determined for the insect as well as the star. Human beings, vegetables, or cosmic dust, we all dance to a mysterious tune, intoned in the distance by an invisible piper."

The **Abrahamic religions** – **Judaism**, **Christianity**, and **Islam** – believe that their God (Einstein's '*invisible piper*') gave us all the gift of '*free will*'. This can lead to a fundamentally confounding question, as I discovered in this conversation with a devout theological believer in 'free will':

Me: ***So, is God all powerful?***

Friend: ***Yes, of course***

Me: ***Does God know everything?***

Friend: ***Yes, He does***

Me: ***Does He know your next move, even though you don't?***

Friend: ***Yes, certainly***

Me: ***So, how can there be free will?***

If we don't have free will, however, are humans nothing more than robots, albeit having and giving the *impression* of 'free will', but not in reality possessing any? This concept was tested when I 'invented' an electronic toy that could seemingly react in a human way. The principle so intrigued the electronics department at the University of Hertfordshire, that they offered their assistance.

The initial idea was simple, and came to me when I was enlisted to be the 'magician' for my niece's sixth birthday party. I hid a tape recorder inside a teddy bear which contained pre-recorded answers in a funny voice, such as "*Only on Saturdays*", "*Eggs and bacon usually*" or "*I don't go to school*". The children queued up to ask teddy a question, and with a remote control I triggered each random answer. Sometimes it was spot-on and the children were amazed, ("*When do you have a bath?*" "*Only on Saturdays*"), but when the answer was wrong, it didn't matter because the children ended up on the floor in fits of giggles, ("*Are you clever?*" "*Eggs and bacon usually*").

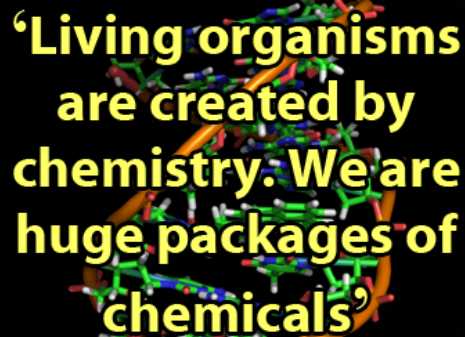
But it struck me how easy it could be to develop this teddy bear to give a more reliable *impression* of intelligence, with appropriate, humanistic responses to everyday events. I devised a toy with a wide array of electronic sensors: proximity sensor, movement sensor, time sensor, day/night sensor, temperature sensor, and so on. When any sensor was triggered, a relevant pre-recorded sentence from a list of thousands was digitally '*chosen*' and '*spoken*' by the toy.

So, for example, if someone got very close to the toy, the proximity sensor would be triggered and a pre-recorded sentence 'randomly' selected from those related to that event, such as "*Don't get too near!*", or "*You look strange close-up!*" Or if the toy was

picked up, the movement sensor would be triggered and another relevant pre-recorded sentence would be broadcast, such as, "Hey, where are you taking me?" or "Please carry me gently!"

With thousands of 'appropriate' sentences to randomly pick from, the toy would be unlikely to give the same response twice in any month.

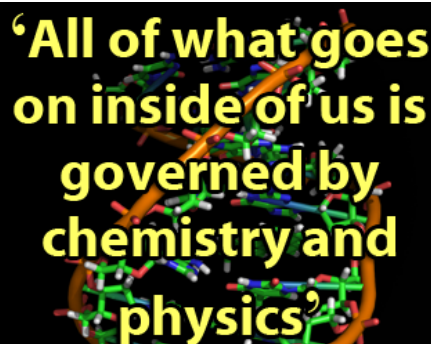
In this way, it would at least give the *impression* of intelligence, because the words spoken would directly relate to the action that had taken place.



**'Living organisms
are created by
chemistry. We are
huge packages of
chemicals'**

Professor David Christian
Macquarie University

In the end, a world-wide patent search discovered that, unknown to me, a similar invention had been previously registered by a Japanese company, although as far as I know, it's never gone into production. However, we can imagine such a toy and how it could simply and accurately react to triggers. Is this much different to humans; aren't we also reacting to triggers, according to our chemistry? Of course, we're much more complicated than a teddy bear with pre-recorded announcements, but actually, maybe our chemical composition is an intricate equivalent to the limited, simplistic codes of responses I devised for that electronic toy.



**'All of what goes
on inside of us is
governed by
chemistry and
physics'**

Professor Martin Karplus
Winner, Nobel Prize
in Chemistry 2013

If we knew absolutely everything about the composition and make-up of our individual chemistry, maybe it could be possible to foresee our responses to any event.

For example, knowing that Mr X had a chemical composition of XYZ, could it be forecast how he would react to a unique set of circumstances (because every life event is truly unique; never repeated before or again). Einstein would have argued yes, that the reaction to any action was predictable, albeit not by us humans.

Even if as humans we don't have the capability to predict *exactly* how our unique chemistry makes us react in certain ways, we might still accept that our chemistry *does* affect how we behave, and therefore any changes to our chemistry from whatever cause could subsequently change our behaviour and reactions.

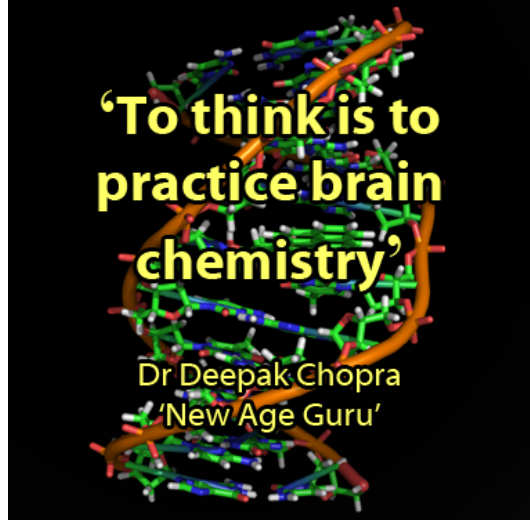
In our society, we are legally responsible for our actions, but insofar as murder is concerned, there is a partial defence in English law of '*diminished responsibility*', which can result in a murder charge being reduced to manslaughter if the defendant's mind wasn't functioning normally. For other crimes, there is also the defence of '*automatism*', if the defendant had no conscious knowledge of the crime. This could be because of mental illness, or when the crime occurred as a result of an involuntary act caused by an external factor.

The legal system clearly acknowledges and accepts that there may be times when our faculties and judgement are damaged beyond our control, meaning that in those circumstances we cannot be held fully responsible for our actions.

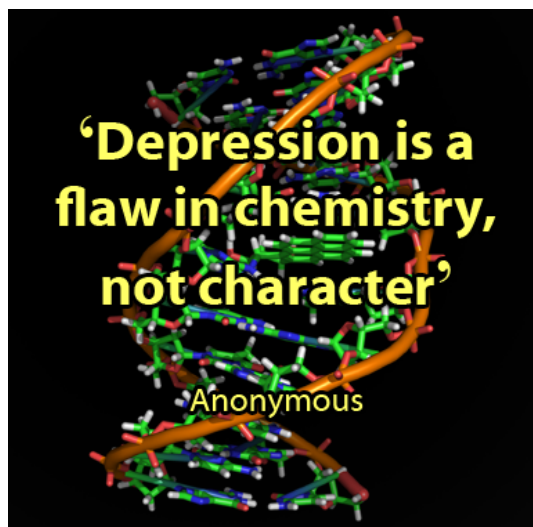
These legal concepts were increasingly explored in Victorian times, when for example, it was first accepted that new mothers who **killed their babies** might actually be suffering from 'post-natal madness'. This is now recognised as a medical condition called **post-**

partum, or puerperal, psychosis, which affects 0.1% of women who have a baby - several thousand cases a year.

Although we don't yet fully understand the causes of post-partum psychosis, it is thought to be triggered by the sudden changes in pregnancy hormones in some women – in other words, changes to their chemistry, resulting in a dramatic alteration to their normal behaviour. The condition can be **successfully treated** with anti-psychotic medication that has a direct impact on the brain's chemistry, resulting in the negation of harmful thoughts and actions.



During Victorian times the causes of crime were being widely explored resulting in profound changes in society's attitudes towards criminality. At the beginning, from the late 1830's, many saw criminals as simply low class people who lacked morals. Nearing the middle of the Victorian era, people began to view criminals as a '*social class*' of people, albeit at the very bottom of society. But by the end of Queen Victoria's reign, at the start of the 20th Century, the view of criminals changed; that many had a mental illness, or that their actions could be blamed on their parents' upbringing. All these views changed how criminals were treated by the courts.



It was probably because of this fascination during Victorian times with the forces of 'good' and 'evil' within us all, that a little book, '**Strange case of Dr Jekyll and Mr Hyde**' by Robert Louis Stephenson, became a best seller from the day it was first published on 5 January 1886.

Since then the fictional plot, about a '*good*' doctor who also had a dark secret '*evil*' alternate-personality, has been the subject of over **one hundred** film versions, as well as plays, musicals, parodies, comedies, re-writes and sub-plots.

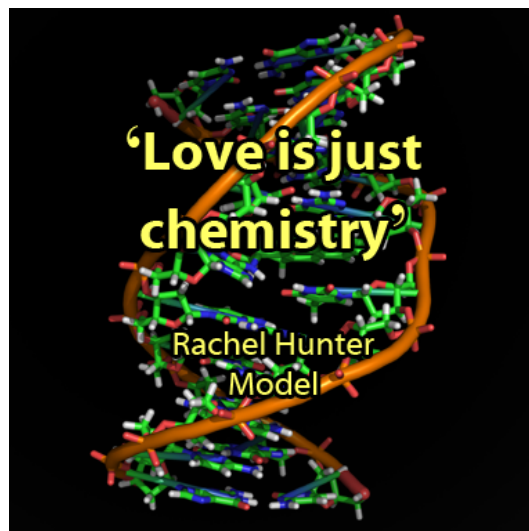
Subsequently, the phrase '**Jekyll and Hyde**' has come to universally represent the personification of someone who displays a good and congenial persona in public, but an evil one in secret.

Criminals with duplicitous and conflicting public and private identities are often described in today's news media as having a '*Jekyll and Hyde*' personality.

What is usually underplayed by reviewers of the original book, or re-writers of the story, is that Dr Jekyll '*induced*' himself to become the '*evil*' Mr Hyde by experimenting with drugs. Dr Jekyll, an essentially good man, only became the bad Mr Hyde, guilty of 'murder', when he was under the influence of illicit, personality-altering chemicals: drugs that fundamentally messed with his chemistry and therefore his behaviour and personality.

If Jekyll had been charged with murder today, the conviction might be reduced to manslaughter. That's because he committed his crime under the influence of a severe drug addiction, over which he had lost self-control, for which there might be a defence of '**diminished responsibility**', as mentioned earlier.

However, the concept that responsibility for any crime might be exonerated or reduced as a result of mental illness, diminished responsibility or involuntary acts, is still difficult for many people to accept. Some mainstream religions teach us that humans are natural 'sinners' and that it's usually our fault if we're 'bad'. Even for many non-religious people, it's hard to take on board that our personality or mental state could be so damaged that we cannot be fully responsible for our actions.



Whether you're with Jean-Paul Sartre – *that humans are responsible for all their actions* – or with Albert Einstein - *that everything is determined meaning we're not responsible for what we do* – there is probably some wriggle-room in-between these two starkly contrasting points of view.

Sartre's position on 'complete free will' is often strongly criticised as being too extreme and unrealistic. As Gordon Tait of Queensland University *wrote*:

"According to Sartre, life has no inherent meaning, and there are no mandates to follow. We have no human nature to trammel us, and no historical baggage to blame for making us what we are. We are totally and unconditionally free. The trouble with this position, of course, is that at a practical level it just isn't true, as Sartre himself undoubtedly realised."

As for Einstein's theory of *no-free-will*, he was his own critic, and proclaimed that whilst he subscribed to 'determinism' as a scientist, he didn't follow this in his normal every-day-life.

"I am compelled to act as if free will existed," he explained, "because if I wish to live in a civilized society I must act responsibly."

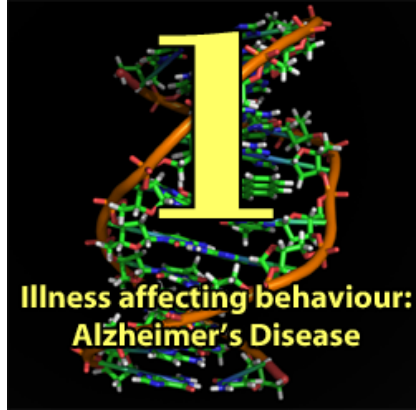
Einstein could, somewhat confusingly, hold people responsible for their good or evil, since he considered this a pragmatic way to live, while at the same time still believing intellectually that everyone's actions were predetermined.

"I know that philosophically a murderer is not responsible for his crime," he said, "but I prefer not to take tea with him."

Whatever your moral, philosophical or theological point of view, it's difficult to ignore the evidence: *that chemistry makes us who we are, and that if our chemistry changes, so can we*. Proving **cause and effect** is extremely difficult, but that's the important role of science to try and unravel. Although science doesn't give us absolute truths or certainty, it does give us stages or steps towards the truth.

The compelling evidence is that changes in our chemistry can have a profound and often uncontrollable impact on our personality, behaviour, cognition and actions.

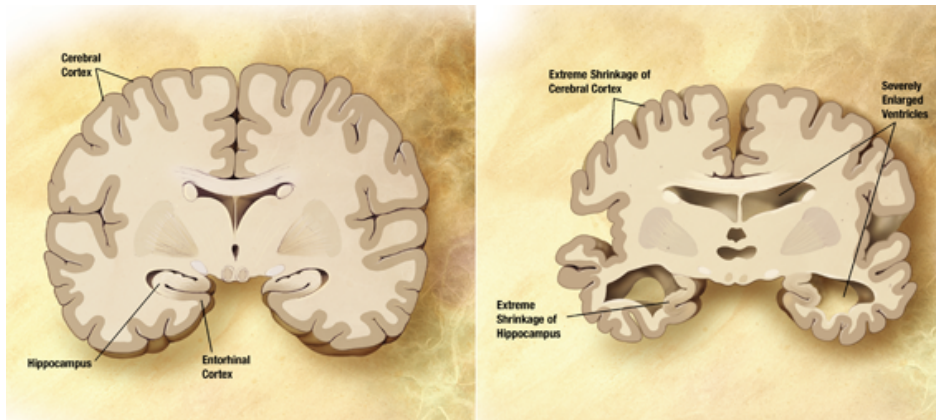
Here are just three examples of how **(1) a serious illness; (2) a profound injury**, and **(3) a powerful medicine**, can dramatically and often devastatingly change a person's chemistry and consequently their personality and behaviour.



Alzheimer's disease, by far the most common form of dementia, can gradually and insidiously change a person's personality, behaviour and cognitive abilities.

The illness, mostly affecting elderly patients, results in the structure and chemistry of the brain becoming increasingly damaged over time. People with Alzheimer's have a shortage of some important chemicals which are involved with the transmission of messages within the brain.

In Alzheimer's the brain's nerve cells - neurons - lose their connections and cannot function properly. As neuronal injury and death spread through the brain, neurons fail, and affected areas of the brain begin to shrink in a process called brain atrophy. By the final stage of Alzheimer's, damage is widespread and many brain cells have died.



• Devastating difference Left: normal brain Right: with severe Alzheimer's (click for close-up)

Patients can experience confusion, dramatic behavioural changes, severe memory loss, delusions, mood swings, depression, personality changes and considerable difficulty with every day activities. Often it can seem to friends and relatives that their loved-one has gone away and been replaced by someone else. However, this doesn't happen overnight; as one carer told [NHS Choices](#), "It happens gradually, and people should be encouraged to live as normal and fruitful a life as possible.."



• In the UK 850,00 live with Alzheimer's

According to the **Alzheimer's Society** there are 850,000 people living with Alzheimer's in the UK costing £26 billion a year. Most of this cost is borne by patients and their carers to cover unpaid care or paying for private care.

Although Alzheimer's is a physical disease of the brain, most of the essential care needed to manage

the condition involves daily help with such activities as washing and dressing, which is not covered by the NHS. The Alzheimer's Society is campaigning for this care to be routinely provided by our health service.

The Society predicts that the number of Alzheimer's patients will rise to two million by 2050, unless action is taken to more effectively tackle the illness. In the USA, currently about five million are living with Alzheimer's, with an estimate

that this could rise to 15 million patients by 2050. Across the world's it's estimated that there are 36 million people living with Alzheimer's, and that this will rise to 115 million by 2050.

It's estimated that **less than half** of patients with Alzheimer's have been diagnosed. The illness is described as a '**global health time bomb**' representing one of the most serious health challenges of our modern age. **Alzheimer's Disease International** estimate that the global societal economic cost of dementia is over US \$600 billion "and rising".

So far, however, there is no cure for the condition, although some drugs known as AChE inhibitors may for a short time slow down the condition in some patients only, by making chemical changes in the brain to enhance cognitive function. However, the treatment is controversial, as some **doctors now believe** that this type of drug only very temporarily improves cognition, whilst actually masking the true progression of the disease and causing significant side effects. There is also growing resistance to the long-term use of anti-psychotic drugs in the treatment of Alzheimer's, as they are associated with a number of significant adverse outcomes.

Meanwhile good supportive and practical care are essential for Alzheimer's patients, who are among the most vulnerable members of our society. The Alzheimer's Society, working closely with the Department of Health, has produced **a guide** detailing the most optimal care for patients with behavioural and psychotic symptoms of dementia.

The Telegraph

Secret of healthy ageing discovered in ground-breaking 35-year study

Landmark survey of 2,500 men shows how healthy lifestyle ultimately pays off in old age



The volunteers from Caerphilly gave regular reports of physical activity, alcohol consumption, and diet Photo: Wales News Service

• [Telegraph report on the five lifestyle changes that can help to avoid Alzheimer's \(Click to read\)](#)

A study by the **Mayo Clinic** in the USA indicated that chemical changes in the brain could predict the onset of Alzheimer's years before symptoms occur. Another study at **Cardiff University School of Medicine**, spanning 35 years, identified five key lifestyle changes that resulted in a 60% reduced chance of acquiring dementia, as well as a 70% reduced chance of diabetes; 60% reduced chance of heart attacks and strokes; and 40% fewer cancers.

The five lifestyle changes discovered by the study were taking regular exercise; non-smoking; a healthy bodyweight; a healthy diet and a low alcohol intake.

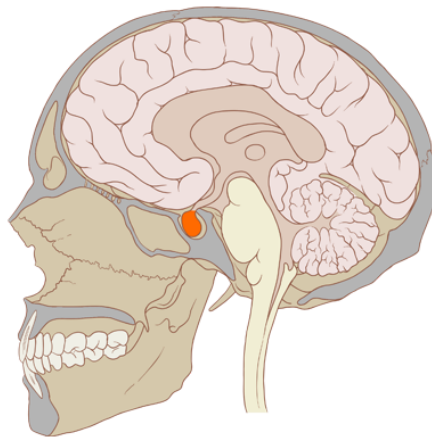


It's now recognised that suffering a head trauma can cause **damage to the pituitary**, causing serious symptoms hours, years or even decades later.

The **pituitary** is a pea-sized gland, located at the front base of the brain behind the eyes, that is responsible for the body's hormones - chemical transmitters that control energy, mood, growth, appetite, libido, reproduction and many other vital life functions.

A head injury, or even mild concussion(s) or repetitive sports injuries, can disrupt this delicate gland, causing problems that might not be immediately apparent.

These problems can **show up later** causing problems such as fatigue, behavioural changes, anxiety, depression, sexual dysfunction including impotence, loss of stamina, infertility, **diabetes insipidus** and life-threatening complications such as **adrenal crisis**.



• The pituitary, in red, can be damaged after a head injury

The symptoms, if they don't resolve, can usually be successfully treated, but only if the condition is recognised and diagnosed. Otherwise, the damaged pituitary can result in serious and chronic quality of life issues.

This is not a rare occurrence; some experts believe that **hundreds of thousands** could be experiencing the effects of undiagnosed pituitary malfunction following a head injury that might have occurred years or decades earlier. It's estimated that as many as **30,000 cases** of post-traumatic pituitary damage could be **missed in the UK every year**.

It's now also suspected that many patients **diagnosed with ME** might instead have pituitary dysfunction following a head injury, causing similar symptoms to **ME** (chronic fatigue syndrome).

My friend, Joanna Lane, has been campaigning for six years for much greater awareness of pituitary damage following any type of head injury.

She's felt compelled to do so following the tragic suicide in 2008 of her son, Christopher, at the age of just 31. It was only after his death that Joanna and her husband discovered that their son had been suffering from depression, fatigue and impotence – typical symptoms of pituitary damage



• Joanna and her son Chris, who committed suicide

(hypopituitarism) - that also resulted in the breakup with his girlfriend.

At the age of 7, Chris had fallen out of a tree, seriously injuring his head. He was in a coma for a week with a fractured skull.

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• As a boy, Chris had a head injury

believe that the head injury could have damaged his pituitary gland, leading to the symptoms that so sadly resulted in his suicide decades later. Joanna is convinced that this is what happened, and wished there had been more awareness at the time.

If diagnosed, her son could have been **treated** with hormone replacement medicine, to restore the chemistry which his damaged pituitary was failing to produce, resulting in devastating symptoms.

Joanna has widely publicised her **campaign** for all hospitals to routinely check for pituitary damage immediately after *any* head injury, and regularly for years later. Her aim is for *everyone* to understand the vital need for long-term pituitary function checks following any significant head injury. She's been pushing **NICE** to include this advice in their guidelines for head injuries, and feels frustrated that, so far, **they have refused to do so**.



Last month a **major study** from the USA analysed the relationship between a class of medicine, known as a **dopamine receptor agonist**, and **impulse control disorders** such as pathological gambling, hypersexuality, binge eating and addictive shopping.

Dopamine is a natural chemical in the brain affecting movement, mood, emotional responses and pleasure seeking. Dopamine agonist drugs – such as **bromocriptine**, **cabergoline**, **levodopa**, **ropinirole**, etc - copies the actions of dopamine and is most commonly used to treat **Parkinson's disease**; pituitary conditions such as **prolactinoma** and **acromegaly**, and **restless legs syndrome**.

The new study looked at side effects of these drugs reported to America's Food and Drug Administration over a ten year period, and collated evidence that this type of medicine is associated with specific uncontrollable urges in some patients taking these drugs. The study found that Dopamine agonist drugs were 277 times more likely to result in a report of impulse control symptoms than any other drugs.



• Can a drug cause gambling addiction?

The study's authors concluded that there was a need for more "prominent warnings" about the problems of these types of drugs as part of the prescribing information for patients.

The US study was reviewed by the UK's NHS Choices which commented that the risk was already recognised by the UK's medical profession, adding that:

"People in the grip of a compulsive pattern of behaviour are often unaware that their behaviour has changed and that they are acting strangely, so do not seek medical advice. Therefore friends, family members or carers can help by being vigilant for any strange changes in the behaviour of a

person taking these drugs."

Across the world, there are hundreds of court actions against the drug for allegedly causing uncontrollable, pathological addictions, often resulting in emotional trauma, breakups and financial ruin for patients and their families.

A number of patients have already been awarded significant damages. In the USA, Parkinson's sufferer, Gary Charbonneau and his wife, Cynthia, were awarded \$8 million in damages because his medication, a dopamine agonist called Mirapex, caused him to become a pathological gambler. The court found that Mr Chargonneau, a retired police officer, had not been warned about the possible dangers of the drug.

In the UK I interviewed pituitary patient, Richard Davis, who back in 2001 won a multi-million pound out-court-settlement against Novartis and his health authority. Mr

Davis blamed the dopamine agonist he had been prescribed, Parlodel (Bromocriptine), for causing inappropriate sexual behaviour, bankruptcy and convictions for dishonesty.

theguardian

News UK news

'Sex mania' man wins payout over medication claim

• Richard Davis claimed he became addicted to sex

In France Didier Jambart was prescribed dopamine agonist, Requip, to treat Parkinson's, but within two years he developed 'wild urges' for online gambling and risky sexual encounters, leading to financial ruin for the married father of two. In 2012, he was awarded damages of £160,000 against the drug's maker, GlaxoSmithKline.

THE HUFFINGTON POST

Didier Jambart Awarded £160,000 After Requip Parkinson's Drug 'Turned Him Into A Gay Sex & Gambling Addict'

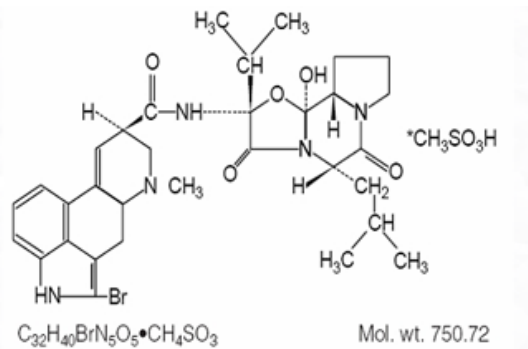
• Didier Jambart said his life was ruined after taking the drug

Since that 'landmark' ruling, instructions for Requip have changed to warn that some patients taking the drug may, "get urges to behave in a way unusual for them" such as a compulsion to

gamble or have strong sexual impulses.

Not all court cases against dopamine agonists have been successful however. Glaswegian Morton Whyllie claimed he became a gambling addict losing £85,000 after taking an experimental version of a dopamine agonist, Rotigotine patches, to treat his Parkinson's disease back in 2002. But his claim for damages was dismissed by the court as he had volunteered to participate in the drug's trial.

Some patients have gone to prison for criminal offences related to behavioural changes after being prescribed a dopamine agonist. One patient I interviewed who is seriously ill with a pituitary illness, served a custodial sentence after stealing to fund his "uncontrollable" urge to gamble.

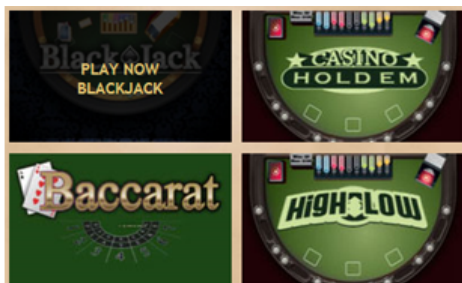


• Drug chemistry: did it send a patient to prison?

He told me he was completely unaware that the drug, bromocriptine, prescribed by his doctor to treat his condition, could have been the cause of his newly-acquired addiction. In his case, the judge wasn't informed that he was taking a drug that could cause compulsive behaviour and he was convicted to two years imprisonment.

By contrast, other patients have avoided custodial sentences after the judge was told that they had been prescribed a dopamine receptor agonist. A former headmaster, Philip Carmichael, from Wantage, who had thousands of pornographic images of children on his computer, was **not convicted** of any criminal offence after the judge ruled that his Parkinson's medication had caused him to become hypersexual. Mr Carmichael was taking two dopamine agonist drugs, **Cabergoline** and **Ropinirole**. **The judge concluded, "To say that he was to blame would be a complete denial of the reality of the evidence that I see."**

In the USA a book-keeper, Christine Jaegar, was spared jail and given probation instead after the **judge ruled** that the medicine she took for restless legs syndrome, the dopamine agonist, Mirapex, had caused her to become uncontrollably addicted to gambling.



• Christine Jaegar stole \$233,000 to gamble

In this case, however, the judge decided that Ms Jaegar must repay the \$233,000 she stole to fund her gambling habit. Said the judge, "The substances she was ingesting diminished her mental capacity in some fashion. The breach of trust and multiple criminal episodes can all be laid to the drug issue."

The charity, **Parkinson's UK**, did a survey of consultants treating Parkinson's disease and of the 45 who responded, over 95% reported that they had identified a patient affected by impulsive and compulsive behaviour whilst being treated with dopamine agonist drugs. Commented one doctor, "I have a terrible time with patients on dopamine agonists. I find most of them have some of these issues."

In the charity's survey of patients on Parkinson's drugs, of the 113 who responded, 44% reported an increase in their sex drive or behaviour; 32% an increase in shopping; 32% increased eating and 24% increased gambling. **Commented one patient, "We were not made aware of these problems early enough and health care professionals do not understand that the person can't help their behaviour even after being made aware of the problems with the drugs."** Another said, "(My) neurologist was sceptical that it existed." And another, "On discontinuing **Mirapexin** (my) behaviour returned to comparative normal."

What we believe

We believe that no one affected by Parkinson's should have their lives ruined by impulsive and compulsive behaviour as a side effect of Parkinson's medication. Professionals and pharmaceutical companies have a responsibility to raise the awareness of these side effects and do all they can to mitigate the risks. The pharmaceutical companies should work towards developing medication with less harmful side effects.

• [Statement on dopamine agonist drugs by Parkinson's UK. Click to read the full statement.](#)

Suma Surendranath, Education Manager for [Parkinson's UK](#), told me, "Less than a fifth of people with Parkinson's taking dopamine agonists will develop some form of this distressing behaviour, which can range from compulsive gambling to binge eating and hypersexuality. **If left unchecked, impulsive and compulsive behaviours can devastate the lives of those affected and we have been working closely with consultants across the UK to help raise awareness of the issue.**"

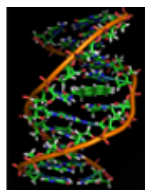
Dopamine agonist drugs are among the only ones that can significantly help to treat Parkinson's disease, so it is important that patients shouldn't be scared of them or just suddenly stop. If any addictive type of problems develop, patients shouldn't be embarrassed to [talk openly](#) with their doctors, said Suma. The charity said that whilst progress had been made to raise awareness of the problem among doctors and patients, "clearly much more still needs to be done."

OPINION

We are chemistry, and when the biochemistry that makes us who we are functions well, we can thrive, physically and mentally.

But when our chemistry goes awry – through say illness, injury or the unwanted side-effects of drugs – the impact can be calamitous, uncontrollably affecting the very essence of who and what we are; our behaviour, our personality, our thoughts, our decisions, our actions, indeed everything about us.

Being aware that we are creatures of chemistry can help us to recognise when things might be going wrong, not only within ourselves, but also in those around us. We're learning that early intervention against unwanted chemical reactions in humans can save lives or a life of misery.

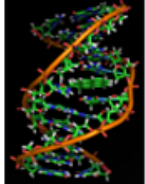


Although we don't yet know how to cure or adequately control Alzheimer's Disease, new research indicates that lifestyle changes can help to prevent it occurring. In addition, new techniques to detect the disease years before symptoms start might lead to new and more effective treatments.

In the meantime, earlier diagnosis of Alzheimer's is essential; it's estimated that **only 46%** of Alzheimer's patients have been formally diagnosed. Often people are told that their new symptoms and behaviour are just part of the '*ageing process*'. This is completely unsatisfactory, and denies patients the chance to receive treatment and support, and to make future plans whilst they still can. NHS England's latest [plan](#) to offer family doctors an extra £55 to £200 for each new Alzheimer's diagnosis seems entirely unethical and against the original ethos of the NHS. All diagnoses should be based only on clinical judgement, and not clouded by cash incentives.

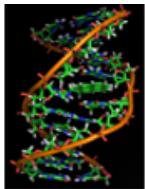
It's also unacceptable that Alzheimer's patients and their families should be burdened with the main costs of caring for this truly awful illness. We have a National Health Service whose **three core principles** are 1) that it meets the needs of everyone; 2) that it be free at the point of delivery; and 3) that it be based on clinical need, not ability to pay. Alzheimer's patients have every right to feel let down.

It's shocking that many thousands in the UK could be suffering from undiagnosed pituitary damage without realising the cause was a head injury



sustained maybe years or decades earlier. The symptoms can range from subtle to devastating.

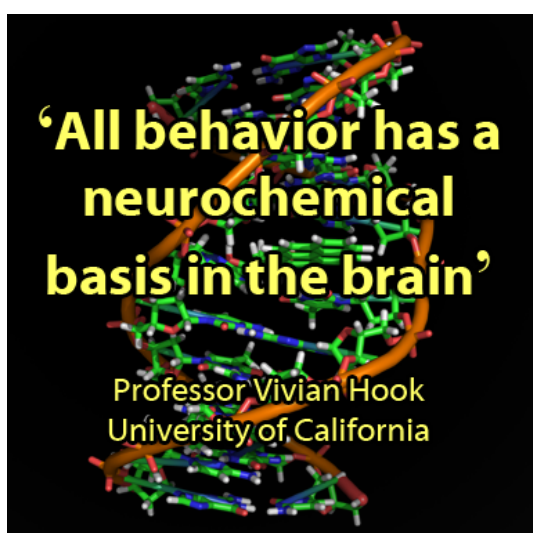
In the case of Christopher Lane, it's thought that the symptoms of hypopituitarism directly led to his suicide, 24 years after he badly hurt his head as a little boy. Understandably, this event continues to cause profound heartache for the Lane family. Chris's mother, Joanna, should be commended for her tireless campaigning to achieve greater awareness. Pituitary function tests should follow *all* cases of head injury. It's impossible to understand why, so far, NICE has failed to include this in their guidelines. How many more lives have to be lost or ruined before they agree to take action?



A pathological, compulsive addiction to gambling, shopping or sex can ruin lives, destroy relationships and impoverish victims. It's a double tragedy, however, when the cause could be the unwanted side-effects of a medicine that's meant to treat people, not to harm them.

The medicine, known as a dopamine agonist, is one of the few available to treat Parkinson's disease, and so it would be difficult simply to ban it. Also, most patients aren't affected by this side-effect. However, almost a fifth of patients prescribed a 'dopamine agonist' can develop addictive behaviour. That's a very large proportion of patients, affecting a significant number of lives. For many, their destructive, impulsive addiction has been spiralling out-of-control for years, too often unnoticed or unchecked by doctors or pharmacists. This is especially the case for patients being treated for conditions other than Parkinson's disease, as the Parkinson's UK charity has undertaken a commendable role in raising awareness about this issue among patients with that condition and doctors treating it. Clearly, much more needs to be done.

Unfortunately, when addiction strikes causing compulsive behaviour, patients rarely recognise what's happening to them, let alone to connect that their new, out-of-character behaviour might be caused by their medicine. So, medical attendants, friends, and family, all need to be more vigilant and yes, less judgemental. Too many simply disbelieve that a drug could be responsible for creating discordant behaviour, but there are now too many thousands of cases across the world to ignore the evidence.



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2 comments:



Lucas-Lockie 5 November 2014 at 22:47

Why did Einstein say 'God doesn't play dice', and why he was (probably) wrong about it: <http://physicsworld.com/cws/article/multimedia/2013/mar/04/why-did-einstein-say-god-doesnt-play-dice>

[Reply](#)

Lucas-Lockie 5 November 2014 at 23:26



But on a larger scale it's true (probably ;))

Interesting, well researched article. It's worth remembering those 5 lifestyle changes (taking regular exercise; non-smoking; a healthy bodyweight; a healthy diet and a low alcohol intake).

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