

EUPHORIA – HOW TO DETECT, DISARM and DEFUSE it

You will not be surprised to learn that serious disease causes unhappiness on a grand scale: worry about the future, fear of physical pain and suffering, feelings of despair and the gloomy prospects of utter loneliness. And Parkinson patients get their fair share of all this, resulting in a rate of depression so high that very few of us escape untouched by it during the course of our disease.

But it is less commonly known that the exact opposite also sometimes touches us. An inflation of the ego, a pervasive sense of entitlement to all the riches of the world, a dizzying feeling of elation, a protective shield of invincibility, a sharpened sense of physical pleasure and a keen intuition for where to find it. We call it euphoria.

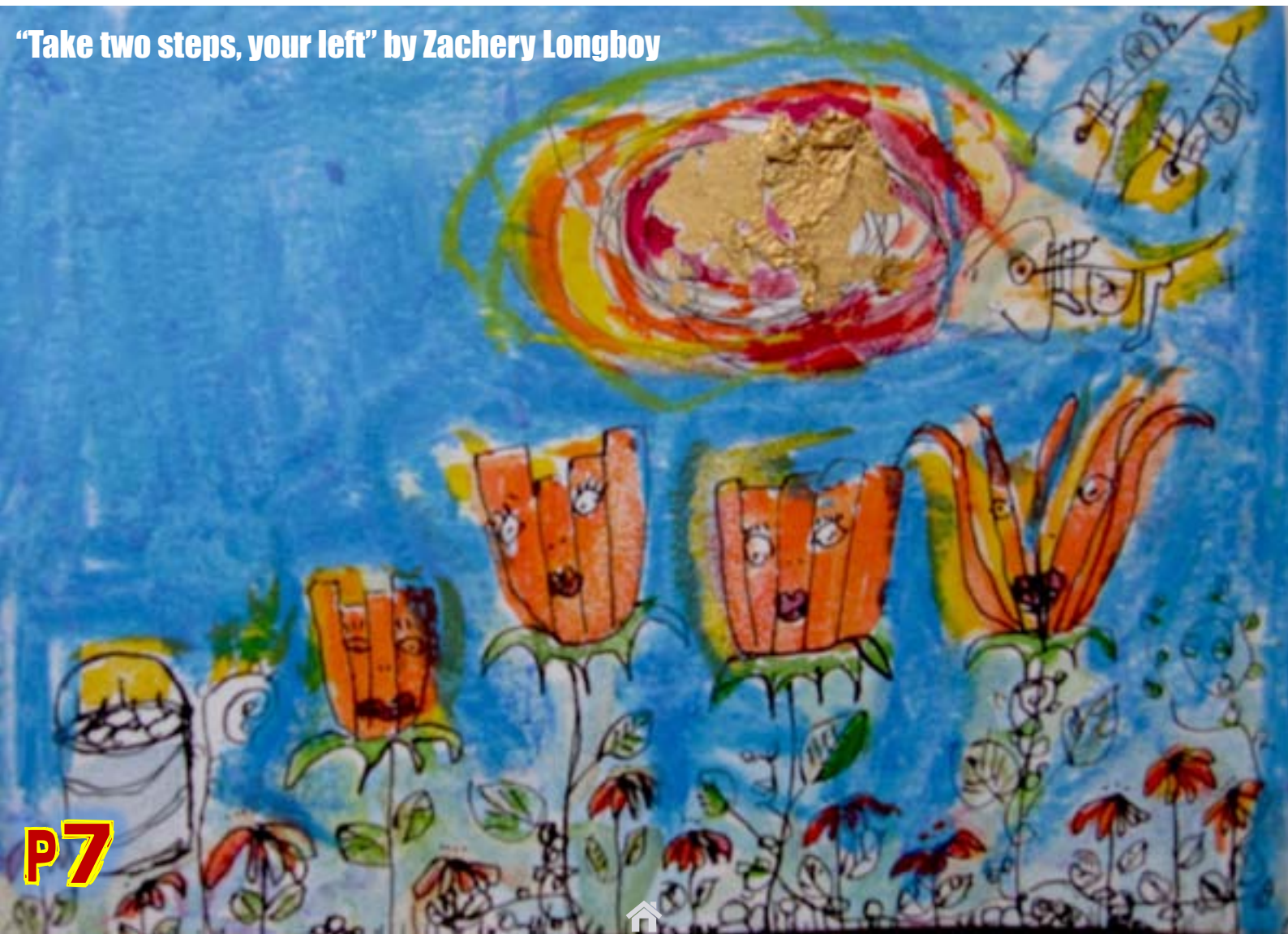
So the Lord giveth, and the Lord taketh away? Yes, you can see it as a form of compensation, if your belief in a just world is important to you. But you must remember to beware of diseases bearing gifts, and this is a given horse you should definitely examine before you haul it inside your walls.

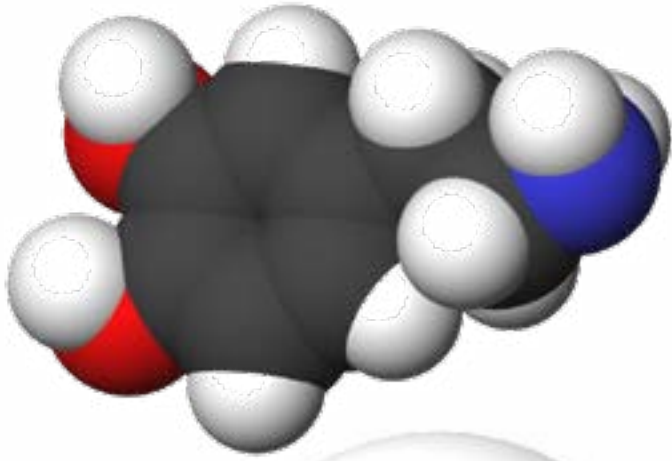
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Euphoria is a scientific term for a very high degree of pleasure and well-being, but somewhat incongruously, it is tinged with vague disapproval. Euphoria is suggested to be unfounded or exaggerated, in contrast to happiness. Whereas happiness seems, metaphorically speaking, to be homegrown, ecologically sustainable and free of chemical additives, euphoria has a shady background. No one knows whence it comes, what it contains, and what it will do to your health in the long run.

You may be forgiven for confusing the two. After all, when you get your diagnosis of PD, the disease process has been eating away at your nervous system for decades. It particularly relishes the neurons that carry dopamine. Little does it know or care that dopamine is the stuff our

“Take two steps, your left” by Zachery Longboy





joys, our hopes and dreams are made of. It is essential in the reward system of our brains. When the lines are cut and the switchboards burned, the good tidings of great joy they should bring never reach us. As time passes, you get used to a tight-fisted, grudging emotional brain that gives you nothing for free.

And so have many Parkinson patients lived before you. They were serious, hard-working, dedicated to duty and abstemious from all distractions, such as alcohol, tobacco or coffee. Driven by high ambition, they were often over-achievers at work. With a touch of frosty irony, a neurologist who knew many of them noted that the disease seemed to come to them as “a badge of honorable endeavour” at the end of their careers.

And our brain may begin to fail us long before we know it. What a bleak world the dopamine deficient must face. Sources of joy turn to ashes, every amusement is a disappointment, every pleasure a letdown. How does a person live with such a scarcity of rewards?

He may turn to the hope for long-term rewards. Forsaking immediate pleasures, he plans for the future, gets an education, works hard on his career. Blood, toil, sweat and tears is all that life can offer today, but glittering prizes shimmer in the distant future.

And that is how I think we formed the Protestant work ethics of our pre-morbid personalities. That is how we survived the arctic winters of our minds. We braved it out, and came out the stronger for it.

Before 1969, there was no end to this winter. But in that year, hope emerged again. The dopamine deficiency could be remedied by L-dopa medication. Dopamine replacement therapy was begun in many places, eventually reaching millions of people.

But the great Restoration had many unforeseen consequences. The ventral (lower) striatum, where the reward centre is situated comes low on the list of priorities for the attacking disease process. The Blitzkrieg forces invade the dorsal (upper) part first, leaving the ventral part starving, but in relative tranquility. Then the dopamine replacement therapy sets in, carefully measured for the needs of the motor processes in the

dorsal part but often too much for the better preserved ventral part. The excess force floods the reward centre, which turns into something like a marshland, each day exposed to tidal waves of dopamine. When the flood comes in, signals spread the news that all is well with the world. Euphoria! It sings the praise of all things bright and beautiful. But when the ebb goes out and leaves the land dry, we are back to the miserable state we were in before we were medicated.

When the high tide comes in, the brain insists on telling us that everything is splendid, but it does not tell us what makes it so. Being human, we seek an explanation, we look around for a cause. Where do we start looking, if not among the things that have pleased us in the past? We grope around in the rag-bag of our toys and joys and come up with our old favourite, be it sex, money, food or gambling.

We now start turning this into an addiction. Human cognition is biased to seek confirming, rather than disconfirming evidence. So we use our favourite thing, and, ta-da, we feel rewarded. We create a causal connection in our minds, disregarding the possibility that the reward had another cause, namely the tidal wave of dopamine. Now the march toward the precipice continues. We pooh-pooh the concerned warnings and the helpful advice from our friends and loved ones.

And the learning task that is demanded of us is one of the hardest tricks in the book. Reversal learning means absorbing and using the knowledge that a previous source of rewards has turned indifferent or harmful. What do you tell a young person who has just made a small fortune on a bet to convince him that, although the betting has given him money, suspense and excitement so far, in the end it will be his ruin and his undoing?

The dopamine agonists are useful in the treatment of PD. By mimicking the effect of dopamine on post-synaptic neurons, they facilitate the transmission of impulses in dopaminergic pathways. However, their effects on the reward system wreak havoc in innumerable ways.

Let us metaphorically view it as a battle field. Dopamine molecules behave in a disciplined way. Like well-trained soldiers, they stay in their barracks until ordered to do otherwise. They make their charge, and return to barracks (synapse vesicles) immediately and in good order. Not so the agonists. They act like guerilla fighters, who roam the extracellular space, firing unpredictably.

When the nervous system is trying to teach us something, it gives a well-timed burst of phasic reward signals. However, these signals, already seriously weakened by negative feedback, are swamped in the barrage that agonists produce.

The question of timing is essential. When a behavior is rewarded, the reward must be distinct and follow the behavior closely in time. If you are trying to teach your dog new tricks and you see him perform it exactly right

for the first time, his reward should come immediately. It is no use saying: "That was very good! I am raising your weekly allowance to 30 dog biscuits a week, starting next Monday."

Nature has provided us with an exquisitely timed reward delivery machine. It relies on the well-drilled dopamine commandos and their hit-and-run operations. When the free-floating agonists provide most of the stimulation of the post-synaptic neuron, it is random in time, hence useless for learning. It may produce good feelings, just as the dog's increased biscuit rations do, but it is not causally connected to anything in the organism's sphere of understanding, and will therefore not teach him anything about the world.

That is why you should beware of the agonists, these femmes fatales among drugs, these belles dames sans merci of the pharmacy. They play on your emotions like Harpo Marx plays the harp, and when they do, Groucho stands ready to dazzle, dupe and con you out of your senses.

With dopamine replacement therapy, you are no longer on the moral high ground, you are an ordinary pleasure seeker. So, what's wrong with seeking pleasure, and reaping euphoria?

Nothing, as long as you are not buying today's euphoria by mortgaging tomorrow's happiness.



NEW EDITORIAL TEAM MEMBER

I'm pleased to say that our current editorial team has just welcomed a new member. She is Dilys Parker, a globe trotting Kiwi! Dilys has had a social service and nursing carer covering a variety of roles from nursing education to community development. She was diagnosed with Parkinson's in May 2008.



Early in 2007, with her husband she left home and adult children in New Zealand and set off on an adventure to Europe. She and John established a new life in the UK and lived and worked in London.

Diagnosed barely a year later, travels and socialising now took on a different focus and included meeting others with Parkinson's from around Britain and Europe. She returned to NZ 2013.

Dilys is acutely aware that smaller nations can be anonymous, lost in the concerns of Europe and North American. She is keen to ensure there is recognition and a place for smaller countries within the wider Parkinson community.

Dilys is an Ambassador for the World Parkinson Congress 2016.