`SCIENCE' OF ADDICTION

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Founder of StreetScene, current CEO, Honorary Fellow Bournemouth University, Mphil entitled 'A mixed method exploration of the lived experience of pre-addiction and long-term recovery.'

RECOVERING ADDICT!

SCIENCE AND ADDICTION

This presentation covers research in the field of addiction in primarily in psychology and neuropsychology.

It is important because scientific research is another strand of things that can influence government priorities and funding.

The three are 'Learning Objectives'

- What is being funded at the moment
- The implications for the 'disease concept'
- How we can better help future research.

But first – lets look at the different branches of psychological research

ADDICTION THEORIES (DR EMILY ARDEN-CLOSE)

1. Biological Theories 1.1 Reward System 1.2 Multiple Circuits 1.3 Brain Adaptation	**2. Predisposition Theories** 2.1 Genetic Vulnerability 2.2 Personality Dispositions 2.3 Stressful Life Experiences 2.4 Socio-Economic and Demographic Factors 2.5 Low Life Satisfaction	**3. Learning Theories** 3.1 Classical Conditioning 3.2 Operant Conditioning 3.3 Social Learning	**4. Decision Making Theories** 4.1 Intuitive Decision Making 4.2 Rational Decision Making
5. Motivation Theories 5.1 Attaining positive rewards 5.2 Avoiding or escaping discomfort 5.3 Fulfilling heterogeneous motives	**6. Psycho-Social Theories** 6.1 Normative Social Influence and the Need to Belong 6.2 Social Identity	**7. Self Regulation Theories** 7.1 Goal Setting 7.2 Monitoring 7.3 Action Planning 7.4 Self efficacy	**8. Contextual Factors Theories** 8.1 Micro-system and Community 8.2 Media and Advertising 8.3 Policy and Legislation

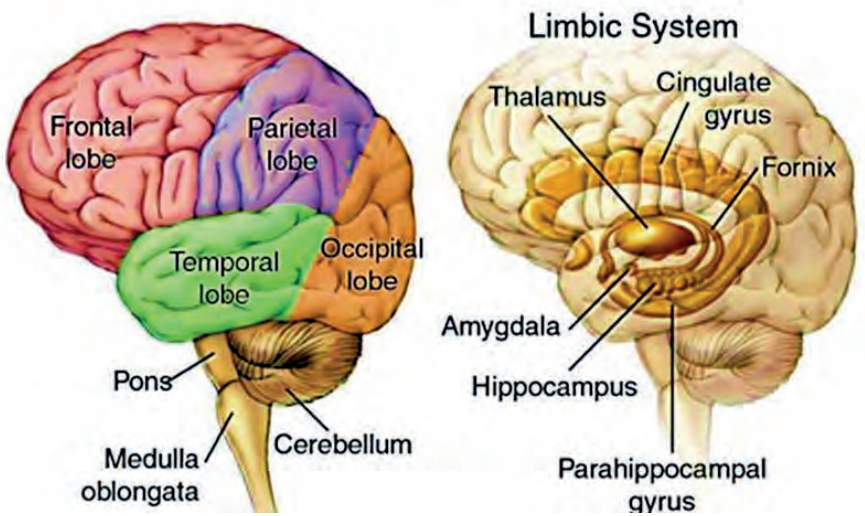
There is always a plethora of 'new' addiction research going on with thousands of papers being produced each year across al the areas shown. Some use new data and some revisits old data or combine data for meta-analysis. (84 papers this year whose abstract contained the words chemical and addiction)

Addiction research in 2025 is focusing on cutting-edge solutions, advancements in treatment, and understanding the socioeconomic factors driving substance misuse.

For today I selected information that is:

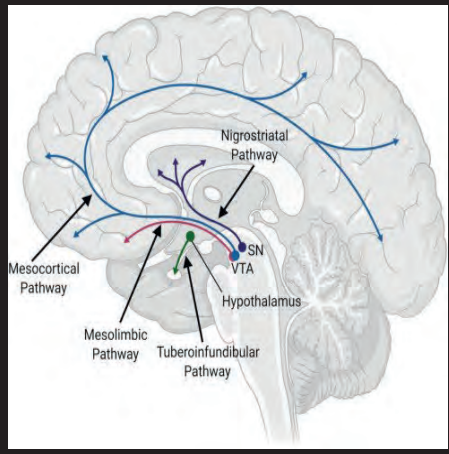
- peer reviewed research
- with no conflicts of interest listed.
- Are neuroscience based

Anatomy of the Brain

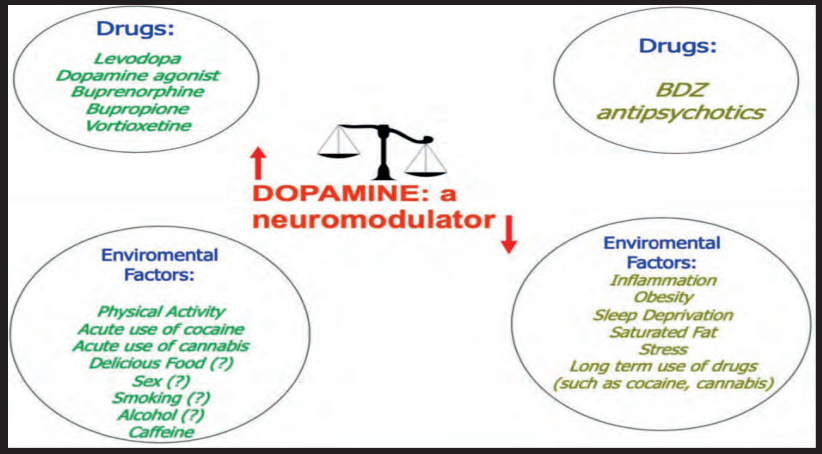


THE ROUTES OF DOPAMINE

- This diagram shows the four main routes of Dopamine around the brain.
- Most of its activity is in the limbic area, but it does affect all areas.
- Psychosis produce's increased dopamine in the green pathway (Tuberoinfundiular) and anti-psychotics block dopamine in this area
- Anti-psychotics also block a lot of the other pathways too, leading to low mood / depression and resulting in people with psychosis not wanting to take their medication.
- Dopamine is also associated with Parkinson's, schizophrenia, ADHD, autism spectrum disorders, obsessive compulsive disorder, substance dependency



WHAT AFFECTS WHAT?



THEORIES

Disease concept came became widely accepted in the late 1980's

Chronic, relapsing, compulsive. Brain disease, biological predisposition & loss of control

Incentive-Sensitization Theory (IST)

that brain dopamine systems drive the motivation to seek addictive substances without affecting the pleasure derived from them

In other words wanting & liking are not the same.

Dopamine shown to be released , driving motivation even when the substance or behaviour is no longer liked (relapse against someone's own will).

Drug-induced sensitization refers to an increase in dopamine release with repeated drug use.

Individual differences in susceptibility to sensitization are influenced by genetics, sex, hormonal state, and environmental context

Addicts' brains are altered by by neuroplasticity and show low D2 dopamine receptor levels a (associated with poor mental health) D1 receptor hyperactivity in addiction (contribute to ADHD-like symptoms e.g. hyperactivity and impulsivity)

Corticotropin Releasing Factor crucial role in mediating distress feelings in addiction, but it also enhances incentive motivation for rewards. CRF release can occur in response to both stressors and pleasurable rewards,

OTHER FACTORS OF INTEREST.

- The classification of addiction as a disease or compulsive behaviour is debated among researchers, generally the disease concept is considered outdated.
- BUT when working with addicts it is still the simplest way to indicate that the suffered is not responsible for their actions, only accountable.
- Neurotransmitters may hold part of the solution but It can cause all manner of problems with + or – of a neurotransmitter in a particular area, this includes all neurotransmitters, serotonin, glutamate, GABA, norepinephrine etc.
- Example – too much dopamine = psychosis, but too little mimic ADHD
- None of this research shines any light on more environmental factors that contribute to addiction, ACE's, the role of society in general (Matte and Alexander)
- None of this explores the effect of long-term recovery on these neurotransmitters

THE IMPLICATIONS FOR THE 'DISEASE CONCEPT'

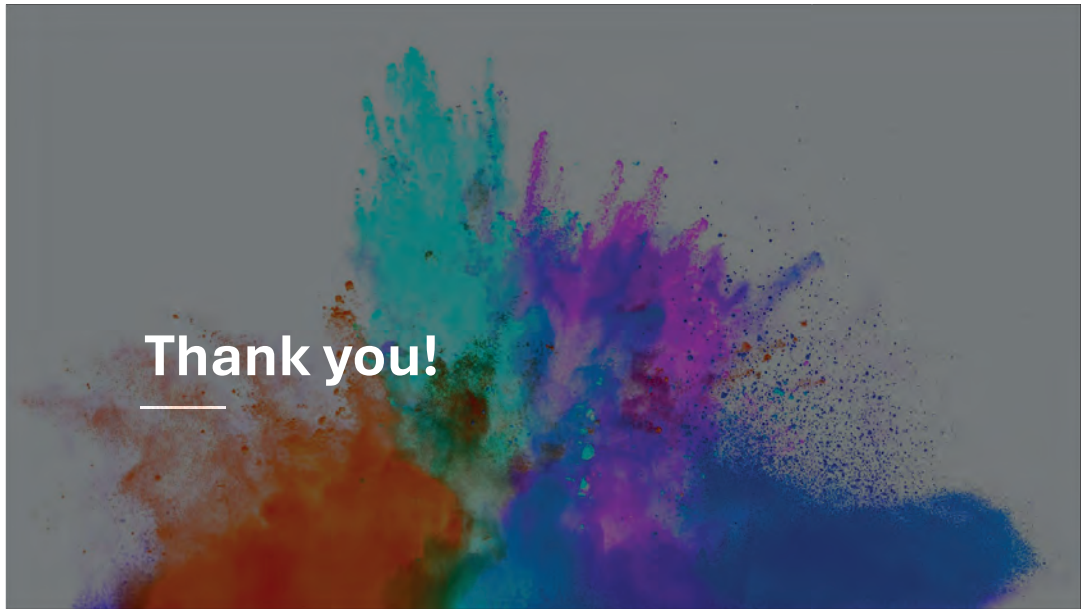
- Generally addiction is no longer considered to be a disease
- This highlights a major difference between research science and addiction treatment.
- Research science is looking for the definitive root of addiction so it can be 'cured', or at least medicated effectively.
- Some companies hope it can be with a pill.
- Government hopes it will be cheap.
- BUT as with all 'new' medications, there is danger. How far do we want to have our neurotransmitters controlled by pharmaceutical companies? And what ill be the cost?
- People working in recovery aren't really bothered by the root but are trying to help people become abstinent to live lives free of addiction and watch as improvements develop over time.

WHAT CAN WE DO?

- Get in touch with your nearest University with a Science and Technology department and start to build links
- Get involved in research yourselves as participants
- Search on the internet to 'take part in psychology research' and various options will come up
- Encourage your alumni to get involved in research as well – especially thosewho have been abstinent for more than a year.

HOW DOES THIS HELP?

- Research into addiction tends to use addicts who are still using and comparing them with people who are in 'aftercare' or still resident in treatment facilities – this gives a false view of recovery and its potential.
- Prof Bests demonstrated in 'better than well' study of alcoholics in the first 5 years of recovery that recovery gives benefits over a prolonged period
- This in tern has led to the increase in LERO's
- It has also led to an increase in how we are listened to by government bodies.


Thank you!