Brain Chemistry of Addiction

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AMA stated alcoholism was a disease in 1956

- Equal opportunity disease
- No one is immune
- Some people are much more vulnerable
Drug and Alcohol use interfere with primary survival pathways in the brain

- Automatic
- Semi - automatic
- Voluntary
Neurotransmission
Molecular Structure

Cocaine \( \text{C}_{17}\text{H}_{21}\text{N}\text{O}_4 \)

Dopamine \( \text{C}_8\text{H}_{11}\text{NO}_2 \)
Neurotransmitters

- Endorphins/ Enkephalins
- Serotonin
- Norepinephrine
- Dopamine
- Acetylcholine
Neurotransmission & Addiction

- Neurotransmitter
- Transporter
- Presynaptic (transmitting) neuron
- Receptor
- Postsynaptic (receiving) neuron
Neurotransmission & Addiction
Neurotransmission & Addiction
Neurotransmission & Addiction

Diagram showing the process of neurotransmission. The presynaptic (transmitting) neuron releases neurotransmitters, which interact with the receptor on the postsynaptic (receiving) neuron. The transporter is responsible for the reuptake of neurotransmitters back into the presynaptic neuron.
Neurotransmission & Addiction

Presynaptic (transmitting) neuron

Transporter

Receptor

Postsynaptic (receiving) neuron

Neurotransmitter
Neurotransmission & Addiction
ADDICTIVE DISEASE

- Progressive
- Chronic
- Fatal
ADDICTIVE DISEASE

- Full Remission
- Harm Reduction
- Prevention
RESTABILIZE BRAIN CHEMISTRY

- Abstinence
- Nutrition
- Stress Prevention
VULNERABILITY to ADDICTIVE DISEASE

40% - 50% ENVIRONMENTAL

50% - 60% GENETIC

Early Onset
Chemical Environment
Poor Nutrition
Increased Stress
Poor Coping Mechanisms
Chronic Illness
Grief & Loss
Recovery

- Awareness of Disease Concept
- Specific Written Relapse Prevention Plan
- Awareness of Stressors and Craving Triggers
  - H.A.L.T.
- Stress Prevention Techniques
Recovery

- Specific Support Network
  - Groups, Individuals, Sponsors
  - Review of Relapse Prevention Plan

- Other Chronic Health Issues Stabilized
  - Physical
  - Mental
  - Accurate, Current Dx, Medication
  - Pain Management

- Crisis Management
Four Critically Interrelated Issues

- Substance Abuse
- Mental Health
- Trauma
- Chronic Illness
Brain Chemistry of Addiction

- Addiction is a disease, not a choice
- Progressive, Chronic and Fatal
- Young brains at risk due to unique stage of development
- Very treatable
- Prevention important
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