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NCADD

NATIONAL COUNCIL ON ALCOHOLISM AND
DRUG DEPENDENCE, INC.

Chemical Dependence is a Chronic Medical Brain Disease

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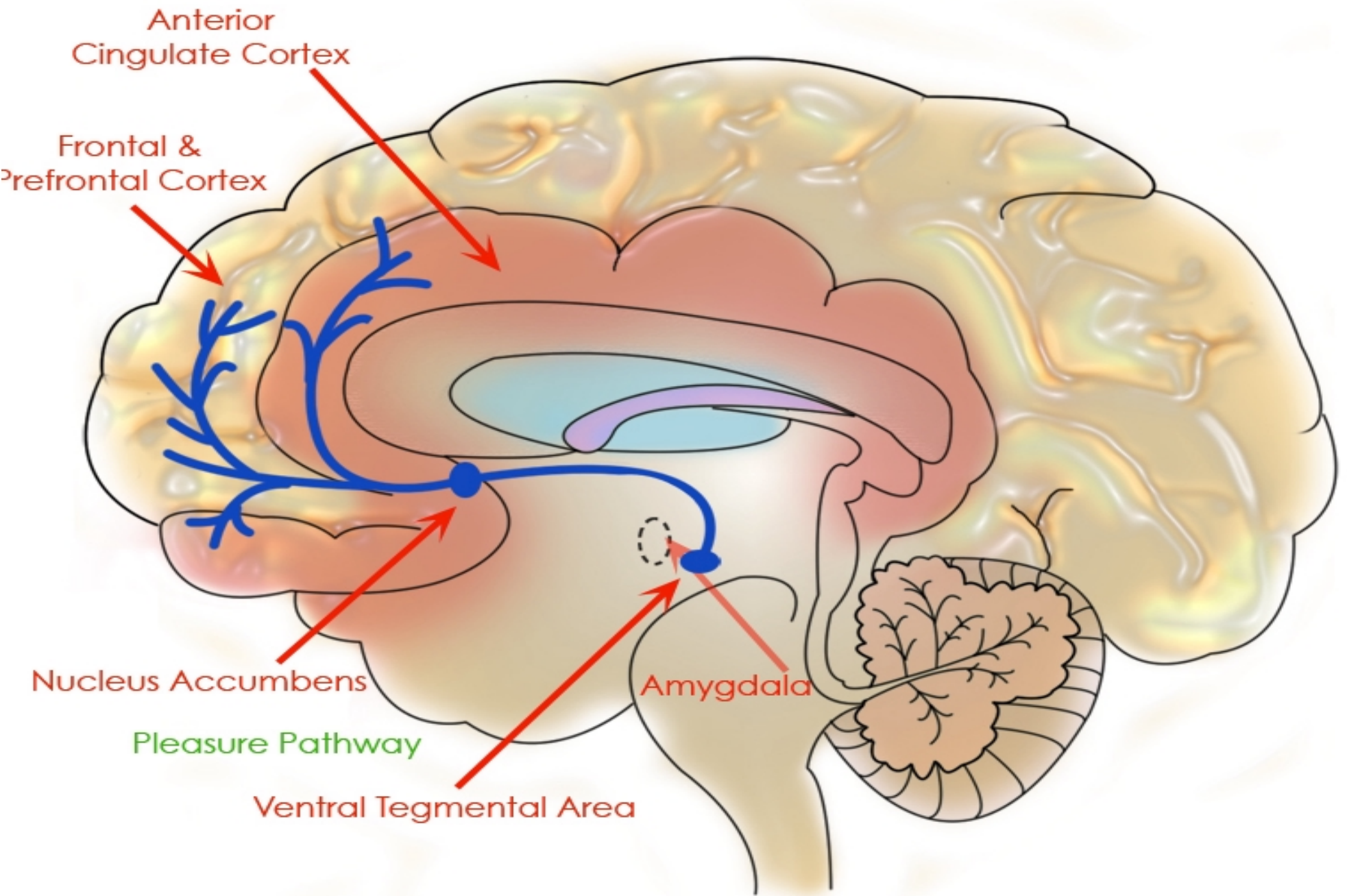
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Characteristics of a Chronic Medical Disease (Lewis, 1991)

1. diagnosable **signs/symptoms**
2. clear **biological** basis
3. **genetic** component
4. predictable **course and outcome**
5. **inability to control** the cause

1 - Diagnosable Signs/Symptoms

Dependence (DSM-IV) (NOT ABUSE!)

- withdrawal
- tolerance
- used more than intended
- inability to control use
- expend effort to obtain
- activities replaced by use
- use continues despite problems

3 of 7 = preoccupation with drug use

2 - Clear Biological Basis

- this is the area where we have the **most evidence:**

Dysregulation of the mesolimbic dopamine system ("reward pathway") = the disease.

The disease is **triggered** by **drug use** in **genetically vulnerable** individuals.

Drugs are Associated with Specific Neurotransmitters

- we believe that genetics + drug-use lead to "dysregulations" of mesolimbic dopamine system neurotransmitter function
- when people use, the drugs "connect" to a specific dysregulated neurotransmitter system, leading to an instinctive need to use the drug ("impaired control over drug use")
- this is probably why people have "drugs of choice"

**Thus, chemical
dependence is a
BRAIN disease.**

Important Point!

Dependence is **not** a loss of "will power", for these reasons:

- The main problem with dependence lies in the **subconscious MDS**.
- Problems with the **frontal cortex** produce a **pathological impairment of decision-making**.
- Thus **volitional control** over drug use is **not** a significant factor.

3 - Genetic Component

- family, twin, adoption studies in alcohol dependence
- COGA (families of alc/non alc)
- animal models - genetic localization (alc)
- have almost identified the sites of genetic vulnerability on pieces of chromosomes - that involve receptors for neurotransmitters

4 - Predictable Course and Outcome

- the **visible clinical** course of dependence is **progressive** (recall this is **not drug abuse**)
- the **outcome is positive** for people who receive **evidence-based treatment**
- how can we measure **recovery**?

A "recovery" definition

New - BFICC (September 2006) (In press, JSAT)

(Wanted a **quantifiable** outcome):

Recovery from **substance dependence** is a **voluntarily maintained lifestyle** characterized by:

- **sobriety** - abstinence from **alcohol and all other non-prescribed drugs**

A "recovery" definition

AND

- **personal health** - improved quality of physical health, psychological health, and spirituality as measured on the WHO QOL Scale
- **citizenship** - improved quality of social function, environment, and independent living as measured on the WHO QOL Scale

A "recovery" definition

- **Early** sobriety = at least one month,
< 1 yr

Sustained sobriety = one to 5 years

Stable sobriety = lasting 5 years or
more

5 - Inability to control the cause

- some people become dependent with **very little drug use**
- many people **look like they're trying** to become dependent, but **most can't** - but **anyone** can abuse drugs!
- not everyone has "**what it takes**" to develop the disease (Where's the **evidence** for this?)

Does Everyone Who Uses Have "what it takes"?

Drug users who developed dependence
(U.S. Epidemiological Estimates, 1992-98):

- nicotine - 32 %
- heroin - 23 %
- cocaine - 17 %
(crack - 20 %)
- alcohol - 15 %
- stimulants other than cocaine - 11 %
- cannabis - 9 %
- "sedatives" - 9 %
- analgesic drugs - 9 %
- psychedelics - 5 %
- inhalants - 4 %

Anthony et al., 1994

Chen & Anthony, 2003

Hughes et al., 2006

Conclusion

- **New research** is changing our understanding of **chemical dependence as a chronic medical brain disease**.
- Learning this new information requires a **willingness to give up old ideas and learn new ones**.