

Human Studies of Heritability

- 25% of the sons of alcoholics become alcoholics.
- Adoptee who are biological sons of alcoholics are 3 times more likely to become alcoholic than adoptee who are sons of non-alcoholics.
- MZ twins have higher concordance for alcoholism than DZ twins in most (but not all) studies.
- A1 allele of the dopamine D2 receptor gene is more common amongst those addicted to alcohol or cocaine.

Genetic effect is mediated by:

- Acute sensitivity to the reinforcing effect of alcohol
- Fast development of tolerance
- Increased withdraw sensitivity

How is the genetic effect mediated?

- The dopamine D2 receptor gene (DRD2 TaqIA) is associated with dopamine receptor density
- The A1 allele is associated with reduced number of dopamine binding sites and increased likelihood to develop substance abuse
- The A2 allele is associated with increased number of dopamine binding sites and reduced likelihood to develop substance abuse
- Craving in alcohol abusers carrying the A1 gene can be reduced by the dopamine agonist bromocriptine.
- Impact of DRD2 TaqIA on brain function?

There are cultural risk factors for addiction:

- Low socioeconomic status
- High population density
- Low population mobility
- High crime
- Increased unemployment
- Deviant norms, which condone substance abuse
- High alienation of the citizens
- Availability of substances

Parental Risk Factors

- Parental substance use
- Positive parental attitudes about substance use
- Parental tolerance of adolescent substance use
- Lack of attachment between child and parents
- Lack of supervision/ discipline
- Family history of mental illness
- Family disruption

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