Why do some people become addicted to alcohol, tobacco, or other drugs while others do not? Scientists are trying to answer that important—and complex—question.

There are many factors that affect a person's risk for addiction. **Environmental factors** are things like stress, peer pressure, and family relationships. Examples of **biological factors** are age, gender, and a person’s **genes**. Genes are segments of DNA. They are passed down from parent to child. Researchers are studying the link between genes and addiction. They hope to learn how to better prevent and treat this illness.

**Genes and Heredity**
All of your traits are influenced by your genes. Traits are things like hair color and eyesight. Genes contain instructions for making proteins. These proteins are used to build the body’s cells. They also direct all of the activities inside your cells.

Genes can have different forms, called **variants**. Slight differences between variants cause unique features, such as blue eyes versus brown. You inherit genes from your parents. That’s why family members usually share similar traits.

Scientists have now identified some genes that are linked to addiction. Certain gene variants occur more often in people with alcohol or drug addictions.

This means that a person who has a high-risk gene variant is at a greater risk for developing an addiction than someone who doesn’t. So, people with a family history of addiction may be at a greater risk for becoming addicted. However, genes alone do not determine whether or not a person will develop an addiction.
**Risk Doesn’t Equal Addiction**

Most people with high-risk genes will not become addicted to alcohol or drugs. Likewise, a person without a genetic risk can still become addicted. Scientists estimate that genes make up about half of a person’s chance of developing an addiction.

Other factors include:

- **Risk factors**, such as experimenting with drugs during adolescence when the brain is still developing. Risk factors can increase a person’s chances.

- **Protective factors**, such as having strong friendships and strong family relationships. Protective factors can decrease a person’s chances.

People can help keep themselves safe by increasing protective factors and reducing risk factors.

**Age: An Important Risk Factor**

One of the most important risk factors for addiction is age. The brain continues to develop until a person’s early to mid-twenties. It is much more sensitive to addictive substances while it is developing. Studies have shown that addiction is also much more likely in people who start using alcohol or drugs in their teens.

Decrease your risk of addiction. Protect your brain from addictive substances while it is developing.

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**FUTURE TREATMENTS**

Scientists are studying how a specific gene affects the brain’s response to alcohol or drugs. They hope to improve how we prevent and treat addiction.

Nicotine is the addictive drug in cigarettes and vaporizing devices such as e-cigarettes. Researchers have discovered genes that affect how nicotine changes brain activities, such as attention, appetite, and habit formation. Occasional smokers who have high-risk variants of genes that control nicotine’s effects are more likely to transition to regular use and nicotine addiction.

This information helps lead to better treatments. Medications used to treat addiction have helped people with high-risk nicotine genes. In the future, scientists hope to develop new medications that reverse the effects of high-risk genes.

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**MORE INFO:** For additional facts about genetics and addiction, visit [scholastic.com/headsup](http://scholastic.com/headsup) and [teens.drugabuse.gov](http://teens.drugabuse.gov).

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**TRACKING GENES**

A pedigree (example at right) is a diagram used to study family traits. Scientists may use pedigrees to study the way genes influence addiction.

Symbols, lines, and colors represent people, family connections, and traits. A repeating trait could show the influence of genes.

**KEY:**

- **Male**
- **Female**
- **Parents**
- **Children** (in birth order)
- **Individuals Showing Trait**
- **Individuals Not Showing Trait**