

We all know that DNA is the blueprint to our body's construction and function. It controls our eye and hair colour, if we are tall or short, or if we are at higher risk for certain cancers. But did you know that your DNA has an impact to medications?

Your DNA controls how you metabolize drugs. Most medications must undergo a conversion or metabolism of some kind. Some medications must be converted by the body to become active. If they are not converted, then they do not work. Others are active as soon as you take them, but they must be metabolized in order to get them out of the body. These conversions and metabolisms work pretty much the same from person to person.

So, a drug given at its usual dose will have its usual effects and side effects on most people. However, some people may have mutations that differ from the majority. These variations can greatly affect how they convert and metabolize drugs.

DNA and Medications: The future is now

By: Jason Shreenan,
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For example, the pain reliever, codeine, must be converted in order to be active. Patients who have a genetic variation that make them a "slow" metabolizer of codeine, will get little or no pain relief from it. However, if a patient is a "rapid" or "ultra-rapid" metabolizer of codeine, it will quickly convert. This may lead to a much higher dose than normal, which can increase side effects and chance of overdose.

There are also variations that affect medications for mental

health (ie: anxiety, depression), pain (ie: opioids), cardiovascular (ie: blood thinners), or stomach (ie: acid reducers) conditions.

Perhaps you have literally tried everything for a stomach condition and nothing seems to work. Or, maybe you know someone who has terrible side effects from everything they have tried to treat their depression. These may be cases where small genetic differences can cause alternative reactions to certain drugs.

How Do I Find Out About My Genes?

Some pharmacies, like ours, are now offering "myDNA" testing. This DNA test will give a report detailing your drug metabolism, and provide recommendations on doses and drugs that may be better suited in treating your conditions. It can be a very useful tool for health professionals to assist in customizing your medication to your specific genes. The answers to better results and less side effects might be in your genes! Truly customized drug therapies are now becoming a reality.

Your pharmacist is your most accessible health care provider. If you have questions, feel free to ask!

ASK THE EXPERT:

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