

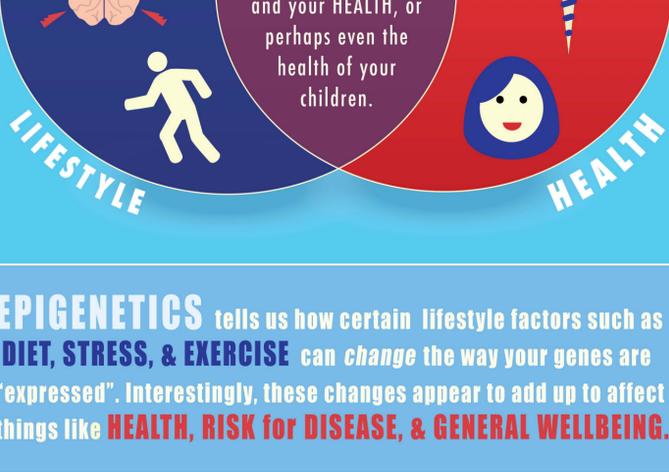
BEYOND THE DNA

Your Informative Guide to Epigenetics and Health

“epi-what?”

EPI-GENETICS!

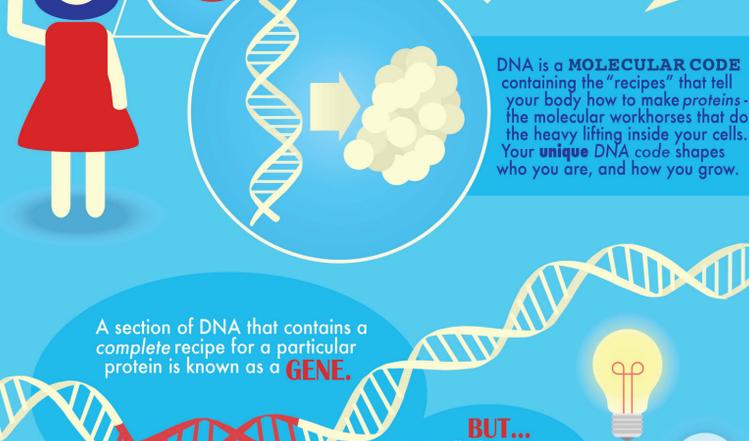
A relatively new field, that's causing quite the buzz in the scientific community



EPIGENETICS tells us how certain lifestyle factors such as **DIET, STRESS, & EXERCISE** can *change* the way your genes are “expressed”. Interestingly, these changes appear to add up to affect things like **HEALTH, RISK for DISEASE, & GENERAL WELLBEING.**

A DNA “PRIMER”

YOUR BODY'S GUIDE TO LIFE



A section of DNA that contains a complete recipe for a particular protein is known as a **GENE**.

BUT... Not all of your genes are read all of the time. Different genes may be “expressed” (on) or “silent” (off)

Our individual health largely depends on the genes that we inherit. Risk for conditions, like heart disease, cancer, or diabetes all have roots in DNA and genetics.

BUT NEW RESEARCH SHOWS...

YOUR DNA ISN'T THE END OF THE STORY

There is another important layer of information, stored in what is known as **THE EPIGENOME**

your **Epigenome** (n.) is a series of chemical tags that lie on top of your genes, and tell your body which genes to read, and how often.

Different patterns in your epigenome

effectively turn different genes “ON” & “OFF”

adding up to produce biological differences in your body.

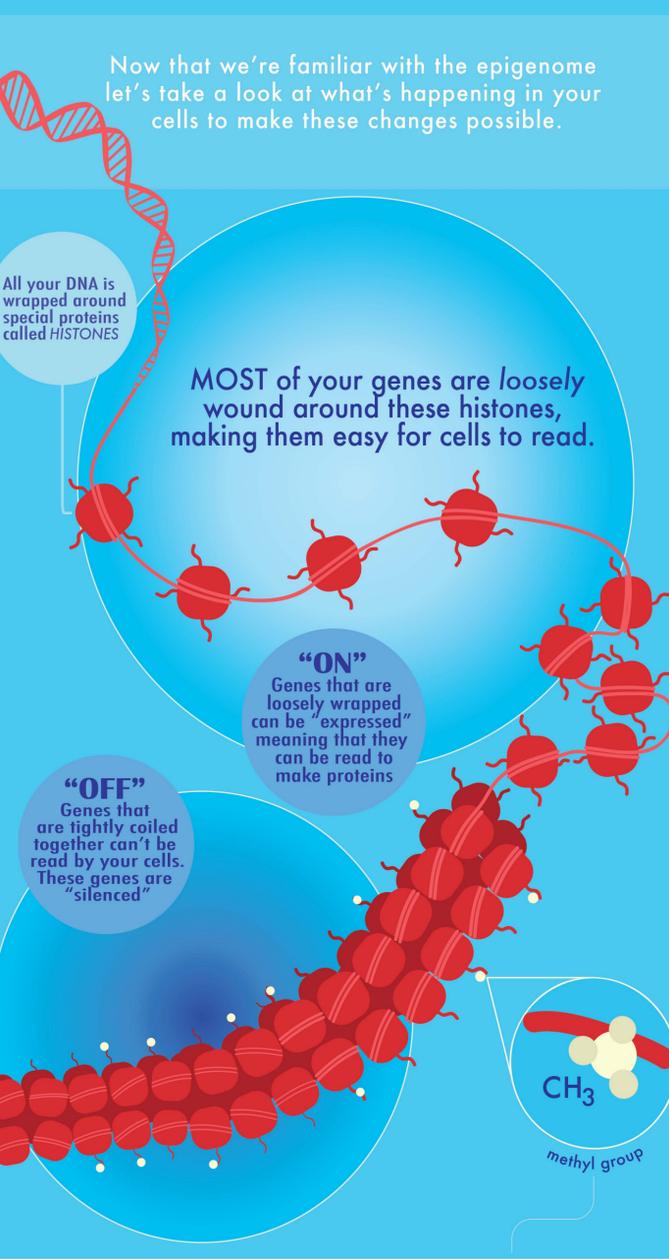
UNLIKE your genes, which are permanent, **EPIGENES** can and do change throughout your life.

More importantly, these changes are influenced by your **LIFESTYLE** and **ENVIRONMENT** - things like **diet, stress, & exercise** can all influence the ways your genes are “expressed”.

The “Nitty Gritty”

HOW DOES IT WORK?

Now that we're familiar with the epigenome let's take a look at what's happening in your cells to make these changes possible.



Adding a chemical tag, called a methyl group, causes the histones to **coil up**, which makes a gene less readable to the cell.

AND THIS PROCESS RESPONDS TO SIGNALS FROM YOUR EVERYDAY LIFE:

DIET

SUNLIGHT

EXERCISE

STRESS

Toxins

DISEASE DRUGS

Sleep

which are actually...

the same things you've always known are important!

but EPIGENETICS tells us more

YOUR LIFE EXPERIENCE SHAPES WHO YOU ARE AND HOW YOU GROW

We're learning that epigenetic changes may be passed down from parent to child, directly affecting genes that control risk for conditions such as obesity, diabetes, anxiety, & depression.

AND THE METHYLATION PATTERNS SHAPED IN YOUR DEVELOPMENT LAST A LIFETIME, OR LONGER

And it's likely that epigenetics play a role in your everyday behavior and appearance

YOU CAN LEARN MORE ABOUT THIS AT THE UNIVERSITY OF UTAH EPIGENETICS PORTAL:

google: “University of Utah epigenetics” or go to <http://learn.genetics.utah.edu/content/epigenetics/>

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Infographic by Collin Wiles