



Naturopathic Medicine: Frequently Asked Questions

A service for consumers from the [American Association of Naturopathic Physicians \(AANP\)](#) and the [Institute for Natural Medicine \(INM\)](#).

How do naturopathic doctors use precision medicine?

What if you could accurately predict your health risks, know what lifestyle changes may prevent you from getting sick, and have treatments tailored to your unique genetic, microbiome, and metabolic profile? This is [precision medicine](#), defined by The National Institutes of Health as an “emerging health care model for disease treatment and prevention strategies that takes into account each person’s genetic variations, environment and lifestyle.”

Though still an emerging area of diagnosis and treatment the [goal of precision medicine](#) is to help clinicians deliver “the right treatments, at the right time, every time to the right person” utilizing new tools, knowledge, and therapies. Recent advances in genetic testing and [targeted therapeutics](#) are helping to make precision medicine possible for conditions such as breast cancer, skin cancer, colorectal cancer, leukemia, lymphoma, ovarian cancer, pancreatic cancer, rheumatoid arthritis, and lupus, largely with targeted pharmaceutical drugs. A small but growing number of licensed naturopathic doctors (NDs) are also utilizing such sophisticated bioinformatics data combined with innovative analytic tools and extensive knowledge of natural medicine to help personalize the most effective natural, non-drug treatments for patients with a range of health risks and conditions.

Why do some naturopathic doctors utilize precision medicine?

Licensed naturopathic doctors (NDs) diagnose, prevent, and treat acute and chronic illness. Focused on identifying and treating the underlying causes of illness, NDs address the whole person and lead with natural treatments when possible. While many patients improve through committing themselves to lifestyle and environmental changes and pharmaceutical treatments if and when needed, some do not. Addressing the whole person, NDs may dig deeper to gather more information about individual factors that contribute to health and disease including genes, the microbiome, and the metabolic environment (aka metabolome). Utilizing this information, NDs qualified in using precision medicine can help patients figure out which foods they should eat or avoid, which type of physical exercise they are most likely to benefit from, and which supplements they need to take to address deficiencies or imbalances, all based on what best suits the individual’s particular biological makeup.

How does precision medicine work?

[Human DNA is about 99.5% identical](#) from person to person. However, there are small differences that make each person unique. [Single nucleotide polymorphisms](#), or SNPs, are

the most common type of human genetic variation. Each SNP represents a variation within a single DNA building block. Most SNPs do not impact a person's health or development. However, studies have shown that SNPs that may help predict an individual's susceptibility to environmental toxins, the response to certain medications, as well as risk of certain diseases. [CLIA certified labs](#) such as 23andme are making it easier and more affordable for people to analyze their genetic data and obtain a personalized report on hundreds of thousands of SNPs. [These reports identify SNPs](#) related to late-onset Alzheimer's disease, Parkinson's disease, alpha-1 antitrypsin deficiency, celiac disease, hereditary hemochromatosis, hereditary thrombophilia, and age-related macular degeneration. The [number of people getting DNA reports has been doubling](#) every year since 2010.

In one such application, [Opus23](#), a sophisticated suite of software developed by a licensed naturopathic doctor, an individual's raw genetic data can be analyzed alongside data about their microbiome (or the genetic makeup of the microorganisms of the gut), and even their metabolically active molecules (metabolome) to provide deeper insight into their health needs. This information can then be cross-referenced against databases of naturopathic treatments--based on and hyperlinked to PubMed published studies--to help pinpoint preventative and therapeutic actions mostly likely to benefit that individual. These targeted therapies include specific lifestyle changes and particular forms of vitamins, herbs, and nutrients.

By using low impact substances to address a health issue multidimensionally, NDs can increase the efficacy of treatment without an increase in side effects. They also utilize precision medicine advanced bioinformatics tools to predict pharmacological genomic interactions.

[How does precision medicine work with naturopathic medicine?](#)

Precision medicine has numerous applications for patients in naturopathic medicine. Here is a specific example.

Anxiety. A patient managing anxiety for years with pharmaceutical medication was not getting sufficient results. Her naturopathic doctor analyzed her DNA and pinpointed variations in her genes responsible for making and breaking down neurotransmitters (e.g. dopamine, serotonin, and adrenaline). He determined that an excessive quantity of adrenaline was being produced, and these high levels weren't being properly broken down. Because most neurotransmitters are made in the digestive tract and travel to the brain, the ND recognized a need to reduce inflammation in her digestive system. After three months of treatment with natural ingredients cysteamine and Withania somnifera and a genetically determined personalized diet, the patient gained control of her anxiety and is no longer dependent on drugs.

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