

Physiology of

Dr. David K. Hill, Chief Medical Officer

An industry expert on wellness

The beneficial effects of essential oils are easily perceived through examination of their history of use and ever expanding acceptance throughout westernized health care. There are a number of adorning descriptors used to describe essential oils, primarily because their effects on the human body are so pronounced and, at times, appear to be truly miraculous. At dōTERRA, we often refer to essential oils as "gifts of the Earth." However, when viewed through a scientific perspective, the explanation behind their biological activity becomes easily understood. One can simply say that essential oils are physiologically active, or in other words, essential oils work by stimulating change and specific function within the body.

Physiologically Active

A well-understood principle directly related to the benefits of essential oils is that they directly influence the body's cells. In fact, all functionality seen with essential oils is elicited at the cellular level. Two structural features of volatile aromatic compounds allow them to so potently influence cellular function:

1. Lipid solubility
2. Low molecular size

Cells are enclosed in a protective membrane of lipid (fat) molecules that serves as a selective barrier to separate their delicate internal system from the external environment. However, all living

cells must exchange materials (nutrients, waste products, etc.) to remain alive. Because essential oils are both lipid soluble and offer small molecular size, they quickly and easily gain access to cells. Few other types of molecules can transverse cellular membranes so easily. Molecules that are larger or are not lipid soluble require specialized active or assisted transport methods to get into the cell (cofactors, transportation vesicles, etc.)

When a cell becomes compromised for any reason, it becomes dependent on additional systems and functions within the body to repair itself. The primary causes of cellular compromise include poor nutrition, inflammation, toxicity, and exposure to pathogenic microbes. When cells are compromised, their ability to respond properly is limited; for example, active and facilitated transport mechanisms across the membrane may be lost until the cell is repaired.

The unique structural characteristics of essential oils give them the independence to influence cellular activity without dependence on the health of the body or the availability of cellular transport systems. There are potentially no tissue barriers to essential oils within the body. For example, there is sufficient scientific evidence to demonstrate the capability of essential oils to cross the blood brain barrier, the most highly selective barrier in the body. This is significant and demonstrates the ubiquitous nature of aromatic compounds.

It is important to know that ubiquity does not mean that essential oils directly

affect every cell in the body, but rather, they are selective at targeting specific cells, which in turn triggers systemic responses. We can see one powerful example of this phenomenon by simply investigating limbic responses stimulated through the aroma of an essential oil. When inhaled, the oil directly influences the hypothalamus in the brain. Through its additional connections to the rest of the body, the hypothalamus is capable of triggering neurochemical response in selected tissues. This region of the brain controls many aspects of physiologic functioning including endocrine secretion, blood pressure, temperature, sleep cycles, weight, etc. This is a logical explanation of how systemic, whole body outcomes can occur through even the simplest methods of use.

Therapeutic Range

To receive the full advantage of these miraculous therapeutic agents, it is important to use essential oils appropriately. The term "therapeutic range" refers to the optimal dosage of essential oils to produce maximum benefits. This range is affected by a number of variables including age, nutritional status, and body composition, so it is important to be aware of your own unique health circumstances and adjust accordingly. For example, a young child will likely require less oil to see a therapeutic effect than an adult.

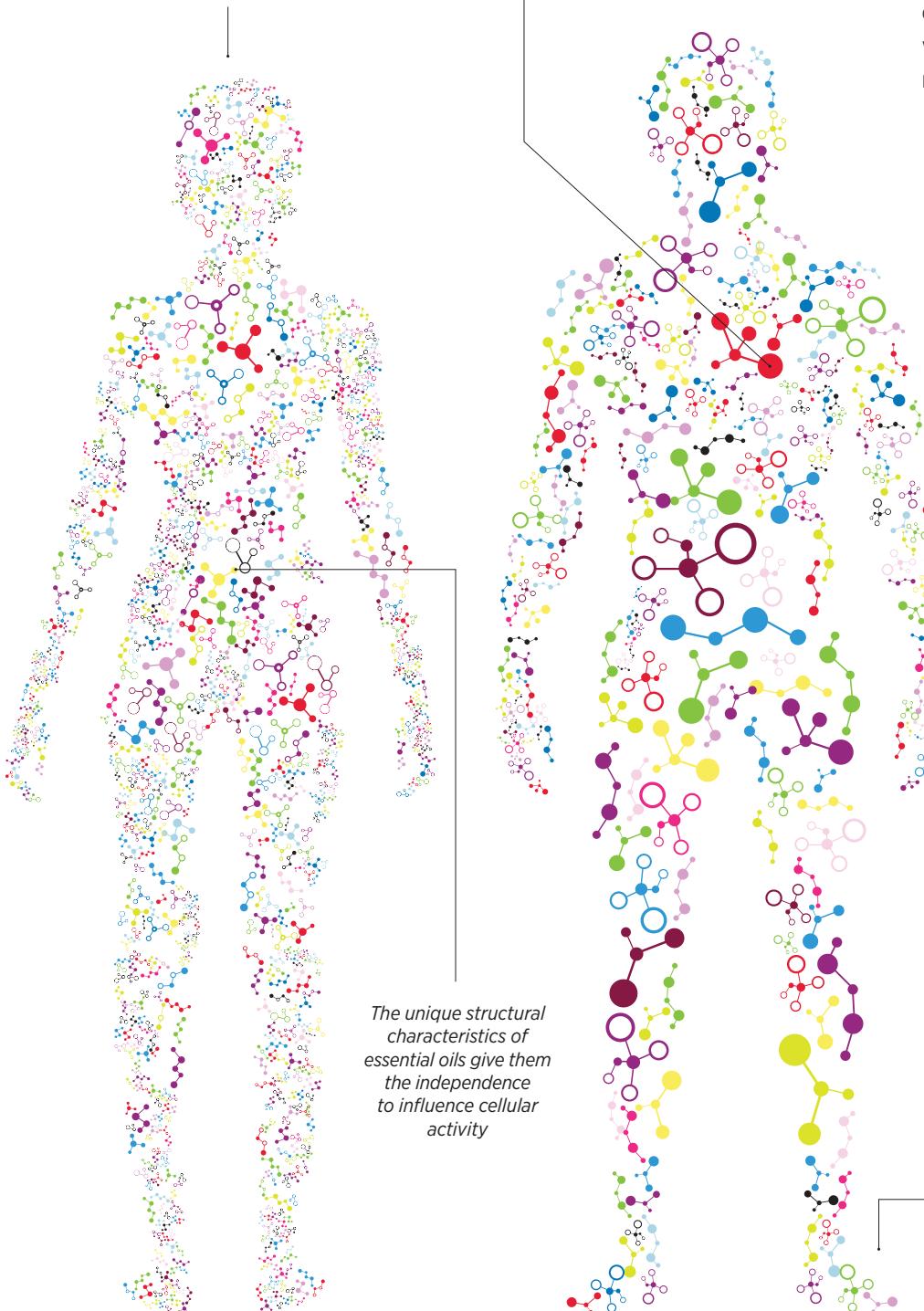
Although we cannot control every variable governing therapeutic use, we can more appropriately moderate individual benefit through consistency

Essential Oils

and essential oils, Dr. Hill is the chairman of the dōTERRA Scientific Advisory Board.

There are potentially no tissue barriers to essential oils within the body.

Essential oils work by stimulating change and specific function within the body.



of application. Consistent use involves lower, more frequent doses rather than single large doses. Using a model of consistency is important and is one way to increase sustainable benefit and minimize any risk of reactivity.

How dōTERRA Is Different

The physiology discussed here is specific to aromatic compounds, which are the chemical makeup of essential oils. While this physiology is universal, it does not give consideration to the importance of proper sourcing, harvesting, and extraction methods. What sets dōTERRA apart is not the molecular size or lipid solubility of the constituents in our oils, but rather our commitment to what we refer to as “Co-Impact Sourcing™.” This unique model of sourcing allows us to hand-select only the most potent chemistry profiles from around the world while simultaneously refining our multi-faceted production processes to better ensure optimal therapeutic profiling and quality. Essential oils are truly unique and provide consistent healthy outcomes. In extolling their remarkable benefits it is hard not to suggest they are gifts of the Earth!

Essential oils can selectively target specific cells triggering systemic responses.