

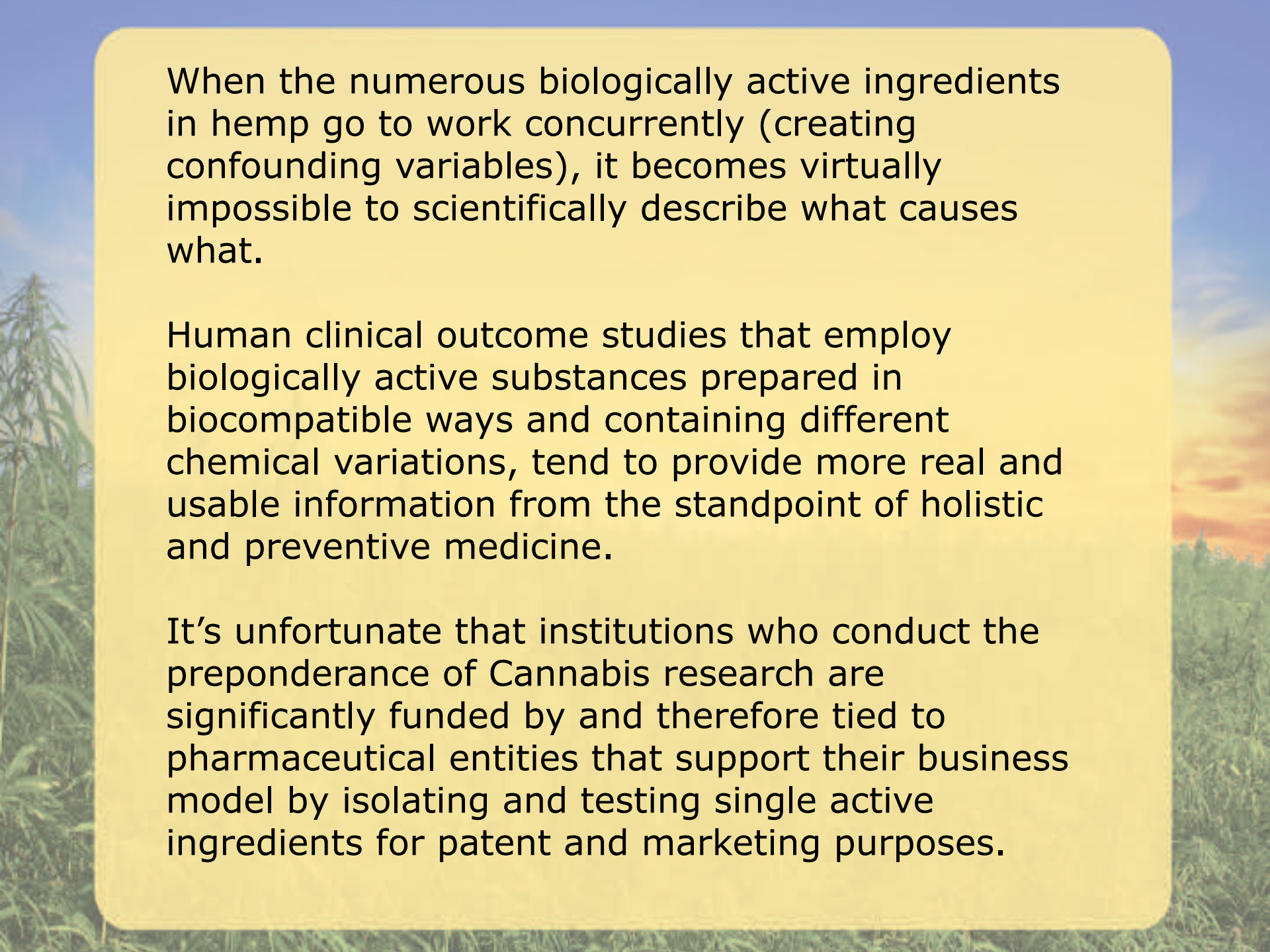
Understanding The Power & Complexity Of Healing Hemp

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INTRODUCTORY REMARKS:

It is important to accept the challenges and limitations of trying to scientifically “prove” how natural hemp – containing near 500 chemical entities – affects the human body. One would be hard pressed to describe precisely how hemp influences our health, as natural compounds often impact different individuals in unique ways.

The mainstream pharmaceutical model of health intervention has developed a pattern of reducing complex causes of human illness to a singular diagnosis. That diagnosis, the theory submits, provides a clearly defined entity that can be targeted by a precisely matched drug. *My clinical experiences with cannabis analysis suggest, however, that in general, this is not the best approach.*

The background of the slide is a photograph of a hemp field. On the left, a single hemp plant is in focus, showing its characteristic serrated leaves and thin stem. The rest of the field is a soft-focus green. The sky on the right side of the image shows a sunset or sunrise with warm orange and yellow tones. The text is overlaid on a semi-transparent yellow rounded rectangle.

When the numerous biologically active ingredients in hemp go to work concurrently (creating confounding variables), it becomes virtually impossible to scientifically describe what causes what.

Human clinical outcome studies that employ biologically active substances prepared in biocompatible ways and containing different chemical variations, tend to provide more real and usable information from the standpoint of holistic and preventive medicine.

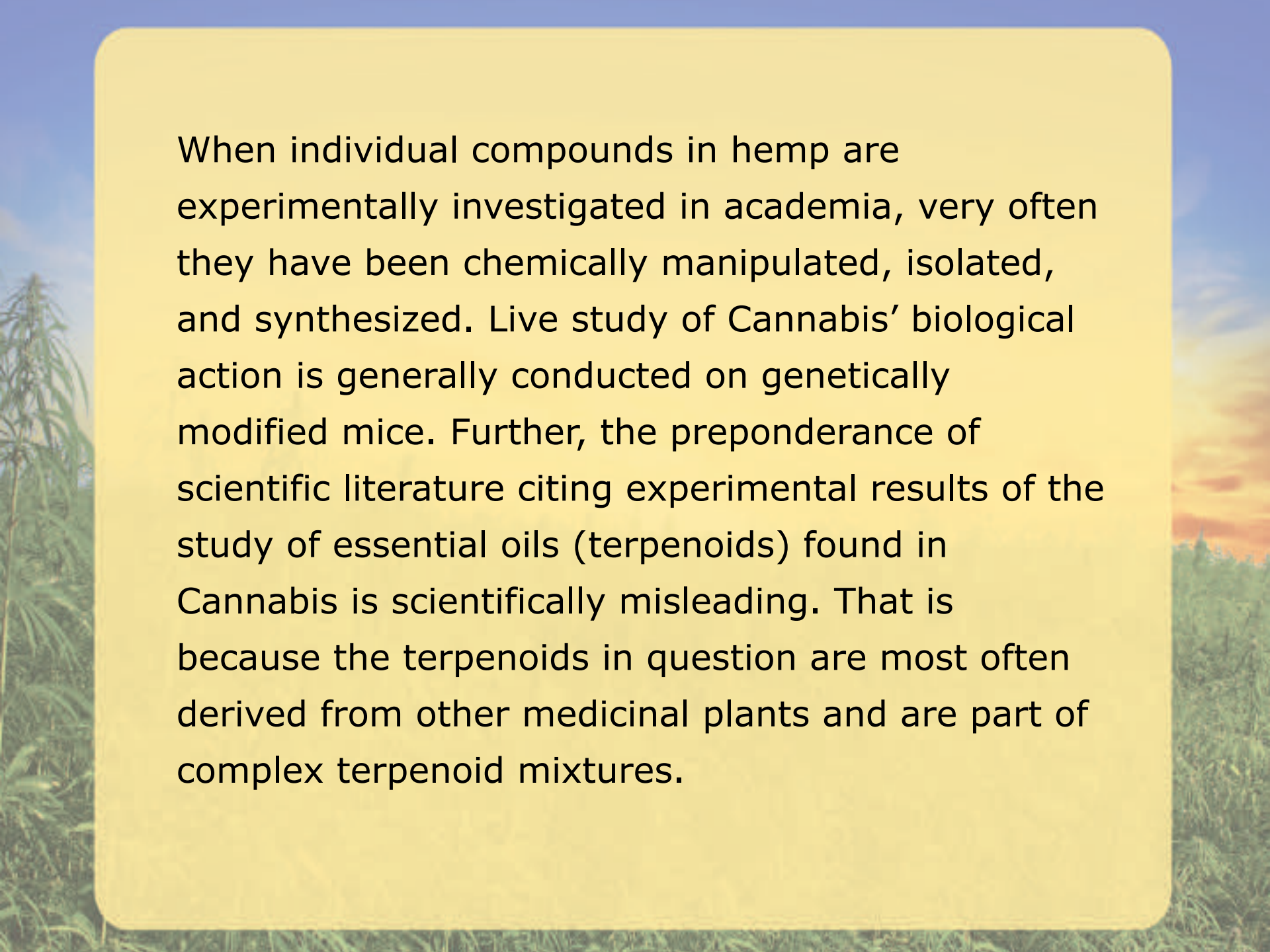
It's unfortunate that institutions who conduct the preponderance of Cannabis research are significantly funded by and therefore tied to pharmaceutical entities that support their business model by isolating and testing single active ingredients for patent and marketing purposes.

"It is simply no longer possible to believe much of the clinical research that is published, or to rely on the judgment of trusted physicians or authoritative medical guidelines. I take no pleasure in this conclusion, which I reached slowly and reluctantly over my two decades as an editor of The New England Journal of Medicine."

(Dr. Marcia Angell, NY Review of Books, January 15, 2009, "Drug Companies & Doctors: A Story of Corruption")

"The case against science is straightforward: much of the scientific literature, perhaps half, may simply be untrue. Afflicted by studies with small sample sizes, tiny effects, invalid exploratory analyses, and flagrant conflicts of interest, together with an obsession for pursuing fashionable trends of dubious importance, science has taken a turn towards darkness..."

(Dr. Richard Horton, editor-in-chief, The Lancet, in The Lancet, 11 April, 2015, Vol 385, "Offline: What is medicine's 5 sigma?")

The background of the slide features a photograph of a hemp field. On the left, a single hemp plant is in focus, showing its characteristic serrated leaves and thin stem. The rest of the field is a soft-focus expanse of green plants. The sky in the background is a mix of blue and orange, suggesting a sunset or sunrise. The text is overlaid on a semi-transparent yellow rounded rectangle.

When individual compounds in hemp are experimentally investigated in academia, very often they have been chemically manipulated, isolated, and synthesized. Live study of Cannabis' biological action is generally conducted on genetically modified mice. Further, the preponderance of scientific literature citing experimental results of the study of essential oils (terpenoids) found in Cannabis is scientifically misleading. That is because the terpenoids in question are most often derived from other medicinal plants and are part of complex terpenoid mixtures.

As long as we remain cognizant of the innumerable scientific deficiencies and the limitations of rodent experimentation and single compound analysis, we can nevertheless gain useful insights from information that has been gleaned from hundreds of scientific studies.

Fortunately, there are three wonderful ways that naturally oriented physicians and holistic health professionals can safely acquire invaluable information about therapeutic substances – real time – on live human patients.

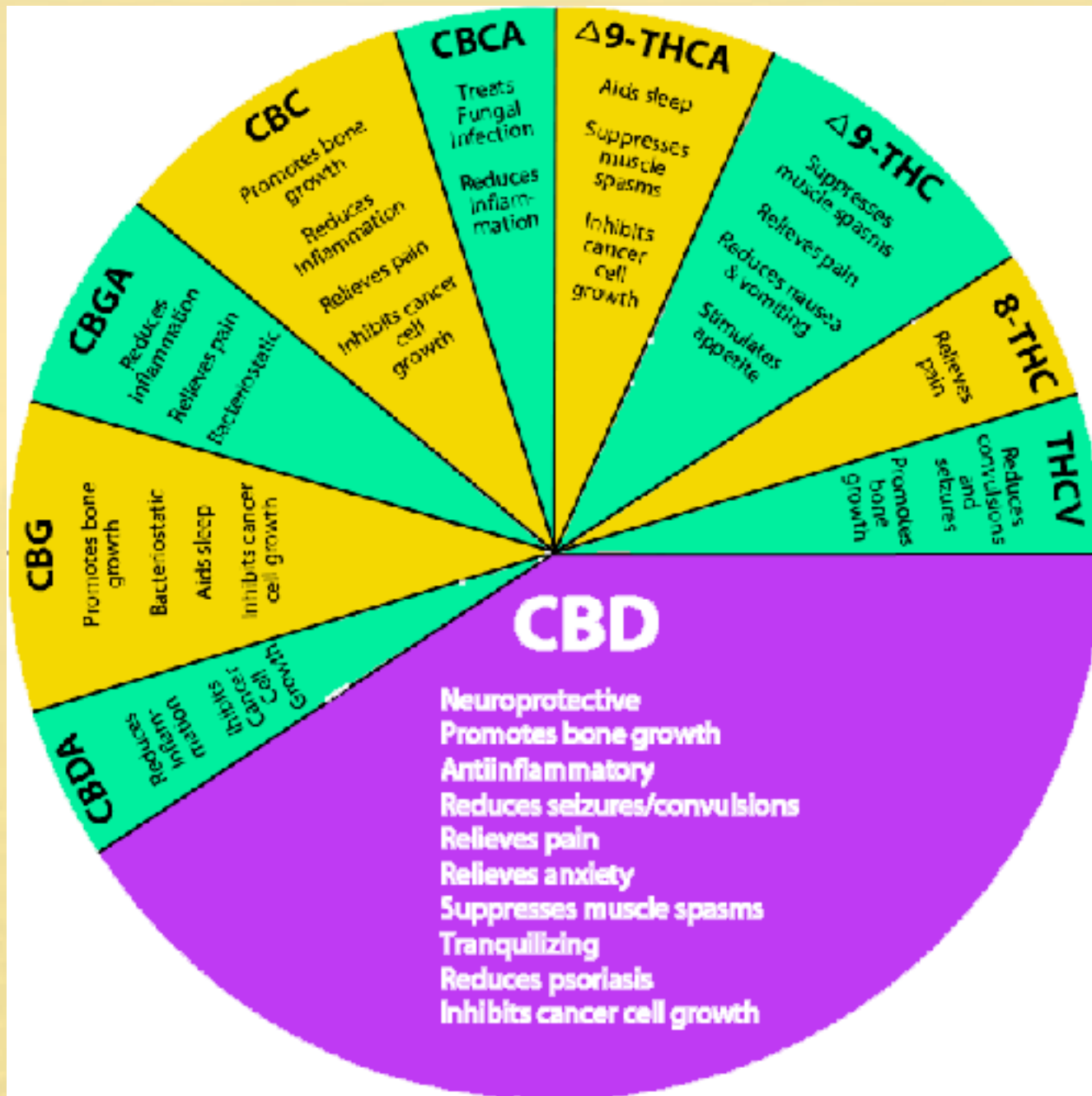
1. Proficiently applied applied kinesiology muscle testing;
2. Electrodermal screening;
3. Advanced pulse diagnosis from traditional Chinese medicine (TCM).

Briefly, the most important therapeutic actions of non-psychoactive fiber or industrial hemp derive from 3 classes of compounds in the plant.

- **Cannabinoids** (most notably CBD and THC)
- **Terpenes** (essential oil terpenoids)
- **Phenolics**

Cannabinoids are terpenophenolic compounds that are found in the sticky oils on the surface (trichomes) of the flowers and leaves. Their therapeutic properties are summarized in the next slide.





TERPENOIDS (from essential oils)

Terpenoids are what we associate with the essential oils of fragrant plants such as pine, lavender, and unknown to most people, the flowering tops of industrial hemp that is used for medicine.

The most commonly recognized benefit of terpenoids is that they are broadly anti-microbial and anti-inflammatory. Both drug type and fiber/industrial hemp varieties contain a rich complement of nearly the same terpenoids—just varying in relative proportions.

TERPENOIDS (cont)

“What makes terpenoids most interesting is the fact that they have a role in the regulation of... signal transduction, and as such can exert a profound effect on cell growth, differentiation, apoptosis [programmed cell death] and multiplication.” “Terpenoids and other isoprenoids have important functions as messengers...within organisms, within organs and within the cell body, in particular between the cell surface and the cell nucleus.” ... “They can influence cell stage and mitosis, resulting in changes in morphology and differentiation.” “Terpenoid end products ... can interfere with gene expression, or more directly, act as key enzyme regulators.”

Harrewijin, P. et al, **Natural Terpenoids As Messengers, Kluwer Academic Publishers, Norwell, MA USA 2001**

TERPENOIDS (cont)

Due to the fact that terpenoids are lipophilic (are attracted to lipids), they have an affinity for biomembranes which function to prevent leakage of cellular contents into extracellular space, but also control the influx of material into the cell. If terpenoids come into contact with a pathogenic organism in the human body, the pathogen can be destroyed by increasing its cell membrane permeability. That is one reason essential oils show such strong antimicrobial and cytotoxic activities. Many terpenoids are even effective defense against membrane-enclosed viruses. Terpenoids can also modulate the activity of ion channels in the human body. For example, essential oil of mint affects calcium channels and the motility of smooth muscle cells in the intestines. Cannabis essential oils are also anti-spasmodic.

Michael Wink, **Modes of Action of Herbal Medicines and Plant Secondary Metabolites, Medicines 2015, 2, p. 251-286**

Phenolics

Flavonoid phenolics are one of the largest groups of natural compounds. They are spread widely throughout the plant kingdom. They have well recognized health benefits including modulation of inflammation (e.g. regulation of enzymes such as lipoxygenase and cyclooxygenase), detoxification of carcinogens, and cancer prevention. Their antioxidant effects take place by their scavenging free radicals and/or by chelating metal ions. When flavonoids enter the human body they are conjugated in the liver by glucuronidation, sulfation, or methylation or metabolized to smaller phenolic compounds.

Currently 26 flavonoids have been identified in Cannabis.

We can appreciate the huge potential of hemp's healing properties by watching the following video and by understanding how it can help avert a new syndrome I discovered that I named:

**Human Body Collapse Disorder –
HBCD**

Human Body