

APLGO Behind the Science Call

The Happy Kit: HPY + BRN + HPR + MLS + RLX

Product Questions with Pamela Zimmer and Mary Esther Gilbert, MSc HN, BSc NSP

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HPY

Ashwagandha Root, Banana, Chamomile, Ginger Root, Ginkgo Leaf, Grapple Plant Root, Hemp Seed Licorice Root, Passion Flower Leaf, Pear, Sea Buckthorn Berry, Turmeric Root.

BRN

Apple, Ashwagandha Root, Asparagus Root, Bilberry, Coffee, Turmeric Root, Damiana Leaf, Ginger Root, Ginkgo Leaf, Ginseng Root (Asian, *Panax*), Green Tea Leaf, Magnolia Vine, Ginseng Root (Siberian), Water Hyssop Leaf.

HPR

Globe Artichoke Leaf, Avocado, Dandelion Root, Milk Thistle Seed, Peach, Raisin, Turmeric Root.

MLS

Artichoke Leaf, Carnation Seeds (Clove), German Chamomile Flower, Cinnamon Bark, Coriander Seed, Cranberry, Black Currant, Dandelion Root, Common Fenugreek Seed, Ginger Root, Grapefruit, Licorice Root, Mandarin, Papaya, Pumpkin Seed, Purple Coneflower Root, Sweetie, Thyme Leaf, Turmeric Root.

RLX

Ashwagandha Root, Banana German Chamomile Flower, Siberian Ginseng Root, Lettuce, Passion Flower Leaf.

1. The Big Picture + Why the Complete Kit

We often think of happiness as an emotional state, yet our physical body plays a huge role in how we feel. When you look at the Happy Kit as a whole, what systems are we supporting and how do they work together? And if someone says, “If HPY already supports mood, stress, and sleep, why wouldn't I just take HPY?”—what is the advantage of supporting all five areas with the complete Happy Kit?

The human body's vast complexity requires a vast complexity of botanical nutrients from many botanicals, including those that are contained in the APLGO Kits, and which have been shown to more fully address the body's trillions of cellular functional needs.

The more biologically compatible plant complexes the body receives from the various drop formulations, the better it is able to rapidly bring itself back toward normal (biochemical and electrical equilibrium) functioning at the cell level, where true health is determined.

The vast array of phytochemical plant complexes in the Kit have been found to drive the cells that compose all of its interactive, interdependent systems body systems toward optimal functioning.

The vast array of complex plant phytonutrients in the Kits are exactly what the body needs to create the biochemicals or molecules that work at a very rapid pace for:

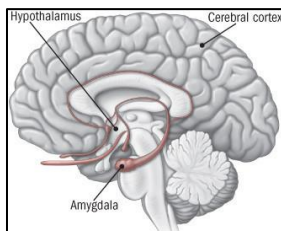
- Creating electrical impulse cell-to-cell communications, and chemical energy/fuel.
- Monitoring of the body by the hormonal system to respond with instant actions.
- Destroying or neutralizing foreign substances.
- Constantly repairing and correcting damaged cells in all body systems.
- Building new molecules for building new tissues, proteins and hormones.
- Responding to and interpreting stressors and taking appropriate action to restore equilibrium.

To see the list of phytochemical nutrients in each botanical in the Kit, and view which body system they address, visit Mary Esther's YouTube video at <https://www.youtube.com/watch?v=Tz li52ZfpQ&t=26s>.

How The Happy Kit Plant Complexes Positively Impact The Interactive Body Systems During the Stress Response

Thoroughly Nourishing the Nervous, Hormonal (endocrine/glandular) and Immune System for
Supporting Moods, Stress, and Sleep

How the Brain/Neuronal Pathways Respond to Stress

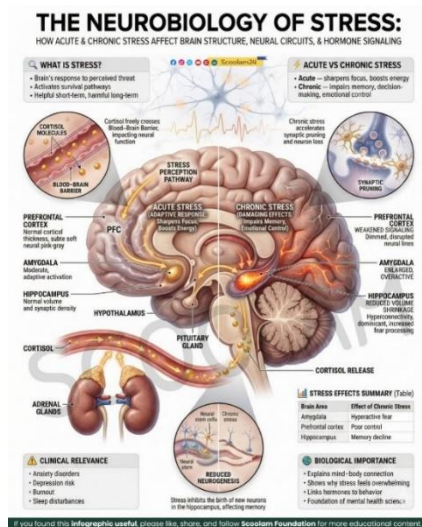


<https://www.health.harvard.edu/healthy-aging-and-longevity/understanding-the-stress-response>

- The brain's **amygdala** gland activates rapid neural pathways and releases hormones that shift the body into a temporary fight-or-flight state.

- **The Acute Stress Response (Fast**
 - Perception: The *amygdala*, emotional and fear center, and sends a distress signal hypothalamus.
- **The Sympathetic Nervous System** *hypothalamus* receives the distress the sympathetic branch of the nervous system and the Adrenomedullary (SAM) axis. (The located inside the adrenal gland.)

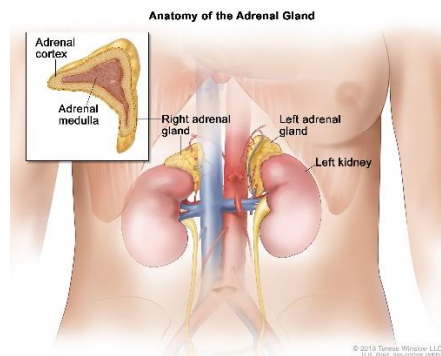
<https://www.facebook.com/scoolam24/>



Action)
the brain's
senses danger
to the

Response: The
call and activates
autonomic
Sympathetic-
medulla is

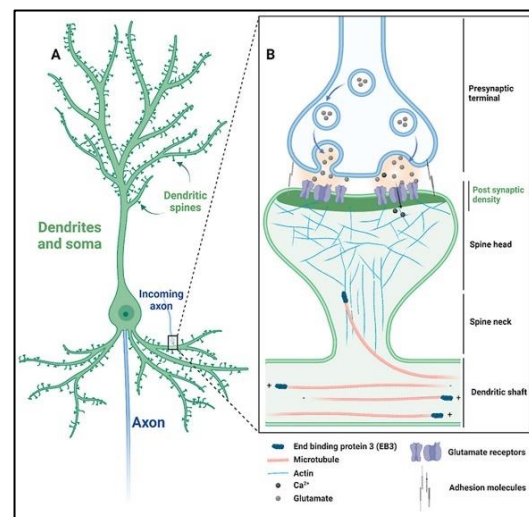
- Links the brain directly to the adrenal medulla, the inner part of the adrenal glands.
 - Pumps stress hormones like adrenaline (epinephrine) and noradrenaline (norepinephrine) into the blood.
 - These hormones keep the body alert and energized after the initial nerve signal.
 - The sympathetic nervous system has direct communications to the heart, speeding up heart rate and raising blood pressure.
 - Oxygen is then rapidly pumped to the muscles allowing increased physical activity.
- **Hormone Release:** The *adrenal glands* instantly release the hormones adrenaline and noradrenaline (adrenal steroids) into the bloodstream.
 - *Adrenal steroids* affect the brain in more ways than via the *hypothalamus*; it is now known that they influence spatial, episodic memory, and mood regulation.



<https://nci-media.cancer.gov/pdq/media/images/739009.jpg>

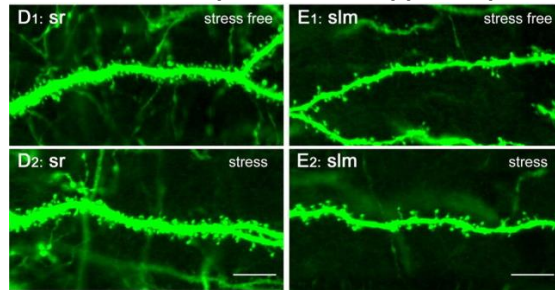
• Physical Changes

- In the *hippocampus*, *glucocorticoids* (steroid hormones that suppress inflammation and regulate the body's metabolism and immune response) and stress have been shown to cause **dendritic shrinkage and loss of dendritic spines**, which:
 - Receive signals.
 - Isolate nutrients and other biochemicals.
 - Store memories.
 - Filter electrical cues (Bourne, 2008).



<https://www.sciencedirect.com/science/article/pii/S0012160622000896>

Nerve Cell Dendritic Spine Loss in Hippocampal Neuron



(Chen, 2008)

- *Proceedings of the National Academy of Sciences* (PMC) demonstrate that prolonged stress triggers rapid spine loss and dendritic regression (*dendritic shrinkage*).
- **Hippocampus dendritic shrinkage** occurs when the tiny branch-like extensions (dendritic spines) in the brain's memory center shrink or pull back due to weak electrical signals or high stress.

Shrinkage is driven by the breakdown of the cell's internal skeleton inside the spine head.

- Shrinkage leads to long-term depression.
- Chronic stress, aging, and toxins release chemicals that cause dendrite shrinkage of the branches in brain nerve cells.
- Shrinkage causes cells that receive information to degenerate and waste away.
- **Spine shrinkage is not always permanent.** High-frequency stimulation or removing stress hormones can restore spine size and density (Chen, 2008) (McEwen, 2015) (Zhou, 2004).

- **How neuronal dendritic shrinkage affects the immune system:**

- Neuronal dendritic shrinkage is not what can disrupt systemic immune system functions; rather, it is the other way around.
- Neuronal dendritic shrinkage is typically because of neurodegeneration and immune cell activity, such as the release of inflammatory proteins like cytokines by the brain's immune microglia.
- Neuronal dendritic shrinkage does reflect a breakdown in neuro-immune communication.

- **Reversibility:**

- Various studies have identified specific botanical compounds that directly repair and regrow shrunk neuronal dendrites, a process known as “*reversing dendritic atrophy*”.

Botanicals Shown to Reverse Dendritic Atrophy

Botanical / Plant	Active Compound	Scientific Findings
Ashwagandha (<i>Withania somnifera</i>)	Withanolide A	Reverses Atrophy: Restores shrunk axons and dendrites damaged by amyloid-beta toxins.
Siberian Ginseng (<i>Eleutherococcus senticosus</i>)	Eleutheroside M, Ciwujianoside B	Dendritic Elongation: Proved these active molecules cross the blood-brain barrier and directly cause dendritic branches to lengthen.
Water Hyssop (<i>Bacopa monnieri</i>)	Bacosides	Arborization: Significantly increases dendritic length and branching (arborization) in the hippocampus.
Turmeric (<i>Curcuma longa</i>)	Curcumin	Dendritic Arborization: Induces structural changes in neurons by spiking growth proteins.
Gotu Kola (<i>Centella asiatica</i>)	Centella Juice / Extracts. Caffeoylquinic Acids (CQAs), Triterpenes	Spur Growth: Accelerate dendritic arborization during developmental and healing phases. Protect and rescue neural dendritic spines. CQAs are the specific molecules responsible for preserving and increasing the actual density of the spine connections. Neuroceutical, cogniceutical, reduce oxidative stress, A β levels, and apoptosis. Promotes dendritic growth and mitochondrial health, improves mood and memory.
Ginkgo (<i>Ginkgo biloba</i>)	Terpene lactones (Ginkgolides, Bilobalide, Flavonoid Glycosides).	Increase Spine Density: Research published in neuroscience journals shows that extracts like EGb 761 increase dendritic spine density and restore lost spine after injury or hypoperfusion (reduced blood flow).
Cat's Claw (<i>Uncaria tomentosa</i>)	Proanthocyanidin B2 (also known as an epicatechin dimer).	Inhibit Plaques and Tangles: Anti-inflammatory, antioxidant, inhibit plaques and brain tissue tangles, reduces gliosis, improves memory.
Lion's Mane (<i>Hericum erinaceus</i>)	Hericenones (found in the mushroom's fruiting body), Erinacines (found in the root-like mycelium). The proteins Nerve Growth Factor (NGF), Brain-Derived Neurotropic Factor (BDNF)	Neuroprotective, improve cognition, anti-inflammatory, blocks A β production, stimulates neurotransmission and neurite outgrowth. Easily cross the protective blood-brain barrier—to work directly on the central nervous system. NGF and BDNF ensure dendritic spines are protected from degeneration and encourage new dendritic spines to grow.

(Gregory, 2021) (Kuboyama, 2005) (Malik, 2023) (Menon, 2025) (Mohandas, 2007) (Rahman, 2026) (Sarda, 2022) (Shaheen, 2026) (Snow, 2019) (Walker, 2023) (Yao, 2021) (Gray, 2017).

2. Gut Health + Mood

I've heard the statistic that up to 80% of the body's serotonin is produced in the gut. How accurate is that, and what does that actually tell us about the connection between gut health and mood? And where does MLS fit into that bigger picture?

- Approximately 90-95% of the body's serotonin pool originates from the gut, where this hormone is synthesized, stored, and released by enterochromaffin (EC) cells that line the gut (gastrointestinal tract).
- The normal microbiome or gut bacteria are critical for the control of chemical signals that instruct the EC cells to increase or maintain normal serotonin production.
- Gut serotonin regulates bowel movements, gut motility, and repairing the intestines.
- Serotonin influences gut inflammation and immunity.
- Because serotonin produced in the gut is not able to cross the blood-brain barrier, it does not directly control moods or cause happiness.
 - Disruptions of the communications or signaling occurring in the gut-brain axis are associated with gut imbalances such as irritable bowel syndrome (Suhrid, 2019).
- Depression and anxiety are caused by a change or decrease in the levels of serotonin found at nerve endings in some regions of the brain.
 - Only about 1%–2% of the total amount of serotonin in the body is produced by serotonergic neurons in the brain, synthesized by the amino acid tryptophan.
 - No serotonin supplement preparation that can be taken orally has been developed (Terry, 2016).
- Although the gut makes most of the body's serotonin, serotonin as a brain chemical lifts the mood and helps bring feelings of happiness.
- Healthy gut bacteria help make GABA. GABA is a chemical that calms anxiety and helps one relax.
- A poor diet that causes swelling and inflammation in the gut sends stress signals to the brain that can lead to sadness or depression.
 - People with depression often have fewer types of good bacteria in their digestive tract compared to healthy people.
- Serotonin plays many roles in the gut, including:
 - Regulating the immune response in colon cells.
 - Acting as both a regulating hormone and a neurotransmitter of signals.
- Sunlight exposure naturally increases the production of serotonin, a brain chemical that helps regulate mood, calm, and focus.
- Serotonin is the hormonal precursor to forming melatonin, known as the sleep-inducing molecule in the body.
(Appleton, 2018) (Bektas, 2020) (Moretti 2025) (Terry, 2017)

The anti-microbial phytochemical plant compounds in MLS have been shown to protect the intestinal tissue environment (gut-brain axis communication highway) by helping to destroy illness-causing, invasive, inflammatory anaerobic bacteria that disrupt those signals. The plant compounds in MLS are well-known for their ability to restore a normal gut environment by aiding the growth of the beneficial aerobic bacterial population.

3. HPR + Detoxification

HPR is the detoxification piece of the Happy Kit, and at first glance, someone might wonder what detox has to do with happiness. How does supporting the body's natural detoxification pathways fit into the bigger picture of how we feel—including things like energy, mood, clarity, and overall well-being?

When the cleansing phytochemical complexes in botanicals like those in HPR help clear the system of foreign toxins, the body is then better able to efficiently:

- Help the immune system signal the elimination of toxins from the liver and the body's eliminative channels (skin, lungs, colon, kidneys, lymph vessels and nodes).
- Clear the signaling pathways between the gut and brain, and improve overall circulation for better detoxification and elimination.
- Free the its capacity to produce and maintain optimal serotonin levels in both gut and brain.
 - The brain's own production of serotonin directly affects mood, contributes to mental clarity, helps to regulate emotional stability, focus, and cognition.
- Aid the immune system in destroying pathogenic organisms that disrupt proper signaling, which affect the production of hormones that regulate moods and influence feelings of happiness. (Jenkins, 2016)

4. HPY + RLX — Why Both?

HPY and RLX both address areas like stress and sleep, so someone might reasonably ask, “Why would I need both?” What is different about the way these two products support the body, and why can they complement each other rather than being redundant?

Due to the vast array of beneficial plant compounds in both formulations, the body is able to address a great many tasks it needs to maintain the many body systems, including the nervous system, immune system, the detoxification channels, and the over ten thousand monitoring, regulating hormones.

One of the hormones being serotonin, it has a direct impact on feelings of happiness and the ability to handle stress calmly and rationally. The more efficiently the body systems are working, the less impairments there are to feeling happy.

Comparison of Beneficial Plant Phytochemical Compounds in RLX and HPY

RLX	HPY
Stabilizing Anti-Stress Adaptogenic, Anxiolytic: sitoindosides and acylsterylglucosides, epigenin. Cognition: alkaloids, steroidal lactones.	Homeostasis, Biochemical Equilibrium, Adaptogenic/Anxiolytic, Decreasing Sensitivity to Stress: sitoindosides and acylsterylglucosides, phenolics, tryptophan (converts to serotonin the happiness hormone), catecholamines norepinephrine, dopamine, indoles, glutamic acid; non-psychoactive

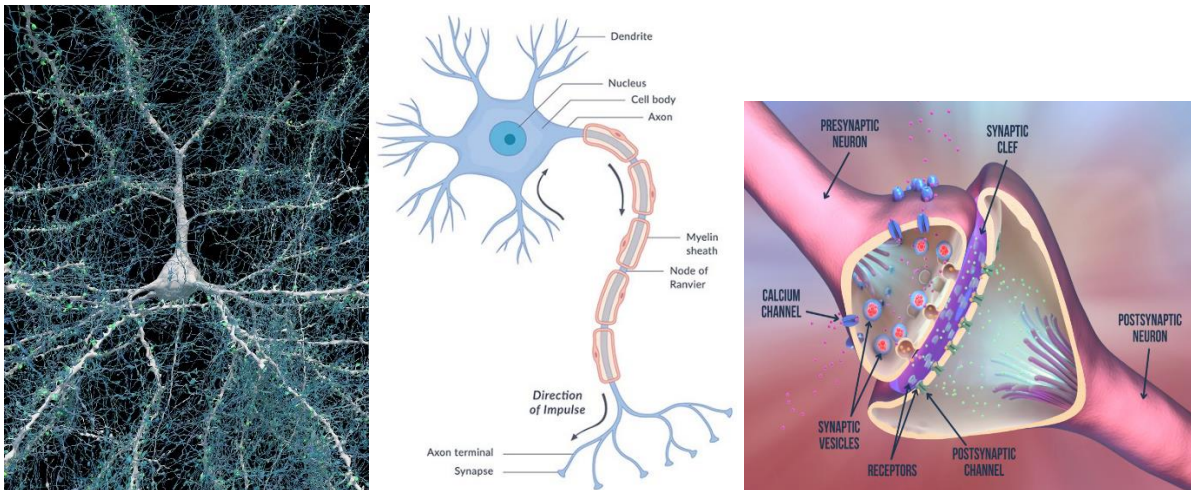
	tetrahydrocannabinol <i>acid</i> (THCA); epicatechin, ferulic acid, and protocatechuic acid; flavonoids, tannins, polyphenols, terpenoids, sterols and alkaloids; epigenin, galliccatechins, epigallocatechin.
Nerve Protective: phenolic antioxidants dicaffeoyl tartaric acid and chlorogenic acid, flavonoids leucocyanidin, tannins, quercetin, glucosides, glycosides, fatty acids, zeaxanthin, polyphenols. Calming, Nourishing Nerves: amino acid tryptophan, lanosterol, lactucin. Phenolics, tocopherols.	Anti-inflammatory, Antioxidant, Immune Boosting: alkaloids, flavonoids leucocyanidin, quercetin, glucosides, luteolin, patuletin; tannins, phenolics, terpenoids, apigenin, apigenin-7-O glucoside, caffeic acid, chamazulene chlorogenic acid, coumarin, farnesene, luteolin, luteolin-7-O glucoside, and terpene bisabolol; flavonol glycosides, ginkgolides, bilobalide and proanthocyanidins; indoid glycosides harpagoside, harpagide, phenylpropanoid glycosides, tocopherols, carotenoids, phytosterols, lycopene, kaempferol, isorhamnetin, curcuminoids.
Happier Moods, Emotions, Perceptions, Reactions to Stress: carotenoids, phenolics, amine compounds, catecholamines norepinephrine, serotonin, dopamine, tryptophan, indole compounds, eleutherosides, xanthophyll carotenoids.	Increasing Mitochondria Energy Production, Stamina: steroidal lactones, sterols ergosterol, stigmasterol, lanosterol, and amyryns. Promoting Cerebral Circulation, Cognition, Learning, Memory, Thinking, Nerve Functions: fatty acids, triterpenes, cyclomusalenol, cyclomusalenone, amino acid glycine, choline; linoleic, oleic omega-9 fatty acids; flavonoids, terpenoids, tocopherols, curcuminoids, lanosterol, saponins, glycosides, alkaloids. Menstrual Cycle, Menopause: curcuminoids.

5. BRN + Brain Health

BRN is another piece of the Happy Kit, and we've heard some really encouraging personal stories from people who say they've noticed improvements in things like mental clarity, focus, and cognition. Without getting into medical claims or specific conditions, what is happening from a brain-health perspective that might help us understand why people can experience those kinds of changes?

Botanicals in BRN have abundant amounts of phytochemical compounds known to protect brain and nerve cell functions to ensure efficient communications between cells in all body systems. The nutrient complexes that maintain and repair the nerve cell structures such as nerve cell dendrites, the axon, and the DNA are critical for completing a circuit.

Nerve Cell Anatomy



<https://stagetestdomain3.nih.gov/news-events/nih-research-matters/study-reveals-unseen-details-human-brain-structure>

<https://www.nichd.nih.gov/health/topics/neuro/conditioninfo/parts>

<https://speechneurolab.ca/en/la-transmission-synaptique/>

When a nerve-to-nerve transmission fails, it has a consequential effect on mental clarity, focus, and cognition. If the electrical impulse is too weak, it will fail to reach its destination.

When the electrical impulses that travel at lightning speed correctly reach their destination in delivering signals, they allow a person to hold and complete thoughts, recall memories, understand experiences, make executive life decisions, and have better perspectives in their interactions with the world and with others.

6. How to Take the Happy Kit

Let's get really practical. If someone is taking the complete Happy Kit, what's the ideal way to take the five products? Should they all be taken together, spread throughout the day, or does timing matter depending on the product? And most importantly, why? Does it matter whether they're taken with food or on an empty stomach?

**** (if time allows)**

With the exception of the RLX if your body is on a sleep-rest deficit, these amazing biologically compatible, electrically energy-active nutrient factors in HPY Kit botanicals can be taken any time of day. Think of them as nutrient-dense foods.

Spreading them throughout the day is a good way for the body to process the nutrient-dense drops at a steady pace. Taking all five at once will likely generate a more noticeable response as your body happily absorbs those nutrients and are utilized by your 39 trillion cells to the fullest extent.

Taking the drops between meals would be a good way to not have to give your body both tasks of digesting foods and dissolving and absorbing the drops' micronutrients in the buccal mucosal tissues in the mouth.

Fiber-rich whole food organic choices are also important since fiber is also key to a healthy gut environment.

7. Making the Happy Kit Easy to Share

If someone tells us, "I don't feel like myself anymore. I'm stressed, I'm not sleeping well, I'm foggy, and my gut isn't happy," how would you explain why the Happy Kit might be a great place to start—without overwhelming them with information about five different products?

- The HPY Kit botanicals:
 - Are shown to help restore the proper balance in the gut environment, which governs how well the beneficial microbiome signal or communicate with the brain, which is so important for better brain function.
 - Have been found to help restore the proper amounts of the hormone serotonin, which determines moods, focus, cognitive thinking, and memory.
 - Help restore the gut environment, allowing the proper production of serotonin, which is converted to melatonin, the sleep hormone, when the body perceives it is night.
 - The HPY Kit, regular sunlight, and a nutrient-rich daily diet and proper hydration are all the components of feeling alert during the day and sleeping well at night.
 - When the gut is happy, happiness is more likely!

Closing Question

If you could leave everyone with ONE thing you want them to understand about why the Happy Kit works as a complete system, what would it be?

The absolutely most fundamental thing to do for living life elevated is to nourish your inner biological terrain, your personal ecosystem, with great care, respect, and awe, for it is not separate from the Earth's ecosystem. Therefore, choose your nourishment free of toxic chemicals, pollutants, and nutrient-void products.

Happiness begins from within, through complete and biologically correct nourishment at the cell level. With a highly nourished body, one typically experiences life from a higher, broader, deeper, more intelligently aware perspective.

The HPY Kit provides part of the foundation for building such optimal health vibrancy.

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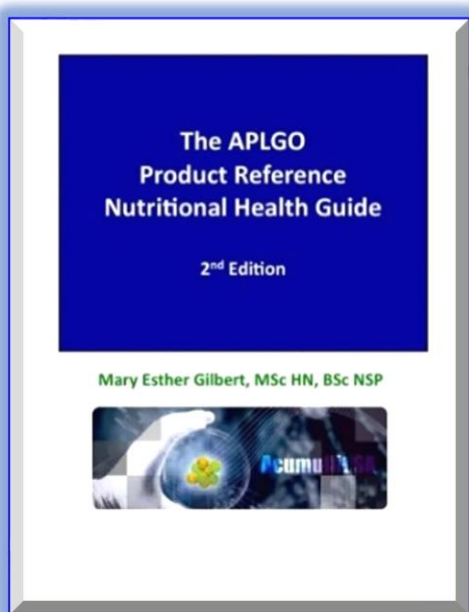
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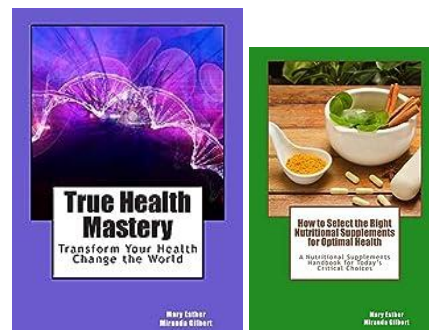
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