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# *Fall Heralds the Restful Phase of the Year and Brings the Need for Deep Sleep*

Larken Bunce

### **Introducing a new column**

The name and the philosophy of Innate Response Formulas® underscore the healing power of nature and the body's inherent ability to heal itself. Their products are based on the belief that home-grown whole foods are our best medicine, with store-bought organic whole foods following close behind. When whole foods aren't available, the next best things are minimally processed whole food concentrates, which provide vitamins and minerals in their natural state—surrounded by an active matrix of constituents that maximize the body's use of the nutrients present and provide unique nourishment of their own.

As modern humans in the Western world, we know instinctively and intellectually that fresh, ripe fruit is good for us to eat, but we aren't as intuitive or knowledgeable about the value of our common weeds and garden plants. While most of us are familiar with oranges, cabbage and rice—foods commonly concentrated in Innate's products to provide various vitamins, minerals, enzymes, fiber and antioxidants—many of us are far less familiar with plants used for medicine that may come from around the world or right outside our back doors.

As Innate continues to raise awareness about the value of wellness products truly grounded in Nature, our sponsor has partnered with clinical herbalist

Larken Bunce to present its formulas to our readers. As an herbalist, she is committed both to supporting the health of individuals and to bringing about a renewed collective awareness of our interdependence with our environment. She believes that an ideal way to examine—and benefit from—that interdependence is through herbal medicine.

In the spirit of increasing knowledge about and connection with the world's medicinal plants, Larken will share her perspective on the herbs present in Innate's formulas in this new column. She will discuss their indications and character and highlight the traditional and contemporary evidence available for their efficacy, as well as discuss her personal experiences with the plants in private practice.

Through sharing in this knowledge and reclaiming the simple practices of eating whole foods and consuming medicinal plants, may we also continue to harmonize our lives with Nature, and so awaken our innate response.

### ***Awakening Our Innate Response***

As Summer wanes and Fall Equinox approaches in my corner of the Northeast, the light outside is changing. The air is crisper, the breezes cooler. Bird song long ago gave way to cricket music; now that's dwindling as well. Animals are storing food and



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preparing for colder weather. Our gardens have given up much of their harvest and are easing back into the earth. Everything—animals, insects, plants—is slowing down after a busy time of reproduction and activity... except we humans.

Indeed, most of us are busy beginning new school years, starting new projects at work after brief vacations, and preparing for the frenzy of holidays that will be upon us before we know it. American culture behaves as if in perpetual Spring and Summer—always active: planning, building, growing, partnering, playing. These are important aspects of life that can be seen in the behavior of plants and animals during these expansive seasons. But what of reflection, rejuvenation, solitude, stillness? We see these behaviors equally as often in nature, particularly during the Fall and Winter months. While we may be aware of seasonal transitions, few of us alter our routines to reflect

the changes happening outside our windows. As our lives are manifestations of our culture, this is inevitable. However, we must recognize that nature is not

just happening “out there.” We arise from and exist within nature’s embrace, whether or not we acknowledge it. When we do honor our inherent cyclical tendencies and begin to cultivate our experience of the in and out breath of life, a sense of equilibrium and wellness often emerges. We need only look toward the growing body of stress-related research to be reminded of the results of leading lifestyles that favor productivity at the expense of rest and rejuvenation.

The yearly pattern created by the seasons is mirrored by the daily pattern of day and night, which likewise signals for us the time for work and play and the time for renewal. Just as we need time to reflect on the year’s projects and to gather resources to start new ones—activities suited to Fall and Winter—we need time each night for our bodies and psyches to process what we’ve taken in, time to repair and rebuild for the coming day. So, as we move into the phase of the year that instructs us to slow down, go inward, process and mend the various areas of our lives, it is a good time to focus our attention on our

daily ability to rest and rebuild. While we may not actually hibernate, as the nights lengthen, it is time to turn our thoughts to getting deep, restorative sleep. And this brings us to the subject of this issue’s column: Innate’s Deep Sleep formula and the herbs it provides that address insomnia, assisting in achieving and maintaining quality sleep.

### Sleep Architecture & Insomnia

Made up of five stages, sleep is divided into rapid eye movement (REM) and non-REM. The first four stages are non-REM sleep, which grow progressively deeper with each stage. These are fundamental to general well-being. The fifth stage is REM sleep, during which dreaming occurs; this stage is required for learning and mood regulation. Normal sleep progresses through each of the five stages. Each phase involves organized and repeating cycles of brain

activity, collectively known as the architecture of sleep. Deviations from this carefully regulated structure can lead to insomnia.<sup>1</sup>

Insomnia, defined simply

as difficulty falling asleep, maintaining sleep, and/or feeling rested after sleep for three nights a week over the course of at least one month, affects an estimated 30-40% of the United States population intermittently, with 10% of the population experiencing chronic insomnia.<sup>1</sup>

as difficulty falling asleep, maintaining sleep, and/or feeling rested after sleep for three nights a week over the course of at least one month, affects an estimated 30-40% of the United States population intermittently, with 10% of the population experiencing chronic insomnia.<sup>1</sup> Insomnia can occur secondarily to numerous conditions, such as psychiatric disorders, restless leg syndrome, sleep apnea, circadian rhythm disorders, hormonal fluctuations, arthritis, benign prostatic hypertrophy, or drug therapy. Primary insomnia, affecting 1-2% of the population, arises from no co-existing pathology.

Individuals with chronic insomnia display significant decreases in functionality across social, emotional and physical domains, consistent in severity with other chronic diseases.<sup>3</sup> Memory, concentration, attention and reasoning are negatively impacted, and the likelihood of suffering from anxiety or depression, or of committing suicide, is elevated.<sup>1,3</sup> Also associated with insomnia are higher rates of hypertension, chronic pain, diabetes mellitus and obesity,

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as well as risk of recurrent cardiac events.<sup>1</sup>

While the etiology of insomnia has not been definitively identified, numerous researchers classify the condition as a state of neuroendocrine and psychophysiological hyperarousal.<sup>3-5</sup> It is widely suggested that sleep disturbances are functionally correlated with hyperarousal of the hypothalamic-pituitary-adrenal (HPA)-axis. Primary insomnia shares HPA activation with psychiatric disorders (particularly melancholic depression and anxiety<sup>3</sup>), stress and aging, which may explain the co-incidence of insomnia secondarily to each of these conditions. Some authors have focused on the emotional and cognitive causes of HPA hyperarousal, hypothesizing that in vulnerable individuals, psychological arousal may be due to reactivity to acute stressful situations or to long-standing moderate stressors coupled with an inclination to internalize emotional response.<sup>4,5</sup> Studies also suggest that the emotional and physiological stress caused by repeated lack of sleep itself induces further HPA activation via positive feedback mechanisms which then diminish the ability of the HPA axis to recover.<sup>4</sup> Dysregulation causes disturbed sleep, which causes further dysregulation, and thus the cycle is set in motion and self-perpetuated, even after the initial trigger disappears.<sup>4</sup>

While response to recent or current stress and subsequent HPA activation may initiate insomnia, investigators have alternately proposed an underlying predisposition to neuroendocrine activation. In this model, a genetic tendency or early exposure to stressors may lead to an exaggerated corticotropin-releasing hormone (CRH) response to stress. Via alterations in the hippocampus, later re-exposure may then cause magnification of the abnormal stress response. This progression could then cause exaggerated sleep disturbance with stress exposure, prolonged disturbance after stress, and potentially chronic primary insomnia.<sup>3</sup> CRH levels may be chronically elevated due to diminished capacity of cortisol to check CRH release, causing adrenocorticotrophic hormone (ACTH) release and subsequent further elevation of cortisol, maintaining the hyperaroused state.<sup>3</sup>

Whatever the originating factors, it is apparent that HPA hyperarousal is directly involved in the initiation, progression and maintenance of insomnia. Further, it is known that a lack of restorative sleep can have serious health consequences and so should be addressed as early as possible, even if distur-

bances are only National Institutes of Health regarding the appropriateness of current pharmacological therapies for long-term treatment,<sup>6</sup> considering natural alternatives seems sensible. Whether one suffers from chronic or intermittent insomnia, herbal medicine offers viable options without the concerns and risks associated with pharmacological therapies.

### Nervines: Skullcap and Lemon Balm

Both perennial members of the mint family, skullcap (*Scutellaria lateriflora*) and lemon balm (*Melissa officinalis*) have traditionally been considered relaxing nervous system tonics, a class of plants recommend for nervous exhaustion, depression, insomnia and nervous system damage, and to restore the nervous system to proper function after prolonged stress. These indications suggest that these and similar herbs may positively impact the emotional and cognitive, or psychophysiological, aspects of hyperarousal found in insomnia.

Skullcap enjoyed popularity among physicians using herbs in the 19th and early 20th centuries. Physiomedical physician William Cook eloquently described its uses in 1869: “It is best suited for restless and wakeful conditions with feebleness; and for all forms of nervousness with fatigue or depression. In chronic wakefulness, it is one of the most prompt



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and reliable agents of the whole *Materia Medica*. By toning and also soothing the nervous structures, it secures that steadiness of action which is followed by quiet sleep; and it induces no shade of narcotism [sic], neither leaves behind any excitement, sensitiveness, nor languor.”<sup>7</sup> Eclectic physicians later similarly favored it for “nervous excitability, restlessness or wakefulness,” whether associated with acute or chronic illness or mental or physical taxation, as well as for nervous conditions that involved muscular tremor or spasm.<sup>8</sup> It was also specifically recommended for insomnia caused by worry, nervous irritability and exhaustion.<sup>9</sup>

While *Scutellaria lateriflora* has been studied by contemporary investigators very little, recent research analyzing its chemistry and activity has confirmed the plant’s anxiolytic activity in animal models, as well as the constituents potentially responsible for this activity.<sup>10</sup> The aqueous and ethanolic extracts from the dried aerial parts of skullcap contain the flavonoid glycoside baicalin and its aglycone baicalein (not present in water extract), both of which have been established as ligands of the benzodiazepine site of gamma-aminobutyric acid (GABA)<sub>A</sub> receptors. Amino acids GABA and glutamine, a GABA precursor, are also found in water and ethanol extracts and may further exert inhibitory neural responses.<sup>10</sup>

GABA<sub>A</sub> benzodiazepine-site binding suggests one mechanism by which skullcap may act to calm nervous excitation: mimicking the activity of prescription benzodiazepines, which are commonly recommended for both anxiety and insomnia. Nervous inhibition may be one method of interrupting the positive feedback loop of HPA activation, in which anxiety can play a key role. Unlike benzodiazepines, skullcap is without side effects or dependency and so can perform a central function in addressing insomnia, as well as anxiety.

Regardless of mode of action, in practice I find the insights of past clinicians to hold true today. A stream-bank dweller in the wild and a common garden plant, skullcap is so named because of the distinct helmet shape of the upper lip of its purple flower. I often suggest that clients imagine putting a soothing cap on their heads that will quiet their minds and draw their awareness back to their bodies and the present. Sometimes people with hyperactive minds resonate with the idea of “putting a lid on it.” Whatever the image, skullcap’s contribution to any

formula is to interrupt patterns of anxiety, worry, reactivity, panic and excessive thinking. For many, this slowed emotional and mental pace is enough to bring restful sleep, often within a day or two. When used over time, the effect is lasting.

Lemon balm, whose use comes to us primarily from European herbal traditions, has been employed for centuries for numerous common ailments, particularly those involving nervous system and digestive complaints. Considered a gentle sedative, antispasmodic and carminative, it has appeared in German, British, Indian and North American pharmacopoeias for use in sleep disorders, often in combination with other plants.<sup>11</sup> The European Scientific Cooperative on Phytotherapy (ESCOP) likewise considers it useful for tenseness, restlessness and irritability.<sup>11</sup>

Animal studies have demonstrated the ability of hydro-alcoholic extracts and isolated volatile oils of lemon balm to sedate the central nervous system, resulting in less agitation and increased sleep parameters.<sup>11,12</sup> Studies using healthy volunteers suggest that ingestion of capsules of powdered leaf (1000-1600mg) regulate both mood and cognitive performance, simultaneously inducing feelings of calmness and increasing cognitive ability. Additional *in vitro* research demonstrates that lemon balm ethanolic extracts may act on the central nervous system via nicotinic and muscarinic acetylcholine receptor-



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binding; however, further details have not been illustrated. Speculation regarding interaction with numerous neurotransmitter systems, including norenergic modulation, has also been set forth.<sup>12</sup> As with skullcap, lemon balm's locus of action is likely in the central nervous system, potentially disrupting the neuronal feedback that sustains hyperarousal and HPA activation.

Again in keeping with traditional usage, I find lemon balm to be an invaluable remedy for individuals who may be depressed or anxious, especially those who tend to respond to stress with both sleeplessness and digestive complaints or lack of appetite. As the name suggests, this garden plant smells strongly of lemon and its name refers to the bees (*Melissa* derives from the Greek for honey bee) who love its nectar. Just smelling this plant uplifts the spirit and reminds me of the sweetness of life. For my clients, I tell an instructive tale of the "busy bee" who is indeed working hard, but is happy and at peace in her work. Contrary to some of the literature, I don't find lemon balm to be sedative in the usual sense, but instead find that it reduces anxiety and feelings of overwhelm and lightens the mood so that one can continue to function as desired. If the desired function is easing into sleep, it paves the way for that reliably.

### Adaptogens: Reishi & Ashwagandha

As adaptogens, reishi (*Ganoderma lucidum* and *G. tsugae*) and ashwagandha (*Withania somnifera*) belong to a class of herbs described by Dr. Nikolai Lazerev and later by Israel Brekhman as those that 1) are non-toxic, 2) non-specifically enhance an organism's adaptability to internal and environmental stressors, and 3) exert a normalizing effect on the body's systems. Adaptogens regulate neuroendocrine response to stress, encouraging efficient reaction and quick recovery, breaking the cycle of chronic HPA activation and normalizing cortisol levels. As described earlier, these are the precise activities necessary to stabilize sleep patterns, as well as a wide range of other significant functions.

In addition to adaptogenic activity, both reishi and ashwagandha demonstrate modulation of immune function and inflammation in clinical trials and animal studies.<sup>13,14</sup> Research suggests that some cytokines (interleukin (IL)1, IL-6, and tumor necrosis factor (TNF)-alpha) are involved in regulating sleep patterns, as well as immune function.<sup>15</sup> While

studies have not yet explored this theory, the modulatory influence these plants exert on cytokine release, including IL-1-alpha (ashwagandha),<sup>16</sup> IL-6 (reishi),<sup>13</sup> TNF-alpha (ashwagandha and reishi),<sup>13,14</sup> may further elucidate their positive impact in disturbed sleep.

Reishi, used in traditional Chinese medicine (TCM) for thousands of years, is aptly referred to as the Mushroom of Immortality and is believed to prolong life, prevent aging, and keep the body limber and the memory strong.<sup>13</sup> Our Northeastern species, *G. tsugae*, grows on dead hemlocks; each summer I locate them by their red shiny skins glinting in the forest light. According to a translation of *The Divine Farmer's Materia Medica*, reishi's functions are to nourish the heart and calm the shen (spirit), tonify qi (life force) and blood, relieve coughs and support the kidneys, and to stabilize the will.<sup>13</sup> The concept of shen is unique to TCM and can be considered the vital force of human consciousness.<sup>17</sup> When the shen is agitated, one may experience anxiety, depression, restlessness and insomnia. The *Pharmacopoeia of the People's Republic of China* of 2000 indicates the use of reishi in insomnia, palpitations, dizziness and various disorders of the respiratory tract.<sup>13</sup>

Modern pharmacological research and clinical trials have led Western herbalists to honor reishi as a premier immunomodulator, anti-tumorogenic, blood sugar regulator, anti-hypertensive and hepatoprotectant, among other uses.<sup>13</sup> However, as studies by English-speaking investigators are few, it has been the clinical application of this herb that has confirmed for Western practitioners the adaptogenic and tonic properties suggested by traditional literature, including its ability to calm restlessness and an overactive mind when these states cause insomnia. One author, in reviewing the Chinese and Western herbs historically indicated for insomnia, concluded that reishi was among those with greatest promise for objective substantiation of clinical experience.<sup>18</sup>

Indeed, I recommend to my clients that they take reishi in the evening, whether for insomnia or not, as it makes some too sedate if taken in the morning. I find this potent mushroom imminently useful in anxiety and accompanying insomnia. The combination of immune modulation and calming of the spirit is especially appropriate for clients dealing with cancer or other chronic immune compromise whose concern for their health is anxiety-producing. The Chinese believe shen shines forth from one's eyes when the

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spirit is at peace. When taken over time, I have witnessed light return to the eyes of individuals who previously struggled anxiously with their health.

Lastly, we come to ashwagandha, one of India's *rasayanas* (a term meaning "rejuvenating tonic," similar to today's classification of adaptogen). Among other actions, it has traditionally been considered tonic, nervine and sedative. Ayurveda indicates its use in insomnia, nervous disorders and general debility, in addition to respiratory, skin, and reproductive conditions. Like reishi, ashwagandha is said to clear the mind and calm the nervous system, as well as encourage restful sleep.<sup>14</sup>

Both clinical trials and animal models display ashwagandha's adaptogenic activity through improved resistance to stressors, likely via modulation of HPA activation.<sup>14,19,20</sup> A study involving mountaineers in training conditions demonstrated improved sleep patterns in tandem with heightened responsiveness, alertness and physical capabilities (using 1g root/day), while animal models show increased cognitive abilities after administration of the plant.<sup>19</sup> Pharmacological and animal research suggests ashwagandha, like skullcap, also possesses anxiolytic and central nervous system-inhibitory activity, which may be mediated via interaction with GABA<sub>A</sub> receptors.<sup>14,21</sup>

A primary adaptogen and a mild central nervous system sedative, I find ashwagandha helpful to individuals who are over-stimulated, but who are also debilitated (perhaps by excessive physical activity, prolonged illness or exposure to stressors). Its name tells its story well: *ashwagandha*, from the Sanskrit, suggests the strength of a horse, while its species name *somnifera*, from the Latin *somnus*, to sleep, suggests this plant's soothing properties. This is an herb I recommend regularly, as many clients are caught up in our culture's frenetic pace, and so are busy, exhausted and don't recuperate properly. This small plant, which will grow as a robust annual in Northern climates, offers excellent fortification against acute and chronic stress, helping us to maintain our strength, resist mental overwhelm, and rest when necessary. A traditional preparation method involves stirring a teaspoon of powdered root into warm milk before bed; I add a little cardamom and maple syrup to ensure sweet dreams.

And so, we see that plants offer us valuable support and guidance as we transition into Fall and find our way towards respite, stillness and rejuvenation. May

we all enjoy well-deserved rest each night and during this, the dusk of the year. And when good rest eludes us, or we forget the value of darkness, may we remember to call on the plants for reliable assistance and gentle reminders.

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