

Lay Me Down to Sleep: Designing the Environment for High Quality Rest

William Bergquist Ph.D.

Many of the pathways considered in this essay are rarely considered – yet they may have the greatest impact on our quality of sleep. Massive amounts of money are spent on the ads that the bed in which we sleep, the sheets and blankets we wrap around ourselves—and even the pillows on which we rest our heads. Only the sleep aides (Pathway Cluster Four) are pushed harder on behalf of an uninterrupted night of sleep.

In this essay, I report on the preferences noted by our Pathways to Sleep survey respondents to many elements of the sleep environment that get less visibility. As we have found, some of the other elements of the environment have as great or even greater an impact than the heavily marketed elements – and they cost much less (or are free to us).

As I have done in previous essays in this series on quality sleep, I provide some suggestions in this essay about the sleep environment and begin by offering a chart summarizing findings from my *Pathways to Sleep* project. This chart lists some of the sleep environment pathways, as well as ratings by experts and users, as well as costs and accessibility. In each case, a rating of “3” is high and a rating of “1” is low. A “v” indicates that this pathway is controversial (wide variation in ratings—high variance score).

Component Three A: Sleeping Environment

Pathway	Sub-Pathway	Expert Rating	User Rating	User Cost	User Access
Temperature Transition: From Cold (Bedroom) to Warm (Bed with Sufficient Blankets/Quilt)		1.75	2.75	1.50	1
Dark Room (Minimal Light of Any Kind)		3	2.75	1	1
Light in Room	Colored (e.g. Salt Lamp)	1	1.75	1.50	1.50
Light in Room	Night Light	1	1.25v	1.25	1
Light in Room	Rhythmic Light	1	1.00	1.50	1.50
Sleeping Companion	Feeling intimate/safe/trusting beside another person	2v	2.75	1	1

Sleeping Companion	Beside a favorite pet	2v	2.75v	1	1
Quiet Room (No Sounds)		2.75	3	1	1
Gentle Music	Lullabies	1	1.50v	1.25	1.25
Relaxing Music	Easy listening/meditative	1	1.50v	1.25	1.25
Interesting Music (Distraction from Failure to Fall asleep: we are not worried about not sleeping)		1	1.25v	1.25	1.25
Boring spoken words (Paradoxical Intervention)		1.25	1.00	1.25	1.25
Relaxing/Distracting Imagery/Fantasy While Falling Asleep	Sexual Fantasy	1.50	1.00	1	1
Relaxing/Distracting Imagery/Fantasy While Falling Asleep	Beautiful/Tranquil Settings	1.50	1.50	1	1
Relaxing/Distracting Imagery/Fantasy While Falling Asleep	Special Moment or Events Remembered or Even Replayed	1.50	1.25v	1	1
Relaxing/Distracting Imagery/Fantasy While Falling Asleep	Replaying scene from Movie/TV/Theater	1.50	1.00v	1	1
Trying to Stay Awake (Paradoxical intervention)	Watching TV	2	1.50v	1	1
Trying to Stay Awake (Paradoxical intervention)	Reading Book	2	2.50	1	1
Trying to Stay Awake (Paradoxical intervention)	Waiting for Someone else to Come to Bed or Arrive Home	2	2.00	1	1

While I want to comment on the ratings receiving from the Pathways to Sleep survey and from review of specific Pathway products (with regard to expert ratings, cost and access), I also want to introduce additional perspectives regarding the experience of creating optimal conditions for sleep. I have organized this presentation regarding the sleep environment around four pathway clusters: (1) preparation, partner and paradox, (2) sights and sounds, (3) bed and beyond, and (4) breath and

position. I explore the first two in this essay and the third and fourth cluster in the next essay I will be publishing.

Cluster One: Preparation, Partner and Paradox

We have completed our preparation for sleep (second set of pathways), hopefully complementing a healthy life style (first set of pathways) --even under challenging conditions, such as jet lag. We are now ready to prepare the environment in which we will seek a high-quality night of sleep.

Preparation of Environment

Some environmental conditions remain pretty much the same regardless of the state of the world from which we are “escaping” when seeking to establish an environment in our bedroom (or elsewhere) that is conducive to high-quality sleep. Most of us are fortunate to have a roof over our head that shelters us from inclement weather and a heater and/or air cooler that help regulate the temperature in our home. Other environmental conditions do influence the way we prepare our bedroom for sleep. For instance, if we want to keep our bedroom window open, then we will have to adjust our bed for heat or cold. Similarly, if we are sleeping with another person we might have to deal with a warm body or relatively cold body sleeping next to us.

Other preparations involve adjusting the temperature of the room to contrast with the temperature of our bed or the temperature outside the bedroom. These temperature differences might be among the most effective (and least expensive) ways in which to stimulate sleep. We need a smidge of cold or heat rather than a pill or slug of booze to bring about sleep. Other ways in which we prepare for sleep are influenced by the presence or absence of our internal “weather conditions.” We may need to introduce some relaxation practices when the “storms” are brewing inside us.

Going to bed in a stressed condition might require that we turn on some quieting music or do some deep breathing exercises. The projection of a starry sky above our bed when we are trying to fall asleep might be beneficial after we have spent a day under cloudy interpersonal skies. We need to be Sleep Scientists who make note of the best environmental conditions for meeting the challenge of difficult, anxiety-filled days that linger in our minds and hearts when we head off for a night of sleep.

Given this role as Sleep Scientist, we can benefit from some findings from not only our Pathways to Sleep survey, but insights coming from other sources. I turn first to the matter of welcoming (or not welcoming) a partner into our bed.

Sleep Partner

The ads for beds that are adjustable regarding temperature, softness and angle of recline all come with the prospect of two people sleep beside one another in harmony. However, is this always the case, even with different temperatures, levels of softness and perhaps amount of recline? Do some people find it difficult if not impossible to sleep with another person—while other people must sleep with their beloved companion (be it a person or a pet). Our sleep survey results indicate that sleep partners are very important—but not for everyone (high variability scores). The bed might be adjustable to different temperatures, but what about the warmth of air in the room or the presence of an open window? What is the Goldilocksian compromise regarding the amount of light or sound in the bedroom? And then

there is the matter of snoring!! This is often the deal breaker that drives one of the sleep partners into another bedroom or out on the couch for a better night of sleep.

There are also opportunities afforded by the two or three sleep segments that we engage during many (perhaps most) nights. I have often pointed to the frequent breaking of sleep into multiple segments among many people in many societies (Bergquist, 2019a). There is even a word (*Dorveille*) that is applied to the interesting (even fascinating) appearance of breaks in our nightly sleep (Bergquist, 2023). I have suggested that we do something that is gratifying during the break between these sleep segments. We can also benefit from changing the sleep environment during the second or third segment.

This can mean no longer sleeping with a partner (or beginning to sleep with a partner) during one or more of the segments. It can also mean doing some negotiating with one's sleep partner (especially if they also find their sleep breaking into segments). The bedroom can be cold during one segment and warmer during a second segment. The window remains open during one segment and closed during a second segment. We pile on the blankets during one segment and take some of them off during a second segment. We might even change sides of the bed or both decide to sleep on the left side during one segment and on the right side during a second or third segment. In short, *Dorveille* provides a wonderful setting for negotiation and compromise.

There is another option. Our sleeping companion need not be a human being. We can curl up with our cat or our dog. They typically will not object to the temperature of the room or our snoring. They might not even object to their being a second human being in the bed. For our very special pets it is all about bonding with us—and nighttime seems to be particularly important with regard to our pets feeling especially appreciative of time spent with us even though we are all sleeping.

This might mean that our nonhuman companion sleeps at the foot of our bed rather than on our bed; it is interesting to note that even a pet sleeping beside our bed helps us fall asleep. Do we feel more secure with our pet being on watch for intruders or is it simply that bonding by both our pet and ourselves increases the secreting of “feel good” chemicals (mostly oxytocin) in both of us (and usually in our human sleeping partner as well).

To Sleep or Not to Sleep: That is the Paradoxical Question

At several points, when preparing this set of essays regarding sleep I have confronted a paradoxical question: do I or don't I want to sleep? I addressed this question in my essays on managing sleep and preparation for sleep, but want to return to it in this essay because the answer to this question can actually be quite elusive.

The answer might seem obvious; however, if I try too hard when planning for and seeking to get a good night of sleep then I am likely to remain awake. I curse the God of Night (or our sleep partner or our own body and mind) for messing things up. The sense that we have no control over our sleep leads to even greater sleep problems (Bergquist, 2019b). We feel powerless. This leads to the feelings of helplessness, which leads to feelings of hopelessness—which leads to sleeplessness.

When our ancestors were living on the African Savannah, it made sense to stay awake when facing a threatening situation. No one should sleep when lions are prowling about. However, as human beings we can imagine that lions are prowling about and this can keep us up at night (Sapolsky, 2004). There

are many other threatening entities that can substitute for the threatening lions. Our list of imagined lions includes our own internal inability to control what our body and mind are doing. Our own inability to take control is just as threatening as an attacking lion. Without a sense of agency, we are left alone unable to defend ourselves against almost anything on the Savannah (or mid-21st Century life). These threatening situations can keep us up at night!

There is a partial answer to this perplexing (and paradoxical) problem of powerlessness. We can serve as a Sleep Scientist, which allows us to experience our own “agency”. We can do something about our inability to fall asleep. As a result, we can remain optimistic about getting a good night of sleep. A powerful, paradoxical dynamic is in operation: to worry about the inability to fall asleep actually increases the chance that we will find it difficult to fall asleep. To not worry about sleep is to increase the chance that sleep will take place. This exemplifies a self-fulfilling prophecy—a positive feedback loop that enables one positive outcome to produce another positive outcome and, in return, a further increase in the possibility that the first outcome will reoccur and often amplify.

There is another paradox that accompanies and can complement our attempt to fall asleep. This paradox operates in a manner that mirrors a strong desire to remain awake. This paradox concerns our desire to stay awake. We are reading a book. This according to our sleep survey results becomes a great way to fall asleep! We might be watching a wonderful movie or an exciting sporting event. We are trying to stay awake in order to monitor our teenager’s return home after an evening of dancing (and probably “making out” with their date). What happens? We fall asleep. The harder we try to remain awake, the pull toward “dosing off” gets stronger and stronger.

We might give up (unless we are trying to be a diligent parent). We reluctantly turn off the movie, decide to record the sporting event, and head off to bed. What happens. We can’t fall asleep in bed. We once again curse the God of Night. This d*%*^&&* God is a joker who is messing with my mind, body and sleep. Much as in the case of the person who can’t fall asleep because they try too hard, the paradoxical nonsleeper can only sleep when they do not want to sleep.

All of this means that we sometime can fall asleep by trying to stay awake. We see this with children. Just tell a child that you will give them a quarter (or perhaps a dollar given inflation) if they can stay awake for the next half hour and they will be asleep in ten minutes. We don’t know all of the neurobiology that creates these paradoxical conditions, but do know that they exist—so as Sleep Scientists we can make use of these paradoxes to get a quality night of sleep.

Cluster Two: Temperature, Sights and Sounds

We human beings are creatures of our environment. Our sleep cycle is dictated in part by our circadian rhythm—which, in turn, is strongly influenced by the appearance and disappearance of the sun. There is no reason to believe that light and dark in our bedroom similarly influences our pattern of sleep. Apparently, light influences our sleep even when our eyes are closed. Closely related to the presence or absence of the sun is the heating and cooling of the environment in which we live. Once again, we are often influenced by the temperature of the room in which we are sleeping.

A third factor is also influenced (at least indirectly) by the sun. This is the presence or absence of sound. Human beings tend to be less active (in most societies) when the sun goes down, leading to less noise

and more moments of silence. While the presence of electricity and 24-hour media has made silence more elusive, there is still the opportunity for finding some level of quiet when we are going to sleep.

The fundamental question becomes: is dark, lower temperatures and silence always conducive to high quality sleep? Do some people find that certain types and levels of light are welcome? Are lower temperatures always ideal? What about the naps and siestas that are commonly engaged in the heat of the day? For some people (especially those accustomed to city sounds), the silence of a stay in the forests or at a remote retreat can actually be disturbing. The sound of waves crashing on the beach at a seaside hotel or of a lullaby being played on our phone or device can be highly conducive to sleep. It is worth taking a bit of time and space reviewing the results we obtained from the Pathways to Sleep survey.

Temperature

How cool do we want the bedroom? Goldilocks' bears have preferences regarding the temperature of their porridge and human beings have distinctive preferences regarding the temperature of their bedroom. These different preferences can lead two sleeping partners to give up on finding the right temperature for their bedroom. They can sleep with a different number or thickness of blankets on their side of the bed or even buy an expensive bed that can be heated by each sleep partner to a preferred temperature for their side of the bed. This might help; however, some of us love a chilly night of sleep during the winter and/or an especially cool room during the summer (provided by an air conditioner).

Do we want to leave our bedroom window open—even a crack? There is something wonderful about fresh air wafting through our bedroom. Much as sheets and clothes that have dried on an outdoor clothes line smell more “alive” and “fresh” than those dried in a machine, so the bedroom that is freshened by air flowing in from an open window makes this room come alive for many people. There are even health-based perspectives that lean heavily toward the cold, open air bedroom.

Cold, fresh air has been touted as “healthy” for growing bodies—with children in many boarding schools having been forced to sleep in cold rooms at night. These nighttime conditions were also advocated for many years as a cure for consumption (pulmonary tuberculosis:). I am reminded of Thomas Mann's vivid (and very detailed) description in *Magic Mountain* of his protagonist's preparing for a Winter-time night of sleep on an open porch in his Swiss sanatorium.

The jury is out about the impact of sleeping in a cold “bracing” environment at night. Sleeping in a fresh and very cold environment might not strengthen us nor heal our congested lungs, but this could help us sleep—providing we are securely wrapped up in blankets (as portrayed in *Magic Mountain*). However, this freshness comes at a cost. The temperature of the room is dictated in part by the temperature of the air flowing into the room—though the temperature is often tempered by the heating system in the room or even an air conditioner (when this conditioner is set to bring in fresh air rather than circulate air already in the room).

It should be noted that outside “raging” weather makes a difference in our bedroom even with the bedroom window closed. When the temperature outside is low then our furnace will be pumping air through our home more often than when the temperature outside is warmer. Hot outside weather will increase our reliance on the air conditioner (and air that is being “processed” through this conditioner. If

our home is not equipped with an air conditioner then we will be sleeping in a warm bedroom regardless of our preference.

Even if we are protected in our “fortified” bed from the hot or cold temperature, the environment of our bedroom will change throughout the year (unless we live near the equator). This is an important point to be made when sleep partners are negotiating the best temperature for their bedroom. Blankets and a variably heated bed don’t fully compensate for the bedroom temperature. These are two separate negotiations—and may be resolved by the sleep partners spending at least part of the night in a separate room.

There is also a matter that I addressed in the essay on sleep preparation. It is the transition in temperature from other rooms to the bedroom. Much as we often become tired when leaving a cold wintery environment (after skying, sledding or making angles in the snow) and enter a warm lodge or living room, so many of us find that we are likely to feel tired after transiting from a very cold bedroom into a very warm bed. Alternatively, there can be a transition from hot to cold. We savor a warm bed or shower and go immediately to our bedroom and fall asleep. A couple with whom I am friends has a hot tub located outside their bedroom. On a cold evening, my friends will spend time in their hot tub and then leave it to settle in for a long winter’s night in their Canadian home.

The important point to be made at this point is that transition in temperature can lead to quality sleep. Results from our sleep study indicates that this transition can be very effective – and it usually doesn’t cost much and is readily available for anyone.

Light and Dark

Level of light in our bedroom is another important element in our sleeping environment. We all know that it is best to sleep in a dark room. This is a well-established “fact.” Our Pathways to Sleep” survey reinforces this sleep axiom. A dark room is highly rated by most survey respondents. However, there is another side to this concern about light—as indicated by the high variability in survey ratings regarding level of light. Some of us have installed a night light or purchased a chunk of some mineral that is lite and provides a soft glow during the night. We even find that a softly lit room can make us feel more secure, especially if we frequently have to get up during the night for a bathroom break.

We might even leave our television on for our sense of comfort and continuity. As I noted above, many of us actually fall asleep watching late-night television. Is this a bad thing? Should we never allow ourself to remain in bed with the television still emitting light and sound. Maybe it is OK to sleep under this condition. Perhaps it is like falling asleep and remaining asleep in front of an African Savannah fire.

Or it might be like falling asleep while listening to a classical music concert or attending a play. We desperately try to stay awake during the concert or play. Unlike sitting in front of the fire, we are not expected to fall asleep during the dimly-lit concert or theatrical production. Maybe there should be social norms that allow us to sleep during a public performance—after all, we aren’t really that far removed from the African Savannah (Bergquist and Mura, 2005).

All of this goes against the scientific evidence. Light in a room apparently disrupts our sleep—even if our eyes are closed. However, what if we have a blanket tucked over our head or even wear a mask that blocks out the light. Does the mask obfuscate the whole reason to retain a light source in the room or does it enable us to easily control the light and darkness?

There is another matter of sight that is often ignored in recommendations made about high quality sleep. This has to do with the size of the room where we are trying to sleep. Is it a spacious room with high ceilings and wide walls? Are we sleeping instead in a small room with a low ceiling? I personally prefer the more intimate room and find it hard to sleep in a “palatial” room—such as I have occasionally been assigned (as a “bonus”) by clients with whom I am consulting. When working with the management of a hotel in Las Vegas I was provided with the room reserved for the “celebrities.” This was a large room with a massive bed and a large living area. I never had a worse night of sleep! I hope that true “celebrities” prefer or grow accustomed to sleeping in a BIG room. For me (and I suspect some other people) there is a preference for sleeping in a “womb” with four nearby walls and a nearby ceiling.

Sounds

There is another sleep axiom that accompanies the one about darkness. This axiom concerns sound in the bedroom. One should always fall asleep in a quiet room—as indicated by our sleep survey respondents. Block out as much noise as possible and turn off all TVs, radios, computers and mobile devices. Yet, the survey scores were quite variable when it comes to the use of music to stimulate sleep. After all, we sing to our children or put on a player that offers a lullaby. Furthermore, some of us like to fall asleep listening to classical music or other forms of relaxing music (including adult lullabies). Recently, there has even been vigorous promotion of “green” sounds that promote sleep.

Paradox also enters the picture. We easily fall asleep listening to a boring lecture—so why not find a lecture and play it in order to get a good night of sleep? Once again, it is when we try to stay awake that we are likely to fall asleep. It might also be a matter of the level of sound to which we are accustomed. As I already noted, many urbanites find it hard to fall asleep when spending a night in a remote, rural location, just as folks from the country find it hard to sleep when visiting a vibrant urban setting.

We can return to the axiom about sound. What does tend to hold up is the impact of unexpected or dissonant sound on our ability to sleep. Clearly, a loud crash will wake us up. When we are asleep, there is still monitoring going on and our amygdala is still sorting out what comes in through our ears to see if anything is threatening us. Furthermore, we are vigilant regarding anything that seems “out of the ordinary” (including silence if we live in a noisy urban setting). This of course can be the sound of a crying baby, the sound of our sleep partner talking in their sleep, or even our own snoring. There are many potential sources of disruptive sound. Perhaps we should be wearing sound-abating headphones (especially if we are trying to sleep in a setting other than our bedroom. Perhaps, instead, we should appreciate the guardianship offered by our ears, auditory neural processing system, and alert-triggering amygdala.

Made Up Environment (Fantasy)

There is another option we have regarding sight, sound and sleep. We can create our own sensory environment when preparing to fall asleep. We can generate a world of fantasy that is relaxing, reassuring and pleasant. We might image walking through splendid forests or along a beach at sunset. We might recall a moment when our family was celebrating a birthday or Thanksgiving dinner. A sexual fantasy might even be on the venue. In each case, sight and sound are not distracting; rather they bring about sleep.

Obviously, our world of fantasy can also turn against us. We can recall a horrible interaction with one of our children or with someone at work. We also know that traumatic events from our past can play out when we are falling asleep. Those living with post-traumatic stress disorder often fear the moments when they are lying down in bed precisely because they are then most vulnerable to a replay of the traumatizing event.

One key to “choosing” a positive fantasy relates to the sights and sounds that are produced in the bedroom environment. A beautiful piece of music can elicit a beautiful fantasy. A love song from our past can produce a memory (and enactment) of a moment when we were in love or at least in a state of infatuation. We recall a walk on the beach with someone we love when a full moon was casting glistening light off the water. That moment in the park is recalled when our partner stopped in order to tell us of their love for us. These memories or made-up fantasies can produce a deep breath, a smile and initiation of quality sleep.

Conclusions

“Mamma in her kerchief, and I in my cap had just settled our brains for a long winter’s nap.” Ah, that wonderful refrain from “The Night before Christmas.” Were Mamma and Pappa being smart about sleeping in a cold bedroom accompanied by kerchief and cap, or was it just the case that their home, like many others of this era, did not have adequate insulation to fend off the chill of a winter’s night? Whether planned or not, there is something to be learned about a “long winter’s nap” accompanying a cold bedroom. There is also something to be learned from the Mexican and South American novelists who portray successful siestas. Sound sleep occurs on hammocks slung over hooks on a tiled porch. Sometimes, hot and humid climates can induce sleep—especially in the early afternoon. As it has often been said “only mad dogs and English men go out in the noon day sun [especially in tropical locations].” Non-mad dogs and non-Brits take a nap.

We are left with choices to be made regarding the sleep environment we prefer—whether it be hot or cold, dark or light, noisy or silent, alone or with a partner. We might like to vary the environment from day to day or at least from season to season. Perhaps a special night on the Night before Christmas or on a warm Fourth of July evening (after watching the fireworks). My grandchildren would join my wife and I in sleeping out on the deck in late August. Snuggled in sleeping bags, we would watch the shower of shooting stars that appeared at this time of year. The stars would entertain and enthrall us when we were awake, while the cool summer breeze would grace our sleep. We would wake up to the sunrise over our California forest home. Now that was environment-enhanced sleep—and my wife and I didn’t even don our kerchief and cap.

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