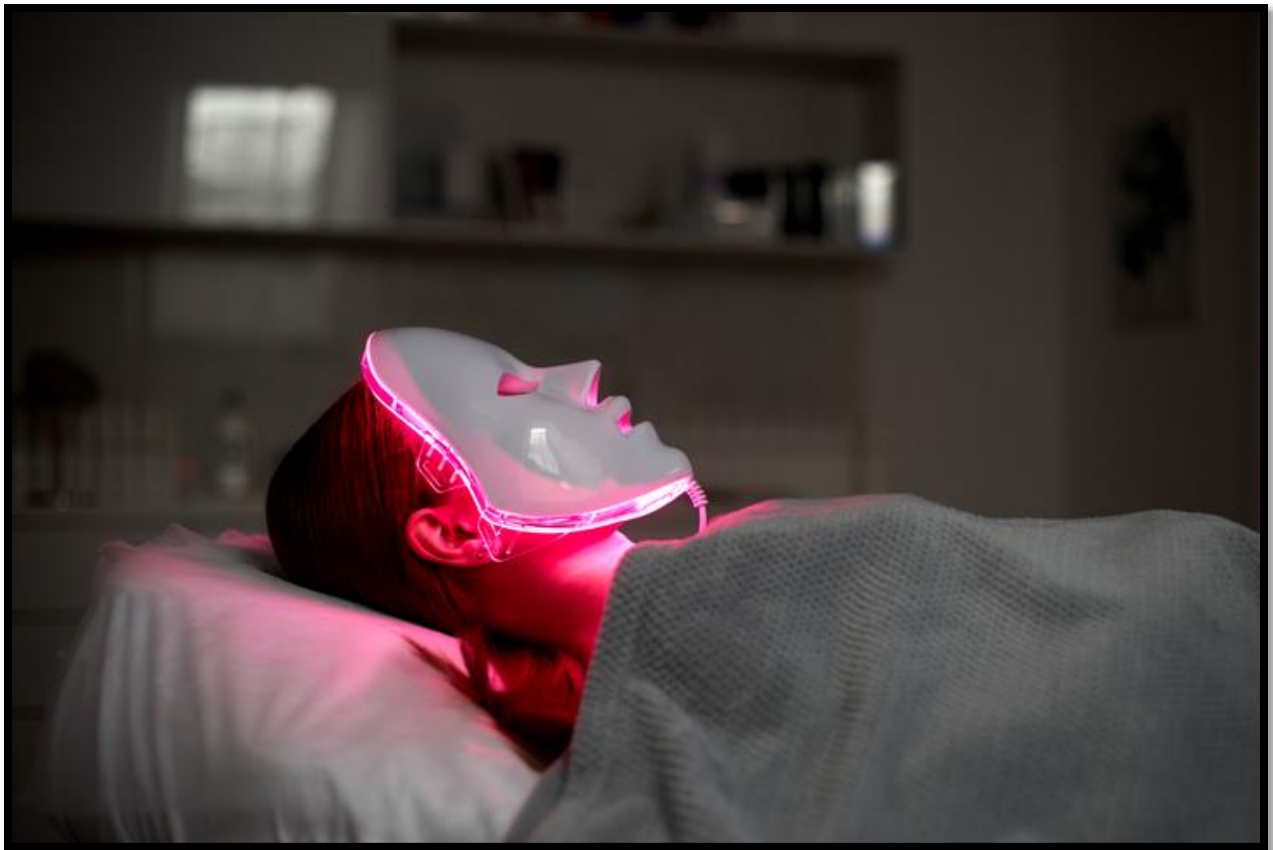


Applying Next-Gen ‘Wave Tech’ to Hotel Sleep, Spa and Wellness

As one particular niche of wellness that’s gaining popularity, hoteliers should understand a bit about how non-invasive, wave or frequency technologies – “freq tech” for shorthand – work in order to effectively sell them to guests. Using a multisensorial blend of light waves, electricity, radio waves, soundwaves or vibrations to heal the body, these technologies represent a high-margin, low-labor path to grow wellness revenues for a spa or as an in-room amenity. Some devices are quite large and expensive while others are portable and can be delivered on demand, so hotel brands must decide how best to deploy various equipment based on budgets and spaces available.



When it comes to the wide range of modern wellness technologies (‘welltech’) and equipment that can be deployed at a hotel – whether in the guestroom or in the spa – the top value proposition for any of these tools is that they help to ‘unlock new value’ for the property. For reference, these welltech and fit-

tech can range from infrared saunas, body wave spa mats and pulsed electromagnetic field (PEMF) laydown beds to cryochambers, temperature-controlled mattresses, compression pants, robo-massage units, underwater treadmills and plenty more.

As a warning before getting into it, this article goes far outside the realm of traditional hotel operations and finance speak. Yet, with the dawn of human longevity and 'longevity tourism', it behooves hoteliers who want to use innovative wellness techniques to enhance their brand's revenues to learn a bit about the science which is increasingly bringing together different tutelages from physiology, anatomy, physics, medicine and spiritualism (often branded as 'quantum energy').

The value for a hotel from said welltech can come, for example, from upgrading a suite into a sleep-oriented room category for higher nightly rates or it can come through a more extensive repositioning that exposes the brand to entirely new customer segments. Whether it's using automated welltech to get more sessions sold per day out of a spa treatment room or to renovate a gym into something high-tech, the commonality amongst these financial benefits is that such devices can help a hotel earn more revenue per square foot.

And yet, there are many hoteliers that remain skeptical. They aren't necessarily doubtful of the market growth for wellness as a category over the coming years or the high margins that can be achieved off these labor-light (and often also low capex), touchless welltech tools. From experience in helping deploy these products at properties, the concern is more fundamental; many hotel leaders question whether or not these machines are legitimate or simply illusory woo-woo.

While there are innumerable studies and randomized controlled trials that show just how powerful the placebo and nocebo (negative placebo) effects are – for reference, read up on [psychoneuroimmunology](#) which describes how the mind's thoughts trickle down to affect the immune system – I want to take the time to dig into the science in a very approachable manner that doesn't require a PhD in cellular biology for you to more confidently say, "Yes, these machines are actually doing something beyond what can be chalked up to mere placebo."

Specifically, I want to focus on those machines that are utilizing some form of wave or frequency to restore the body, help people recover from injuries or improve sleep. While exact nomenclature is rather fluid at the moment, the going category to describe these devices is 'frequency therapies', but I prefer my own, slightly shorter 'wave tech' designation.

The reason for this focus is because while pills or supplements have a history of common understanding amongst consumers and hotel buyers – swallow the capsule, then have an effect – these next-generation, non-invasive, frequency-based tools like the aforementioned body waves, PEMF and RLT, as well as binaural beats, grounding mats or vibroacoustic technologies, are still surrounded by fervent debate in the scientific community.

Feeling Those Good Vibrations

Before looking at light waves, let's start with sound, for which many devices now exist within the product category of vibrations or 'waves' through a given object or 'body' – hence the terms body waves or 'gravity waves' to more specifically inscribe vibrational dissipation through bodies that are horizontal to the core of the earth (perpendicular to gravity). Geeky terms aside, these are often marketed as helping with sleep deprivation or jet lag because said waves can help to untangle atomic messes within a human body that's lying flat on said vibroacoustic machine.

Specifically, these low, pulsed frequencies align the human body's internal particle vibration with that of the earth's natural frequencies emanating from the planet's electromagnetic field – what's called [Schumann Resonances](#) (specifically at 7.83 Hz, 14.3 Hz, 20.8 Hz, 27.3 Hz and 33.8 Hz). Because these fields are generated from the planet's spinning, molten iron core, they seep through all matter and life on Earth then up into the ionosphere where it protects us from harmful cosmic radiation. Schumann resonances have been a part of life as we know it since the first bacteria emerged in the prehistoric oceans through to the present day, and every cell in our body is attuned to its rhythm.

Indeed, scientists have studied and found this [base vibration](#) in humans or what's known as a 'biofield'. Quite literally a vibe as the kids call it these days, this is where physics is now intersecting with spiritualism, with words like qi, prana, aura, reiki and energy medicine used by various cultures to describe the phenomenon. For one recent snippet of research on this merger of modern Western medicine and traditional Eastern practices, a study showed that the [cell surfaces of cancer cells vibrate](#) at different frequencies from their noncancerous, benign cell lines, presenting a potential new domain of early disease detection (albeit still very far from any form of commercialization).

Nowadays, cell phones, laptops, WiFi, microwaves, radio transmitters and all other forms of harmful radiation or artificial electromagnetic frequencies (EMF) are all acting on our bodies by introducing a variety of manmade wavelengths that interfere with this natural resonance or biofield. It follows that a machine exuding these Schumann resonances would help to realign the body with a more harmonized, primordial state of vibration, which would be felt by the user as a relaxing, rejuvenating effect.

As much of what we sense as stress, anxiety or agitation results is associated with increased systemic inflammation, researchers are starting to investigate at how various wave tech can be used to reduce inflammation to calm the nerves or treat specific diseases. For one such example, vibroacoustic sound therapy has been postulated as a treatment for [bronchitis in children](#), and likely more studies will show even more benefits for non-invasive therapies in the coming years.

Three Other Wave Techs Explained

Binaural beats demonstrate another way for natural sound or vibration frequencies to restore the body and mind as one type of [brainwave entrainment](#). For this frequency therapy, headphones are used to

produce two distinct sources of sound in each ear that are integrated within the brain to reorient its internal wave patterns through what's called the [frequency-following response](#).

Importantly, we've discovered that certain wave frequencies of nerve cell conduction in our brains correspond to specific states of mind:

- Delta (0.5 to 4 Hz) for slow wave sleep when our body repairs itself
- Theta (4 to 8 Hz) for REM sleep, creative flow or trance-like meditation
- Alpha (8 to 13 Hz) when we are calm or generally feeling good
- Beta (13 to 32 Hz) for high arousal, wakefulness and external focused
- Gamma (32 to 100 Hz) for peak cognition or spiritual clarity
- Epsilon (less than 0.5 Hz) which has only been found amongst seasoned meditators

The objective behind most binaural beat sessions is to elicit a preferred mental state by entraining the brainwaves to adjust to one of the above ranges. If you are having problems with sleep, then use a delta or theta soundtrack. If you're in need of an intense burst of focus and energy, maybe a gamma program is more to your liking.

Photobiomodulation (PBM) – the umbrella term that encompasses RLT, yellow light therapy, blue light therapy, non-thermal laser (NTL) and other techniques – doesn't use soundwaves but rather different wavelengths of light, each of which can penetrate the skin to various depths and induce an effect on various cellular components. The most studied of these is 660 nanometers for RLT as well as 810 nanometers in the near-infrared (NIR) range, which together have been shown to [activate mitochondria](#) and boost cellular energy. This then promotes collagen production for healthier skin as well as the production of subcutaneous melatonin which can aid in sleep.

Separate from light therapy, a third, but hardly the last, type of wave tech is PEMF which uses electromagnetic fields that mimic the pulses of energy produced by osteocytes (communication cells within bone) to then stimulate all sorts of repair pathways throughout the body. It's shown efficacy for [wound healing](#) but due to its ability to act systemically to stimulate blood flow and relax the body, many people see benefits that include better sleep, injury recovery or reduced stress.

And so, there's some root explanation – a flavor of the underlying theory behind it all, if you will – for wave tech's non-invasive effectiveness. But there are still a lot of dots to connect between the basal energy state of trillions of cells within the human body and why the positive effects from gravity wave or other wave-oriented pathways like binaural beats are felt. Not to mention, some discussion of the layer above frequencies – molecules and cellular organelles or tissues – will help to demonstrate the long-term health benefits from prolonged use of these devices.

Cellular Structuring and Debris Clearance

The next layer up from light, EMF, soundwaves and Schumann resonances is to look at how electrical charge and vibration affect all the various molecules inside our cells and extending out into the extracellular matrix (ECM). Whether these biochemical compounds are scaffolding proteins, precisely folded enzymes, fat globules, hormones, proteoglycans, DNA, fibers, ions or sugars, all of them are 'structured' by this innate charge and vibration. Naming these thousands of different compounds is beyond scope, but what matters is that, much like everything else, there's wear and tear to this structuring over time.

In fact, with 36 trillion cells in the average adult male and 28 trillion for women, there's a lot of daily maintenance required. If the structure or matrix of all those various molecules isn't held in the right position, then cellular processes can go awry. And when the rate of repair – with the in vogue term used in longevity circles to inscribe this at the intracellular level being [autophagy](#) – can't keep up with the rate of decay, bad things happen for which we give them different clinical names depending on what goes wrong first.

If this decay causes the cell to start reproducing erratically, we call it cancer. If the cell happens to a type of precursor immune cell called a monocyte that starts spraying foam around the inside lining of a blood vessel that hardens into plaque (picture a fire extinguisher let loose on a hallway), we call it atherosclerosis or another type of cardiovascular disease depending on where in the body it occurs. Then there are times when toxins, free radicals, heavy metals, cellular debris or other malfunctioning cell parts get trapped and aren't removed, which then causes inflammation as the body tries to open the area up to fix and clean (much like housekeepers moving furniture to deep clean a room).

The commonality is that most of these pathogenic conditions boil down to some sort of disruption to the structuring and electrical charge in the body, which then if left uncorrected causes a cascading effect of ever-increasing repair requirements. If only there were ways to restore the proper charge and structuring in our cells so that this debris can be cleared into the blood vessels or lymphatic drainage system to make everything run smoothly again.

Circling back to the body waves explanation, by quickly restoring functionality to various subcellular mechanisms through, for instance, the loosening of debris held tightly around nerve cells (including but not limited to beta-amyloid plaque or tau protein that we observe as a hallmark in the progression of Alzheimer's disease) as well as in the cerebral spinal fluid (although this is hardly the only mechanism of action for a whole-body wave tech machine), people undergoing a treatment experience an immediate sense of relief when contrasted against the 'before state' of brain fog, fatigue, stress, aches and pains.

Take heed when discussing end-stage brain diseases: lots of evidence is pointing to how various types of dementia can take multiple decades to set in, so your actions now in prevention may be, as they say, worth far more proportionally than a cure.

With gravity waves and other frequency therapies a person can more mental clarity as neuronal charge is rebalanced (again, felt as a buzz); joints are a little less stiff as inflammatory compounds embedded in cartilage tissue are dislodged; muscles fire just a tad quicker as motor units and mitochondria are chemically structured more efficiently; the skin feels a smidge more supple as collagen fibers are disentangled and realigned.

Back to the Benefits for Hotels and Spa

As ever the Canadian that I am, I deem it necessary to apologize for that giant tangent into physics, chemistry and biology. All of it was simply there to show that wave tech – or frequency therapies and ‘freq tech’ as yet one more contracted term – is real and that it’s happening. For your hotel, this category of welltech represents a clear path to getting more bang for your buck from the square footage of your spa or guestrooms.

Hence, we should end by restating what those benefits can be depending on your commercial strategy. What I emphasize throughout is that because many of these machines do not require a masseuse, aesthetician or other licensed practitioner to be present for the entire duration of a session, these touchless technologies add revenue without a directly proportional increase to labor requirements. This is crucial because spa therapists are already in short supply and there are numerous factors at play that will prolong these shortages, if not worsen them.

To start, let’s consider the potential benefits for a spa:

1. Differentiate branding and heighten prestige by appearing cutting-edge to customers
2. Open spa to new customer segments wanting to try wave tech over traditional treatments
3. Create wellness circuits packages that combine touchless with traditional treatments
4. Fill underutilized treatment rooms when current labor can’t keep pace with demand
5. Extend hours of operation to accommodate the sale of more treatments per day
6. Use touchless treatments as a complimentary add-on for client satisfaction
7. Use touchless treatment as a corrective measure for error recovery situations
8. Develop revenue sharing agreements with wave tech vendors as a new profit source
9. Develop cobranding partnerships with vendors to access their client networks

With much overlap, next consider the benefits for deploying these touchless technologies into the guestrooms or suites:

1. Reposition hotel brand as wellness-oriented or as a guarantor of a good night’s rest

2. Open hotel to new customer segments eager to try wellness products or with sleep issues
3. Create a dedicated sleep or wellness room type that can be upsold or used for upgrades
4. Have wave tech or other welltech machinery available to rent on demand
5. Package in-room sleep amenities with other value-adds to increase length of stay
6. Incentivize direct channel bookings to reduce customer acquisition costs
7. Get more off-peak bookings to lower seasonal and weekday-weekend occupancy swings
8. Develop revenue sharing agreements and cobranding partnerships
9. Give access to employees as part of a wellness policy to boost morale and retain teams

Ultimately, it's up to you to choose spa or room then decide on the business model that will work best. Until that time, though, I hope this long-form article has dissuaded any apprehension about the legitimacy and potency of wave tech or other forms of frequency therapy.