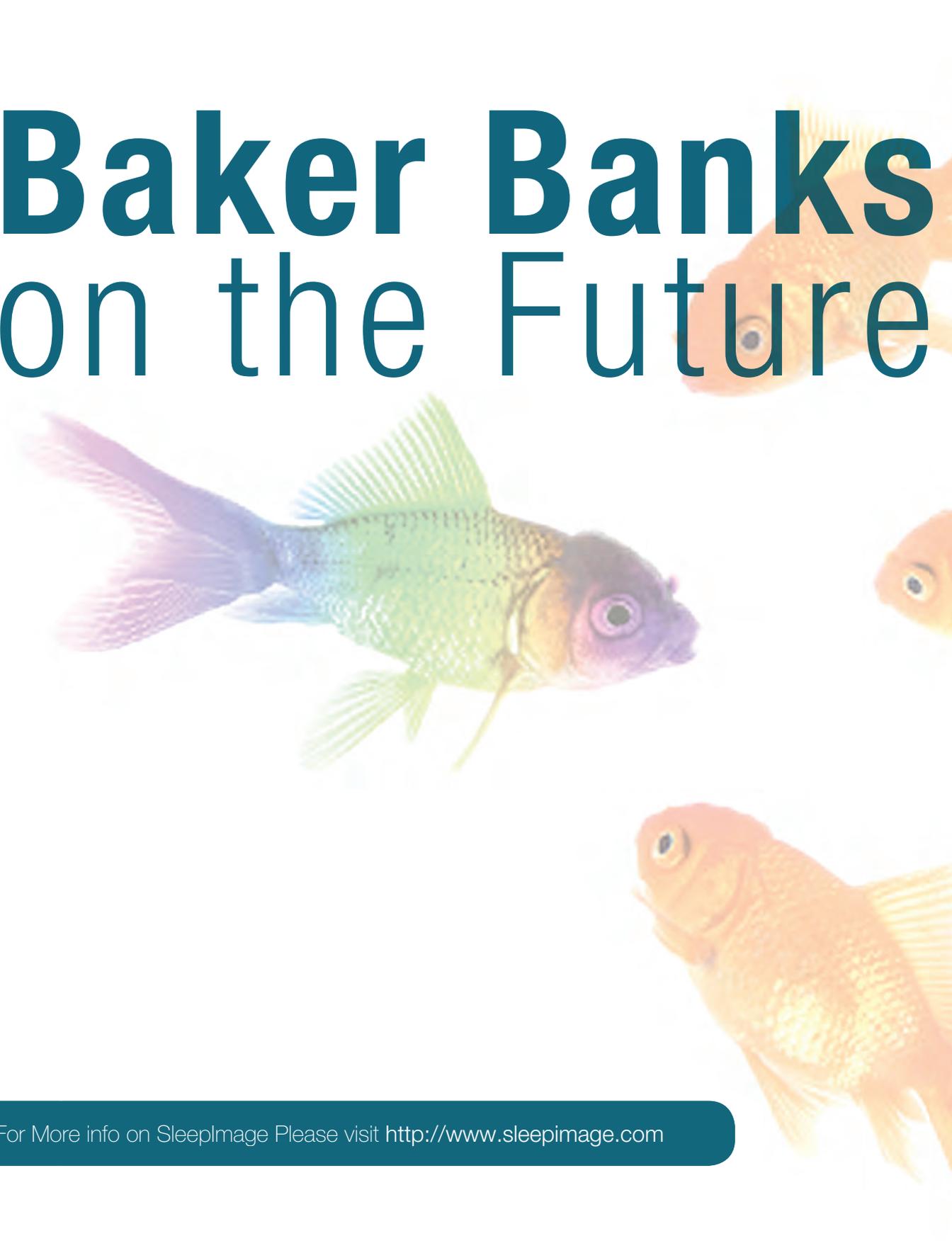
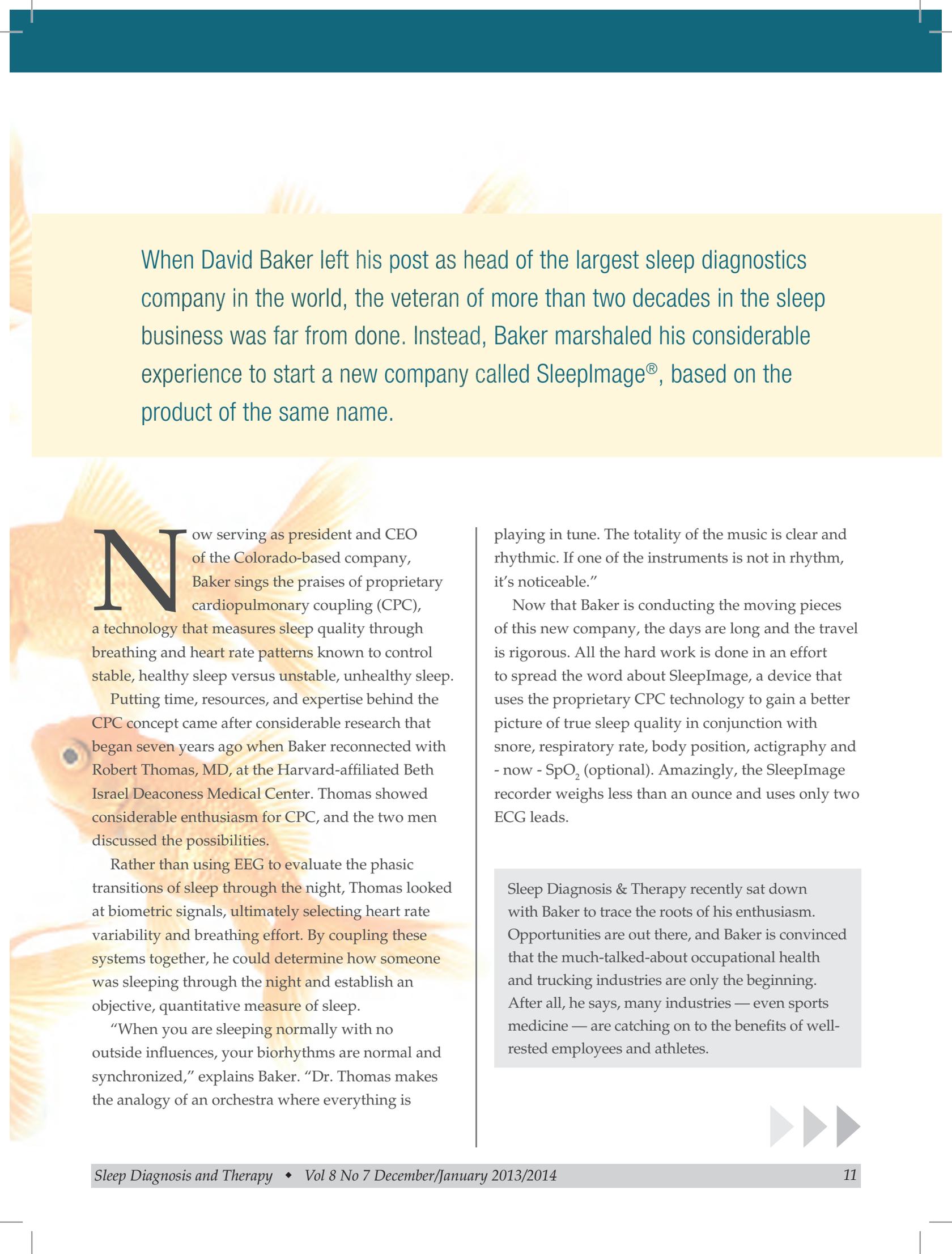


Baker Banks on the Future



For More info on SleepImage Please visit <http://www.sleepimage.com>



When David Baker left his post as head of the largest sleep diagnostics company in the world, the veteran of more than two decades in the sleep business was far from done. Instead, Baker marshaled his considerable experience to start a new company called SleepImage®, based on the product of the same name.

Now serving as president and CEO of the Colorado-based company, Baker sings the praises of proprietary cardiopulmonary coupling (CPC), a technology that measures sleep quality through breathing and heart rate patterns known to control stable, healthy sleep versus unstable, unhealthy sleep.

Putting time, resources, and expertise behind the CPC concept came after considerable research that began seven years ago when Baker reconnected with Robert Thomas, MD, at the Harvard-affiliated Beth Israel Deaconess Medical Center. Thomas showed considerable enthusiasm for CPC, and the two men discussed the possibilities.

Rather than using EEG to evaluate the phasic transitions of sleep through the night, Thomas looked at biometric signals, ultimately selecting heart rate variability and breathing effort. By coupling these systems together, he could determine how someone was sleeping through the night and establish an objective, quantitative measure of sleep.

“When you are sleeping normally with no outside influences, your biorhythms are normal and synchronized,” explains Baker. “Dr. Thomas makes the analogy of an orchestra where everything is

playing in tune. The totality of the music is clear and rhythmic. If one of the instruments is not in rhythm, it’s noticeable.”

Now that Baker is conducting the moving pieces of this new company, the days are long and the travel is rigorous. All the hard work is done in an effort to spread the word about SleepImage, a device that uses the proprietary CPC technology to gain a better picture of true sleep quality in conjunction with snore, respiratory rate, body position, actigraphy and - now - SpO₂ (optional). Amazingly, the SleepImage recorder weighs less than an ounce and uses only two ECG leads.

Sleep Diagnosis & Therapy recently sat down with Baker to trace the roots of his enthusiasm. Opportunities are out there, and Baker is convinced that the much-talked-about occupational health and trucking industries are only the beginning. After all, he says, many industries — even sports medicine — are catching on to the benefits of well-rested employees and athletes.



There are a lot of home sleep devices these days. What makes SleepImage special and how Sensitive is it?

David Baker, president and CEO, SleepImage: It's not just a sleep apnea detector. Most home sleep testing devices measure for apnea, but they are not measuring sleep quality. It is also different in that it is noninvasive by design, the very parameter you are trying to measure (sleep) is not affected by having it on. There's nothing wrapped around your head or chest or up your nose that will influence how you sleep.

SleepImage is also one of the only products I know of that looks at sleep quality through the night and will register this change over time regardless of what caused it from things like pain, fibromyalgia and sleep apnea to a bed partner snoring, a truck making too much noise, incorrect medication, or over titration of CPAPs—even improper advancement of a mandibular device.

We have seen poor sleep turn to good sleep and vice versa, within one or two centimeters of water pressure on a CPAP, or within a mm of advancement on an oral appliance. I'd say it's quite sensitive!

How can this product bring more patients in the fold and get them diagnosed?

Its noninvasive design, simple implementation and reasonable cost will make it a tool that can be used by Sleep Doctors, Dentists, Psychologists, Pediatricians – any clinician really - to identify sleep dysfunction as well as track the benefit of whatever sleep therapy is in place. Simply put - it is to sleep what a thermometer is to temperature, or scales are to weight. More patients suffer from sleep issues outside of SDB than SDB itself, so a larger population can now be easily identified and treated. It's also important to note that SleepImage, because of its size, is approved for use on pediatrics.

Specifically, what are the SleepImage's best capabilities?

It does two things very well. One - it easily identifies – fundamentally – how the patient is sleeping. Potential sleep issues (including sleep disordered breathing) are identified. Secondly, post therapy, it tells clinicians how patients are responding to treatment, whatever form that treatment may be - from adjusting medication dosage to simply improving the sleep environment. So there is the identification of an issue on the front end, then therapy is applied and we can objectively measure the tangible results on the back end. For a couple of dollars per test, clinicians can verify that the therapy is optimal and make changes until they see an improvement in sleep. Patients who benefit from therapy, versus just comply, will naturally continue with the therapy. That's very different from any other product at this price point.

How can SleepImage help to expand the patient base and even apply the technology beyond the traditional realms?

SleepImage can move us beyond a sleep monitor to a health monitor and start linking good sleep to good health in a way that has never been done before. If you want to really understand a patient's health, the best way of doing that is through sleep. The way I look at it is that if you are walking around, you can put pain or stress to the back of your mind, but when you're asleep all of those issues are going to surface and you're vulnerable because you can't consciously stifle them.

In sports medicine, if we can improve an athlete's sleep by 5%, does that reduce his time to run a mile by one second? We were talking to a coach from the University of Southern California before the last Olympics about swimming. The period of time before a meet is very important as to how much the team trains and when they sleep. The SleepImage recorder doesn't disrupt sleep, which is obviously very important, so if you can understand what improves the athletes sleep, by say 5% and it takes a second off the race time that could be the difference between a Gold Medal and an "also ran".

What has been the reaction in the dental sleep medicine community?

We've been very successful so far, even though it's not yet approved by payers to justify the payment for an oral appliance. Because it's low cost and very simple to use, many dentists use SleepImage to titrate the patient and determine the correct advancement of the lower mandible and eliminate the more expensive lab or home apnea testing. Dentists can adjust patients to the appropriate setting, then test them again in a month to make sure the device is working. This also ensures the diagnostic test after the installation of the oral appliance is successful and treatment will be covered. Subsequent follow up tests can also be done at regular checkups to ensure the device is still effective and the patient is sleeping well. SleepImage can help identify other potential issues impacting sleep, so once apnea is being treated successfully with an Oral Appliance, the test serves as a tool to create a dialogue between the dentist and the sleep physician.



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