



Introducing the SleepImage™ System, The first and only *objective* measure of quality sleep

- > Increase referrals through partnerships with referring physicians
 - > Monitor PAP compliance objectively and assess benefit
 - > Screen patients prior to anesthesia
 - > Manage insomnia patients
 - > Screen high-risk populations for sleep disorders
 - > Support Occupational Health efforts
 - > Monitor performance enhancement with improved sleep quality for students and athletes

THE *NEW IMAGE* OF SLEEP

Small but Powerful Tool for Your Sleep Testing Facility

a piece

The SleepImage System is the simplest and most cost effective way to measure how well people sleep. Developed by renowned sleep researchers, the SleepImage System uses Cardio Pulmonary Coupling technology to effortlessly measure sleep quality. This technology has been clinically validated and published extensively. The SleepImage System is FDA approved to assist clinicians in identifying patients who may have a sleep disorder.

The revolutionary M1™ Sleep Quality Recorder:

Requires seconds to set up and little or no training for the patient. Simply attach the M1 to the chest with two single-use snap on electrodes. Studies may start automatically or can be scheduled to start at specific times. Record up to fifteen full 8-hour studies with a single set of coin cell batteries. Data can be uploaded through any PC computer to the SleepImage secure web site and the results are immediately available to the clinician.

- > Featherlight at less than 1 oz - including batteries!
- > Simple to use and wear with no connections to the face or head resulting in little or no disruption of sleep
- > Virtually unnoticeable when worn
- > Automatically starts recording when placed on a patient
- > Records heart rate, breathing, actigraphy (movement), body position and snoring
- > Requires only 2 disposable electrodes
- > One-year warranty

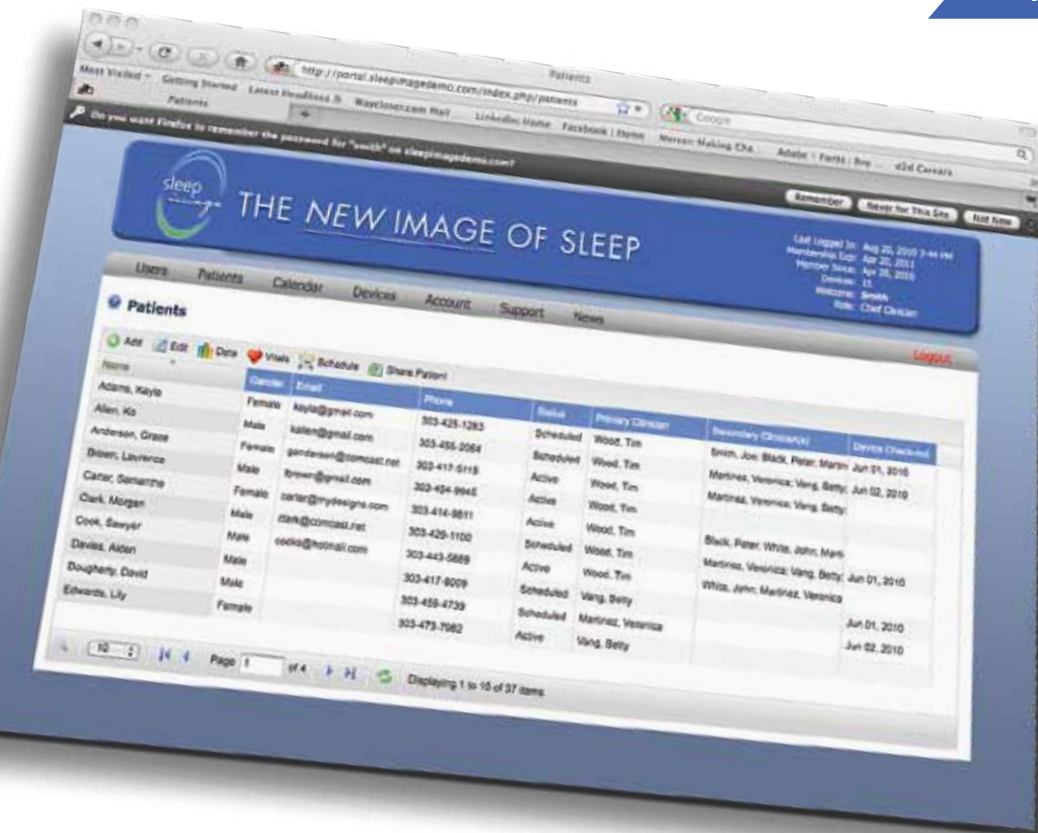


shown actual size

The SleepImage Custom Web Site:

Secure web site engineered specifically for this technology.

- > HIPAA compliant
- > Automatic data upload and analysis
- > Multiple reports for easy interpretation
- > Multiple roles for clinicians, support and admin access
- > Presents data as a single night's study or trend of multiple nights in a single glance
- > Multiple help and support features
- > Includes Epworth Sleepiness Scale and other demographic information
- > Manages the inventory of M1 Quality Recorders

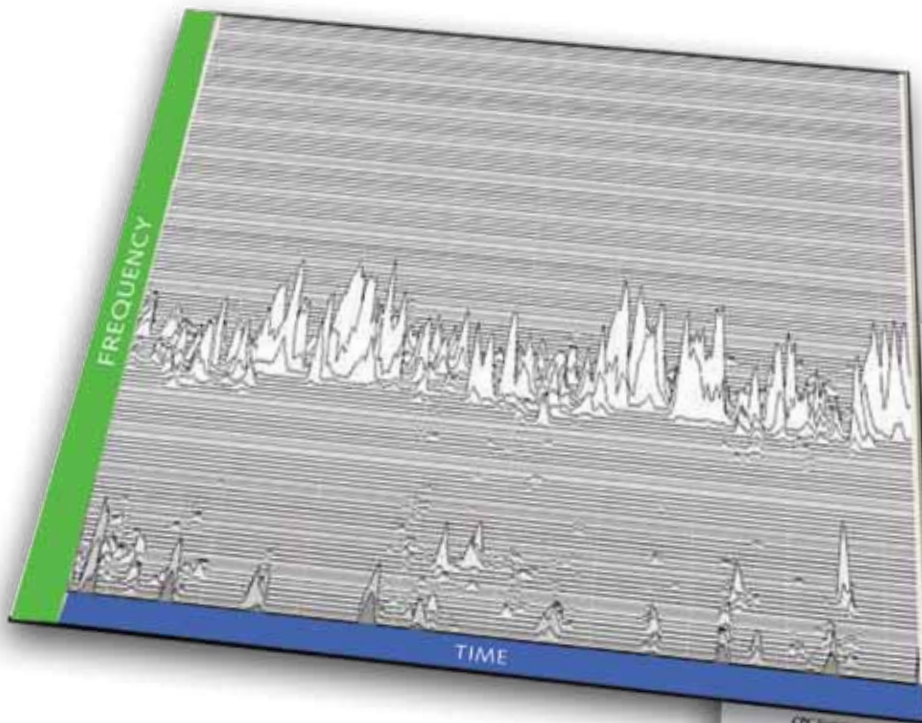


ture is worth a thousand waves

Cardio Pulmonary Coupling

The SleepImage System ...based on Cardio Pulmonary Coupling technology... was developed by Dr. Robert Thomas and his colleagues at the Beth Israel Deaconess Medical Center, an affiliate of the Harvard Medical School. The technology uses an ECG wave form to derive the heart rate and breathing rate of the patient. Fluctuations in heart rate variability have been associated with sleep disorders for many years. Combining both the heart rate and breathing rate variability into a single graphic, SleepImage allows you to evaluate the quality of sleep in a way that has never been done before.

Stable sleep, associated with **normal healthy sleep**, is displayed as “high frequency” coupling. The heart and breathing are in tune and this results in a very characteristic pattern in the upper half of the Sleep Image. In **unhealthy sleep**, a different pattern emerges with much more “low frequency” coupling which is associated with “unstable sleep”. Comparing the ratio of stable over unstable sleep creates a **Sleep Quality Index**.



Sleep Image of a Healthy Patient

Sleep Report generated from SleepImage

(Total Recording Time: 10 hrs, 30 min)
 (Study date: Mar 22, 2010 21:40:03)
 (Analysis date: Mar 27, 2010 09:19:03)
 (Report date: Aug 24, 2010 10:24:03)

Allen, Kayla
 03-2019-29 Date of Birth: Mar 29, 1999
 Age: 11 years
 73 Fiddo Blvd Grade: Female
 West, Colorado 80523 Weight: 82.50 lbs
 425-1283 BMI: 17.20
 ka@gmail.com

CPC Statistics

Variable	Duration (min)	Percent (%)	Expected Adult Values*
High Frequency Coupling (HFC)	122.15	92.88	>50%
Low Frequency Coupling (LFC)	22.87	20.61	<30%
Very Low Frequency Coupling (VLFC)	147.3	24.15	<20%
Other Frequency	14.93	2.45	<5%
e-LFC Broad Band Coupling†	61.85	10.14	<15%
e-LFC Narrow Band Coupling†	0	0.00	0
Total e-LFC	61.85	10.14	0

Variable	Result	Expected Adult Value
LFC:RWC Ratio	0.24	<0.23

*Expected values for a pediatric population: HFC >60%, <15% LFC, <10% VLFC, <5% e-LFC and <1% for Other Frequency. No e-LFC Narrow Band coupling is expected in a pediatric population without severe sleep apnea/hypopnea disorder. Data is lowest currently listed.

HFC is associated with stable respiration and sleep. LFC is associated with unstable sleep and increased cyclic variation in heart rate. VLFC correlates to Wake or REM sleep. Other frequencies have not been investigated for their clinical significance and could reflect movement or artifacts. Both e-LFC broad and narrow coupling bands are best observed using the 90° view spectrum. A small amount (<15%) of total sleep of e-LFC broad band is associated with normal sleep transitions from Wake into NREM sleep, from NREM sleep to REM, from REM into NREM sleep and from NREM sleep to Wake.

†e-LFC broad band coupling correlates to obstructive sleep apnea events in those with sleep apnea. Other

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Technical Specifications

M1 Sleep Quality Recorder:

Total weight less than 1oz.

4 Channel recorder:

- High speed 600 sample per second data collection of Electrocardiogram (ECG)
- Actigraphy from 3 axis accelerometers
- Body position
- Snore detector

Welded impact resistant shell

Uses two coin cell (2016) batteries capable of collecting over 15 records

Large 500MB storage capacity for up to 6, 8 hour records

SleepImage web site:

Data upload, review and interpretation from any PC computer with Internet access*

Validated secure web site

Reports:

Simple and easy to review, interpret and understand

*Requires small application to be downloaded from the web site.



The SleepImage System Includes:

- > M1™ sleep quality recorder
- > Package of 2 sets of electrodes
- > Coin cell batteries (2)
- > Data upload cable
- > Electrode cable
- > Mini screwdriver for battery replacement
- > Small carrying case for all components

The SleepImage System is FDA cleared to assist clinicians in identifying patients who may have a sleep disorder.

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