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Media Backgrounder

Executive Summary of White Paper:

In our modern society, many of us are sleep deprived. Instead of the eight hours a night a lot of us need, we now get an average of around six and a half. That is just not enough. Tiredness is linked to a huge number of psychological effects: stress and mistakes as well as poor judgment, memory, concentration, attention and creativity. There are also links with medical effects: excessive use of drugs and stimulants, obesity, lower immunity and even increased rates of type-2 diabetes, cardiovascular disease and cancer.

One of the most exciting areas of current scientific research on the human body is in fact the effect of light on our circadian (daily) cycles. Progress accelerated in 2002, when researchers discovered a new type of photoreceptor in the eyes, one which powerfully regulates our sleep/wake cycle. Light, health and wellbeing are all strongly linked to a good sleep/wake cycle as mental illnesses, such as depression, schizophrenia and bipolar disorder, can sometimes linked to lack of sleep.

Evolution has shaped us to live in much more light than our modern indoor life gives us. We generally need most light in the morning and also during the day, less in the evening, and the least possible at night. This implies ideally getting outside as much as possible during daytime, along with an improved (24-hour) control of our indoor lighting systems, so that we sleep better and wake up refreshed regularly.

The following research findings are noteworthy:

1. Production of melatonin, the hormone that helps induce sleepiness and which regulates our sleep/wake cycle, is directly impacted by light. Not only natural light but also artificial light.
2. By itself, our natural body clock typically runs with an average period of 24 hours and about 15 to 30 minutes, so somewhat longer than our artificial 24-hour clocks. This makes us want to go to bed later and makes us more dependent on our alarm clocks in the morning when we are capable of waking naturally at the same time each day with the help of light.
3. Light of the right quality and at the right timing can reset our natural half-hour lag and re-synchronize our body clock with our artificial 24-hour clocks.
4. Morning light is very powerful at adjusting our body clock, and artificial light that mimics bright daylight is very effective at regulating and synchronizing our sleep/wake cycle.
5. Light is key to overcoming both jet lag and “social jet lag” (that “Monday morning blues” feeling).
6. Light influences our mood and can support a good sleep/wake cycle, thus contributing to our overall health and well-being.

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How to use light to become an early riser:

- The period when you are exposed to high intensity blue-rich light is the major difference between a late riser and an early riser.
- However, scientists do not distinguish morning people as 'better' than evening people. It makes little difference to our overall health and wellbeing. But studies suggest that regular changes to our sleep/wake cycle are often associated with health risks. The key to maintaining our health and wellbeing is to have a regular sleep/wake routine on a daily basis.
- The third photoreceptor in our eyes that regulates our natural slower circadian rhythm when it perceives blue-rich light, works even with shut eyes. This is also true for some blind people who cannot see but may have healthy working photoreceptors.
- We have evolved over millennia to wake up with natural daylight which has high concentrations of blue-rich light. A sunny day outdoors gives 100,000 lux, and even an overcast day still gives 2000 lux, which is four times more than the average 500 lux you perceive from standard indoor home and office lighting.
- In dark winter months, exposure to high-intensity blue-rich artificial lighting presented at the right time and for the right duration can reset your natural circadian rhythm to synchronize it with your chosen lifestyle and daily routine.
- It is recommended to reduce light levels (particularly blue-rich light content) about one to two hours before you go to bed – instead use warm light (strong in red and yellow content) to encourage the onset of melatonin production (the hormone related to sleep). This allows you to prolong your evening over a candle lit dinner, for example, without disrupting your circadian rhythm

Philips research-based products:

1. **Philips Wake-up Light:** a lighting solution designed to gradually increase light levels over a period of 30 minutes to gently take you out of your sleep. The light sequence is accompanied by gentle, gradually increasing beeps or natural sounds, to ensure you are awake. This process of being woken up by light stimulates your body to wake naturally so that you start the day feeling refreshed. In Philips Wake Up The Town video we see what happens when an Arctic town that lives four months without sunlight is given the Philips Wake-up Light. Philips has also created the
2. **Philips EnergyUp LED Energy Lights**: By recreating the energizing power of natural daylight, the Philips EnergyUp Natural White leaves users feeling positively reenergized and ready to manage their busy lifestyle. Neat and easy-to use, EnergyUp Natural White can fit with daily routines to enable people to use it virtually anywhere in the home or workplace, without it taking up too much space. It is particularly beneficial for days when natural light is scarce and for people spending their time in poorly lit environments who may experience energy dips and low spiritsThe Philips EnergyUp Intense Blue is a compact, portable solution to a lack of natural daylight, which causes energy dips during the day. The light mimics the energizing power of a bright summer sky, ensuring that users stay more alert, productive and in good spirits. Ideal for those who are on the go, it can be used corded or cordless and has a light, durable go-anywhere design with protective pouch.

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3. **Philips HealWell:** in hospital patient rooms, Philips HealWell positively affects important parameters for the healing environment, like sleep and patient satisfaction. The lighting solution delivers adequate light throughout the day, providing the benefits of natural daylight, and combines that with ambient light and color accents controlled by the patient. This allows the creation of a more home-like atmosphere within hospital patient rooms. Philips HealWell is not a medical device or intervention. Watch this video to hear Philips Senior Scientist Luc Schlangen talk about how Philips Healwell increases the duration of sleep in hospital patients.

#mondaymorningblues

See VIDEO here: https://www.youtube.com/watch?v=m-6zTf1BdUY&feature=youtu.be

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About Royal Philips:
Royal Philips (NYSE: PHG, AEX: PHIA) is a diversified health and well-being company, focused on improving people's lives through meaningful innovation in the areas of Healthcare, Consumer Lifestyle and Lighting. Headquartered in the Netherlands, Philips posted 2013 sales of EUR 23.3 billion and employs approximately 113,000 employees with sales and services in more than 100 countries. The company is a leader in cardiac care, acute care and home healthcare, energy efficient lighting solutions and new lighting applications, as well as male shaving and grooming and oral healthcare. News from Philips is located at www.philips.com/newscenter