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Study confirms the positive effects of the aXbo, the world's first sleep phase alarm clock

This innovation made in Austria – the world's first sleep phase alarm clock – keeps it promise to help you wake up well rested and alert, every day. In a survey carried out by The Siesta Group, 39 volunteers tested the aXbo before its official market launch. The result: the probands felt significantly "more awake," "more cheerful" and "less apathetic." No more getting up on the wrong side of the bed! Co-developers Boris Eis and Axel Ferro have made the dream of many a morning grouch come true: get up feeling fit and ready to go.

Vienna, 6 December 2006 – Three surveys commissioned by infactory innovations & trade and carried out by The Siesta Group provide insights into the way the aXbo works. The first two surveys formed the basis of the development of the sleep phase alarm clock. In the most recently completed study, the significant positive effects of the aXbo have now been scientifically documented.

Correlation between sleep phase and movements in sleep

In the first survey, the differentiation among discrete sleep phases solely on the basis of movements in sleep was achieved. In the second survey, the varying individual states upon being woken from different sleep phases were confirmed. "In one study using the world's largest normative database containing sleep profiles of healthy probands, we were able to prove that a correlation exists between the sleep phase of a person and his or her sleep movements," says Dr. Georg Dorffner, managing director of The Siesta Group. "Moreover, the phase out of which the proband is woken has an actual affect on that person's subjective state after waking," continues professor Dorffner.

Scientific proof of the aXbo impact

Thirty-nine volunteers between 21 and 51 years of age were woken by aXbo on four consecutive weekdays. Using a standardized questionnaire, they noted their personal state upon waking each morning. The first night was used to familiarize them with the situation. On one of the other three mornings, the aXbo woke them not as usual at the optimal waking time, but instead, randomly. On which of the three mornings, the "placebo waking" would took place was selected randomly – neither the proband nor the survey coordinator knew on which morning the proband would not be woken optimally. The results of the survey confirm the effect of the aXbo: on average, the probands felt "more alert," "more cheerful" and "less apathetic" on the mornings on which they were optimally woken by aXbo than when they were woken randomly. These differences have statistical relevance.

Press-ready graphics are available as downloads at www.axbo.com .

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The Survey Results in Detail

Survey 1: Correlation Sleep Phase and Movements

The first survey investigated the correlation between the probands' level of activity and the measured sleep phases. It was verified that on average, the movement levels measured by the actigraph activity monitor correlated with the respective sleep phases. In light phase S1 more activity can be seen on average than in the somewhat deeper phase S2 as well as in the "dream phase" REM. The movements in S2 and REM are on the other hand higher than those in deep sleep phases S3 and S4. However, not all differences are meaningful or statistically relevant.

Survey 2: Correlation Sleep Phase and Subjective State upon Waking

The second survey examined the correlation between the phase out of which a person is woken and that person's subjective state upon waking. Here it was possible to confirm that a person's subjective state is indeed dependent on the sleep phase from which they are woken. Probands felt somewhat better after having been woken from S2 and REM phases than from S1, S3 or S4. Significant is for example the difference in waking quality from S1 (12.25 on a scale of 8 to 32, with 8 being best quality and 32 worst quality) and from S2 (11.73), REM (11.05) and S3 (13).

Survey 3: Scientific Evidence of the Effect of aXbo

The third survey explores the ways in which the aXbo functions with regard to morning state of mind in relation to which sleep phase the proband was woken from. aXbo wakes the user within a window of 30 minutes after the establishment of the sleep phase, which is calculated by an actigraph. Thirty-nine volunteer probands (from 21 to 51 years) with healthy sleep habits were woken by aXbo on four consecutive weekdays. For one week, they recorded their state of mind in the morning by way of a standardized questionnaire used in sleep research and containing rating scales. During this week there was one weekday morning on which they were not woken by aXbo (so-called "base night"). The first of the four nights served to familiarize them with the situation. On one of the three mornings they were woken by aXbo not at the otherwise optimal time, but rather at a random point within the selected 30-minute time frame. This specific morning had the function of a "placebo" (apparently effective yet in actuality ineffective). On which of the three mornings the placebo waking would take place was selected randomly for each participant. As a double-blind survey, neither the proband nor the survey coordinator knew when the placebo waking would take place.

The results of this survey have brought proof of the impact of aXbo. In comparison to the base night, the probands felt on average "more alert," "more cheerful," and "less apathetic" on the mornings they were woken correctly by aXbo than when they were woken randomly. These values were calculated on the basis of the standardized scale ASES, which the proband used to note his or her mood in the morning. The scale contains values from 0 ("tired," "sad," "apathetic") to 100 ("alert," "cheerful," "ready for action"). All of these values have statistical significance, thus it is justified to speak of an actual difference. Also important is the comparison to the base night, because in the instance of "cheerful" and "ready to go," a placebo effect could be determined, e.g. the value for the random waking is also higher than for the base night.