

Light Treatment and Biological Rhythms

Bulletin of the Society for Light Treatment and Biological Rhythms



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ANNUAL MEETING REVIEW

The Fifth Annual Meeting on Light Treatment and Biological Rhythms took place in San Diego on June 19 and 20 during, very suitably, two hot and shiny days. I had joined the Society the year before and this was my first light conference. For the last two years, I have had experience treating SAD in a "light room" (3500 lux), a setting typical for Sweden, which gives the possibility of treating 8-10 patients simultaneously. Although rather impractical for patients (portable devices are most often preferred) the light room ensures well controlled clinical light therapy studies.

At the APA meeting in New York a few years ago, I came across different portable light therapy equipment. In San Diego they appeared the same, with one exception — light boxes of higher intensity (10,000 lux) which permitted shorter (30 min) treatment periods. However, there was still a marked lack of agreement about the effect of different wavelengths and intensities of the head-mounted portable devices. How come that "no one" commented upon the low intensity red light hats?

Light therapy is still a rather narrow field within psychiatry and much remains to be studied, from a basic as well as from a clinical point of view. Coming from the dark of northern Sweden, as a specialist in general and geriatric psychiatry with research interests in neuro-psychiatry and psychiatric genetics, I had not come across this field until the APA meeting. Considering the situation now, most non-researching general psychiatrists (at least in Europe) must be totally unaware of the field. The need for research and clinical information is thus enormous.

Coming into this meeting my own prejudices were that 1) SAD is a well defined disorder, clearly separated from other psychiatric conditions, 2) treatment is more effective given in early morning, 3) the basic mechanisms of SAD are well known, i.e., the melatonin and/or phase shift hypothesis and 4) SAD is much more common in northern latitudes. To my surprise, the meeting made me change my opinion on all items.

As a newcomer, one gets a glimpse here and there and, therefore, my expectations coming to San Diego were rather divided. For my clinical practice I wanted to know how often maintenance treatment should be given, if combination with antidepressants was of benefit, if the treatment is without hazardous effects for the eyes, if patients who improve come back the next season, and whether the seasonality reported to be so typical for SAD is also reported in other psychiatric disorders. Most of these questions were raised at the meeting and some were properly answered. Some special questions were also addressed, stemming from phenomena I had observed in the SAD clinic, i.e., why pain, migraine and PMS symptoms disappeared during treatment and why patients became so irritable at the beginning of treatment, prior to the improvement in mood. These questions, fact or fiction, were not satisfactorily explained. However, at the

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Light Treatment and Biological Rhythms
Bulletin of the Society for Light Treatment and Biological Rhythms



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meeting a lot of "new" fields were explored, presented at the large poster exhibit.

Beginning this conference review with the unusual, controversial indications, PMS could be an example. Barbara Parry, M.D., reported that light treatment in LLPDD women had a significant effect on premenstrual dysphoria, irrespective of whether morning or evening bright light (2500 lux) or red light (less than 10 lux) were given. Placebo response has been discussed before. However, Suzanne Veith (poster) in a naturalistic study, showed a marked phase shift of the temperature rhythm during the menstrual cycle. The mean temperature minimum of women in the luteal phase was delayed by 104 min (relating to sleeping time) compared to the follicular phase. Further work is thus necessary to determine the effect of bright light on the normal and the extreme LLPDD woman. Interesting reports came from a similar field, i.e., the oligomenorrhea and hot flushes at the perimenopause. Light treatment was able to shorten long menstrual cycles (Rex et al. poster) and reduce seasonally occurring hot flushes (Turner et al. poster).

Other conditions, probably serotonin-mediated, were presented with some interesting correlations to light, i.e., agitation in demented patients (Lovell et al. poster), late life depression (Moffit et al. poster), fibromyalgia (Pearl et al. poster) and violent crimes (Norden et al. poster). The positive pilots reported for the first two conditions, but not fibromyalgia, suggest it is worthwhile to continue with controlled studies. Violent crimes are reported more often at higher temperatures (heat reduces central 5-HT function). The effect of light remains to be explained.

Several lectures focused on the phase-shift story as an underlying mechanism, trying to explain the pathophysiology of SAD and hence the underlying mechanism of light treatment. However, no consensus was reached. Charmane I. Eastman, Ph.D., talked on *Searching for Clues to SAD in the Circadian Rhythm of Temperature*. She found no evidence to suggest that phase is abnormal in winter depression or that phase shifts mediate antidepressant responses. Other speakers were not of this opinion. Dr. Eastman also commented on a possible placebo response to light treatment, although this time I assume that few in the audience were of that opinion. My personal feeling, born of frustration, is that the issue on phase shift should be more focused on basic research, and, if true, should hopefully generate clinical methods to determine "the phase" and an eventual phase shift of light treatment. In this meeting it was confusing to adjust to different opinions on this topic. Perhaps the truth is: some shift, some don't.

Going on with a clinical survey, the NIMH follow-up study (follow-up duration 8.8 ± 1.3 yrs) is worth reporting. Charlotte Brown, Ph.D., traced 54 patients who had received a trial of light treatment (2500 lux) in the Seasonal Studies Program. Although SAD is reported to recur each year, only 44% continued to use light treatment throughout most of the winter. Fifteen (28%) discontinued due to "ineffectiveness", 10 (19%) due to "inconvenience" and 10 (19%) because they "had not become sufficiently depressed again to warrant treatment". More prospective studies should come out of the world-wide interest in the field. It is amazing to note that no consensus has been reached concerning maintenance treatment, effect of antidepressant medication, of lithium, etc. Clinical variables, e.g. light treatment as suicide preventor, also seem lacking. What is the effect of relapsing and relapsing during the winter season if a proper maintenance treatment is lacking? Is light safer than medication? Can light therapy be justified if serotonin reuptake inhibitors are found safe and effective in the same clinical disorders for which light treatment is indicated?

The relapse rate following light treatment of winter depression was studied by Juan Su Terman, Ph.D., and Michael Terman, Ph.D. (poster). They showed that relapse rate was about 80% 8 weeks after treatment cessation. They speculate that longer remissions might occur when treatment is given later in the season. This fact, however, does not help the individual patient, hence there is a great need for an international maintenance treatment research program (consensus).

The pathophysiology of certain circadian sleep disturbances has drawn attention to the possibility of light treatment. Sleep maintenance insomnia has been treated with bright light (4000 lux) for two hours within a window between 2000h and 2300h (Scott S. Campbell, Ph.D.). Exposure to light resulted in substantial changes in sleep quality. Waking time within sleep was reduced by an hour and sleep efficiency improved. Also the average circadian phase of body core temperature was significantly delayed. In another talk by Leon Lack, Ph.D., beneficial effects of timed light treatment for "sleep onset" and "early morning" insomniacs were described. Compared with the placebo control condition, evening bright light therapy produced significant improvement of sleep. These strategies are, from a clinical point of view, very interesting alternatives to drugs if light exposure technically could be arranged so as not to disturb these usual evening or morning routines.

Special emphasis was laid on the eye risk aspects of light treatment. Chris P. Gorman, M.D., gave a talk on *The Ophthalmological Profile of 71 SAD Patients: A Significant Correlation Between Myopia and SAD*. All patients were examined extensively both before and after light therapy, along with a yearly evaluation. Dr. Gorman concludes that "no test of central retinal function showed any abnormality over the five years of the study." *En passant* they found a significant correlation between incidence of myopia and SAD and discussed the role of dopamine as a possible "marker" linking progressive myopia to mood disorders.

The clinical syndrome of SAD was, of course, the focus of the meeting. Michael Terman, Ph.D. reported on marked diagnostic similarities between SAD and atypical depression. It is surprising that, despite this similarity, atypical depressives did not respond to light therapy and that they generally showed no seasonal pattern. The authors thus raise an interesting diagnostic and academic issue. From a research point of view it is important to compare these disorders, hence the pathophysiology of "season" might be easier to study. Several other non-SAD

psychiatric conditions might be susceptible to "seasonality", i.e., panic disorder as presented by Peter Marriott, M.D.

In summary, the meeting in San Diego was successful. It was ambitious and serious, not least because of the post-meeting continuing education course. The only thing I missed was genetic aspects of SAD. The condition is so "biological" that I assume that it will not be long before the genetic mechanisms are addressed in depth.

Finally, however, I got some feeling that light therapy, when using light boxes, visors and light rooms, may not be long lasting. Why? Given the importance of light for working performance, i.e., shift workers, one could foresee a future improvement in the working milieu, and hence in our homes, with effective armatures adjusting light intensity to our normal daily routines.

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SLTBR BOARD AND MEMBERSHIP ACTIONS

The SLTBR Board of Directors met on 18 June in San Diego, California. In addition to review of the Society's financial status which reflects stable growth, the Board discussed a number of relevant issues concerning SLTBR publications, federal/industrial relations and the advisability of restructuring the terms of Board members. The following decisions were made and were reported to the SLTBR members present at the Society's business meeting on 19 June:

- The clinician referral option on the membership application form will be expanded to include the clinician member's professional license number and practice jurisdiction as well as the educational institution awarding the highest degree earned by the clinician. Only clinicians who are licensed to practice a healing art and who provide the required information will be included on the clinician referral list which is part of the information packet made available to the public as part of the Society's publications program.
- The SLTBR public information brochure, *Questions and Answers About Light Therapy*, will be amended to include paragraphs describing the recent preliminary

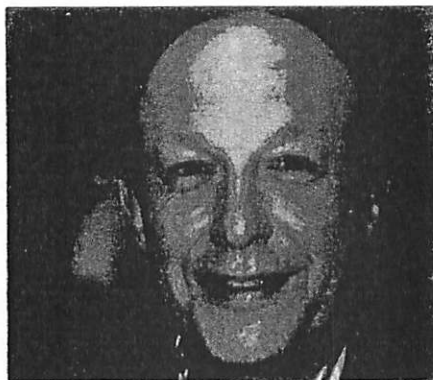
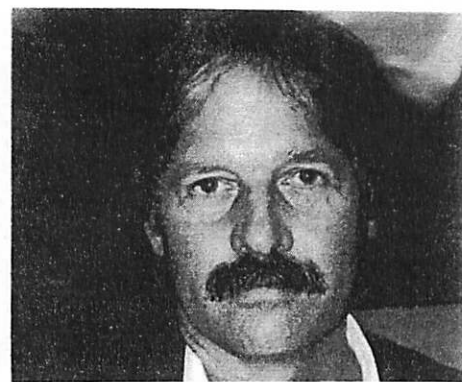
development and evaluation of head-mounted light units and dawn/dusk simulators.

- Commercial advertising of light treatment devices may no longer use the Society's name, including mention of Society membership, nor may Society publications be cited or quoted. Corporate membership requirements will be changed to reflect this policy, which applies equally to all advertisers regardless of membership status.
- The Board will work with the Society's legal counsel to draft proposed bylaws amendments which will create staggered terms for Board members. Members now serve seven year terms, all of which expire in 1995. A staggered format will provide for continuity and more orderly succession.

At the 19 June meeting, SLTBR members heard financial and membership reports, as well as a review of federal/industrial relations activities. President Michael Terman introduced Gary R. Barnum, SLTBR's new legal counsel, who will provide *pro bono* services on behalf of the Society. Members discussed the option of holding the 1994 annual meeting either in Boston, MA, in conjunction with the APSS meeting in early June, or in Bethesda, MD at the end of June which coincides with the CINP Decade of the Brain meeting. A straw vote on preference reflected equally divided opinion. (See *Bulletin Board* announcement this issue).



SLTBR MEMBERS found themselves the target for Charmaine Eastman's camera during the annual meeting in San Diego. Pictured on this page (clockwise, beginning upper left corner) are Norman Rosenthal, M.D., Raymond Lam, M.D., Scott Campbell, Ph.D., Anna Wirz-Justice, Ph.D., David Avery, M.D., SLTBR Executive Director Marty McCullough, legal counsel Gary Barnum, Wilfried Köhler, Ph.D., Stuart Armstrong, Ph.D. and (center) Roger Cole, Ph.D.



MORE SLTBR MEETING PHOTOS feature (clockwise, beginning upper left corner) Charles Mate-Kole, Ph.D., Barbara Parry, M.D., Jeffrey Elliott, Ph.D., Thomas Wehr, M.D., Daniel Kripke, M.D., Marie Dumont, Ph.D., Robert Sack, M.D., Drew Dawson, Ph.D., Sonia Ancoli-Israel, Ph.D., Takuro Endo, M.D., and (center) Charmane Eastman, Ph.D., and Leon Lack, Ph.D. In addition to a widespread U.S. contingent, SLTBR members from Australia, Brazil, Canada, Germany, Japan, Sweden, Switzerland, The Netherlands, and The United Kingdom participated in the meeting in San Diego.

MELATONIN, DEPRESSION, SAD AND LIGHT THERAPY RESEARCH IN SWEDEN

Lennart Wetterberg, M.D., Ph.D., at St. Görans' Hospital, Stockholm has been working on the pineal gland and its hormone melatonin for more than two decades. After a publication in 1979 of a depressed patient with a lowered nighttime melatonin concentration (Wetterberg et al., 1979) interest focused on the affective disorders. Wetterberg and coworkers (1981) reported on a relationship between low melatonin levels and high cortisol levels together with an abnormal dexamethasone suppression test (DST). Low melatonin in depression has been documented by several research groups and more extensively studied by Beck-Friis and coworkers (1984, 1985a,b). These studies led to the hypothesis of a "low melatonin syndrome" in one subgroup of patients with depressive disorders including low nocturnal melatonin levels, an abnormal DST and a disturbed 24-hour rhythm of cortisol. The main clinical features were a less pronounced diurnal and annual cyclic variation in depressive symptomatology and symptoms of psychomotor retardation.

After the initial reports on light treatment from Kripke (1981) and Lewy and coworkers (1982), our group commenced study of the clinical and biological effects of exposure to light. Beck-Friis and coworkers (1985c) reported that the exposure of healthy persons to bright full-spectrum light with a luminance of 350 candela (cd/m^2 , approximately 1500 lux) for one hour between 22 hr and 23 hr caused a significant suppression of serum melatonin levels followed by a "rebound", with higher melatonin levels later in the night. The effect of one hour light exposure between 22 hr and 23 hr with three different luminances (50, 350 and 580 cd/m^2) was compared in 8 healthy subjects. All three luminances significantly suppressed melatonin secretion but only the luminance of 350 cd/m^2 gave a significant rebound effect with an increased melatonin secretion between 02 and 08 hrs (Borg et al., 1987). The same experimental paradigm was applied to 12 patients with a major depressive episode. The light exposure between 22 hr and 23 hr caused a significant suppression of melatonin levels but there was no significant rebound as seen in healthy persons (Kjellman et al., 1988). In our first reported trial with light treatment 8 of these 12 major depressive patients were treated by indirect full-spectrum light (luminance 350 cd/m^2) between 18 hr and 20 hr for 10 consecutive days.

Five of the patients were rated as improved using stringent criteria. In these five patients there was no significant rebound secretion of melatonin before light treatment after the light test (light exposure between 22 hr and 23 hr). After light treatment there was instead a clear reduction of melatonin levels after the light test (Wetterberg et al, 1990).

In 1986, a special light treatment room was constructed at St. Görans' Hospital by Roger Wibom. We continued to use indirect light exposure from the reflection of 24 fluorescent tubes in the ceiling of a room with white colored ceiling, walls and floor. Patients were also clad in white clothes to minimize light absorption. The luminance in the room was 350 cd/m^2 (1500 Lux 0.8m above the floor). With the use of this room we have investigated effects of light treatment in a larger group of depressive patients, both with SAD and nonseasonal depression. In an effort to find biological correlates of the clinical effects of light treatment, we have also studied the nocturnal rhythms of melatonin, cortisol, prolactin and TSH before and after 10 days of light treatment given either at 06-08 hr or 18-20 hr. The light test was also done before and after light treatment. Preliminary results from this ongoing study have been published (Thalén et al., 1993) and a more extensive report is *in press* in the book from the Wenner-Gren Symposium held in Stockholm in September 1992 (Kjellman et al., 1993).

In the first report, 25 (17 female) patients with a major depressive episode with seasonal pattern, winter type, according to the DSM-III-R criteria were studied. They were treated for 10 consecutive days with morning light (06-08 hr). The patients were considered clinically improved if their rating scores were reduced by at least 50%. Twenty (80%) of the patients were rated as improved. Four of the five nonimproved patients had higher melatonin levels at 23 hr than at 22 hr during the light test before treatment compared to only 1 out of 20 in the improved group. Thus, the effect of the light test seemed to have a predictive value regarding the therapeutic response in this group of patients. In the second report of 94 patients with a major depressive episode, 75% of the 40 patients with winter depression treated with morning light improved. The light test continued to have predictive value. The symptom profile of the patients with winter depression was somewhat different compared to those reported from other latitudes. Sixty percent of the patients reported carbohydrate craving but only 30% had increased appetite. Fatigability was common (88%) but only 33% were hypersomnic and as many as 53% were hypsomnic. During the last years light treatment rooms of the same

type as ours have been installed in about 10 other psychiatric clinics in Sweden, including the University Hospitals of Gothenburg, Lund, Linköping and Umeå, and subsequently intensive research programs have been started at these places. Some of the present research fields are:

- the effect of light treatment on serotonin function
- the role of the eye in light treatment
- the epidemiology of SAD in Scandinavia
- the role of personality factors in the response to light treatment and placebo

Also planned is a multicenter study comparing the effect of a new selective serotonin uptake inhibitor with and without concomitant light treatment in SAD. During the years ahead reports on light treatment from several Swedish research centers can be expected.

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REFERENCES

- Beck-Friis J., D. von Rosen, B.F. Kjellman, J.-G. Ljunggren and L. Wetterberg (1984) Melatonin in relation to body measures, sex, season and the use of drugs in patients with major affective disorders and healthy subjects. *Psychoneuroendocrinology* 9: 261-277.
- Beck-Friis J., J.-G. Ljunggren, M. Thorén, D. von Rosen, B.F. Kjellman and L. Wetterberg (1985a) Melatonin, cortisol and ACTH in patients with major depressive and healthy humans with special reference to the outcome of the dexamethasone suppression test. *Psychoneuroendocrinology* 10: 173-186.
- Beck-Friis J., B.F. Kjellman, B. Aperia, F. Undén, D. von Rosen, J.-G. Ljunggren and L. Wetterberg (1985b) Serum melatonin in relation to clinical variables in patients with major depressive disorders and a hypothesis of a low melatonin syndrome. *Acta Psychiat. Scand.* 71: 319-330.
- Beck-Friis J., G. Borg and L. Wetterberg (1985c) Rebound Increase of Nocturnal Melatonin Levels Following Evening Suppression by Bright Light Exposure in Healthy Men: Relationship to Cortisol Levels and Morning Exposure. In *The Medical and Biological Effects of Light*, R.J. Wurtman, ed., pp. 371-375, Ann. NY Acad. Sci., New York.
- Borg G., J. Beck-Friis, B.F. Kjellman, B.-E. Thalén and L. Wetterberg (1987) Nocturnal Serum Melatonin Levels in Response to Different Intensities of Evening Bright Light Exposure in Healthy Man. In *Fundamentals and Clinics in Pineal Research*, G.P. Trentini, C. De Gaetani and P. Pévet, eds., pp. 361-364, Sero Symposia Publications, Raven, New York.
- Kjellman B.F., J. Beck-Friis, G. Borg, B.-E. Thalén and L. Wetterberg (1988) Nighttime melatonin in depressed patients: effects of one hour light exposure and light therapy (abstract). *Psychopharmacology* 96 (suppl): 114.
- Kjellman B.F., B.-E. Thalén and L. Wetterberg (1993) Light Treatment of Depressive States: Swedish Experiences at Latitude 59° N. In *Light and Biological Rhythms in Man*, L. Wetterberg, ed., Pergamon Press, Oxford.
- Kripke D.F. (1981) Photoperiodic Mechanisms for Depression and its Treatment. In *Biological Psychiatry*, C. Perris, G. Struwe and B. Jansson, eds., pp. 1249-1252, Elsevier-North Holland Biomedical Press, Amsterdam.
- Lewy A.J., H. Kern, N.E. Rosenthal and T.A. Wehr (1982) Bright artificial light treatment of a manic depressive patient with a seasonal mood cycle. *Am. J. Psychiat.* 139: 1496-1498.
- Thalén B.-E., B.F. Kjellman and L. Wetterberg (1993) Phototherapy and Melatonin in Relation to Seasonal Affective Disorder and Depression. In *Melatonin: Biosynthesis, Physiological Effects and Clinical Application*, H.-S. Yu and R.J. Reiter, eds., pp. 495-511, CRC Press Inc., Boca Raton.
- Wetterberg L., J. Beck-Friis, B. Aperia and U. Pettersson (1979) Melatonin/cortisol ratio in depression. *Lancet* 2: 1361.
- Wetterberg L., B. Aperia, J. Beck-Friis, B.F. Kjellman, J.-G. Ljunggren, U. Pettersson, Å. Sjölin, A. Tham and F. Undén (1981) Pineal-Hypothalamic-Pituitary Function in Patients with Depressive Illness. In *Steroid Hormone Regulation of the Brain*, K. Fuxe, J.A. Gustafsson and L. Wetterberg, eds., pp. 397-403, Pergamon Press, Oxford.
- Wetterberg L., J. Beck-Friis and B. F. Kjellman (1990) Melatonin as a Marker for a Subgroup of Depression in Adults. In *Biological Rhythms, Mood Disorders, Light Therapy and the Pineal Gland*, M. Shafii and S.L. Shafii, eds., pp. 69-95, American Psychiatric Press Inc., Washington, DC.

MOTHER MOUSE AS BEHAVIORAL ZEITGEBER: SOME FINDINGS IN BASIC BIOLOGICAL RESEARCH

Experimental work on biological rhythms has been so pre-occupied with the effect of LD cycles as zeitgebers that it did seem for over a hundred years as though the field were a sub-discipline of photobiology. Mrosovsky (1993) has rendered a service to interactions between clinical researchers and laboratory based researchers in biological rhythms in summarizing results of recent experiments on non-photic effects on hamsters' rhythms. Koehler (1993), in his comment on Mrosovsky's review, stresses the importance of up-to-date competent surveys of biological basic research topics for those who work in the field of clinical psychiatry. In response to Koehler's plea, I briefly review here results of experiments performed in our own laboratory on maternal behavioral entrainment of circadian activity rhythms of pups in the field mouse.

Society for Light Treatment and Biological Rhythms



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SIGH-SAD (Structured Interview Guide for the Hamilton Depression Rating Scale - SAD Version); clinician-administered and self-rating versions + HIGH-SAD (Hypomania Interview Guide [with Hyperthymia]) by J.B.W. Williams and colleagues. July 1992 version.

First Copy	\$ 15.00	\$ 20.00	_____	\$ _____
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Questions and Answers About Light Therapy

A public information brochure which provides an overview of the SAD condition and light therapy options. Designed for distribution to patients and other interested persons with a box provided for corporate or clinic name imprint.

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SAD Information Packet

A compilation of information about seasonal affective disorder including a copy of *Questions and Answers about Light Therapy*, bibliographies of recent works in the field (one for the clinician, another for the layperson), a list of research centers, a geographically appropriate list of the SLTBR clinician members accepting patient inquiries through the Society, this publications list, and a membership application form.

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SOCIETY FOR LIGHT TREATMENT AND BIOLOGICAL RHYTHMS

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We had quite early reported social synchronization of the flight: rest-activity rhythm in an insectivorous bat inhabiting a natural cave (Marimuthu et al., 1978). Free flying bats of a colony of ca 600 members 'socially informed' the time of sunset to bats held captive in flight activity cages 40 m deep in the cave.

We then got interested in knowing how field mouse pups, whose eyes are closed for the first 6-8 days after parturition and who inhabit dark burrows 1 to 1.5 m deep, know time of day and night. The pups mature over 30 - 33 days and venture out of the burrows to forage soon after the sun sets around 7 p.m. in Madurai (9° 58' N lat 78° 10' E long). If they emerged before sunset they would be exposed to intense predation pressure by day active birds.

Pregnant mice were brought from the field to DD conditions of the laboratory. Two pups were selected from each litter, designated pup A and pup B, and placed in two separate small cardboard boxes with nesting material. They were given access to the mother in the following regime:

Presence (P) of mother for A: 06 - 18 h
Absence (A) of mother for A: 18 - 06 h

Presence (P) of mother for B: 18 - 06 h
Absence (A) of mother for B: 06 - 18 h

Thus each pup experienced the presence:absence (PA) cycles of the mother 12:12 h (even though on an inverted time scale) for 16 days, by which time the pups were old and sturdy enough to exercise activity running wheels. The actograms made at the termination of the PA cycles revealed that when pup A was active pup B slept and when pup B was active pup A slept (Fig.1). The inverted PA cycles of the mother mouse entrained the activity:rest patterns of the two pups 180° out of phase relative to each other. These nocturnal animals interpreted the mother's presence as subjective day and mother's absence as subjective night. In nature, the mother is indeed absent from the burrow at night and present with her pups during day. It is clear that the PA cycles of the mother can substitute LD cycles in entrainment (Viswanathan and Chandrashekar, 1985).

Armed with this information of the zeitgeber status of the mother we performed further experiments in DD in which we simulated with PA cycles the photophase:scotophase situations of LD experiments. The durations of PA were proportionately increased or decreased to yield T-cycles deviating from 24 h. The rhythms of the pups no longer

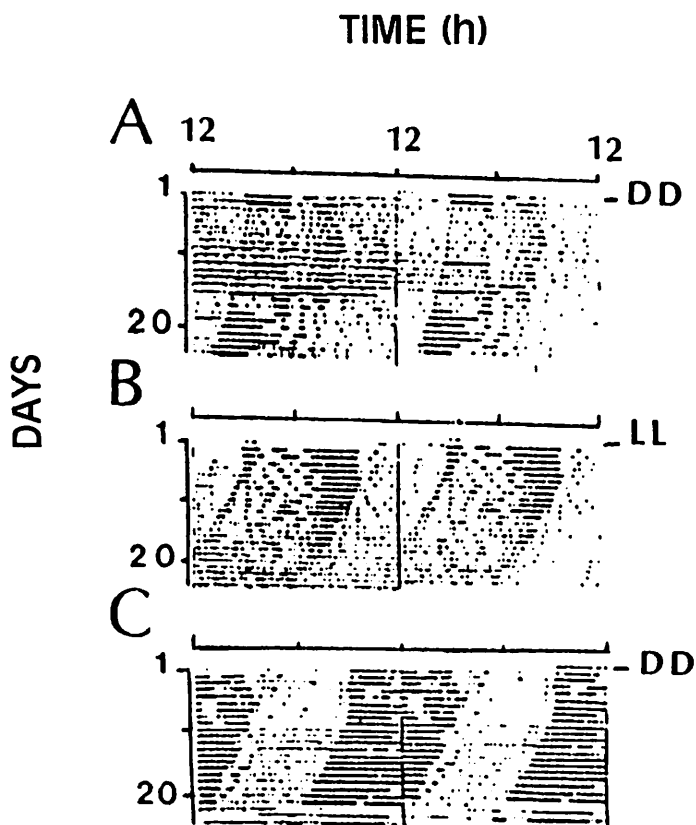


Figure 1. Double-plotted wheel-running activity of a field mouse mother in DD (A) and two of her pups, one in LL of ca 0.2 lx (B) and the other in DD (C). Activity bouts appear as bands. Note that freeruns of the activity rhythms of pups B and C start exactly 12 h (180°) apart.

entrained to PA cycles having T values below 23 h and beyond 25 h, these values defining the 'limits of maternal entrainment' (Viswanathan and Chandrashekar, 1988).

In another series, T values were maintained at 24 h but the proportions of P and A were varied analogous to summer and winter photoperiods. Entrainment ensued in all combinations from PA 8:16 h through PA 16:8 h, but failed (and the pup rhythms freeran) in PA cycles of 6:18 h ('too little mother') and 18:6 h ('too much mother'). Thus the presence of the mother appears to be vital for entrainment of pup rhythms for durations of one third to two thirds of the cycles (Viswanathan and Chandrashekar, 1987).

Now, some special news for SLTBR colleagues: continuous white fluorescent light abolishes the spectacular maternal entrainment being discussed (Fig.2) (Viswanathan and Chandrashekar, 1987). In our paper we stated that if our findings were to be applicable to human mother:infant interactions then they ought to be "of

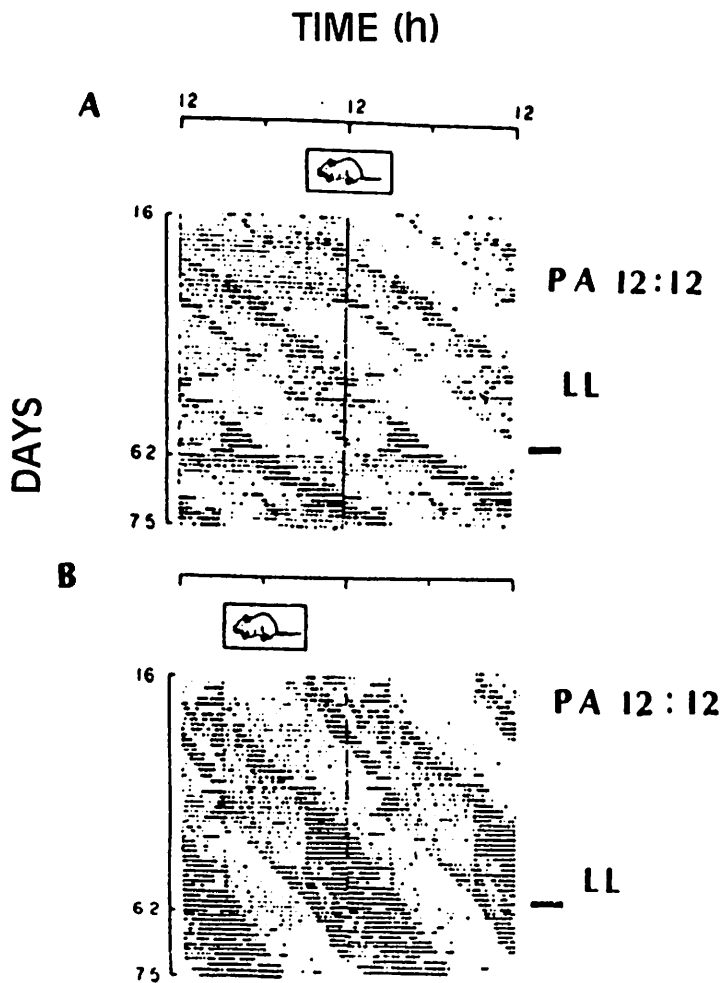


Figure 2. Wheel running activity of pups A and B in LL of 15-25 lx. Presence of mother field mouse with pup A) 06 - 18 h with pup B) 18 - 06 h on days 16-62. Activity rhythms freerun with periods > 24 h (A = 24.61 h, B = 24.49 h) during and after PA cycles. The maternal entrainment is abolished by LL.

obvious interest for human maternity ward situations". Just as findings on scorpion rhythms (Hohmann et al., 1990) and insect rhythms (Koehler and Fleissner, 1976) should have helped to launch first experiments on non-phototherapy in SAD as early as in 1984 (Koehler et al., 1993), it is our hope that our findings that the mother mouse can act as a behavioral zeitgeber (taking on the role of LD cycles) may turn out to be of some biomedical interest.

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REFERENCES

- Hohmann, W., S. Michel and G. Fleissner (1990) Locomotor activity and light pulses as competing zeitgeber stimuli in the scorpion circadian system. Soc. Res. Biol. Rhythms Abstr., p. 52.
- Koehler, W.K. and G. Fleissner (1976) Internal desynchronization of bilaterally organized circadian oscillators in the visual system of insects. *Nature* 274: 707-710.
- Koehler, W.K., P. Fey, K.P. Schmidt and B. Pflug (1993) Zeitgeber und das circadiane System bei depressiven Patienten. In *Biologische Psychiatrie der Gegenwart*. P. Baumann, ed., (in press), Springer Verlag, Wien.
- Koehler, W.K. (1993) A psychiatrist's comment. *Light Treatment Biol. Rhythms* 5: 36-37.
- Marimuthu, G., R. Subbaraj and M.K. Chandrashekar (1978) Social synchronization of the activity rhythm in a cave-dwelling insectivorous bat. *Naturwissenschaften* 65: 600.
- Mrosovsky, N. (1993) Photoc phase shifting in hamsters: More than meets the eye. *Light Treatment Biol. Rhythms* 5: 34-36.
- Viswanathan, N. and M.K. Chandrashekar (1985) Cycles of presence and absence of mother mouse entrain the circadian clock of pups. *Nature* 317: 530-531.
- Viswanathan, N. and M.K. Chandrashekar (1987) Continuous light abolishes the maternal entrainment of the circadian activity rhythm of pups in the field mouse. *Experientia* 43: 576-578.
- Viswanathan, N. and M.K. Chandrashekar (1988) Limits of maternal entrainment of the activity rhythm in the field mouse *Mus booduga*. *J. Comp. Physiol. A* 163: 237-242.

TREATMENT STRATEGIES FOR AGE-RELATED SLEEP DISTURBANCE USING TIMED EXPOSURE TO BRIGHT LIGHT

Based on a draft report to the ASDA/SLTBR Task Force on The Use of Light Therapy for Sleep Disorders

As of 1990, there were approximately 27 million Americans over the age of 65. A substantial proportion of these individuals, perhaps as much as half, suffer from chronic sleep disturbance. As a consequence, up to 40% of all hypnotic medications are prescribed to the elderly, despite growing evidence that such drugs may not only be ineffective for age-related sleep disturbance, but actually deleterious to the health of older individuals. The American Psychiatric Association Task Force on Benzodiazepine Dependency included high dose and advanced age among the conditions most likely to lead to greater risks of chronic toxicity, especially cognitive impairment, and true physiological dependency (APA Task Force, 1990).

The potential difficulties with pharmacological interventions have led to the development of a number of non-drug strategies to alleviate age-related sleep disturbance. The current paper examines results of one such strategy — timed exposure to bright light. In the first section, results of studies using sleep disturbed, but otherwise healthy, older subjects are examined. This is followed by an examination of studies of demented, and other elderly subjects confined to nursing homes. The final section briefly summarizes the findings and provides recommendations regarding the use of bright light in the treatment of age-related sleep disturbance.

Healthy Elderly

The underlying rationale for the use of light therapy to treat sleep disturbance in the elderly is based on characteristic changes in circadian rhythms that accompany aging. With aging, circadian rhythms (e.g., body core temperature) are phase-advanced, leading to an altered phase-relationship between the timing of nocturnal sleep and these rhythms. It is this altered phase-relationship that is hypothesized to cause, at least in part, the characteristic sleep disturbance associated with aging. Timed exposure to bright light, then, is used to delay the circadian clock, and thereby reinstitute the appropriate phase relationship between the circadian timing system and habitual sleep times. Although several laboratories have documented the nature of both circadian changes and sleep/wake disturbance in aging (Weitzman et al. 1982; Zepelin and McDonald 1987; Campbell et al. 1989; Moe et al. 1991; Czeisler et al. 1992), few investigators have employed light therapy in an effort to manage the problem.

In one study, Campbell and co-workers (Campbell and Dawson 1991; Campbell et al. 1993) compared the effects of evening bright light exposure (~ 4000 lux for 2 hrs) with a dim red light control condition (< 50 lux for 2 hrs), in older subjects (mean age: 70.4) who had experienced sleep maintenance insomnia for at least one year prior to enrollment in the study. Following 12 consecutive days of treatment, subjects in the bright light condition exhibited a significant increase in sleep efficiency (baseline: 77.5%; post-treatment: 90.1%), the result of an average one-hour decline in wakefulness within the night. This reduction in waking time (Stage 0) was accompanied by a significant reduction in Stage 1, and by a significant increase in the proportion Stage 2 sleep. Nonsignificant, but perhaps clinically relevant, increases in slow wave sleep (Stage 3 & 4) and REM sleep were also observed in the bright light group. In contrast, those receiving dim light exposure showed no significant change in sleep efficiency, wakefulness within sleep, or any other sleep parameter measured.

Similar findings were reported by Lack and Schumacher (1993) using exposure to evening bright light in a group of early morning awakening insomniacs. Although the study sample had a mean age of only 48 years, the nature of their sleep disturbance was equivalent to that seen in older subjects. In that study, subjects were exposed to either four hours of evening bright light (2500 lux), or dim red light (200 lux), for two consecutive days (2000h-2400h on the first night, 2100h-0100h on the second). Bright light produced improvements in sleep, as measured by wrist actigraphy and subjective assessment. Self-reported sleep duration increased significantly, whereas, actigraph movement time in the first six hours of sleep declined significantly following treatment. The dim light group showed no such changes in sleep measures. In both of the studies described above, improvement in sleep was accompanied by significant delays in the circadian course of body core temperature. Campbell et al. reported an average phase delay of 3.1 hours following treatment. Lack and Schumacher observed phase delays in the temperature minimum of 3 to 4 hours.

Demented and Other Nursing Home Elderly

In addition to treatment of sleep disturbance, per se, light therapy has been employed in nursing home populations (primarily demented patients) in an effort to manage behavioral disorders such as night wandering and "sundowning" (a syndrome of recurring confusion and agitation in the late afternoon or early evening). Because of the methodological/logistic difficulties inherent in obtaining polysomnographic data in demented and other nursing home patients, no EEG studies of light therapy in this population have been reported. Instead, behavioral observations and objective rest-activity measures have been employed to assess efficacy of bright light treatment in demented subjects.

Okawa and co-workers (1991) examined the efficacy of morning bright light exposure (3000 lux; 0900h-1100h), administered daily for 1 to 2 months, in a group of 24 patients (mean age = 76.6) with moderate or severe dementia. The patients were selected specifically because they exhibited irregularity of sleep/wake patterns and behavioral disorders. Using hourly nurses' observations to assess sleep/wake state and other behaviors, the investigators reported improvement in 12 of the 24 patients studied. Subsequently, these patients were assigned to a placebo condition (patients sat in front of lights that were not turned on), and their sleep/wake and behavioral disorders reappeared, suggesting that light exposure, rather than the behavioral structuring that accompanied such a protocol, was the important factor in treatment.

In a preliminary study of 25 nursing home residents (mean age = 87.1), Ancoli-Israel et al. (1991) compared effects on sleep of evening bright light (1700h-1900h), morning bright light (0930h-1130h), dim light (1700h-1900h), and increased daytime activity (no time specified). A non-significant trend toward improved sleep (inferred from actigraphic data) was found in the evening bright light group, but not in the other conditions.

Satlin and colleagues (1992) employed both observational and rest-activity data to assess the effects of evening bright light (~2000 lux; 1900h-2100h) administered daily for one week, in a group of ten Alzheimer's inpatients (mean age = 70.1). As in the Okawa study, patients who exhibited sundowning behavior and sleep pattern disturbance were specifically selected for participation in the study. Based on nurses' observations, eight of the 10 patients exhibited improvements in sleep/wakefulness ratings during the week of treatment and during the subsequent week. This result was supported by data obtained from activity monitors worn by each patient. Percent of nighttime activity declined significantly from the baseline week to the light treatment week in nine of the 10 patients. As a result, the amplitude of the cosine-fitted activity data showed a significant increase during the treatment week in seven of the 10 patients. Interestingly, there was a significant positive correlation ($r = .65$) between the severity of sundowning symptoms at baseline and the degree of improvement with light treatment.

Conclusions

The application of light therapy to age-related sleep disturbance is quite recent, with no reports appearing in the literature prior to 1991. Thus, results are sparse and those reports that do exist must be viewed as preliminary. Nevertheless, the available evidence indicates that timed exposure to bright light may be an effective means of alleviating sleep maintenance insomnia in healthy elderly, and that it may also be beneficial in treating sleep/wake and other behavioral disturbances in demented elderly, at least in the short term. No study has assessed the long-term efficacy of light therapy in either healthy, or pathological, aging. This issue is of critical importance if light therapy is to be useful as a strategy to manage what is typically a chronic problem.

Several methodological issues should be mentioned that are likely to have an impact on the efficacy of light therapy in age-related sleep disturbance. There is good reason to believe that improvement in sleep is associated with a phase delay of the circadian timing system. As such, adequate phase assessment should be made to insure proper

timing of light administration. In addition, compliance with the treatment protocol needs to be guaranteed, particularly in terms of direction of gaze, since previous work has shown that only slight deviations from the light source may dramatically reduce illuminance received (Dawson and Campbell 1990). Finally, it should be noted that age-related sleep disturbance is almost certainly not caused solely by changes in the circadian timing system. Ample evidence indicates that there are age-related changes in homeostatic properties of the sleep/wake system (Feinberg and Carlson 1968; Ingram et al. 1982; Reynolds et al. 1985; Dijk et al. 1989; Ehlers and Kupfer 1989), which undoubtedly contribute to fragmented sleep and early morning awakenings, as well. Therefore, it is probably unrealistic to expect light therapy to be completely effective in alleviating age-related sleep maintenance insomnia.

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REFERENCES

- American Psychiatric Association Task Force Report, Benzodiazepine Dependence, Toxicity and Abuse (1990), American Psychiatric Association, Washington, D.C.
- Ancoli-Israel, S., D. Kripke, D. Jones, L. Parker, M. and M.A. Hanger (1991) Light exposure and sleep in nursing home patients. *Soc. Light Treatment Bio. Rhythms Abstr.* 3: 18.
- Campbell, S. and D. Dawson (1991) Bright light treatment of sleep disturbance in older subjects. *Sleep Res.* 20: 448.
- Campbell, S., D. Dawson and M. Anderson (1993) Alleviation of sleep maintenance insomnia with timed exposure to bright light. *J. Amer. Geriatr. Soc.* 41: 829-836.
- Campbell, S., J.C. Gillin, D.F. Kripke, P. Erikson and P. Clopton (1989) Gender differences in the circadian temperature rhythms of healthy elderly subjects: Relationships to sleep quality. *Sleep* 12: 529-536.
- Czeisler, C.A., M. Dumont, J.F. Duffy, J.D. Steinberg, G.S. Richardson, E.N. Brown, R. Sanchez, C.D. Rios and J.M. Ronda (1992) Association of sleep-wake habits in older people with changes in output of circadian pacemaker. *Lancet* 340: 933-936.
- Dawson, D. and S.S. Campbell (1990) Bright light treatment: are we keeping our subjects in the dark? *Sleep* 13: 267-271.
- Dijk, D.J., D.G. Beersma and R.H. van den Hoofdakker (1989) All night spectral analysis of EEG sleep in young adult and middle-aged male subjects. *Neurobiol. Aging* 10: 677-682.
- Ehlers, C.L. and D.J. Kupfer (1989) Effects of age on delta and REM sleep parameters. *Electroencephalogr. Clin. Neurophysiol.* 72: 118-125.
- Feinberg, I. and V. Carlson (1968) Sleep patterns as a function of normal and pathological aging in man. *Arch. Gen. Psychiat.* 18: 239-250.
- Ingram, D.K., E.D. London and M.A. Reynolds (1982) Circadian rhythmicity and sleep: effects of aging in laboratory animals. *Neurobiol. Aging* 3: 287-297.

- Lack, L. and K. Schumacher (1993) Evening light treatment of early morning insomnia. *Sleep Res.* 22: 225.
- Moe, K.E., P.N. Prinz, M.V. Vitiello, A.L. Marks and L.H. Larsen, (1991) Healthy elderly women and men have different entrained circadian temperature rhythms. *J. Am. Geriatr. Soc.* 39: 383-387.
- Okawa, M., Y. Hishikawa, S. Hozumi, and H. Hori (1991) Sleep-wake rhythm disorder and phototherapy in elderly patients with dementia. *Biol. Psychiat.* 29: 161S-162S.
- Reynolds, C.F., D.J. Kupfer, L.S. Taska, C.C. Hoch, D.G. Spiker, D.E. Sewitch, B. Zimmer, R.S. Marin, J.P. Nelson, D. Martin

- and R. Morycz (1985) EEG sleep in elderly depressed, demented, and healthy subjects. *Biol. Psychiat.* 20: 431-442.
- Satlin, A., L. Volicer, V. Ross, L. Herz and S. Campbell (1992) Bright light treatment of behavioral and sleep disturbances in patients with Alzheimer's disease, *Am. J. Psychiat.* 149: 1028-1032.
- Weitzman, E.D., M.L. Moline, C.A. Czeisler and J.C. Zimmerman (1982) Chronobiology of aging: temperature, sleep-wake rhythms and entrainment. *Neurobiol. Aging* 3: 299-309.
- Zepelin, H. and C. McDonald (1987) Age differences in autonomic variables during sleep. *J. Gerontol.* 42: 142-146.

BULLETIN BOARD

WELCOME TO NEW MEMBERS

We welcome new members who have joined SLTBR since publication of the June 1993 issue:

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THANKS TO MEETING ORGANIZERS

The SLTBR Board of Directors is grateful to all those who helped to plan and carry out the successful annual meeting in San Diego. Special recognition goes to Sonia Ancoli-Israel, Ph.D. and her assistant, Cyndie Fitzgerald, who were actively involved in making site arrangements at the UCSD School of Medicine. We also thank Thomas A. Wehr, M.D., for chairing the Program Committee and Raymond Lam, M.D., for organizing the CME education course. Finally, thanks to Daniel Kripke, M.D., and his colleagues who provided a relaxing closure to the weekend's activities with an open house at their circadian rhythms laboratory.

INSURANCE REIMBURSEMENT ENDORSEMENT PACKET: 1993 REVISION

David S. Schlager, M.D., has been appointed chair of our newly-formed Reimbursement Committee. The committee's first task is to update the Society's *Insurance Reimbursement Endorsement Packet* for use this winter. The packet, originally assembled five years ago at the time of the Society's formation, is designed to accompany and support patient request forms for third-party reimbursement of lighting devices used for treatment of SAD and related disorders. The packet will include a cover letter which outlines the growing recognition and understanding of SAD and its treatment, specifically citing the new DSM-IV diagnostic criteria for SAD as well as SLTBR, APA and Agency for Health Care Policy and Research endorsements and guidelines. An appendix will

include key clinical handbook chapters with emphasis on treatment strategy. The packet will be made available to clinicians and patients through the SLTBR publications program (see publications form in this issue) and orders will be accepted immediately in anticipation of the winter season ahead.

The committee also plans to review third-party reimbursement practices and to coordinate efforts with the American Sleep Disorders Association Reimbursement Committee (which is chaired by SLTBR member Philip M. Becker, M.D.). The SLTBR committee actively solicits input from members and patients regarding recent experiences — successful or not — in securing reimbursement from specific insurers. Please mail replies to *Dr. Schlager c/o SLTBR, P.O. Box 478, Wilsonville, OR 97070*.

SLTBR 1994 MEETING SITE/DATE SELECTED

Lister Hill Auditorium on the campus of the National Institute of Health in Bethesda, MD has tentatively been selected as the site for the society's 1994 annual meeting scheduled for June 23 and 24. Members who attended the business meeting in San Diego will recall that "straw vote" preference for the suggested Bethesda and Boston sites was evenly split. Initial inquiries about both sites uncovered scheduling constraints which are most efficiently relieved by returning to Bethesda where the 1992 meeting was held. The meeting date precedes the June 27 start of the CINP Decade of the Brain conference. SLTBR meeting details will be provided in the December 1993 issue of *LTBR*.

ABSTRACTS VOLUME 5 AVAILABLE

The revised publications list and order form included in this issue of *LTBR* provides the opportunity to order the meeting program and abstracts for the June 1993 annual meeting held in San Diego. Cost to members is \$15.00

(non-members \$20.00). Also available is the compilation of *LTBR* issues from September 1992 through June 1993. Please send a completed order form and appropriate payment to *SLTBR, P.O. Box 478, Wilsonville, OR 97070*. If you make payment with charge card authorization, be certain to include the card expiration date. Payment for orders outside the U.S. must be made by charge card (VISA or Mastercard) or a draft in U.S. funds drawn on a U.S. bank.

OCULAR SCREENING UPDATE

The Columbia Eye Check-Up for Users of Light Treatment, originally described in *LTBR* (1990) 2(5): 6-8, has been revised and simplified for use in the field. The stereopsis test has been dropped, and preliminary self-test instructions are provided for the Amsler grid. The examination is being recommended directly to patients in the upcoming edition of Norman E. Rosenthal's *Winter Blues* (1993) New York, Guilford Publications. Master copies of the structured examination chart are available for photocopying by clinicians and researchers. Please send request on professional letterhead to *Winter Depression Program, New York State Psychiatric Institute, 722 West 168th Street, Unit 50, New York, NY 10032*.

KARGER GAZETTE FEATURES ISSUE ON LIGHT

The *Karger Gazette*, a quarterly news bulletin providing in depth coverage of a variety of scientific and medical issues, has recently produced an issue (No. 56) with a focus on light, including a contribution by Anna Wirz-Justice, Ph.D., on SAD. Other articles concentrate on the adverse affects of light on the eye and skin from ultraviolet radiation. Free copies of the publication may be requested either from *S. Karger AG, P.O. Box, CH-4009 Basel, Switzerland* or *S. Karger Publishers, Inc., P.O. Box 529, Farmington, CT 06085*.



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