

SHIFTWORK INTERNATIONAL NEWSLETTER

The official newsletter of the *Scientific Committee on Shiftwork*
of the *International Commission on Occupational Health*
and the *Working Time Society*

Volume 21, Number 2
December 2004
ISBN 0265-5357

Enquiries

Please direct enquiries regarding the
Newsletter to:
Prof. Philip Bohle
Executive Editor, S.I.N.
School of Organisation and Management
The University of New South Wales
Sydney NSW 2052
Australia
E-mail: p.bohle@unsw.edu.au
Web site: <http://www.workingtime.org>

Edited by

Philip Bohle¹, Masaya Takahashi², Akinori
Nakata², and Shun Matsumoto³

1. School of Organisation and
Management, The University of New
South Wales, Sydney NSW 2052,
Australia
(E-mail: p.bohle@unsw.edu.au)
2. National Institute of Industrial
Health, 6-21-1, Nagao, Tama-ku,
Kawasaki 214-8585, Japan
(E-mail: takaham@niih.go.jp,
nakataa@niih.go.jp)
3. Institute for Science of Labour,
2-8-14, Sugao, Miyamae-ku,
Kawasaki 216-8501, Japan
(E-mail: s.matsumoto@isl.or.jp)

Inside this issue:

Editorial	1
President's Report	1
Viewpoint	3
Research Update	4
XVI Ith International Symposium	6
Recent Publications	7
Subscriptions to S.I.N.	10

Editorial

Welcome to the latest edition of S.I.N.! For most readers, this will be the second issue you have received electronically. We hope that the shift from hard copy is helping us to make S.I.N. a better and more attractive forum for scientific exchange.

In this issue you will notice improvements in graphic design and two new "columns" - 'Viewpoint' and "Research Update". *Viewpoint* will give readers the opportunity to offer critical, and preferably controversial, perspectives on contemporary issues in working time research or policy. In this issue, Don Tepas tackles the challenging question of working hours regulation and argues that the *Working Time Society* should consider developing, and promoting, working time exposure standards. In 'Research Update', Lee Di Milia describes recent research on questionnaire measures of circadian rhythm characteristics, focusing in particular on the development of a shorter and psychometrically stronger version of the Circadian Type Inventory.

These new columns are intended to encourage greater reader participation in S.I.N. and also to facilitate direct communication between readers. We hope they make reading S.I.N. a more stimulating experience. Further changes will be introduced progressively over the next few issues. For example, we plan to introduce a new researchers' forum in which recent entrants to the field can describe projects and seek advice and support from more experienced researchers.

We depend upon assistance from you and other readers to pursue these developments. We are seeking contributions, such as short articles describing new projects and research developments, announcements of upcoming scientific meetings, details of conference proceedings and news about members, research and practice. Offers to put forward a personal view on a topical issue in *Viewpoint* will be received especially positively. Please send your contributions, suggestions or feedback to Philip Bohle (p.bohle@unsw.edu.au).

So now it is time to put your feet up and enjoy a quiet read!

The Editors

President's Report

Dear members and friends

It is a pleasure to update you on Board activities and to alert you to some important issues that now brewing.

Mid-term Meeting of ICOH Officers, Board and Scientific Committees

The ICOH (International Commission on Occupational Health) Board and Officers of the Scientific Committees met in Helsinki on January 26 and 27 to discuss ongoing activities and plans for the triennium. A matter of particular importance is the forthcoming triennial ICOH Congress, to be held next year in Milano (June 11-16) on the occasion of the hundredth anniversary of its foundation, which also occurred in Milano (see www.icoh2006.it).

SHIFTWORK INTERNATIONAL NEWSLETTER

ICOH, as you probably know, is recognised by the United Nations as a non governmental organisation and currently has approximately 2000 members in 93 countries. It has about 40 Scientific Committees and Networks, dealing with all aspects of occupational safety and health. Our "Shiftwork" Committee is one of the oldest and most active. In Helsinki, I summarised our past activities - with special reference to our biennial symposia and several other conferences and workshops - as well as the present situation, with particular reference to the establishment of the "Working Time Society". I proposed to the ICOH Board to modify the name of our Scientific Committee into "Shiftwork and Working Time" as the term "Shiftwork" appears somewhat limited nowadays. The new name is more appropriate and includes the many different forms of Working Time organisation with which the Committee members are currently concerned.

The ICOH Board recognised the importance of our Committee and greatly appreciated our ongoing activities and initiatives. The ICOH Board invited the members of the WTS who are not members of ICOH to join ICOH as well, in particular those who are directly involved in work organisation and occupational health. There are reduced fees for retired scientists, people less than 36 years of age and people from developing countries. Individual members also enjoy a substantial reduction in the registration fees for the triennial International Congresses and some other ICOH-sponsored conferences in addition to 20-30% reductions on subscriptions to many international scientific journals (e.g. *Applied Ergonomics*, *Archives des Maladies Professionnelles*, *Scandinavian Journal of Work, Environment and Health*), a 50% reduction in the price of all ILO publications (including the *Encyclopaedia on Occupational Health* and CIS abstracts), and a 40% reduction on all WHO information products. Further information is available on the ICOH website: <http://www.icoh.org.sg>

XVIIth International Symposium on Shiftwork and Working Time.

The Organising Committee, chaired by Ben Jansen, is finalising arrangements for the Symposium. As you can see in the second announcement, the name of the Symposium was slightly modified to the "XVIIth International Symposium on Shiftwork and Working Time" to recognise our historical traditions and the recent development of the *Working Time Society*.

I do hope you all plan to attend and are preparing your contributions to this Symposium. As usual, it sounds very stimulating and interesting. Due to the increasing attendance in recent years, and the growing number of topics to address, the Organising Committee intends to make an innovative change to the conference program: the introduction of parallel sessions on some topics. As you know, our previous symposia were arranged in plenary sessions. The intention was to keep all participants together to stimulate discussion and take advantage of the interaction between different disciplines and cultural backgrounds. While this structure undoubtedly offered advantages it also had inconveniences, in particular the limited time available for presentation and discussion,

which sometimes limited the exchange of knowledge. Parallel sessions will make it possible to extend the time allotted to topics that attract more interest or deserve deeper analysis. It is an experiment but I am sure that the organisers will find the most suitable compromise to ensure all our expectations are met.

Scientific activities associated with ICOH 2006

As for the previous ICOH Conferences (the latest was held in Iguassu Falls in February 2003) our "Shiftwork" Scientific Committee is going to organise one or two mini-symposia (with selected reviews by leading experts) and some oral and poster sessions. These mini-symposia and sessions are usually attended by a large number of scientists and practitioners (occupational health physicians and nurses, ergonomists, work psychologists, company managers), who look forward to being updated about preventive and compensative interventions and discussing their own experiences on issues related to working hours, a quite crucial issue in work organisation and medical surveillance. Its will be an excellent opportunity to share our experience and knowledge with people who will transfer it into their daily practice.

During the latest ICOH mid-term meeting an agreement was reached with two other Scientific Committees ("Ageing" and "Health Care Workers") to organise a joint Meeting in conjunction with ICOH 2006. The preliminary proposal is to hold a satellite meeting of one to two days in Italy (probably Venice) just before the ICOH Conference. It will allow scientists and practitioners to discuss these three major topics in an integrated way and develop guidelines for shift work among ageing health care workers.

XVIIIth International Symposium on Shiftwork and Working Time (2007).

Two proposals to host the 2007 Symposium are currently under examination:

1. The first comes from our Canadian colleagues, Diane Boivin (Chair), Madeleine Bourdouxhe, Estelle Morin and Francine O. James, who propose to hold the Symposium near Montreal, Québec, on 12-17 September, 2007, and suggest the title "Work hours: Evolution and perspectives for changing societies".
2. The second submission comes from Central Queensland University, Rockhampton, Australia, by Lee Di Milia (Chair), Philip Bohle, Shantha Rajaratnam and Rebecca Loudoun; the venue is Yeppoon, Queensland, and the proposed date is late August 2007. The suggested title is "Ageing and working hours: Creating safe working environments".

Both proposals are very attractive and well organised; the Board will finalise its evaluation in a few weeks and the final decision will be announced in Hoofddorp. We are very grateful to our colleagues for their generous offers to organise our main event, and we would now appreciate receiving proposals for hosting the XIXth Symposium in 2009.

(Continued on page 4)

VIEWPOINT

Should the *Working Time Society* Recommend Working Time Exposure Limits?

Donald I. Tepas

Department of Psychology

University of Connecticut

Storrs, CT 06269-1020 USA

E-mail: tepas@uconnvm.uconn.edu

With regard to chemical or physical "agent" exposure, industrial hygienists have (for a long time) recommended "limits" on how long or how much an individual should be exposed to a given agent. These limits are sometimes set and recommended by a body of independent and knowledgeable individuals, empowered by a professional organization. In other cases, these limits are concrete laws or regulations set by a government. Noise exposure provides a good example of the form that these limits may take.

Several noise limits are often parts of a set of limits for this agent. Various recommending expert groups define these limits. The limits set by an expert group for noise may include any or all of the following limits: A limit in the maximum peak pressure for a single noise impulse during a given shift. A limit on the maximum pressure permitted for continuous exposure during an eight-hour workday. And, a method for limiting continuous noise exposure when workers are employed on extended work times. Together, these limits can be used as workware tools to guide and/or limit worker exposure to noise.

Working hours research strongly suggests that it would be helpful to *recommend* limits on working time. In the United States, for example, there are *no* national government limits on the length of the workday (with the exception of the transportation industry) or annual hours. Obviously, some recommended limits on the length of work would be helpful. Similarly, the short-term (acute, and primarily performance) impact of night work *differs* from the long-term (chronic, and primarily health) impact of night shift work. Recommended limits, which address these variable dynamics, would be especially helpful given the absence of law or regulation. The *Working Time Society* (WTS) might empower these recommendations.

Following the model suggested by the industrial hygiene approach, one might conceptualize a given work schedule system (or any group of similar schedules) as an "agent" workers are exposed to. One would then formulate, by professional consensus, an *array* of exposure recommendations/standards for a given work schedule agent. Permanent night shift work provides an example of a work shift agent for which WTS might recommend an array of exposure limit standards. For permanent night shift workers, at least three recommended limits seem warranted: (1) A limit on how

many hours (long) a single shift should be. (2) A limit on how many *consecutive* night shifts should be deployed. (3) A limit on the number of night shifts worked *annually*. Exposure limit standards such as these would presumably aid in the design of working time schedules. More importantly, perhaps, they would also aid managers and workers in making real time decisions when unanticipated changes require prompt short-term changes in how a worker is deployed.

Standards, empowered by independent professional organizations, are recommendations not law. As such, they have some special advantages when compared to government regulation. First, exposure-limiting experts can promptly make recommendations. They can also be quickly changed when needed, and may be (hopefully) reasonable free from national, political or economic bias. Working time scientists can make independent recommendations based on expert consensus designed from and linked to a firm base of empirical research. They can provide informed guidelines for use by non-experts as decision aids for workware use when government regulation is missing, dated, or negligent. If sold and distributed (via hard copy, CD or disc), for a fee by the sponsoring professional organization, current standards, methods and references have proven to be a regular source of income for the organization. The WTS might want to try this.

Perhaps we have spent too much time searching for the perfect schedule, an ideal impact assessment measure or a magical shiftwork coping technology. As *the* independent professional organization dedicated to the study of working time variables, should the WTS now begin to focus more on forming consensus on formal working time exposure limit recommendations? Working time experts often disagree on what working time arrangement is the best for a given job. Consultants are frequently tempted to promise or claim to deliver the ideal work schedule. Perhaps the reality is that we will all find it easier to agree if we focus on setting working time exposure limits! Is it time to tell the world that the search for the perfect schedule is over, and shiftwork has some serious health and safety problems that will not easily go away? Is the WTS ready to focus on developing consensus working time exposure limits for work schedule agents?

Do you agree with this opinion? Would you like to present an alternative viewpoint? Either way, please offer your response in the next issue of S.I.N. It is advisable to contact the editors (p.bohle@unsw.edu.au) before preparing a submission, as space may not allow publication of all responses. We can accept submissions for the next issue until May 13 (yes, Friday the 13th!).

(Continued from page 2)

Donation from Japan/ Establishment of the Treasury

Last December, the Organizing Committee (K. Kogi, K. Mori, T. Sasaki and colleagues) of the 15th International Symposium on Night and Shiftwork (Hayama, September 2001) remitted Yen 1,250,000 (approx. \$US11900) to the Shiftwork International Newsletter. The remittance was made in appreciation of the cooperation and support of the WTS in organizing the Hayama Symposium and in recognition of the importance of SIN.

On behalf of the Board and the whole WTS, we wish to thank Kazutaka Kogi and his colleagues once more for their generosity. This money is the first brick on which we can build a new treasury to improve and support the

initiatives our Society may wish to undertake.

Besides the sum of money, we deeply appreciate the gesture of our Japanese colleagues for its symbolic meaning. I hope this example will be followed in the future; that is, generous co-operation and support between members in pursuit of the aims of our Society.

Soon, with the agreement of the Finance and Election Committee, our Secretary, Sonia Hornberger, will start the procedures for establishing the "Treasury" and for the nomination and election of a new Treasurer to the position that is vacant at present.

See you soon in Hoofddorp!

Giovanni Costa

RESEARCH UPDATE

The Circadian Type Inventory: Recent developments

Lee Di Milia

Head, School of Management

Central Queensland University

Rockhampton QLD 4702, Australia

E-mail: hosmgmtbuslaw@cqu.edu.au

Several self-report instruments are available for assessing individual differences in circadian rhythms. While rhythms can be described in terms of phase, amplitude and stability, the overwhelming majority of research has focussed on phase or 'morningness' measures. The Circadian Type Questionnaire (CTQ), developed by Simon Folkard and colleagues, is the only measure that aimed to quantify rhythm amplitude and stability.

The original study concluded that 'vigorous' (high amplitude) and 'flexible' (low stability) types showed better adjustment on several physiological and psychological indicators. In a longitudinal study, the CTQ was the best predictor of general health and psychosomatic-digestive complaints (Kaliterna et al., 1995). Unfortunately, independent studies were unable to replicate the CTQ's three-factor structure and Smith et al.'s (1989) influential review concluded it had poor measurement properties. However, a careful reading of Smith et al. (1989) reveals their criticisms were limited to technical rather than conceptual issues.

The Circadian Type Inventory (CTI) was developed to address

these measurement issues. Using a large sample, Barton et al. (1995) reported the two factors explained 26% of the variance and had Cronbach alphas of 0.73 and 0.79. Wider use of structural equation modelling (SEM) has provided a catalyst for a re-examination of scale properties. Using SEM, Di Milia et al. (2004) failed to replicate the CTI's factor structure and developed a revised model. They used principal components analysis to produce a two-factor, 11-item model. These factors explained 48% of total variance and had acceptable Cronbach alphas. The model was supported by a confirmatory factor analysis in a separate student sample. In both samples, the 11-item model was a marked improvement over the 18-item model on several incremental fit indices (> 0.90). Test-retest reliability was good (0.72 and 0.75).

The efficacy of the revised CTI was later examined in an industrial sample that comprised shiftworkers ($n=120$) and day workers ($n=127$) (Di Milia et al. 2005). Cronbach alphas were acceptable (0.73, 0.79) and the model structure was confirmed using SEM in both samples. Chi-square was significant, the incremental fit indices were mostly in order (≥ 0.90) and the RMSEA was 0.05. The vigorous group reported markedly higher alertness during the early morning and afternoon (see Figure 1). Significant differences were found for each time point except 18:00 and 20:00. Significant differences in alertness between flexible and rigid types were also obtained (see Figure 2). Flexible types were more alert from 16:00 to 22:00.

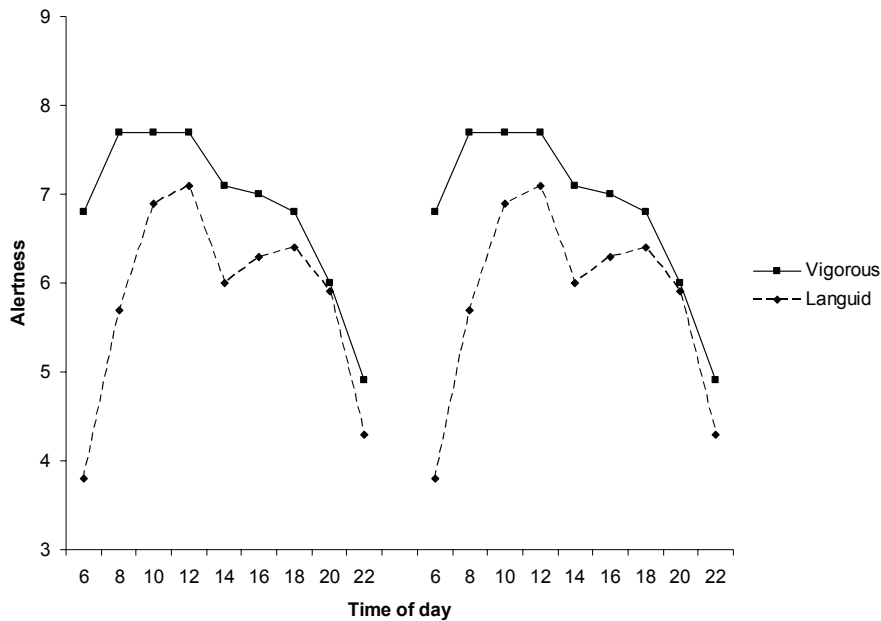


Figure 1. Alertness ratings by time of day for languid and vigorous types (ratings are double plotted).

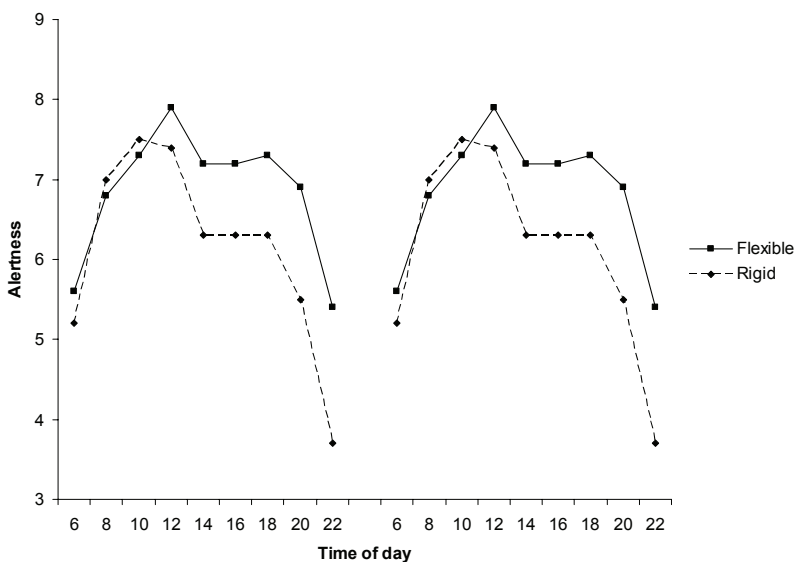


Figure 2. Alertness ratings by time of day for flexible and rigid types (ratings are double plotted).

These results suggest that rhythm amplitude and stability may play a role in adjustment to shiftwork. As Smith et al. suggested, adjustment may depend on “a weighted combination” (p. 738) of rhythm parameters. More studies are required to examine the effectiveness of the revised CTI in predicting adjustment to shiftwork.

References

Barton, J., Spelten, E. R., Totterdell, P. A., Smith, L. R., Folkard, S., & Costa, G. (1995). The Standard Shiftwork Index: A battery of questionnaires for assessing shiftwork related problems, *Work and Stress*, 9, 4-30.

Di Milia, L., Smith, P. A., & Folkard, S. (2005). A psychometric evaluation and validation of the revised Preferences Scale. *Chronobiology International*, (under review).

Di Milia, L., Smith, P. A., & Folkard, S. (2004). Refining the psychometric properties of the circadian type inventory. *Personality and Individual Differences*, 36, 1953-1964.

Kaliterna, L., Vidacek, S., Prizmic, Z., & Radosevic-Viadacek, B. (1995). Is tolerance to shiftwork predictable from individual difference measures. *Work and Stress*, 9, 140-147.

Smith, C. S., Reilly, C., & Midkiff, K. (1989). Evaluation of three circadian rhythm characteristics with suggestions for an improved measure of morningness. *Journal of Applied Psychology*, 74, 728-738.



17th INTERNATIONAL SYMPOSIUM ON SHIFTWORK AND WORKING TIME

18-22 September 2005 - Hoofddorp, The Netherlands

Second Announcement

Scope of the Symposium

Working hour schemes are pre-eminently the points where interests meet. At an individual level, this is reflected in the tension between physical recovery time and social spare time. At the level of organization, working hours are related to business operating costs and flexibility, as well as to matters like employee satisfaction and disability. At the level of society, working hour schemes have effects on the gross national product, the availability of services, the citizens' freedom of choice and the quality of life. There are no recipes for achieving a good balance between the various interests, although this balance is crucial with regard to working hour schemes. Achieving the balance, therefore, requires knowledge and experience on this impressive theme. For this reason, the 17th International Symposium on Shiftwork and Working Time will focus on 'Balancing interests'.

Organization

The International Symposium on Shiftwork and Working Time is a biannual event. This symposium has a tradition of more than 30 years in providing up-to-date information on night and shiftwork, as well as new trends in working time organization. The Symposium is organized for and by members of the *Working Time Society*, under the auspices of the Scientific Committee of the International Commission on Occupational Health. The 17th International Symposium on Shiftwork and Working Time will be organized by ATOS, The Netherlands.

Target Audience

The symposium is aimed at researchers and experts in the field of shiftwork, working time and related issues. It will be an interdisciplinary meeting which is open to basic and applied studies that address shiftwork and working time from the biological, medical, behavioural, ergonomic, social and economic points of view.

Program

The program will include plenary lectures and introductions, oral and poster presentations and discussions. Lectures, papers and posters will be categorized into the following 17 topics:

- design schedules/ergonomics
- circadian rhythmicity
- sleep/wake behaviour

- social patterns/use of time
- guidelines/coping/support
- age and life course
- work/life balance
- health and well being
- performance/accidents
- flexibilization/individualization
- productivity/economics
- legal (de)regulation
- culture/developing countries
- innovative management
- implementation strategies
- computer aided scheduling
- methodology/standardization

The full program will be in English. The website provides more information (www.shiftwork2005.atos.nl).

Abstract Submission

Researchers and experts in the field of shiftwork and working time are invited to submit an abstract for presentation. Instructions for preparing abstracts are given on the website. Abstracts need to be submitted before 1 March 2005. The notification of acceptance of abstracts is scheduled for 1 May 2005. The oral and poster sessions will be selected from accepted abstracts.

Registration

To register for symposium attendance, please fill in the registration form on the website. Registration submitted up to 1 May 2005 enables a discount on the fee. The final deadline for registration is 18 August 2005.

The symposium package for participants includes:

- Scientific program
- Social activities
- Accommodation from Sunday to Thursday (4 nights)
- Food and beverages

- Book of abstracts
- Subscription of the *Shiftwork International Newsletter* for two years

Congress Venue

The symposium will take place in the Claus Hotel & Event Centre in Hoofddorp. The venue is ideally located at only 15 minutes from Schiphol International Airport (shuttle bus). Tourist attractions such as Amsterdam, Haarlem, the 'Keukenhof' (the famous flower fields) and the beach are within easy reach. The venue is idyllically located near a park with a lake.

Deadlines

1 April 2005	Submission of abstracts
1 June 2005	Notification of acceptance of abstracts
15 June 2005	Early registration deadline (reduced fee)
18 August 2005	Final registration deadline

Information

For further information see www.shiftwork2005.atos.nl or contact the Organizing Committee by e-mail (shiftwork2005@atos.nl).

RECENT PUBLICATIONS ON WORKING HOURS

Revista de Saúde Pública

In December 2004, a special issue on equity, diversity and working hours appeared in *Revista de Saúde Pública*, published by the *Faculdade de Saúde Pública* at the *Universidade de São Paulo*. It presents a selection of papers from the *XVIth International Symposium on Night and Shift Work*, Santos, Brazil, November 17-23, 2003. It can be accessed electronically at the journal homepage (http://www.scielo.br/scielo.php?pid=0034-8910&script=sci_serial). The publication details are as follows:

Bohle, P., Fischer, F.M., Rotenberg, L. & de Castro Moreno, C.R. (Eds) (2004). Equity, diversity and working hours: Challenges and solutions, *Revista de Saúde Pública*, 38 (suppl.), December (Print ISSN 0034-8910).

CONTENTS

Editorial

<i>Equity, diversity and working hours: Challenges and solutions</i>	1
Bohle, Philip; Fischer, Frida Marina; Rotenberg, Lúcia; Moreno, Cláudia Roberta de Castro	

Original Articles

<i>Quality of life, life satisfaction and happiness in shift- and non-shiftworkers</i>	3
Kaliterna, Lipovcan LJ; Prizmic, Larsen Z; Zganec, N	
<i>Health and psychosocial effects of flexible working hours</i>	11
Janssen, Daniela; Nachreiner, Friedhelm	
<i>Working hours, work-life conflict and health in precarious and "permanent" employment</i>	19
Bohle, Philip; Quinlan, Michael; Kennedy, David; Williamson, Ann	
<i>The impact of night work on subjective reports of well-being: an exploratory study of health care workers from five nations</i>	26
Tepas, Donald I; Barnes-Farrell, Janet L; Bobko, Natalia; Fischer, Frida M; Iskra-Golec, Irena; Kaliterna, Ljiljana	
<i>Effects of the length and timing of nighttime naps on task performance and physiological function</i>	32
Takeyama, Hidemaro; Matsumoto, Shun; Murata, Kensaburo; Ebara, Takeshi; Kubo, Tomohide; Tachi, Norihide; Itani, Toru	
<i>Shiftworking families: parents' working schedule and sleep patterns of adolescents attending school in two shifts</i>	38
Radošević-Vidacek, Biserka; Košćec, Adrijana	
<i>Can varying the number of teams in a shift schedule constitute a preventive strategy?</i>	47
Jepesen, Hans Jeppe; Kleiven, Magnar; Bøggild, Henrik	
<i>BASS 4: a software system for ergonomic design and evaluation of working hours</i>	56
Schomann, Carsten; Stapel, Wolfgang; Nickel, Peter; Eden, Jens; Nachreiner, Friedhelm	
<i>Conflicts between employee preferences and ergonomic recommendations in shift scheduling: regulation based on consent is not sufficient</i>	65
Gärtner, Johannes	
<i>Linking better shiftwork arrangements with safety and health management systems</i>	72
Kogi, Kazutaka	

Current Comments

<i>Diversity and equity: dealing with biological and social differences</i>	80
Nachreiner, Friedhelm	
<i>Multidimensional aspects related to shiftworkers' health and well-being</i>	86
Costa, Giovanni	

Chronobiology International

In December 2004, a special issue on equity and working time appeared in *Chronobiology International*, published by Dekker. It presents a selection of papers delivered at the *XVth International Symposium on Night and Shift Work*, Santos, Brazil, November 17-23, 2003. It can be accessed online at the Dekker Web site (<http://www.dekker.com/servlet/product/productid/CBI>). The publication details are as follows:

Fischer, F.M. Rotenberg, L. & de Castro Moreno, C.R. (Eds). (2004). Special issue: Equity and Working Time: A challenge to achieve. *Chronobiology International*, 21 (6).

CONTENTS:

<i>Equity and Working Time: A Challenge to Achieve</i>	813
F.M. Fischer, L. Rotenberg and C.R. de Castro Moreno	
<i>Flexible Working Hours, Health, and Well-Being in Europe: Some Considerations from a Saltsa Project</i>	831
G. Costa, T. Åkerstedt, F. Nachreiner, F. Baltieri, J. Carvalhais, S. Folkard, M.F. Dresen, C. Gabdois, J. Gärtner, H.G. Sukalo, M. Harma, I. Kandolin, S. Sartori, and J. Silvério.	
<i>Teen at work: The burden of a double shift on daily activities</i>	845
L. R. Teixeira, F.M. Fischer, R. Nagai, and S.L. Turte	
<i>Self-Reported Health and Sleep Complaints Among Nursing Personnel: Working Under 12h Night and Day Shifts</i>	859
L. F. Portela, L. Rotenberg, and W. Waissmann	
<i>High Risk of Obstructive Sleep Apnea in Truck Drivers Estimated by the Berlin Questionnaire: Prevalence and Associated Factors</i>	871
C.R.C. Moreno, F.A. Carvalho, C. Lorenzi, L.S. Matuzaki, S. Prezotti, P. Biguetti, F.M. Louzada, and G. Lorenzi-Filho	
<i>Sleep and Sleepiness among Brazilian Shift-Working Bus Drivers</i>	881
E.H.R. Santos, M.T. de Mello, M. Pradella-Hallinan, L. Luchesi, M. L. N. Pires, and S. Tufik	
<i>Sleep Parameters Among Offshore Workers: An Initial Assessment in the Campos Basin, Rio de Janeiro, Brazil</i>	889
M. C. R. Menezes, M.L.N. Pires, A. A. Benedito -Silva, and S. Tufik	
<i>Association of Sickness Absence with Poor Sleep and Depressive Symptoms in Shift Workers</i>	899
A. Nakata, T. Haratani, M. Takahashi, N. Kawakami, H. Arito, F. Kobayashi, Y. Fujioka, S. Fukui, and S. Araki	
<i>Individual Differences in the Diurnal Cortisol Response to Stress</i>	913
A. Dahlgren, T. Åkerstedt, and G. Kecklund	
<i>Chronobiology of Alcohol: From Chronokinetics to Alcohol-Related Alterations of the Circadian System</i>	923
T. Danel, and Y. Touitou	
<i>Postprandial Metabolic Profiles Following Meals and Snacks Eaten during Simulated Night and Shift Work</i>	937
S. Al-Naimi, S.M. Hampton, P. Richard, C. Tzung, and L.M. Morgan	
<i>The Nutritional Status and Eating Habits of Shift Workers: A Chronobiological Approach</i>	949
I. C. Pasqua, and C.R. Moreno	
<i>Controlled Exposure to Light and Darkness Realigns the Salivary Cortisol Rhythm in Night and Shift Workers</i>	961
F. O. James, C. D. Walker, and D.B. Boivin	
<i>Variation in Sleepiness during Early Morning Shifts: A Mixed Model Approach to an Experimental Field Study of Train Drivers</i>	973
M. Ingre, G. Kecklund, T. Åkerstedt, and L. Kecklund	
<i>The Effects of a Nap Opportunity in Quiet and Noisy Environments on Driving Performance</i>	991
M. G. Lenné, F. Dwyer, T.J. Triggs, S. Rajaratnam, and J. R. Redman	
<i>Assessing Internet Survey Data Collection Methods with Ethnic Nurse Shift Workers</i>	1003
B.B. Hobbs and L. A. Farr	
<i>A New Approach for Evaluating Flexible Working Hours</i>	1015
O. Giebel, D. Janßen, C. Schomann, and F. Nachreiner	
<i>Analyzing Irregular Working Hours: Lessons Learned in the Development of RAS 1.0 – The Representation and Analysis Software</i>	1025
J. Gärtner, S. Popkin, W. Leitner, S. Wahl, T. Åkerstedt, and S. Folkard	

<i>Methodological Aspects of Shift-Work Research</i>	1037
A. Knutsson	
<i>Shift Worker's Mortality Scrutinized</i>	1049
A.Knutsson, N. Hammar, and B. Karlsson	
<i>Shift Work and Mortality</i>	1055
T. Åkerstedt, G. Kecklund and S.E. Johansson	
<i>Toward a "Risk Index" to Assess Work Schedules</i>	1063
S.Folkard and D. A. Lombardi	
<i>Lessons About Sleepiness and Driving from the Selby Rail Disaster Case: R v Gary Neil Hart</i>	1073
S. M. W. Rajaratnam and C.B. Jones	

Industrial Health

A special issue on work and sleep will appear in *Industrial Health* in January 2005. This journal is published by the Japanese National Institute of Industrial Health and can be accessed on the Institute website (http://www.niih.go.jp/en/indu_hell/index.html). The publication details are: Takahashi, M., Nakata, A. & Araki, S. (Eds). (2005). Special issue: Sleep health at work, *Industrial Health*, 43 (1), January. The editors, Masaya Takahashi, Aki Nakata and Shunichi Araki, would appreciate feedback and comments from S.I.N. readers and advice about your own related research findings (takaham@niih.go.jp).

CONTENTS

Review Articles

Epidemiology

<i>An Epidemiologic Review on Occupational Sleep Research Among Japanese Workers</i>	3
Yuriko Doi	
<i>Socioeconomic Impact of Insomnia in Working Populations</i>	11
Arnaud Metlaine, Damien Leger, and Dominique Choudat	
<i>Shiftwork: Safety, Sleepiness and Sleep</i>	20
Simon Folkard, David A. Lombardi, and Philip T. Tucker	
<i>The Nighttime Nap Strategies for Improving Night Shift Work in Workplace</i>	24
Hidemaro Takeyama, Tomohide Kubo, and Toru Itani	
<i>Sleepiness of Occupational Drivers</i>	30
Pierre Philip	

Human Experiments

<i>Light Treatment and Circadian Adaptation to Shift Work</i>	34
Diane B. Boivin and Francine O. James	

Health Management

<i>Imbalance Between the Reality of Sleep Specialists and the Demand of the Society in Japan</i>	49
Naoko Tachibana	
<i>Screening for Sleep-Disordered Breathing at Workplaces</i>	53
Takeshi Tanigawa, Seichi Horie, Susumu Sakurai, and Hiroyasu Iso	
<i>An Occupational Health Physician's Report on the Improvement in the Sleeping Conditions of Night-Shift Workers</i>	58
Toshio Hirose	

Law

<i>Fatigue and the Criminal Law</i>	63
Christopher B. Jones, Jillian Dorrian, and Shanthakumar M. W. Rajaratnam	

Research Needs

<i>International Research Needs for Improving Sleep and Health of Workers</i>	71
Kazutaka Kogi	
<i>The Future of Work Hours - the European View</i>	80
Torbjörn Åkerstedt and Göran Kecklund	
<i>Toward Better Sleep for Workers: Impressions of Some Needs</i>	85
Roger R. Rosa	

Original Articles**Epidemiology**

<i>Sleep-Related Risk of Occupational Injuries in Japanese Small and Medium-Scale Enterprises</i>	89
Akinori Nakata, Tomoko Ikeda, Masaya Takahashi, Takashi Haratani, Yosei Fujioka, Satoe Fukui, Naomi G. Swanson, Minoru Hojou, and Shunichi Araki	
<i>How Well Do Train Drivers Sleep in Relay Vans?</i>	98
Nicole Lamond, David Darwent, and Drew Dawson	
<i>The Impact of Extended Leave on Sleep and Alertness in the Australian Rail Industry</i>	105
Katie J. Kandelaars, Nicole Lamond, Gregory D. Roach, and Drew Dawson	
<i>Sleepiness in Various Shift Combinations of Irregular Shift Systems</i>	114
Mikael Sallinen, Mikko Härmä, Pertti Mutanen, Riikka Ranta, Jussi Virkkala, and Kiti Müller	
<i>Self-Report Naps in Irregular Work Schedules</i>	123
June J. Pilcher, Stephen M. Popkin, Karen Adkins, and Lindsay Roether	
<i>Sleep Deprivation in Junior Doctors - House Officers in Singapore</i>	129
K. Puvanendran, Jayant Venkatramani, Amit Jain, and Mohamad Farid	
<i>Associations of Sleep Problems and Recent Life Events with Smoking Behaviors in Japanese Female Hospital Nurses</i>	133
Takayuki Kageyama, Toshio Kobayashi, Noriko Nishikido, Junko Oga, and Mieko Kawashima	
<i>Actual Conditions of Work, Fatigue and Sleep in Non-Employed, Home-Based Female Information Technology Workers with Preschool Child</i>	142
Tsukasa Sasaki and Shun Matsumoto	
<i>Shiftwork Locus of Control, Situational and Behavioural Causal Effects on Sleepiness and Fatigue in Shiftworkers</i>	151
Lawrence Smith, Takeshi Tanigawa, Masaya Takahashi, Keiko Mutou, Naoko Tachibana, Yoshiko Kage, and Hiroyasu Iso	
<i>Modifying Effects of Perceived Adaptation to Shift Work on Health, Wellbeing, and Alertness on the Job Among Nuclear Power Plant Operators</i>	171
Masaya Takahashi, Takeshi Tanigawa, Naoko Tachibana, Keiko Mutou, Yoshiko Kage, Lawrence Smith, and Hiroyasu Iso	

Human Experiments

<i>Self-Awakening Prevents Acute Rise in Blood Pressure and Heart Rate at the Time of Awakening in Elderly People</i>	179
Kosuke Kaida, Keiko Ogawa, Mitsuo Hayashi, and Tadao Hori	
<i>The Impact of Sustained Wakefulness and Time-of-Day on OSPAT Performance</i>	186
Renée M. Petrilli, Sarah M. Jay, Drew Dawson, and Nicole Lamond	

Short Communication

<i>Changes in the Concentration of Urinary 6-sulphatoxymelatonin During a Week of Simulated Night Work</i>	193
Gregory D. Roach, Nicole Lamond, Jill Dorrian, Helen Burgess, Alexandra Holmes, Adam Fletcher, Kirsty McCulloch, and Drew Dawson	

Field Reports

<i>A National Sleep Foundation's Conference Summary: The National Summit to Prevent Drowsy Driving and a New Call to Action</i>	197
Darrel Droblich	
<i>Improving Health, Safety, and Profits in Extended Hours Operations (Shiftwork)</i>	201
Alex Kerin and Acacia Aguirre	
<i>The Napping Company: Bringing Science to the Workplace</i>	209
William A. Anthony and Camille W. Anthony	

SUBSCRIPTIONS TO S.I.N.

The Shiftwork International Newsletter is published twice annually. Subscriptions may be made in either of two ways:

participants in each *International Symposium on Shiftwork and Working Time* pay a two-year S.I.N. subscription as part of the symposium registration.

subscriptions can also be made by transferring \$US35 (for two years) directly to the editors' account (direct transfer is necessary because bank drafts for \$35 are not accepted by the bank):

Name: Shiftwork International Newsletter/Tsuyoshi Kawakami

Account No: 100109

Bank: Sumitomo Mitsui Bank

Branch: Seijo Branch

Address: 2-34-14, Seijo, Setagaya-ku, Tokyo 157-0066, Japan

Unfortunately we cannot cash cheques for \$US35, due to the commission charged by the bank. We apologize for this inconvenience.

You may request a free membership if you have financial hardship or difficulty in obtaining foreign currency.

All accounts in Japan have been registered and kept on the mailing list without additional charge.