Sleep and Sleep Disorders: a Public Health Concern in Europe. 

Enhancing and Empowering Biomedical Research

1. European Sleep Research Society (ESRS)
2. What do we know about sleep?
3. Insufficient sleep and sleep disorders are a social and health problem
4. What are we doing and what can we do?
1. European Sleep Research Society (ESRS)
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- **Established in 1971**
- **Aims**
  to promote **sleep research, sleep medicine** and **education on sleep** in Europe
- **Membership**
  approximately **1000** full members and **7000** associated members
- **Fields of interest**
  neuroscience, physiology, psychology, pharmacology, neurology, psychiatry, pulmonary medicine
- **Assembly of the National Sleep Societies**
  ESRS is connected to the National sleep societies of **30 European countries** in a federal-like structure
- **Conferences and events**
  biannual congress (Paris, September 2012) – teaching courses and training initiatives
2. What do we know about sleep?

- Sleep is a fundamental biological function, but we still don’t know what sleep is for.

- We know that performance and skills are deeply impaired after sleep loss, but we still don’t know which the substrates of this impairment are at brain level.

- We have some knowledge about brain circuits and mechanisms underlying sleep, but we still don’t know how to manipulate them properly in order to normalize sleep on long-term basis.
3. Insufficient sleep and sleep disorders are a social and heath problem

- Modern lifestyles and modern working environments promote the development of sleep problems

- Irregular working hours (20% of the workers !!), and working stress are major determinants in the development of sleep disturbances and chronic sleep loss

**Insomnia** is the most prevalent sleep disorder in Western societies, with approximately 10% of the population suffering from it chronically
3. Insufficient sleep and sleep disorders are a social and health problem

- **Insufficient sleep impairs working and driving safety**

  - attention, reaction times, memory and motivation, deteriorate with insufficient sleep

sleepiness and sleep-related problems determine **20% of road accidents**
3. Insufficient sleep and sleep disorders are a social and health problem

- **Insufficient sleep and sleep disorders can have severe consequences on general health**

- **Obstructive sleep apnoea (OSA)**, is the most common organic sleep disorder (3% of Europeans suffer from it), causing excessive daytime somnolence.

- **OSA** is a risk factor for hypertension, coronary artery disease, heart failure and cerebrovascular disease, and play a role in sudden cardiovascular death.
3. Insufficient sleep and sleep disorders are a social and health problem

- Insufficient sleep and sleep disorders can have severe consequences on general health

Insufficient sleep has been shown to be a risk factor for diabetes and obesity, which, in turn, is the most important predisposing factor for OSA.
3. Insufficient sleep and sleep disorders are a social and health problem

- **Insufficient sleep and sleep disorders are associated with major neuro-psychiatric disorders**

  Insomnia and/or hypersomnia are reported by 75% of people with **major depressive disorder** and are associated with a ten-fold risk for the development of **major depressive disorder** and **bipolar disorder**

Sleep disorders are associated and can even predict the occurrence of **dementia** or **parkinsonism**
3. Insufficient sleep and sleep disorders are a social and health problem

- **Insufficient sleep can be determined by specific sleep-related pathologies**

**Narcolepsy** is a sleep disorder characterized by:
- Excessive daytime sleepiness
- Cataplexy (muscle weakness triggered by emotions)
- Disturbed nocturnal sleep

Caused by a selective loss of hypocretin-producing neurons in the brain (hypothalamus)

**Restless legs syndrome** is a disorder characterized by an irresistible urge to move one's body (most commonly the legs), typically during quiet wakefulness or trying to sleep

Most individuals with RLS also have limb jerking during sleep, which are associated with sleep disruption
4. What are we doing and what can we do?

- **Biomedical research in Europe on sleep and its disturbances**

  - about **150 sleep research centres** are active in the field of **basic animal, basic human and clinical** sleep research in **30 different European Countries**

  - research on sleep is **highly interdisciplinary** involving neuroscientists, physiologists, psychologists, pharmacologists, neurologists, psychiatrists, pulmonologists, cardiologists, otolaringologists, dentists……

  - European sleep research is of an **internationally very high standard** both in clinical and basic research themes, however, in terms of coordinated power and structured funding, **we unfortunately still lag considerably behind the USA**
4. What are we doing and what can we do?

- **Biomedical research in Europe on sleep and its disturbances**

Different research and medical networks are active in Europe on specific sleep-related topics

**European Narcolepsy Network**

Currently, 23 researchers from 12 European countries are part of the network

2nd European Narcolepsy Day

18 March 2011, Ahoy Rotterdam, the Netherlands
4. What are we doing and what can we do?

Biomedical research in Europe on sleep and its disturbances

Different research and medical networks are active in Europe on specific sleep-related topics

European RLS Study Group

Created in 2001

Over 100 paying members

Yearly Meeting in Munich/Germany

Main achievements in RLS Genetics


4. What are we doing and what can we do?

- **Biomedical research in Europe on sleep and its disturbances**

Different research and medical networks are active in Europe on specific sleep-related topics

**ESADA**
The European Sleep Apnea Database

COST action B26

Multicentric sleep laboratory cohort started in 2007

Currently, 27 research centres from 17 European countries are part of the network – Data from 12000 patients have been accumulated
4. What are we doing and what can we do?

- **Biomedical research in Europe on sleep and its disturbances**

Different research and medical networks are active in Europe on specific sleep-related topics

**European Insomnia Network**

1° meeting in Freiburg, July 5 - 6, 2012
Department for Psychiatry and Psychotherapy

Currently, 24 researchers from 6 European countries are part of the network
4. What are we doing and what can we do?

- Educating young researchers to deal with sleep and sleep disorders

ESRS - EU “Marie Curie” Project
2007-2010

Training in Sleep Research and Sleep Medicine

168 young sleep researchers from 34 different countries were trained in the Program
4. What are we doing and what can we do?

- We need to enhance and empower biomedical research on sleep and its disturbances in Europe

More research should be funded and performed:

i) to better understand sleep mechanisms/functions and mechanisms underlying sleep-related pathologies

ii) to find new and more effective therapies for the treatment of sleep-related disorders

iii) to address the effects of sleep loss on health

iv) to use sleep as an effective tool to enhance performance
4. What are we doing and what can we do?

Meeting of the ESRS with Mr. Philippe Cupers, DG Research and Innovation, European Commission. Brussels, August 27th 2012

GIVE SLEEP RESEARCH A CHANCE!

The EU Framework Programme for Research and Innovation

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe’s global competitiveness. Running from 2014 to 2020 with an €80 billion budget, the EU’s new programme for research and innovation is part of the drive to create new growth and jobs in Europe.

Horizon 2020 provides major simplification through a single set of rules. It will combine all research and innovation funding currently provided through the Framework Programmes for Research and Technical Development, the innovation related activities of the Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and Technology (EIT).

The proposed support for research and innovation under Horizon 2020 will:
- Strengthen the EU's position in science with a dedicated budget of €24 598 million. This will provide a boost to top-level research in Europe, including an increase in funding of 77% for the very successful European Research Council (ERC).
- Strengthen industrial leadership in innovation €6 178 million. This includes major investment in key technologies, greater support for research infrastructures and the manufacturing skills Initiative. This is a new focus on the EU’s industrial base.
- Create new growth and jobs through €18 819 million for public private partnerships. The Innovation Union seeks to reinforce the EU’s competitive edge and overcome the lack of capital for innovation.
Thank you for your attention and support.......!!

Philippe Peigneux  
(Brussels, Belgium  
Secretary of the ESRS)

Roberto Amici  
(Bologna, Italy)  
Chair of the ESRS EU Committee