

Going to bed late has its price:

Early birds earn more than night owls

How much does it cost you if your biological clock means you prefer going to bed late and getting up late? A Danish study has the answer.

Early risers or “larks” – people who get up early, even on their days off – earn 7% more than their night-owl counterparts, who sleep in when they are off work. More precisely, for every £10.70 the early riser earns, the average late riser earns only £10.00.

This is the finding of a study which compares sleep rhythms with income, carried out by the Rockwool Foundation Research Unit in 2008/09. In a Danish Time Use and Consumption Survey, 4000 people aged between 18 and 64 (74) years completed a questionnaire on what they had been doing in the last 24 hours, including when and for how long they had slept. The information on sleep was subsequently correlated with information on their earnings.

Initially, there is a good explanation for the difference in earnings: society caters for early risers to a very high degree. The vast majority of jobs start in the morning and end in the late afternoon. Therefore, all things being equal, those who are at their best in the morning are in a job that suits their biological clock and can thus be expected to be more effective at work.

According to senior researcher Jens Bonke from the Rockwool Foundation Research Unit, the difference in earnings between early and late risers is steadily decreasing, which can possibly be ascribed to a higher degree of flexibility in everyday life.

Everything depends on sleep

The correlation between sleep and income is only one of several findings taken from the Rockwool Foundation Research Unit's



new book *Sleep – marriage, income and health*.

According to Jens Bonke, sleep is under-researched: “We know that sleep, or lack of it, has bearing on virtually everything that is important in life. It influences relationships, children’s welfare, learning ability, labour market activity and the level of health. Given that sleep has such a tremendous bearing on people’s day to day activities, it is a subject worthy of closer scrutiny”.

Morten Møller, Professor in Neuroanatomy at Copenhagen University’s Panum Institute, is one of the contributors to the book. According to him, the material from the study constitutes the first large-scale investigation into sleep that provides interesting conclusions: “Sleep is a matter of life and death for all mammals, and humans spend approximately a third of their lives asleep. If you don’t sleep, you eventually die. So it’s important that sleep is researched more.”

Contents

Only one in three sleeps eight hours

For the Danes, 31% sleep between 7.5 and 8.5 hours each night – which is the medically recommended amount of sleep – 36% sleep less and 33% sleep more than this. As many as 74% of Danes sleep between 6.5 and 9.5 hours every night. 3

An extra night's sleep every month for women

Women sleep 13 minutes longer each day than men do, on average. The average for women is 8 hours and 8 minutes, while men average 7 hours and 55 minutes. Although the difference might not seem much, it is large enough to conclude with 99.9% certainty that a person's sex plays an important role in determining the amount of sleep an individual needs. 4

Better paid jobs for the early riser

When early risers earn as much as 7% more than late risers, it is largely due a difference in the type of qualifications and the type of job each group has. If a night owl had the same qualifications and job as an early bird, the difference would be only 2%. 6

Most couples don't sleep the whole night together

It is a rare occurrence in Danish households that the man and the woman go to bed and get up at the same time. In only 8% of homes, equivalent to every twelfth home, do couples go to bed and get up at the same time on a weekday. 7

Men first out of bed

Men who are raring to go in the mornings have a higher likelihood than those who are not of maintaining a long-lasting relationship. If a couple is made up of an early and a late riser, the relationship will be the most stable of all chronotype combinations, providing it is the man who is the early bird. 9

The least sleep for Danish parents

Danish fathers who live with a partner and who have children living at home have, on average, a shorter night's sleep than any other group in Europe. Danish mothers whose children live at home sleep more than their spouses but less than any other group of women in Europe. 10

A link between health problems and sleeping long

People who think of themselves as having a very poor level of health sleep longer than those who think their health is reasonably good. Among those viewing themselves as unhealthy, men sleep for 45 minutes more and women for 30 minutes more than their healthier counterparts. 11



Søvn – ægteskab, indkomst og helbred with an English Summary
By Jens Bonke

Gyldendal, April 2011, 93 pages, DKK 95. ISBN 978-87-02-11385-6

Only one in three sleeps eight hours

No more than one in three Danes sleeps the recommended eight hours per night. The rest of the population is divided equally between those who sleep either less or more.

These are the findings of an analysis of the Danes' sleep rhythms conducted by the Rockwool Foundation's Research Unit based on figures collected in the Danish Time Use and Consumption Survey from 2008/2009. In this survey, 4000 people aged between 18 and 64 years recorded their activities over a 24-hour period, including when and how much they slept.

The study shows that 31% sleep between 7.5 and 8.5 hours each night – which is the medically recommended amount of sleep – 36% sleep less and 33% sleep more than this. As many as 74% of Danes sleep between 6.5 and 9.5 hours every night.

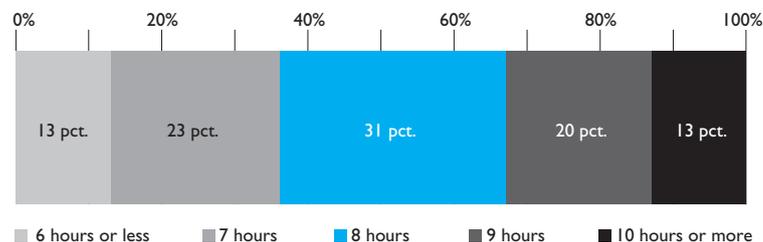
An unsurprising finding was that people sleep less on weekdays and find it more difficult to get out of bed at the weekends. On a normal weekday, the average Dane sleeps for 7 hours and 49 minutes. Saturdays show a marginal increase in the amount of sleep, with people sleeping 8 hours, while Sunday seems to be the big day for sleeping in: no less than 9 hours and 7 minutes' sleep is the average amount for this day.

One in five has little weekday sleep

A weekly average is one thing; quite another, however, is how the sleep is distributed over the weekdays and the weekend. As mentioned earlier, a fairly large part of the population – one in five (or 21%) – gets by on less than six and half hours' sleep on weekdays. Nevertheless, 14% of the population sleep for nine and half hours or more.

The proportion of people sleeping shorter or longer periods changes remarkably during the weekend. This is particularly true for Sunday where 9% (almost 1 in 10) sleep for less than six and a half hours and 37% sleep for nine and a half hours or more.

FIGURE 1
Danes' average amount of sleep 2008/09



Each group is plus/minus ½ hour. Accordingly, people in the 8-hour group sleep between 7.5 and 8.5 hours. For those in the group of 6 hours or less, in reality it is 6.5 hours or less. Likewise for people in the group of 10 hours or more, the amount is 9.5 hours and upwards.

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

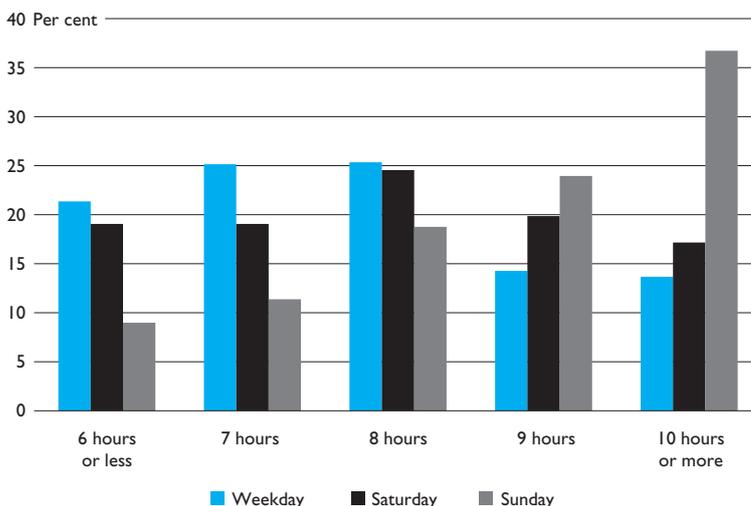
Only 31% of Danes get their recommended eight hours' sleep. As many as 13% sleep for six hours or less, while another 13% sleep for ten hours or more.

Bedtime just after 11pm

Whether a person sleeps for few or many hours is largely decided in the morning. It is a matter of getting up rather than going to bed.

The typical Dane goes to bed just after 11pm. This is true for both summer and

FIGURE 2
Danes' amount of sleep on weekdays and at the weekends 2008/09



Each group is plus/minus ½ hour. Accordingly, people in the 8-hour group sleep between 7.5 and 8.5 hours. For those in the group of 6 hours or less, in reality it is 6.5 hours or less. Likewise for people in the group of 10 hours or more, the amount is 9.5 hours and upwards.

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

Approximately 21% of Danes sleep for less than six and a half hours on a weekday. In contrast, 37% sleep for nine and a half hours or more on Sundays.

winter, and weekend and weekday. On a weekday the time is 11.10 pm; during the weekend it extends to 11.20 pm.

However, there is a relatively big difference in when people get up on a weekday and a weekend day. From Monday to Friday, people typically get up at 6.50 am but this is postponed until 8.00 am on a Saturday or Sunday.

The 'typical Dane' in this context means the median. When a typical Dane gets up at 8.00 am it means that half the population has already risen and the other half is still sleeping.

Winter hibernation

Sleep is not evenly distributed throughout the year. Many people will recognise the feeling of being extra tired during the winter months when the days are short, cold and dark. This is supported by the study findings showing that winter makes staying in bed more attractive for some people.

In the summer, 25% sleep for more than eight and a half hours on weekdays. In the winter, this figure rises to 46% of the population.

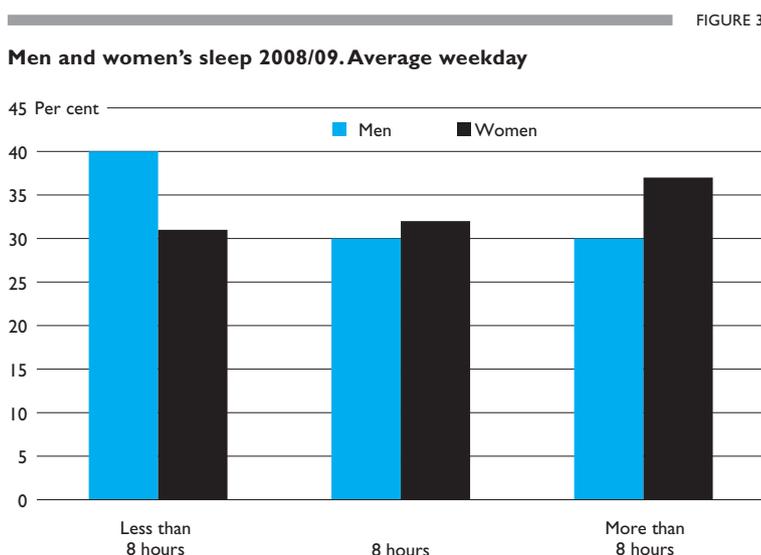
On average, people sleep approximately 15 minutes longer in the winter than in the summer. This is true for the whole week, which means that almost two hours of extra sleep are clocked up each week during the cold months.

Larks' or owls' habits during the whole week

Comparing Danes' weekday sleep with their weekend sleep shows a connection. In general, those who sleep only a short time in the week also sleep relatively little at the weekends and, correspondingly, those who sleep longer during the week also sleep longer at the weekend.

Medical studies have shown that a sleep deficit from the weekdays that is not made up at the weekend can have serious consequences for learning abilities, memory and overall quality of life.

An extra night's sleep every month for women



SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

In general, women sleep more than men. A relatively larger proportion of women sleep more than eight hours, whereas a larger proportion of men sleep less than eight hours.

Women sleep 13 minutes longer each day than men do, on average. The average for women is 8 hours and 8 minutes, while men average 7 hours and 55 minutes.

Although the difference might not seem much, it is large enough to conclude with 99.9% certainty that a person's sex plays an important role in determining the amount of sleep an individual needs. Quite simply, women sleep more than men.

When added up, those daily 13 minutes mean that, compared with men, women have an extra night's sleep every month.

The number of women and men who sleep eight hours per day is virtually the same. However, the sexes are distributed differently regarding sleeping less or more than eight hours. Men predominate in the group of those sleeping less – 40% of men and 31% of women – while women predominate in the group who sleeps more. Here, the figures are 37% of women and 30% of men.

Less sleep for men in a relationship

Being in a relationship also influences the length of sleep, but only for the man.

Here, there is a relatively large difference depending on whether men are alone in the bedroom or whether a partner is present. A single man sleeps for 16 minutes more than a man who sleeps with a female partner.

The man without a partner thus gets 8 hours and 5 minutes sleep every night, while the man in a relationship gets 7 hours and 49 minutes.

Such variation in the need for sleep is not as pronounced among women, irrespective of them being in a relationship or not. Women who are single sleep four minutes more than women in a relationship. This difference is so small that it is statistically uncertain whether it exists at all.

Education, work and sleep

The amount of sleep we get depends on our level of education and the extent of our contribution to the job market.

For men, education tends to be the governing factor. In general, men with vocational or higher education sleep less than other men. Men with only secondary-school education sleep approximately 26 minutes more than those with a long tertiary education.

Among men, there is no correlation between the number of hours spent working and the number of hours spent sleeping. Irrespective of how many hours men work during the day, the time they spend asleep seemingly remains the same.

The opposite is seen among women: there is a definite correlation between the number of working hours and the length of women's sleep. Women who work the most, sleep the least. Women who work more than 40 hours per week sleep 13 minutes less per night than those who work fewer than 37 hours per week. If the number of working hours exceeds 44 per week, the sleeping period is reduced a further 10 minutes. Men with an equivalent work period do not sleep any less than other men.

TABLE 1

Marital status and sleep 2008/09. Average weekday

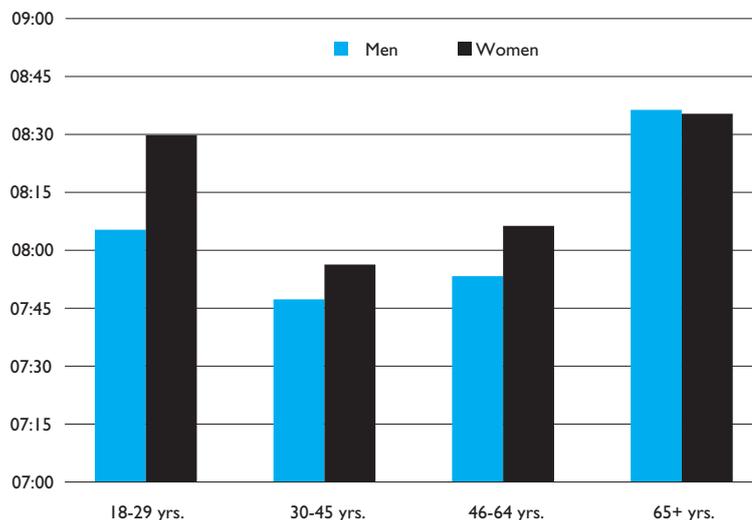
| | Women | Men |
|-------------------|--------------------|--------------------|
| Single | 8 hours 11 minutes | 8 hours 5 minutes |
| In a relationship | 8 hours 7 minutes | 7 hours 49 minutes |

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

The figures for education, working hours and sleep reveal nothing about the causes behind the correlations. For example, it could be that men with an increased need for sleep tend not to embark on a longer education. Conversely, it is also possible that completing a long further education leads to a reduced sleep requirement. Likewise for the working hours: is it the number of hours spent working that influences the sleep requirement or does an increased sleep requirement affect the time spent working?

FIGURE 4

Amount of sleep distributed over age groups 2008/09. Average weekday



SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

Middle-aged men and women get the least amount of sleep; the elderly and the young get the most. Among men, the elderly sleep a lot more than the young. Such a difference is not found among women. Here, young women sleep just as much as elderly women do.

Better paid jobs for the early riser

When early risers earn more than late risers, it is largely due a difference in the type of qualifications and the type of job each group has.

This is the result of an analysis of the difference in income recorded between people with different chronotypes. As mentioned on the front page, the difference in 2008/2009 was seven per cent.

There are two possible, initial explanations for this disparity. The following example using the lark and the owl – the early riser and the late riser – serves as an illustration.

The lark and owl are colleagues, they have the same qualifications, but the lark gets a higher salary than the owl because he or she is a more effective worker. They both get to work at the same time in the morning – way too early for the owl’s liking.

Mornings see the larks bounding through the doors into the workplace and starting work before even having taken off their coats. Meanwhile the owls, who were at their best the night before, are finding it more than difficult to keep their eyes open. They struggle through the morning, their thoughts wander and everything takes longer.

This situation leaves the employer in no doubt about who should be paid more.

Since the pay is a reflection of productivity, the lark benefits from being the more productive of the two; accordingly, the lark is paid more than the owl.

The second possible explanation is that the lark and the owl are not colleagues. Each has chosen a direction in life that has dictated what qualifications and what job they should have. The lark goes for both an education and a job that is aligned with the general rhythm of society, that is, the rhythm where most significant activity starts in the morning. In contrast, the owl follows his or her own biological rhythm rather than society’s. But alas for the owl, that choice is not worth much in a society that values the habits of larks.

Different choices

It is possible to analyse which one is the correct explanation.

When the two groups are compared, the figures can be adjusted, making it possible to compare the groups as if they had the same qualifications and type of job.

Such an adjustment shows that the second explanation certainly holds true: larks have qualifications and jobs that generate higher incomes than those of owls. If the owl had decided to go for the same qualifications and job as the lark, the difference in earnings would have been only two per cent.

So, had they been colleagues, they would have had almost the same salary. A difference of 2% is so small that it is statistically insignificant.

Table 2 shows how a similar adjustment of figures going back to 2001 caused the difference in earnings to decrease from thirteen to seven per cent.

TABLE 2

Larks’ salary advantage

| | Unadjusted | Adjusted for qualifications and job |
|---------|------------|-------------------------------------|
| 2008/09 | 7 pct. | 2 pct. |
| 2001 | 13 pct. | 7 pct. |

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

Most couples don't sleep the whole night together

In 2 out of 10 Danish couples, the woman's need for sleep is so much greater than that of the man that she sleeps for at least two hours more than him night after night, every day of the week.

The opposite – that he sleeps significantly longer than her – tends not to be the case in Danish homes. It happens in only 1 out of 10 couples.

The relation between the man and the woman's sleep was revealed in an analysis of 1754 couples' own reports of how much they slept throughout the week.

The overall picture of the woman getting more sleep than the man is not entirely unequivocal, but it dominates. It holds true for 42% of couples. Mostly, the women sleep up to two hours longer than the men, but as mentioned before, there is a significant share where the difference is even greater. More precisely, the woman will sleep for at least three hours longer than the man in 7% of couples.

The reverse situation – where the man sleeps longer than the woman – is true for 27% of couples. In 2% of couples, the man sleeps three hours and upwards more than the woman does.

In 31% of couples the partners sleep for roughly the same amount of time.

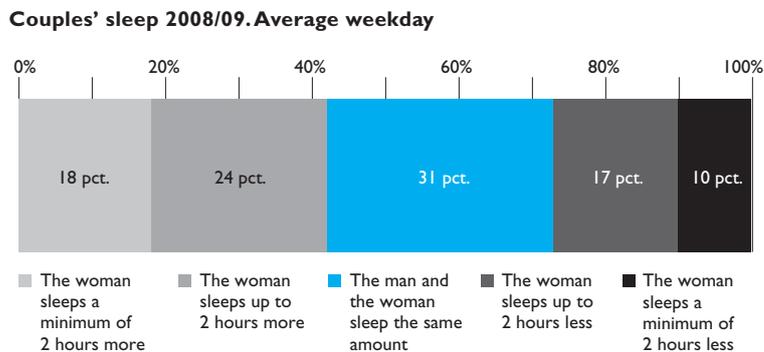
Whether partners go to bed or get up at the same time plays a prominent role in the number of couples whose amount of sleep varies. In Danish homes it is seldom that the man and the woman go to bed and get up at the same time. On a weekday, it happens in only 1 in 12 homes, equivalent to 8% of households.

For the couples themselves there are significant differences in who goes to bed and gets up first. For those who do not go to bed at the same time, the general picture is of the man being last to go to bed and first to get up.

Young children steal fathers' sleep

A study has investigated how the arrival of an infant in the family affects the parents. Surprisingly, perhaps, the findings show that it is the father's sleep that is particularly affected by new arrivals. Fathers of newborns and children up to the

FIGURE 5



SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

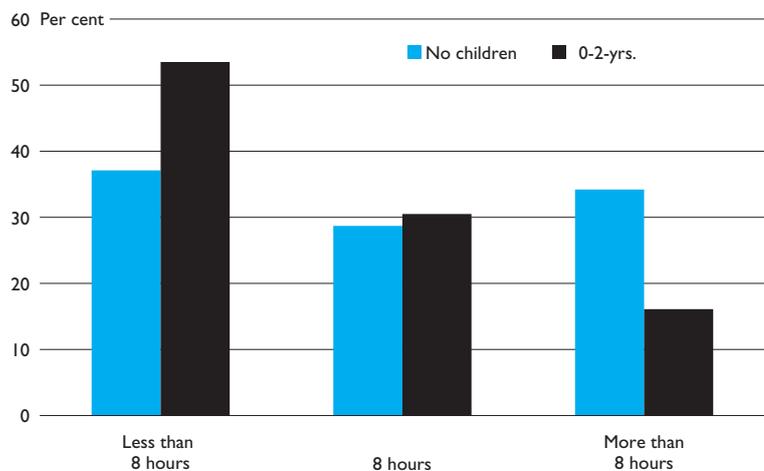
In 42% of couples the woman sleeps more than the man, while in 27% the man sleeps more. In 31% of couples both partners spend the same amount of time asleep.

age of two years forfeit an average of 36 minutes sleep.

Figure 6 shows that fathers of infants have a considerable change in their sleep rhythms compared with those without young children. The chart shows that 53% of men with children aged 0 to 2 years sleep less than 8 hours per night, while only 37% of those without young children sleep less than 8 hours.

FIGURE 6

The length of sleep among fathers with infants and other men 2008/09. Average weekday

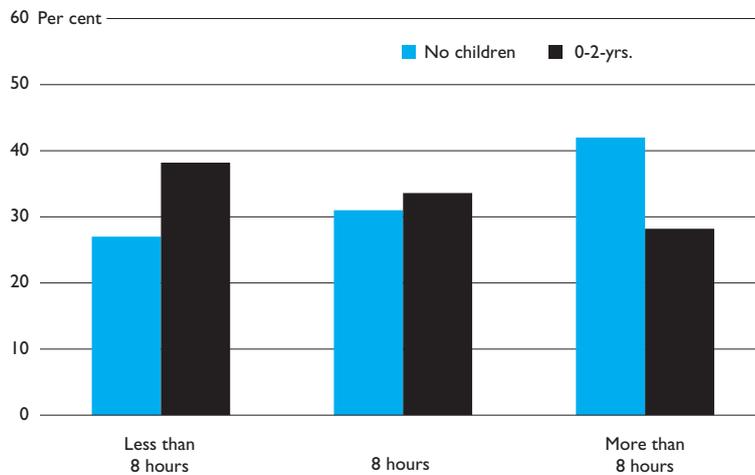


SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

Becoming a father has its price. Among fathers, 53% get less than 8 hours' sleep.

FIGURE 7

The amount of sleep among mothers with infants and other women 2008/09. Average weekday



SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

Among women without children, 42% sleep for more than 8 hours, while this applies to only 28% of mothers with infants.

The picture is not quite the same for women. Mothers with infants sleep 18 minutes less than other women do in a 24-hour period. The difference between mothers and other women is not as pronounced as that between fathers and other men.

Children’s and adults’ sleep is related

Besides revealing the sleep rhythms of adults, the study also looked into how much children sleep. All children participating in the study were aged between 7 and 17 years.

Not surprisingly, the study showed that younger children sleep more than older children: 7 to 11-year-olds sleep for approximately 10 hours on weekdays and at the weekend, whereas 12 to 17-year-olds sleep between 8 and 9 hours on weekdays and approximately 10 hours at the weekend.

The study also showed a clear correlation between the parents’ and the children’s sleep rhythms: the more the parents sleep, the more the children sleep. All things considered, it is only at the weekend that the sleep rhythm of the mother matches that of her children. However, children with a working mother sleep less both on weekdays and at the weekends compared with those whose mother is not in active employment.

Early birds, night owls and the extremes

While the terms early bird and night owl are widely known, they can be extended to cover the less known “extreme early birds” and “extreme night owls”.

An early bird is happiest in the morning, getting up early and going to bed early. Conversely, a night owl prefers the night and likes to go to bed late and get up late. An “extreme” early bird is a short sleeper, going to bed late but rising early; an “extreme” night owl is a long sleeper, going to bed early and getting up late.

In this study, the four types were determined using the following method. First the whole cohort was divided in half: one half who went to bed early and the other half who went to bed late. In the same manner, the morning people were divided into an early and a late half. Depending on which half a person belonged to,

they were labeled accordingly. Likewise for the evening people.

The result can be seen in Table 3. Additionally, the information was taken from reports of weekend sleep because the weekend tends to be the time where people are most likely to be governed by their inner clock.

TABLE 3

Distribution of people according to category

| | Early to bed | Late to bed |
|--------------|--|--|
| Early risers | Early birds 39% | Extreme early birds (short sleepers) 29% |
| Late risers | Extreme night owls (long sleepers) 14% | Night owls 18% |

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

Men first out of bed

Men who are raring to go in the mornings have a higher likelihood than those who are not of maintaining a long-lasting relationship.

This is the finding of a study into sleep rhythms and the robustness of a relationship.

A relationship tends to be more stable if both partners are early risers than if both are night owls. The study showed that in couples where the man and the woman were both early risers, relationships had lasted an average of 21.2 years, whereas where both were late-risers, the figure was 18.8 years.

The importance of men being the first out of bed can be demonstrated in mixed couples, where one is an early riser and the other a late riser. In the mixed couples where the man was the early riser, relationships had lasted an average of 21.5 years, but when the woman was the first up, relationships had lasted an average of only 15.5 years.

The same picture emerges with 'extreme' couples where a person who goes to bed late and rises early lives with a person who goes to bed early and rises late. In a couple where it is the man who stays up late and gets up early, the relationship lasts an average of 23.4 years, but when the opposite is the case, that is, with the woman up and about while the man is sleeping, the relationship lasts 18.1 years on average.

Like seeks like

The study also shows that in many couples both partners have the same sleep rhythm.

A person whose biological clock favours going to bed early and getting up

TABLE 4

Early birds and night owls: how couples pair up 2008/09

| | Early-riser men | Late-riser men |
|-------------------|-----------------|----------------|
| Early-riser women | 65 pct. | 8 pct. |
| Late-riser women | 9 pct. | 18 pct. |

The figures are for combinations of early and late risers. Those with 'extreme' sleep rhythms are not included

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

The table shows the combination of couples with different sleep rhythms. Clearly, early-riser couples dominate, with two out of three relationships.

early has a marked tendency to pair up with someone whose habits are similar.

As can be seen in Table 4, the early birds get together to form a couple in 65% of all relationships involving both early and late risers (here, the 'extremes' are not included). The same tendency, albeit not as pronounced, can be seen for night-owl couples, who comprise 18% of relationships involving those with mixed sleep rhythms. Couples whose biological clocks are synchronised thus make up 83% of these relationships, whereas those whose inner clocks are not aligned total only 17% at most.

This study does not explain why this is so. It might be an illustration of like seeking like – that early risers pair up with other early risers. However, it could also be that couples influence one another. For example, a pair starting out as a mixed couple could adjust so they eventually come to follow almost the same daily rhythm, which could add weight to the idea that couples grow more alike over time.

The least sleep for Danish parents

Danish fathers who live with a partner and who have children living at home have, on average, a shorter night's sleep than any other group in Europe.

This conclusion was reached by comparing the findings from a number of European sleep studies. Danish fathers have an average of 7 hours and 40 minutes' sleep per night – the lowest amount of sleep recorded in any country where sleep studies have been conducted.

Table 5 shows that the amount of sleep Danish fathers get compares best to that of Norwegian and Swedish fathers, who get two and eight minutes more sleep, respectively, than the Danes do

The same picture emerges for Danish mothers whose children are still living at home. An average night's sleep of 7 hours and 58 minutes provides them with more sleep than their spouses but with less than any other group of women in Europe.

It is the Bulgarian fathers and the French mothers who have the longest night's sleep. Bulgarian fathers sleep for 8 hours and 40 minutes, while French mothers clock up 8 hours and 44 minutes.

For couples with no children the tendencies remain the same, namely that Danish men and women – along with those from Norway and Sweden – are among those who spend the least time sleeping when compared with others.

At the opposite end of the scale, Bulgarian men without children take first prize with their average night's sleep of 9 hours and 5 minutes. No other group sleeps this long. For women, the prize goes to the French: 8 hours and 51 minutes, on average.

The more wealth, the less sleep

The comparison across borders shows that there is a link between the overall wealth of a society and the amount of sleep the population has.

This link is negative, in the sense that the wealthier a country is, the less sleep the population has. This is true for countries such as Denmark, Norway and Sweden. The reverse, i.e., the poorest countries sleep more than more affluent countries, is the case for people from Bulgaria, Poland, Estonia, Latvia and Lithuania.

A hastily drawn conclusion would be that people get rich by getting up early and being effective – the early bird catches the worm. Conversely, those who sleep a lot will never become rich as wealth does not accumulate by staying in bed and being lazy.

However, this is not the case.

When looking at working hours instead of wealth, a completely different picture emerges. It transpires that there is no connection between the average number of working hours and the average amount of sleep. The Nordic countries have a relatively short working day and short periods of sleep, whereas countries such as Bulgaria, Latvia and Lithuania have long working days and a correspondingly long period of sleep.

This indicates that the negative correlation between wealth and sleep does not depend on whether a person is lazy or not but on the overall level of productivity in the country. The higher the level of productivity, the fewer hours a person needs sleeping.

TABLE 5

European parents' daily amount of sleep 1998–2005

| | Fathers | Mothers |
|----------|---------|---------|
| Denmark | 7.40 | 7.58 |
| Norway | 7.42 | 8.02 |
| Sweden | 7.48 | 8.07 |
| Finland | 8.09 | 8.23 |
| Germany | 7.52 | 8.10 |
| France | 8.28 | 8.44 |
| Bulgaria | 8.40 | 8.41 |

Excerpt from the book *Sleep – marriage, earnings and health* including figures for couples without children and also for the following countries: Estonia, Latvia, Lithuania, Belgium, Poland, Slovenia, England, Italy and Spain.

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

A link between health problems and sleeping long

People who think of themselves as having a very poor level of health sleep longer than those who think their health is reasonably good. Among those viewing themselves as unhealthy, men sleep for 45 minutes more and women for 30 minutes more than their healthier counterparts.

In contrast, women who regard themselves as very healthy sleep approximately 20 minutes less than woman who think their health is only fair. The same does not apply for men.

These findings come from an analysis of the correlation between sleep, health and living habits.

While the analysis documents that there is a correlation between the level of health and sleep, the same cannot be said for smoking and alcohol. Smokers sleep just as much as non-smokers; and drinkers sleep just as much as non-drinkers. Irrespective of the amount of alcohol a person drinks – a low, average or high consumption – there is nothing in the study to show that it has a bearing on the time they spend asleep.

Weight and sleep

Another finding is the connection between overweight and sleep duration. Men who are overweight or obese sleep less than men of average weight. The opposite is true for women: obese women sleep 12 minutes more than normal weight women.

Underweight also has a bearing on the length of sleep. Women whose weight is below average sleep almost 30 minutes more than women of normal weight.

Exercise is another factor influencing sleep, but its influence differs between

TABLE 6

Correlation between health and sleep

| | Men | Women |
|--|------------|------------|
| Very good health | – | Sleep less |
| Very poor health | Sleep more | Sleep more |
| Smoker | – | – |
| Alcohol consumption – low, average or high | – | – |
| Overweight | Sleep less | – |
| Obese | Sleep less | Sleep more |
| Underweight | – | Sleep more |
| Exercises minimum 3.5 hours per week | Sleep more | Sleep less |
| Frequently feels stressed | Sleep less | Sleep more |

SOURCE: THE ROCKWOOL FOUNDATION RESEARCH UNIT

The correlation between health and sleep differs between men and women. For example, obese men sleep less and obese women more than other men and women.

men and women. The Danish Health Authorities recommend at least 30 minutes' daily exercise, amounting to 3.5 hours per week. Men who follow the recommendations sleep significantly longer than men who do not exercise. For women, it is not the same: those who exercise have markedly less sleep than those who don't exercise.

Stress and sleep are also connected. Being stressed affects both men and women's sleep. But again, the sexes differ: men who frequently feel stressed sleep less than other men; women who are frequently stressed sleep more than their calmer counterparts.

The Rockwool Foundation Research Unit Newsletter (ISSN 1396-1217) is published to inform the public of the results of ongoing research carried out by the Research Unit, and also includes items of general news interest. The Newsletter is not copyrighted and may be quoted or reproduced freely with an appropriate attribution.

Editors responsible under the Press Law: Torben Tranæs (Research Director) and Bent Jensen (Head of Communications). The other members of the staff of the Research Unit are: Researcher Lars Højsgaard Andersen, Senior Researcher Signe Hald Andersen, Senior Researcher Jens Bonke, Research Assistant Johannes K. Clausen, Researcher Peter Fallesen, Research Assistant Kristoffer Glavind, Researcher Jane Greve, Research Assistant Cathrine Søgaard Hansen, Researcher Camilla Hvidtfeldt, Researcher Rasmus Landersø, Researcher Claus Larsen, Evaluation Director Helene Bie Lilleør, Research Assistant Bodil Nielsen, Research Assistant Maja Appel Nielsen, Research Assistant Helle Sophie Houlberg Petersen, Senior Researcher Marie Louise Schultz-Nielsen, Secretary Mai-britt Sejberg, Researcher Peer Skov and Research Assistant Helene Regitze Lund Wandsøe.

Any practical questions concerning the Newsletter should be addressed to Mai-britt Sejberg, tel. +45 33 34 48 00, fax +45 33 34 48 99. Address: Sølvgade 10, 2nd floor, DK-1307 Copenhagen K. E-mail: forskningsenheden@rff.dk. Internet: www.rff.dk.