

Obstructive Sleep Apnoea

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Obstructive Sleep Apnoea (Syndrome)

● Common Condition

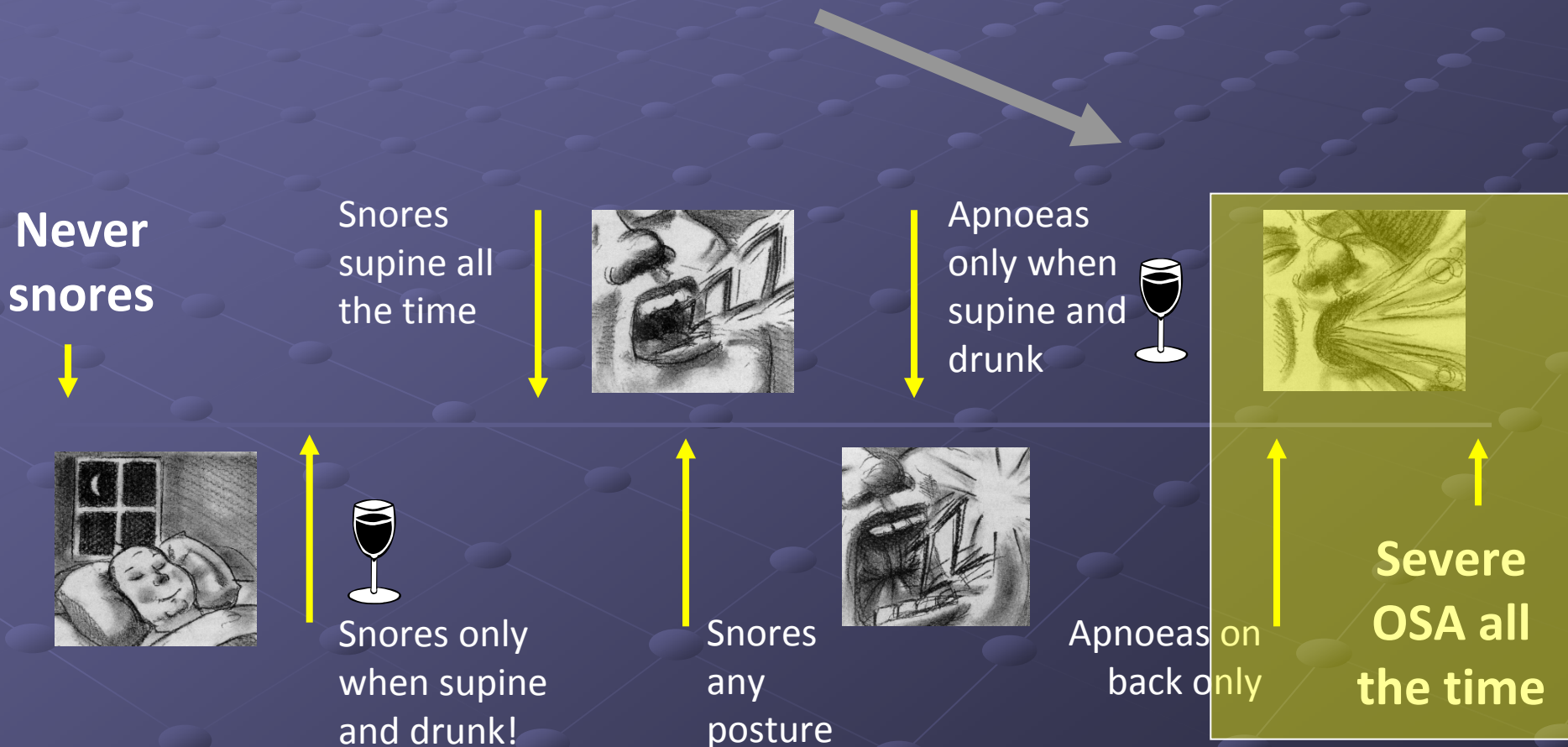
- 3-7% of adult males, 2-5% females
- Prevalence expected to rise
- Majority undiagnosed
- Epidemic!

● Associated with common medical conditions:

- Obesity (...but 1 in 3 have normal BMI)
- Hypertension
- Metabolic syndrome / diabetes
- Cardiovascular disease (IHD, CCF)
- Stroke

Snoring and OSA are part of a continuum

30% of snorers have significant obstructive sleep apnoea



Obstructive Sleep Apnoea

- Repetitive collapse of upper airway during sleep that leads to markedly reduced (hypopnoea) or absent (apnoea) airflow
- Arousals from sleep/sleep fragmentation
- Hypoxaemia
- Large intrathoracic pressure swings
- Surges in sympathetic nervous system activity, blood pressure and heart rate
- OSAS requires presence of daytime tiredness

Table 1. Symptoms and signs of obstructive sleep apnoea

Night-time symptom

Witnessed apnoeas
Snoring
Nocturnal choking
Disturbed unrefreshing sleep
Thirst during the night
Nocturnal diuresis, enuresis
Nocturnal sweating
Nasal congestion
Excessive salivation
Gastro-oesophageal reflux
Impotence

Daytime symptom

Excessive daytime sleepiness
Fatigue
Morning dry mouth
Morning headache
Difficulty concentrating
Irritability, mood changes

Physical Factors and increased risk

Table 2. Physical characteristics associated with an increased risk factor for obstructive sleep apnoea in adults

Male

Post-menopausal female

Obesity, particularly central obesity

Upper airway anatomical abnormalities: retrognathia, micrognathia, midface or mandibular hypoplasia, macroglossia, hypertrophied tonsils, inferior displacement of the hyoid, and increased uvula size

Arterial hypertension: particularly drug-resistant hypertension and nocturnal nondipping on 24-h blood pressure measurement

Cardiovascular diseases: ischaemic heart disease, stroke or heart failure

Metabolic syndrome with or without type 2 diabetes

Epworth Sleepiness Scale

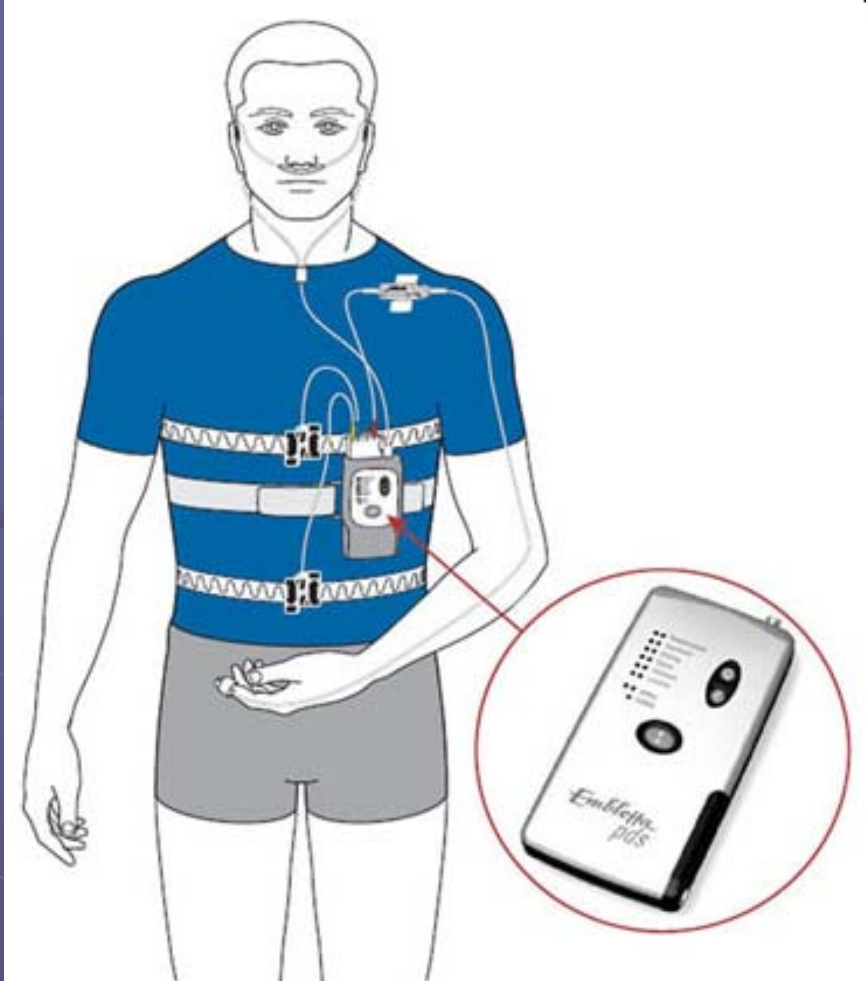
Situation	Chance of dozing (0–3)			
Sitting and reading	0	1	2	3
Watching television	0	1	2	3
Sitting inactive in a public place—for example, a theater or meeting	0	1	2	3
As a passenger in a car for an hour without a break	0	1	2	3
Lying down to rest in the afternoon	0	1	2	3
Sitting and talking to someone	0	1	2	3
Sitting quietly after lunch (when you've had no alcohol)	0	1	2	3
In a car, while stopped in traffic	0	1	2	3
Total Score	<input type="text"/>			

0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing

Clinical Diagnosis

- Patient history and examination: Identification of OSA with 80% sensitivity but v low specificity 50%
- Diagnosis requires above + appropriate sleep study
- Be wary of overnight oximetry only, non-comprehensive service

Portable Monitoring



- Airflow, thoraco-abdominal movements, heart rate, oxygen saturation, body posture, snoring

Definitions

● Apnoea

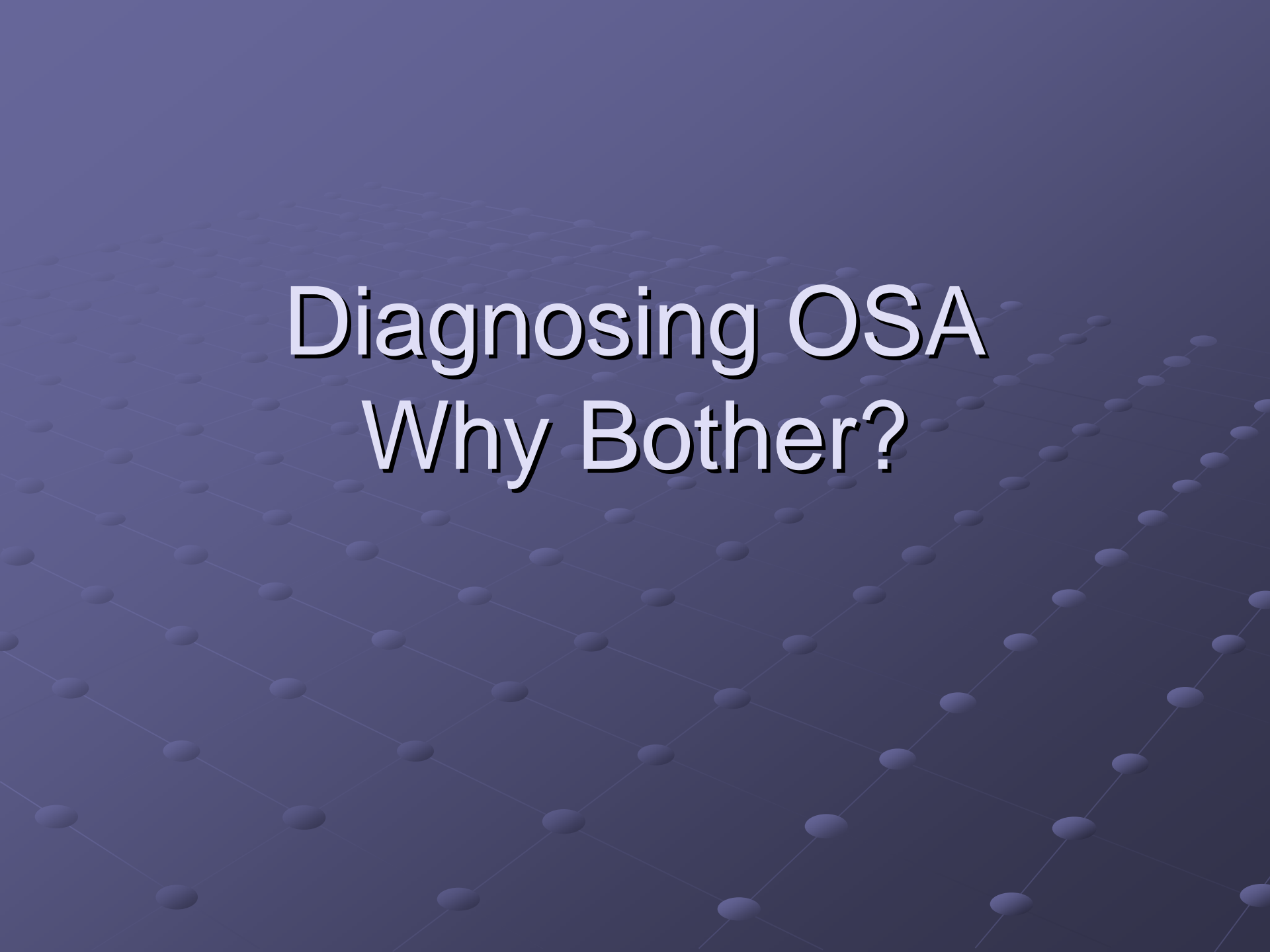
- 10 second breathing pause

● Hypopnoea

- 10 second event when ventilation is reduced by at least 50% from baseline

● Severity of OSA

- Mild: AHI 5-14/hr
- Moderate: AHI 15-30/hr
- Severe: AHI >30/hr



Diagnosing OSA Why Bother?

DANGEROUS DRIVING: Defendant jailed after admitting falling asleep at the wheel on way back from work

Driver 'dozed off' before crash that killed friend

A FATHER who killed a friend when he fell asleep driving home from work has been jailed for 18 months.

James Bradfield died after he was thrown out of the Transit van when it struck another vehicle on the Thanet Way in October last year.

David Achurch, 31, of Franklin Road, Canterbury, wept as he heard how his friend's partner, Rebecca Parkes, was pregnant at the time of the accident. The child was born three months later.

Miss Parkes sat with family and friends to hear the case at Canterbury Crown Court.

Judge Anthony Webb, in rejecting a plea to suspend the prison sentence, said: "Human life cannot be restored. Its loss cannot be measured by the length of a prison sentence. No sentence can reconcile the family of the deceased to their loss and nor will it cure their anguish."

Prosecutor Sandra Hendry told how London Underground worker Achurch and four friends, including Mr Bradfield, had been working their first night shift of the week and were returning to Herne Bay in the early hours.

Mr Bradfield was in the front, sitting

No sentence can reconcile the family of the deceased to their loss and nor will it cure their anguish

closest to the door. None of the passengers was wearing seat belts.

Ms Hendry said that shortly after leaving London, the passengers all fell asleep as Achurch drove home.

At about 5.30am Achurch's vehicle struck the rear of another van travelling in the same direction. His vehicle veered to the nearside, slid broadside up an embankment and rolled over.

The court heard that Mr Bradfield was thrown out of the window and crushed under the van, killing him instantly. Another passenger had severe head injuries and the two rear seat passengers suffered back and shoulder injuries.

Achurch was seen near the scene crying and saying that he killed his friend, said Ms Hendry.

PC Jemma Baker told the court how Achurch told her: "It's my fault. I killed James. I fell asleep."

Achurch later told a second police officer: "I was tired before the accident. I opened the window and had a fag. I must have dozed off before hitting the other van. I feel so sorry."

Ms Hendry said that Achurch, who admitted causing death by driving dangerously, had not slept for 20 hours prior to the accident and had no memory of seeing the other van prior to the collision. He had no previous convictions and had a clean licence.

James Lachkovic, defending, said: "There are two families in this court, both are going to, and will continue to, suffer the effects of this tragic accident."

He added that Achurch had suffered psychological injuries, including depression and flashbacks after the accident.

"He feels clear and genuine shock and remorse," he said.

Mr Lachkovic added that one of the hardest tasks Achurch had to do was tell his own son that he was unlikely to see him for some time.

"He accepts the guilt he feels that James's son is going to grow up without a father," he added.

The judge, in banning Achurch from driving for two years, told him that because he had driven after not sleeping for 20 hours his behaviour was "highly culpable".



James Bradfield

Mother's shock at prison term

THE mother of jailed driver David Achurch says that she had "hoped against hope" he would be spared a prison sen-

one down and driven off - and they seem to get away with it.

"Of course, I am very sad for James's family and their tragic loss but I was

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OSA and Driving

- 20% of road accidents on A-roads / motorways are due to sleepiness (high speeds, high mortality rate)
- OSA increases RTA rates by 1.3 – 12-fold
- Following diagnosis, OSA patients must be told verbally and in writing to inform the DVLA.

OSA and Systemic Disease

● Cross-sectional studies show

- Increased risk of hypertension, CHF, cerebrovascular disease, insulin resistance

● Prospective studies show

- Increased cardiovascular mortality/morbidity
- Increased risk of developing hypertension
- Probable increased risk of developing diabetes

OSA is easily treated!

- CPAP improves subjective and objective sleepiness, cognitive function, mood, quality of life measures, RTA (83% reduction)
- £1688 / QALY
- CPAP reduces blood pressure
- CPAP: May reduce MI, CVA, Diabetes. Current RCTs.
- Weight loss, sleep hygiene, reduce alcohol / caffeine, smoking cessation, regular exercise

Continuous Positive Airways Pressure

- CPAP opens airway pneumatically via delivery of constant positive pressure
- Splint for the upper airways
- Symptomatic not curative treatment
- Lifelong support



NICE 2008

- CPAP recommended for moderate or severe OSAHS
- CPAP recommended for mild OSAHS if symptoms affect quality of life and daily activities, and conservative measures inappropriate or unsuccessful
- Diagnosis and treatment should be carried out in specialist centre with appropriate trained medical and support staff

Sleep Service at Harefield

- 6 consultants
- Specialist technicians and support staff
- 1255 sleep studies / year
- 1000 new patients / year put on CPAP in the Trust
- 8000 CPAP patients followed up in the Trust

Mr NB, Age 55

Excessive daytime somnolence

Fell asleep in business meeting

Fell asleep in theatre

Had a bed built into his vehicle

Voluntary increase in caffeinated drinks

Seemingly irrational decisions at work

Symptoms coincided with increasing obesity

1802



1814



Napoleon Bonaparte

- Excessive daytime somnolence, e.g.
 - Fell asleep in front of generals (*Elchingen 1805*)
 - Woken by explosion of bridge (*Leipzig 1813*)
 - Bed noted in carriage during the 'hundred days' (*Charlet*)
- 'instead of a glass of lemonade its now a glass of coffee'-
Empress Josephine 1812
- 'Against the principles on which he made his reputation he made a frontal attack'-*Chardigny on the Moscow campaign*
- Physical examination (from busts and portraits)~short neck with retrognathia

... and finally

POLICE are hunting for a woman who vanished from her home because she could not stand her partner's snoring.

Caroline Pettey has not been seen since she left the couple's Surrey home three days ago and her partner Barry Grovey believes his snoring has driven her out.

'It's all my fault,' he said. 'I've been snoring a lot recently and she has been having many sleepless nights because of me. She was suffering from sleep deprivation and had become depressed because of it.' He is begging her to come home and said he was willing to get professional help to overcome his problem.

'MEIRO' 15. XI. 00

Summary

- OSA is extremely common but under-diagnosed. 30% of all snorers.
- Epidemic
- Serious medical and social consequences
- Very easily treated and cost-effective
- High risk groups: Obese, Hypertension, cardiovascular disease, Diabetes, Stroke