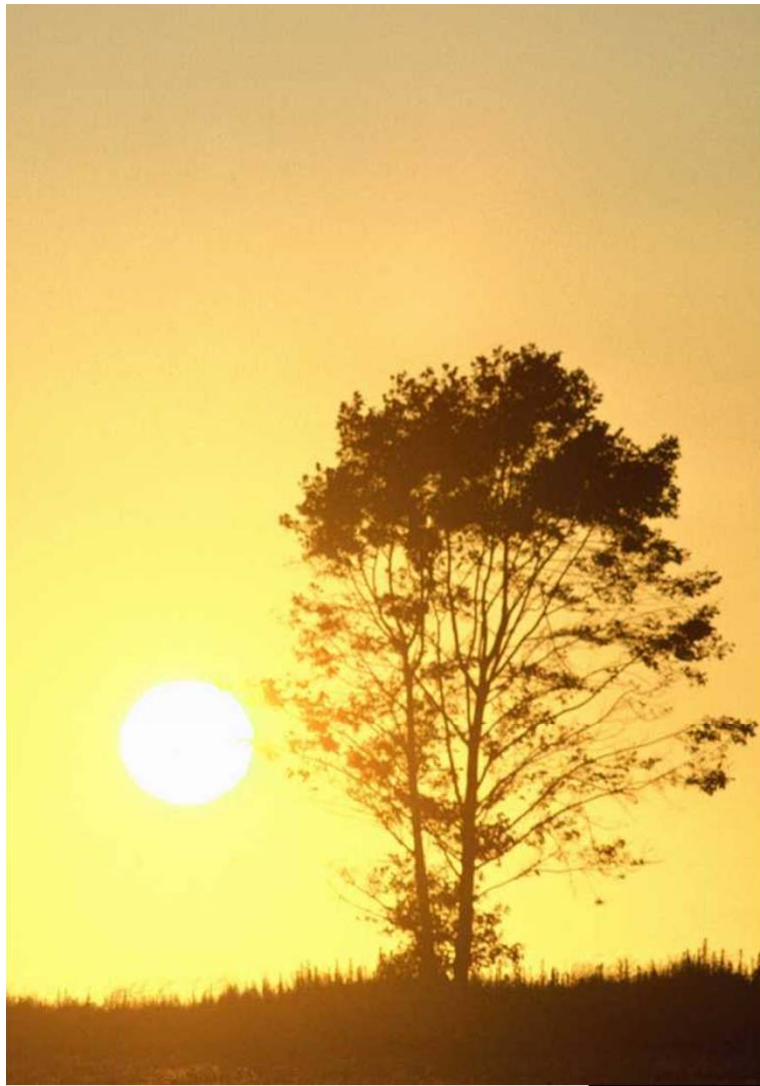




Canviem els horaris i millorem la nostra salut

Dra. Trinitat Cambras
Departament de Bioquímica i Fisiologia
Facultat de Farmàcia

cambras@ub.edu



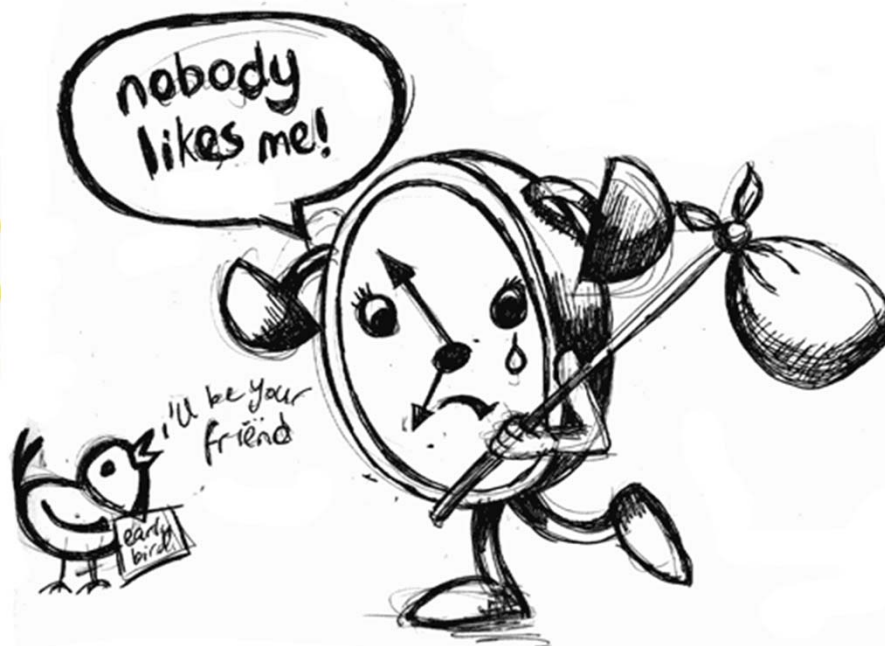
UNIVERSITAT_{DE}
BARCELONA

Relotges que ens envolten

Solar/oficial



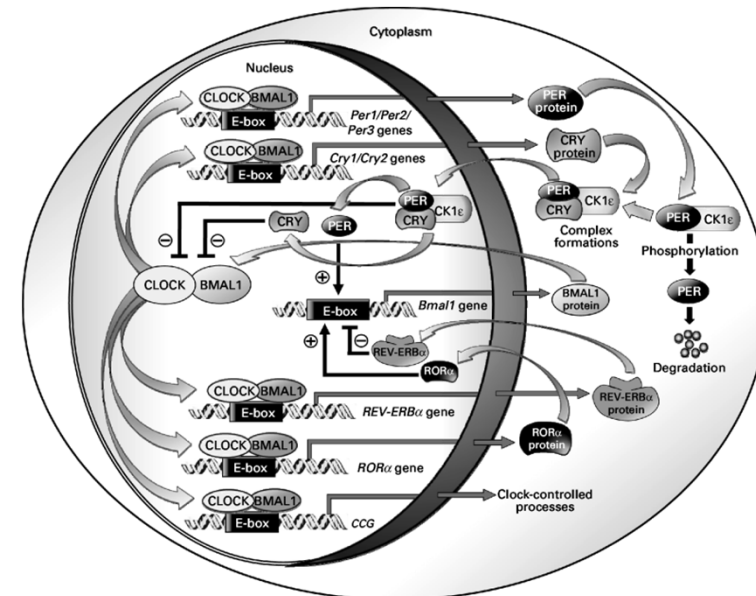
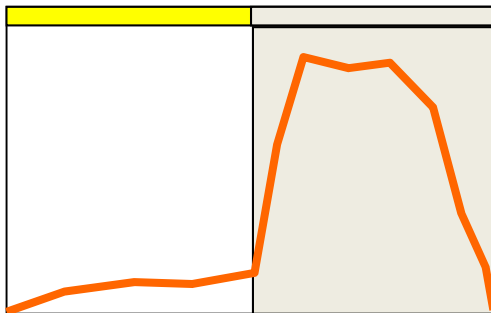
Biològic



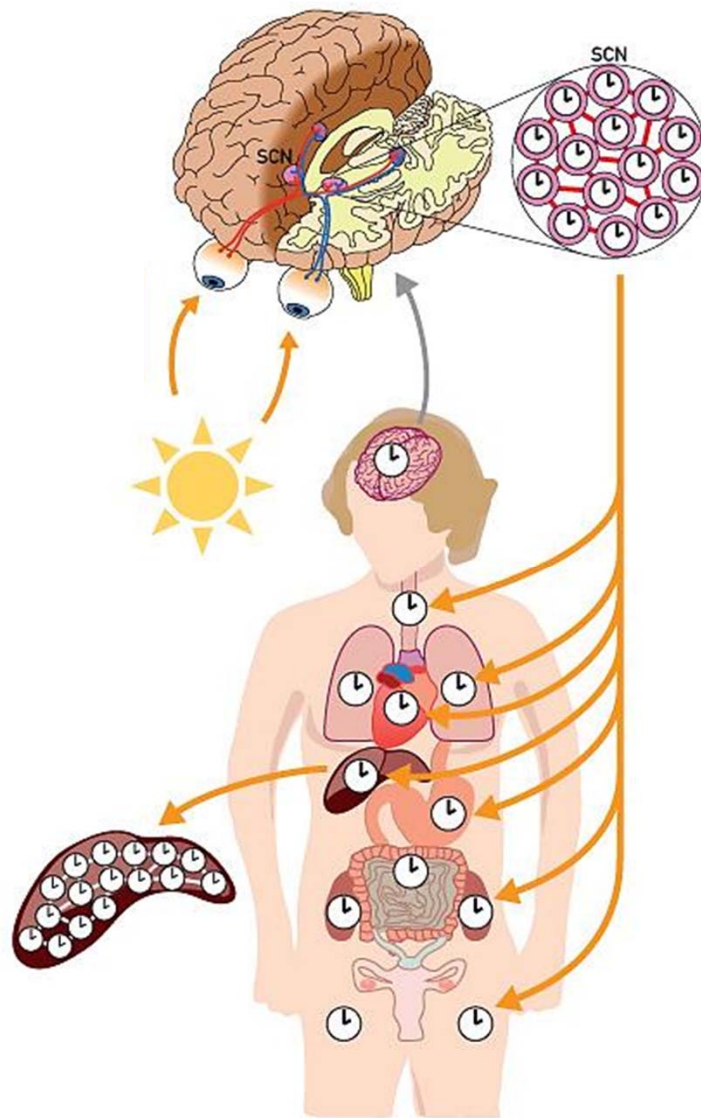
Social



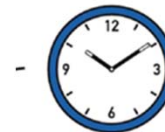
El rellotge intern



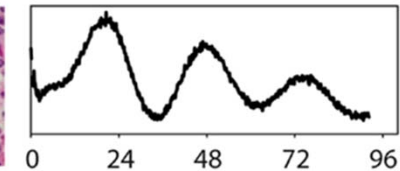
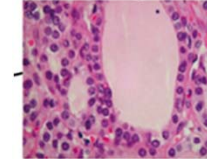
Relotges central i perifèrics



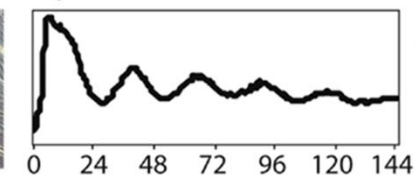
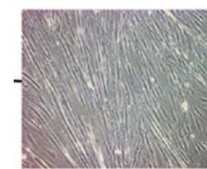
SCN master clock



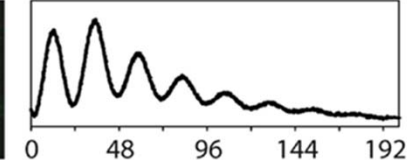
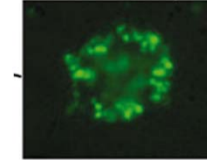
thyroid gland



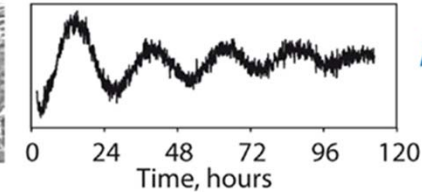
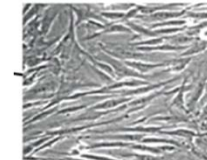
skeletal muscle myotubes



endocrine pancreas



skin fibroblasts



Camille Saini, Steven A. Brown and Charna Dibner . Human peripheral clocks: applications for studying circadian phenotypes in physiology and pathophysiology Front. Neurol. 2015 | <http://dx.doi.org/10.3389/fneur.2015.00095>

Ordre temporal intern



Temperatura

Cortisol

Hormona de creixement

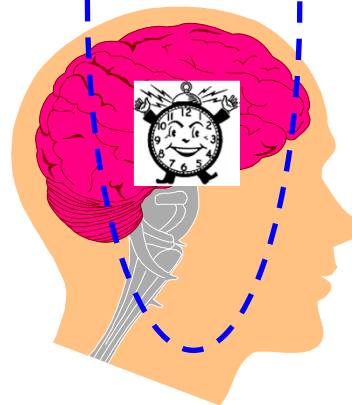
Melatonina

Triglicèrids

Alerta i rendiment



Els ritmes del nostre cos



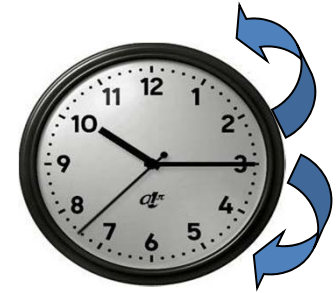
Ritmes a la societat actual

Es dorm poc.

Es menja més per la nit / no s'esmorza.

Llum anòmla: Massa llum a la nit o poca durant el dia.

No regularitat en horaris

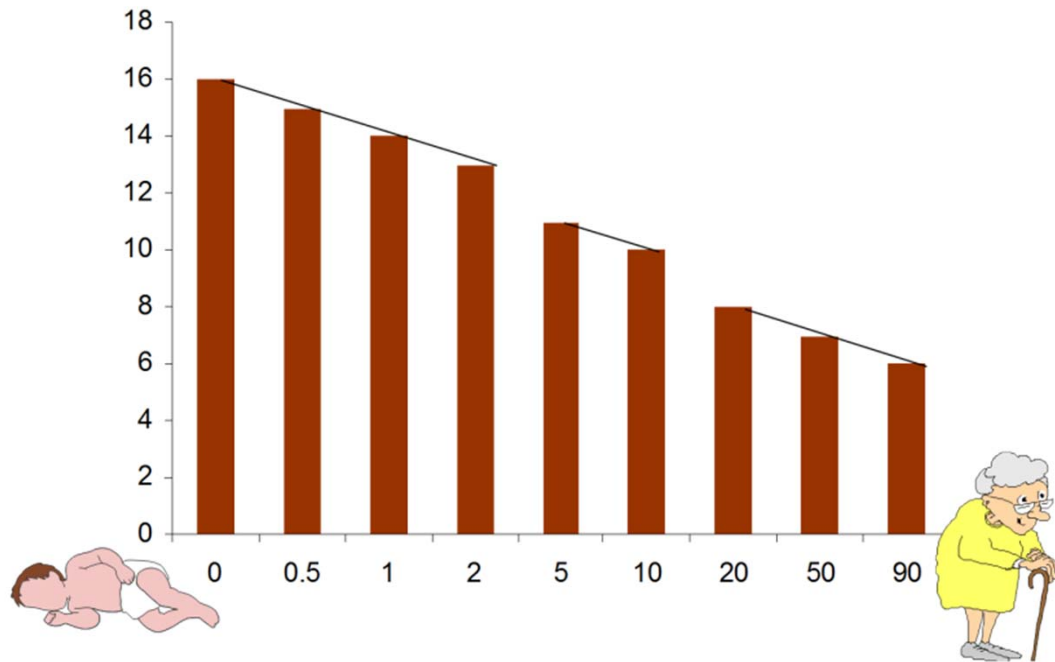


DESINCRONIA (*Chronodisruption*)

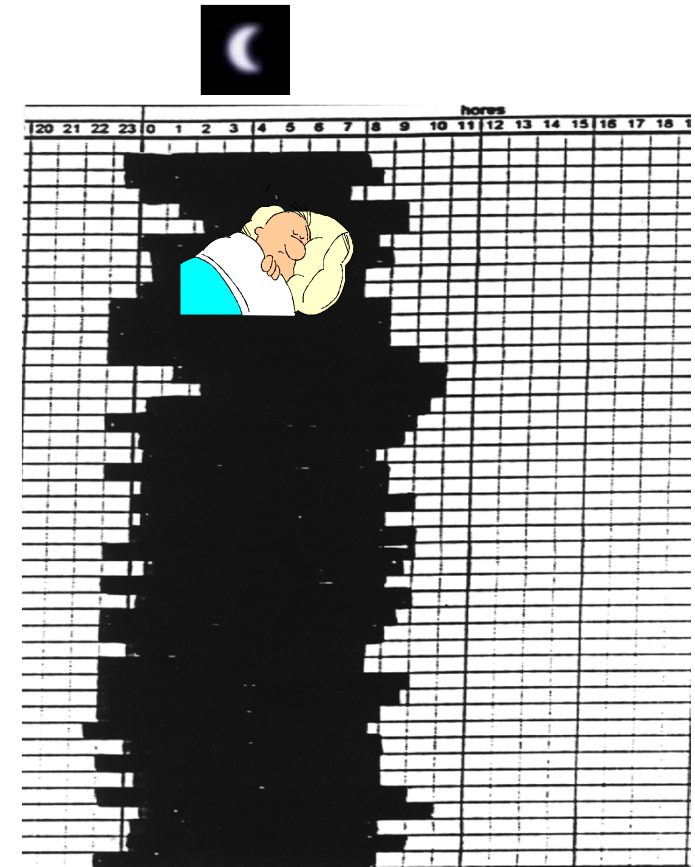
**Risc elevat de desenvolupar
insomni, patologies cardiovasculars i metabòliques**

Son

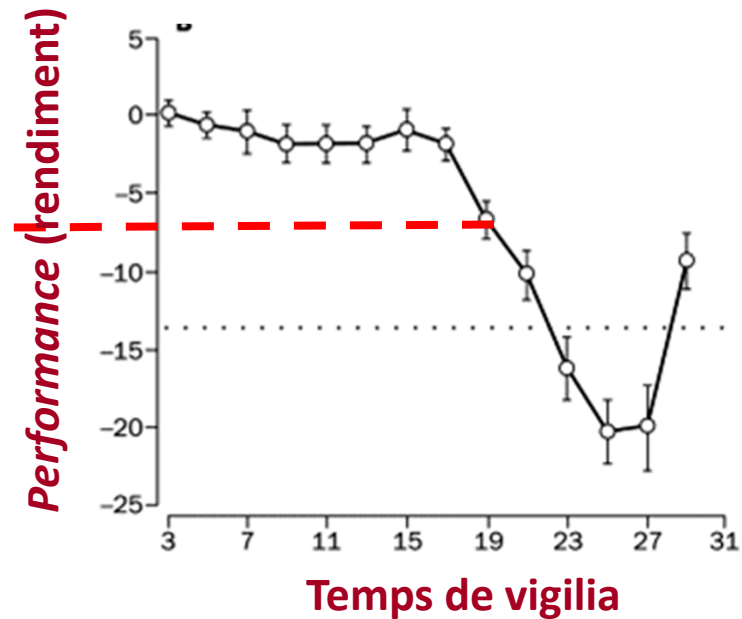
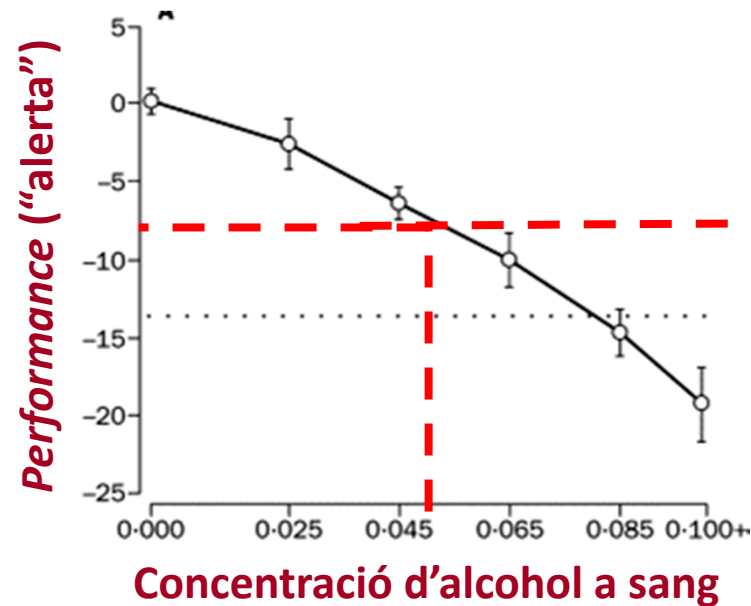
Quantitat / Qualitat



Horari



Privació de son (aguda i crònica)



Modificat de Rajaratnam SMW, Arendt J. The Lancet, 358:999-1005, 2001

Disminució de l'alerta: Risc d'errors i accidents
Manca de son crònica altera metabolisme, funció hormonal, sistema immunitari, humor,...

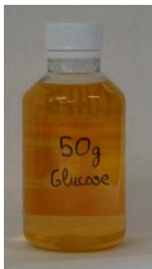
Horaris de menjar



Què mengem?
Quant mengem?
A quines hores mengem ?

- Buidament gàstric i trànsit intestinal més ràpids al matí.
- Diferències hormonals (leptina, nit; adiponectina, matí;...)
- A la nit es toleren pitjor els sucres i s'acumulen més greixos a sang.

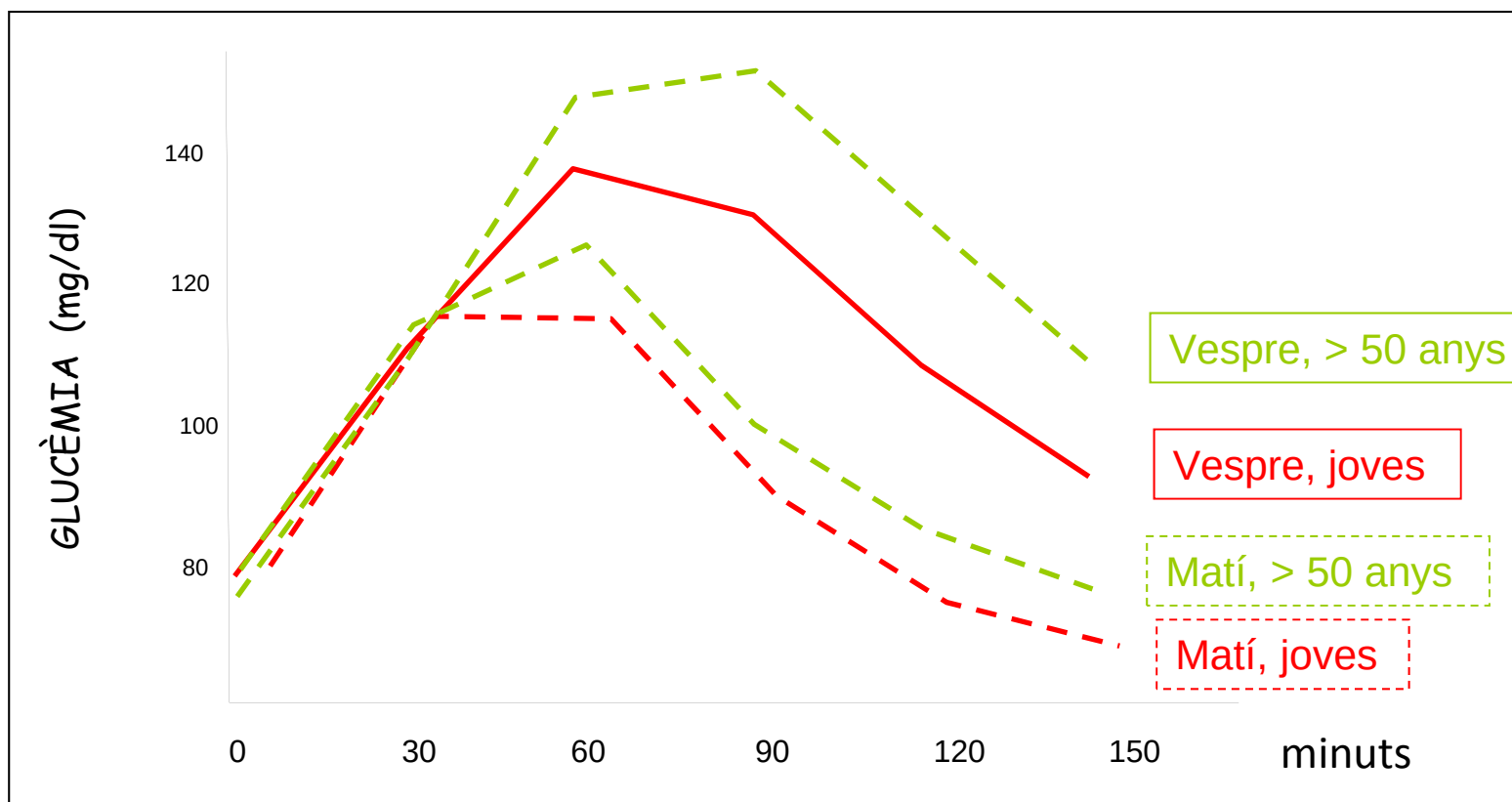
Test de tolerància oral a la glucosa



Ingesta de glucosa

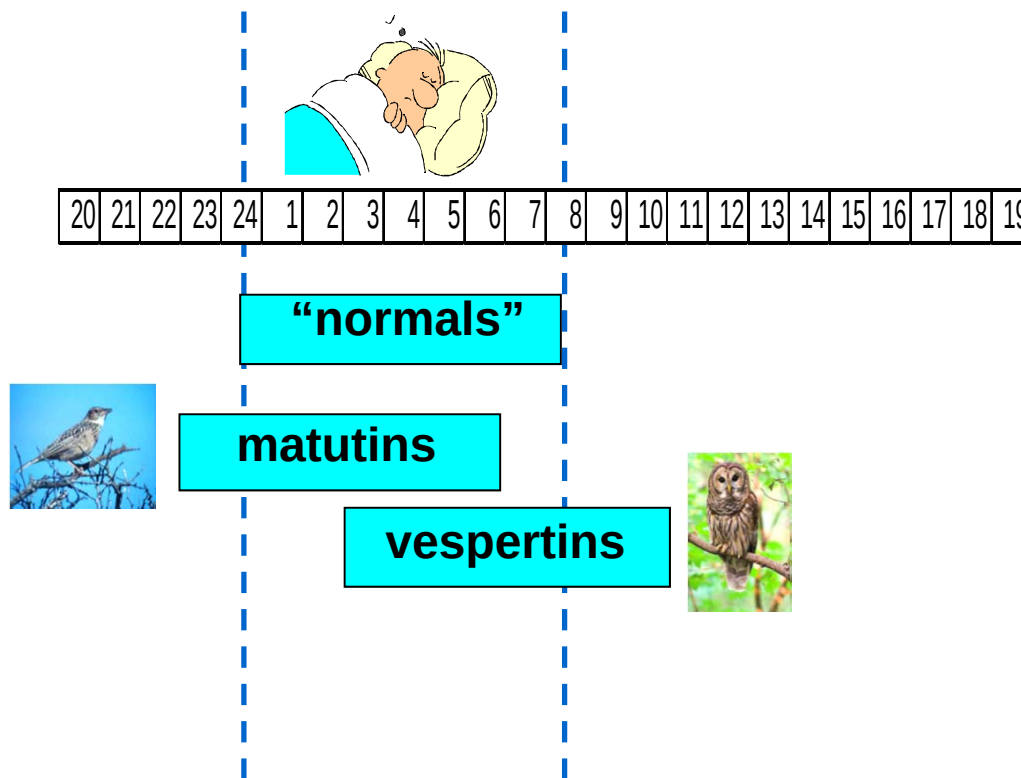
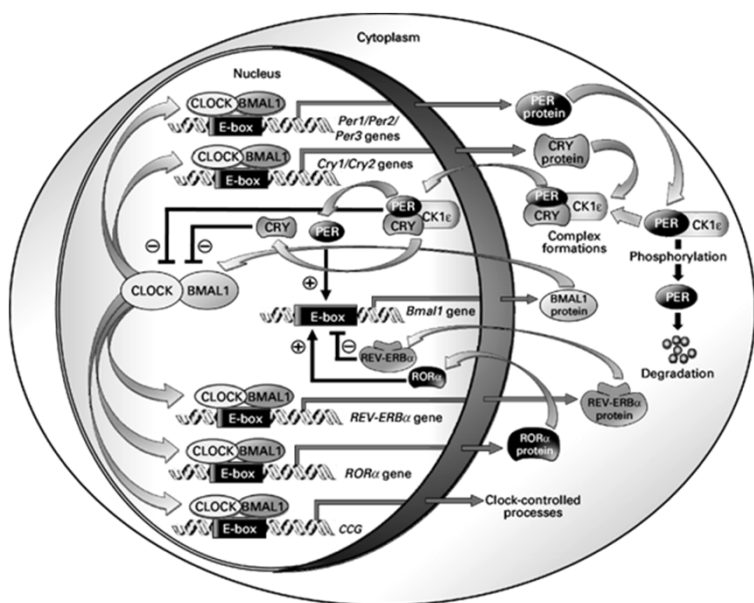


Anàlisi de sang

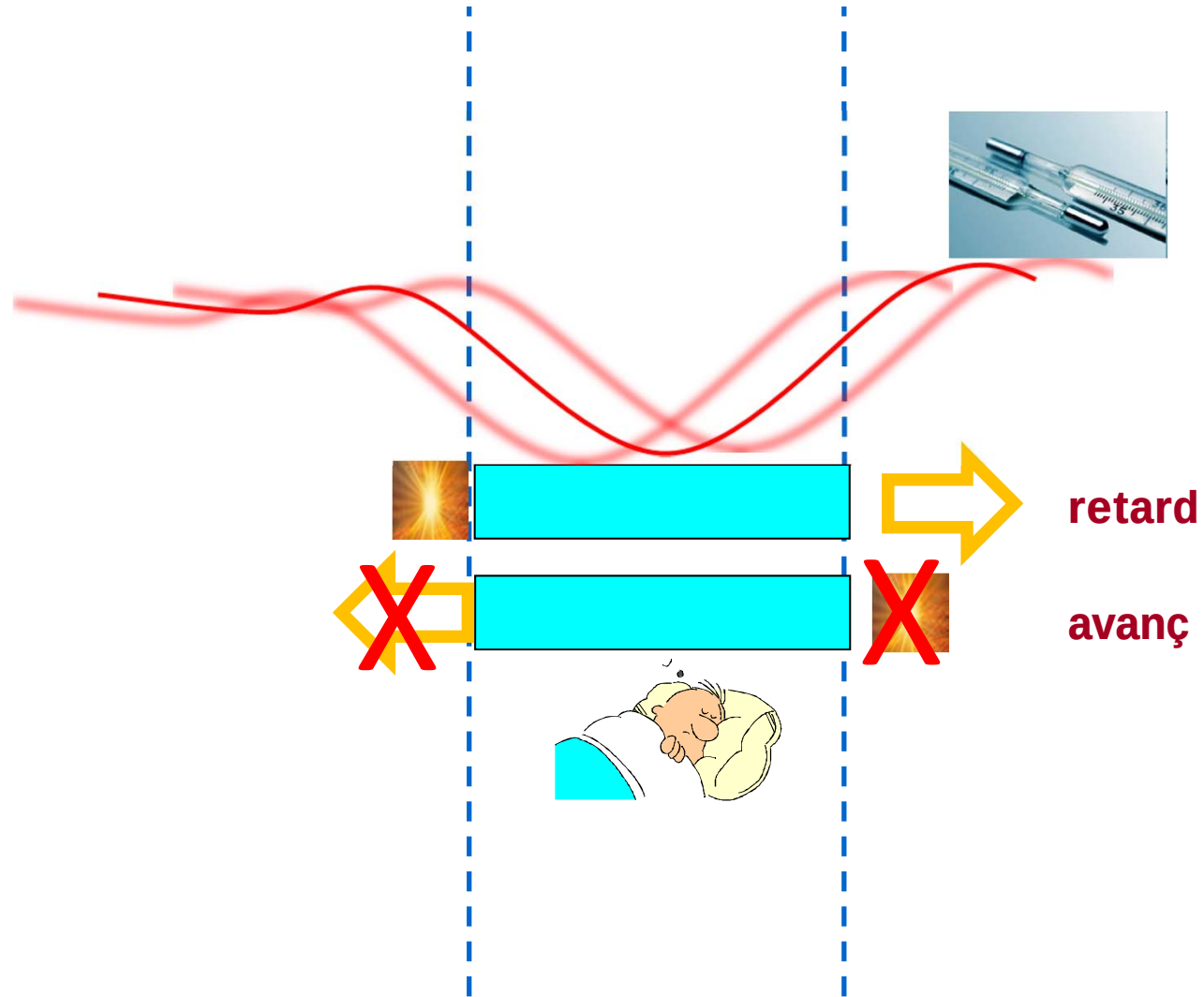


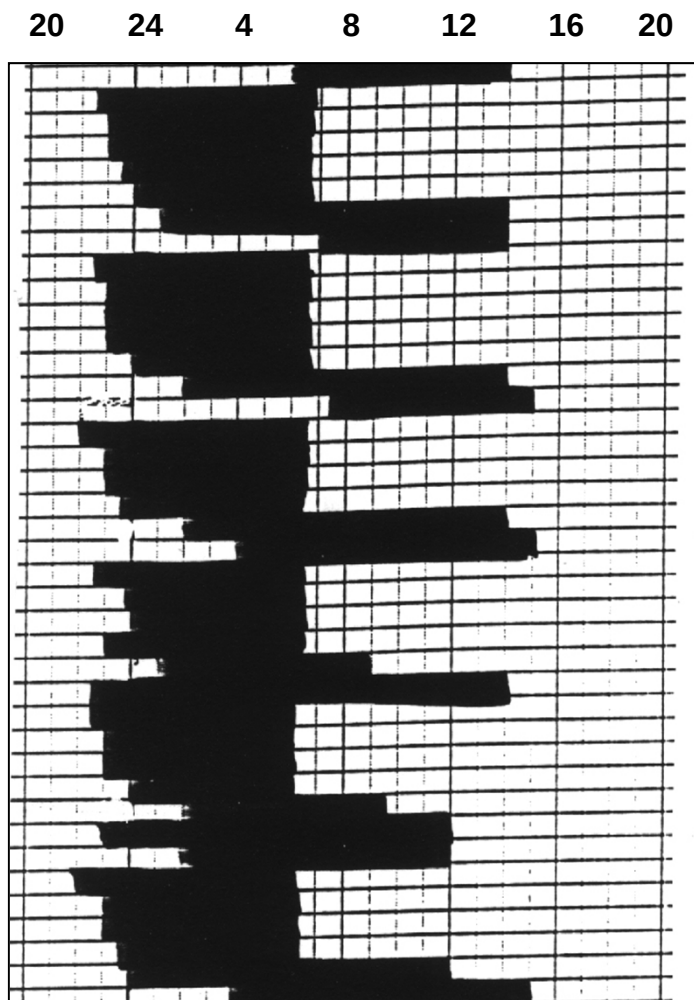
Diferències individuals

Gens rellotge



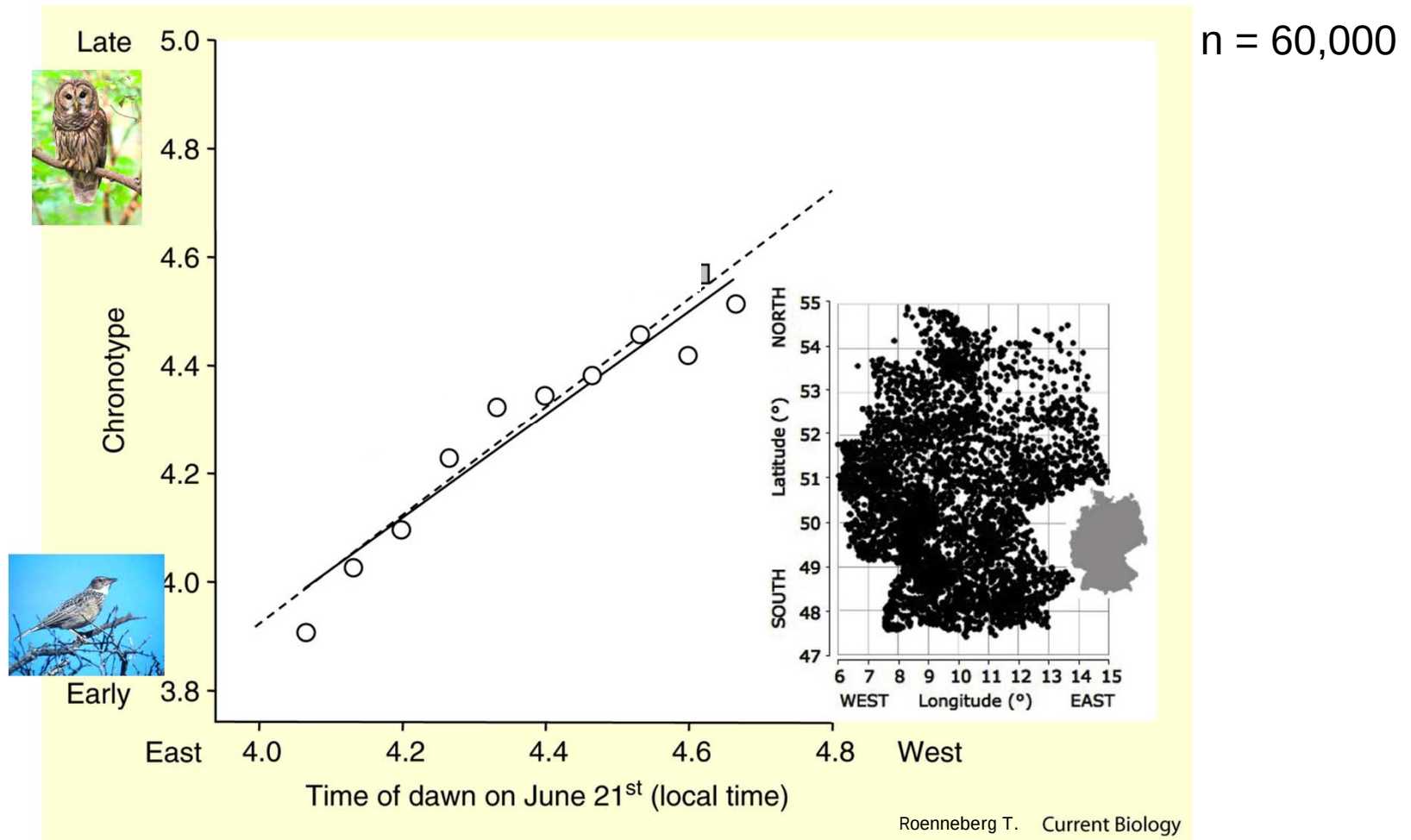
Llum puntual: canvis de fase



[illegible]

El cronotip depèn de la llum

- Circles areas with up to 300,000 inhabitants
- Grey: cities with up to half a million inhabitants
- Triangles: larger cities



Horaris que ens deixin temps!

Salut (OMS (1946)



Estat de complet benestar físic, mental i social i no només l'absència de malalties.



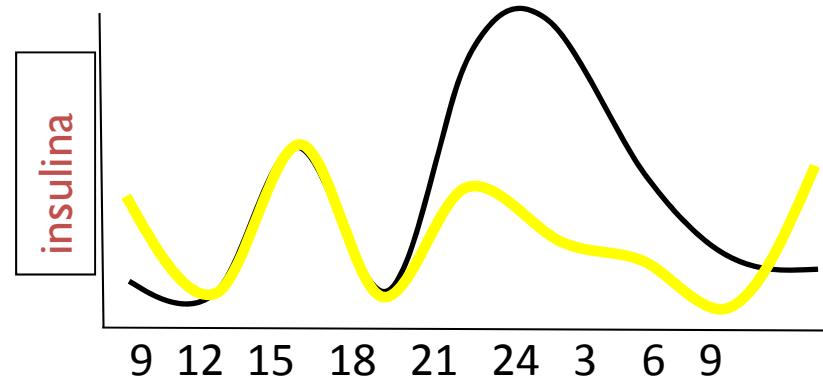
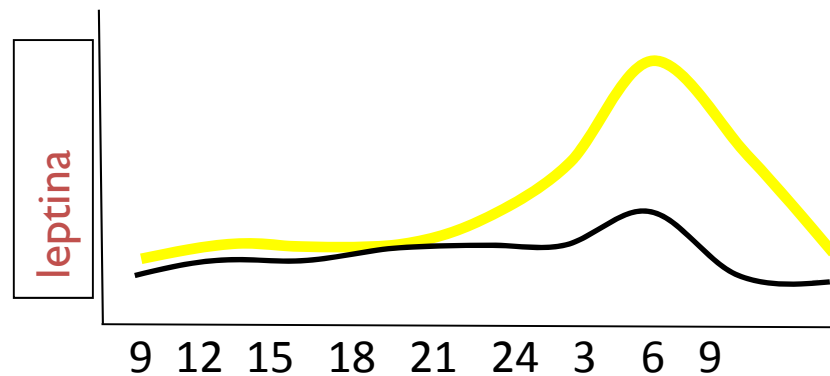
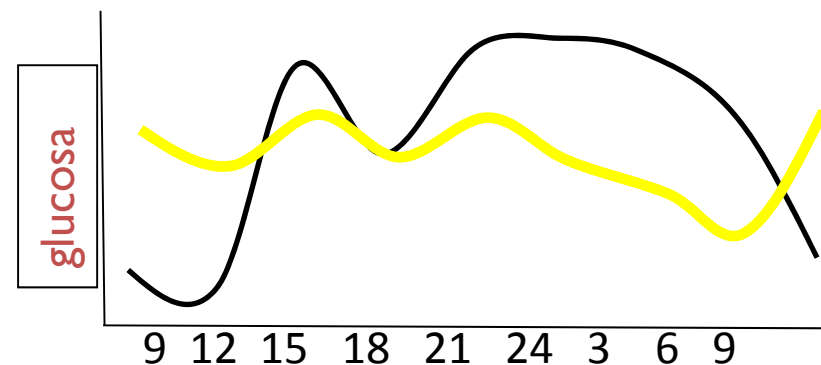
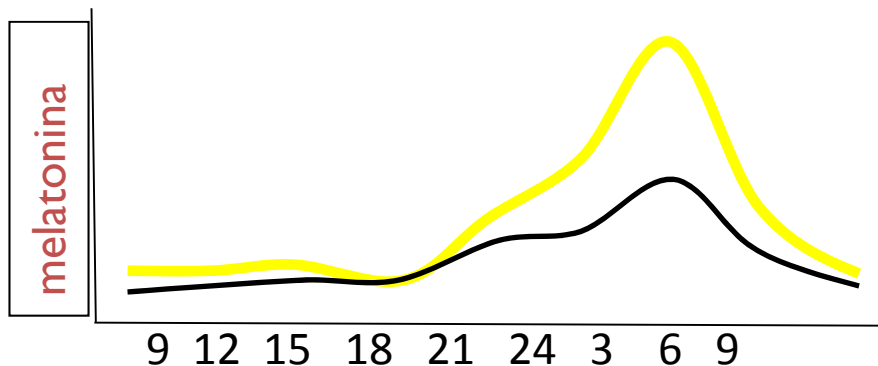
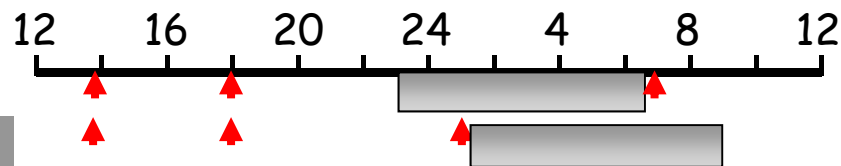


son entre 1:30 i 8:30. Menjars: 13,
19 i abans de dormir

son entre 22:30 i 6:30.
Menjars: 7, 13 i 19 hores

“diürns”

“nocturns”

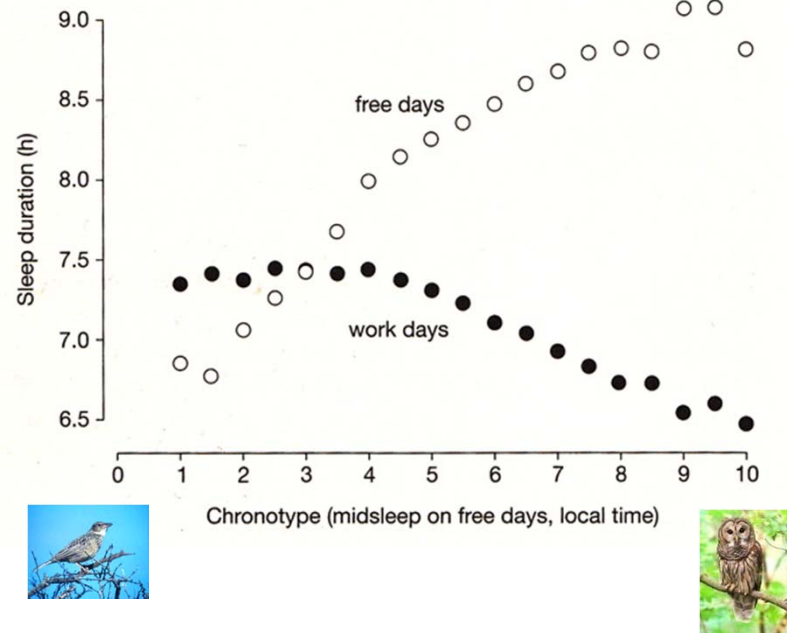


Menjar a deshora, risc diabetis, ...

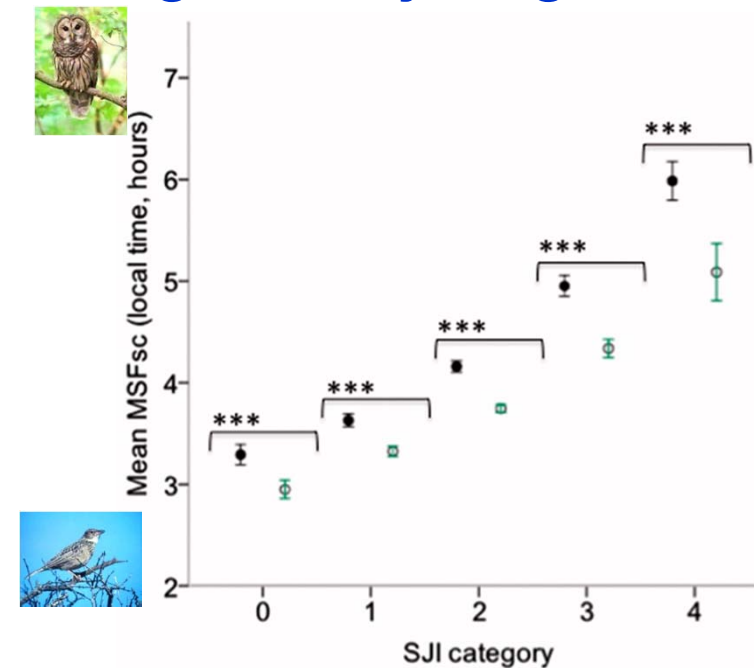
Extret i modificat de: Qin LQ et al, the effects of nocturnal life on endocrien circadian patterns in health adults. Life Sci, 73:2467-2475, 2003

Cronotip: durada del son i jetlag social

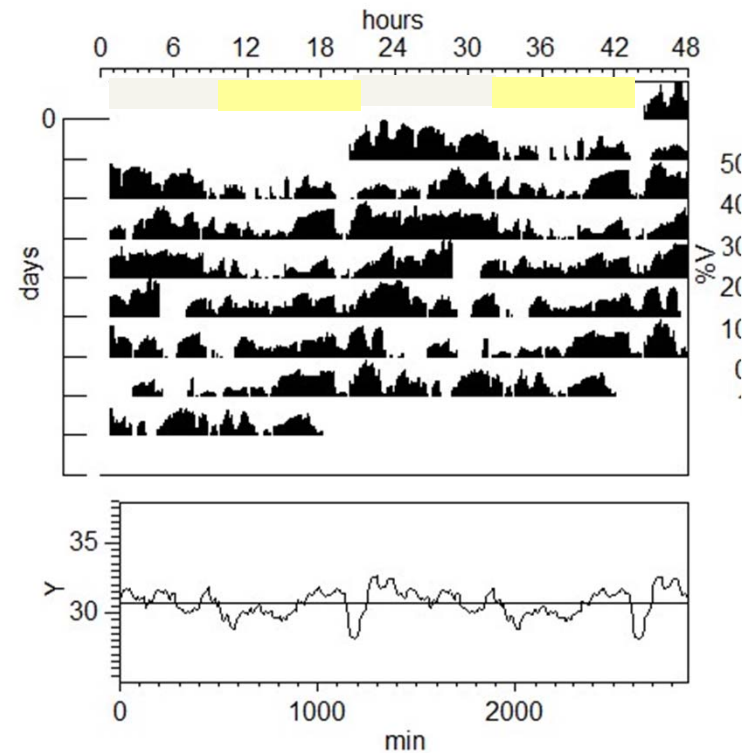
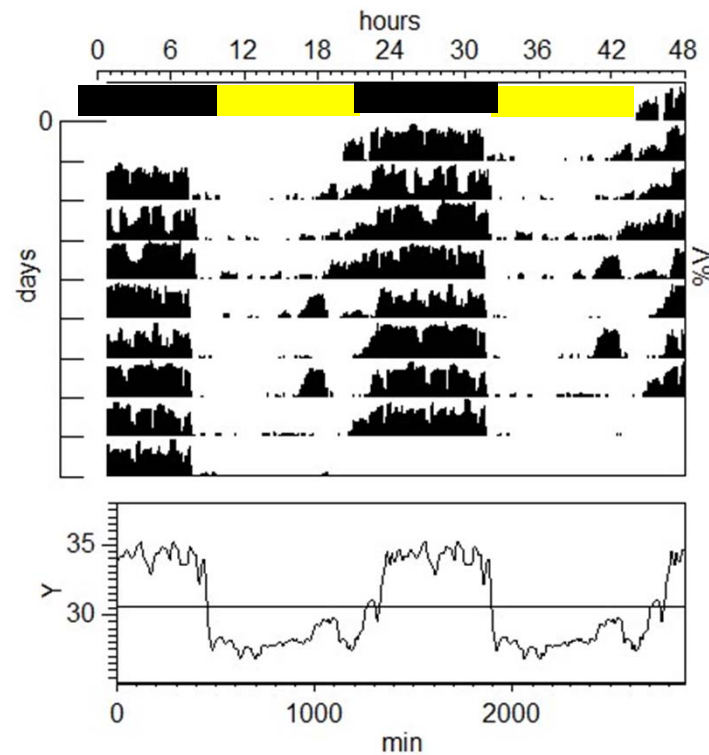
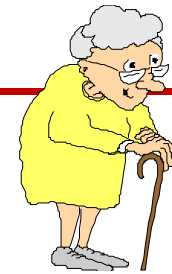
durada del son



grau de jetlag social

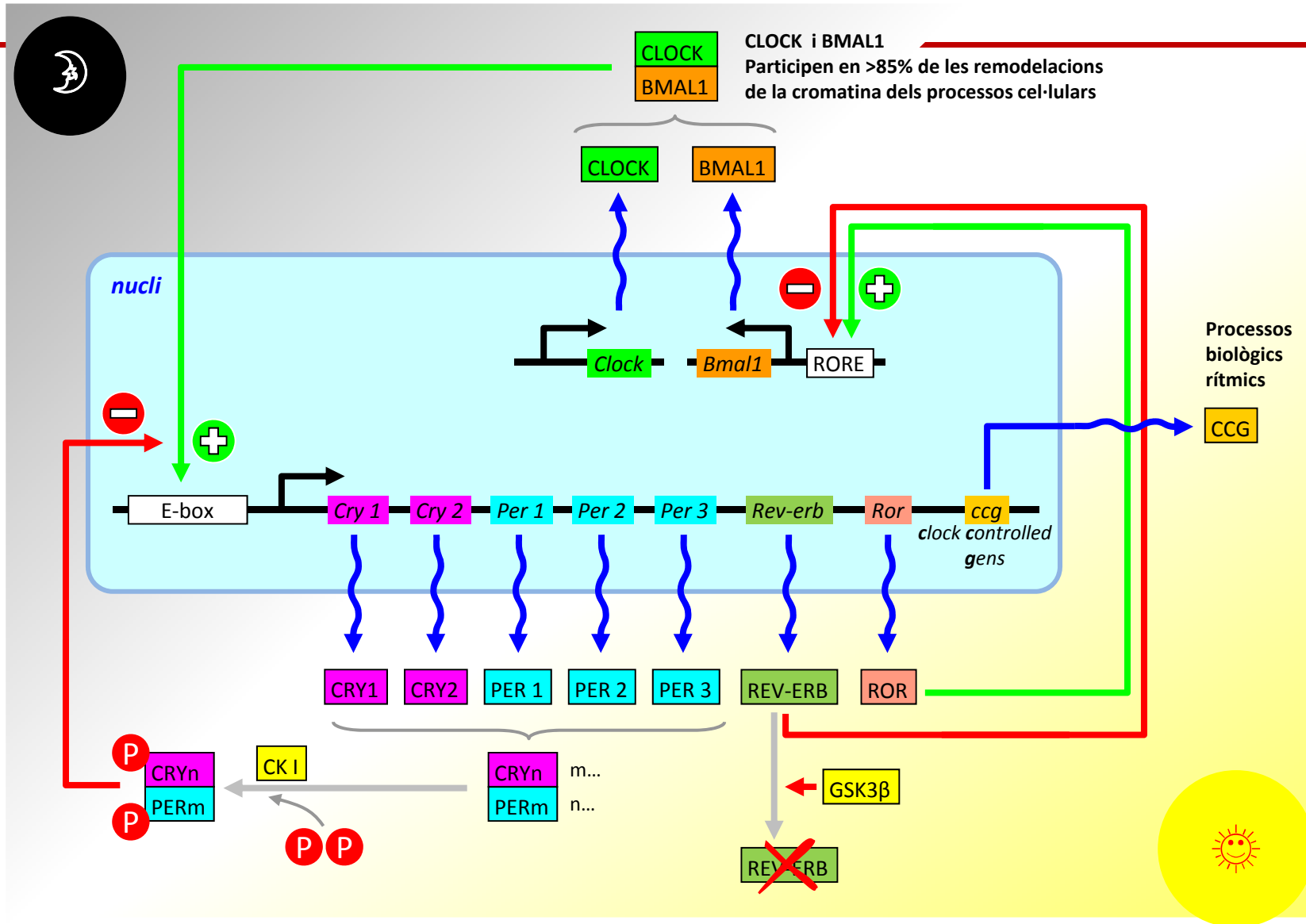


Ritmes de temperatura periférica

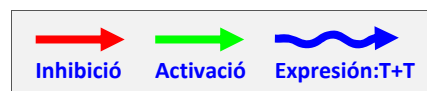




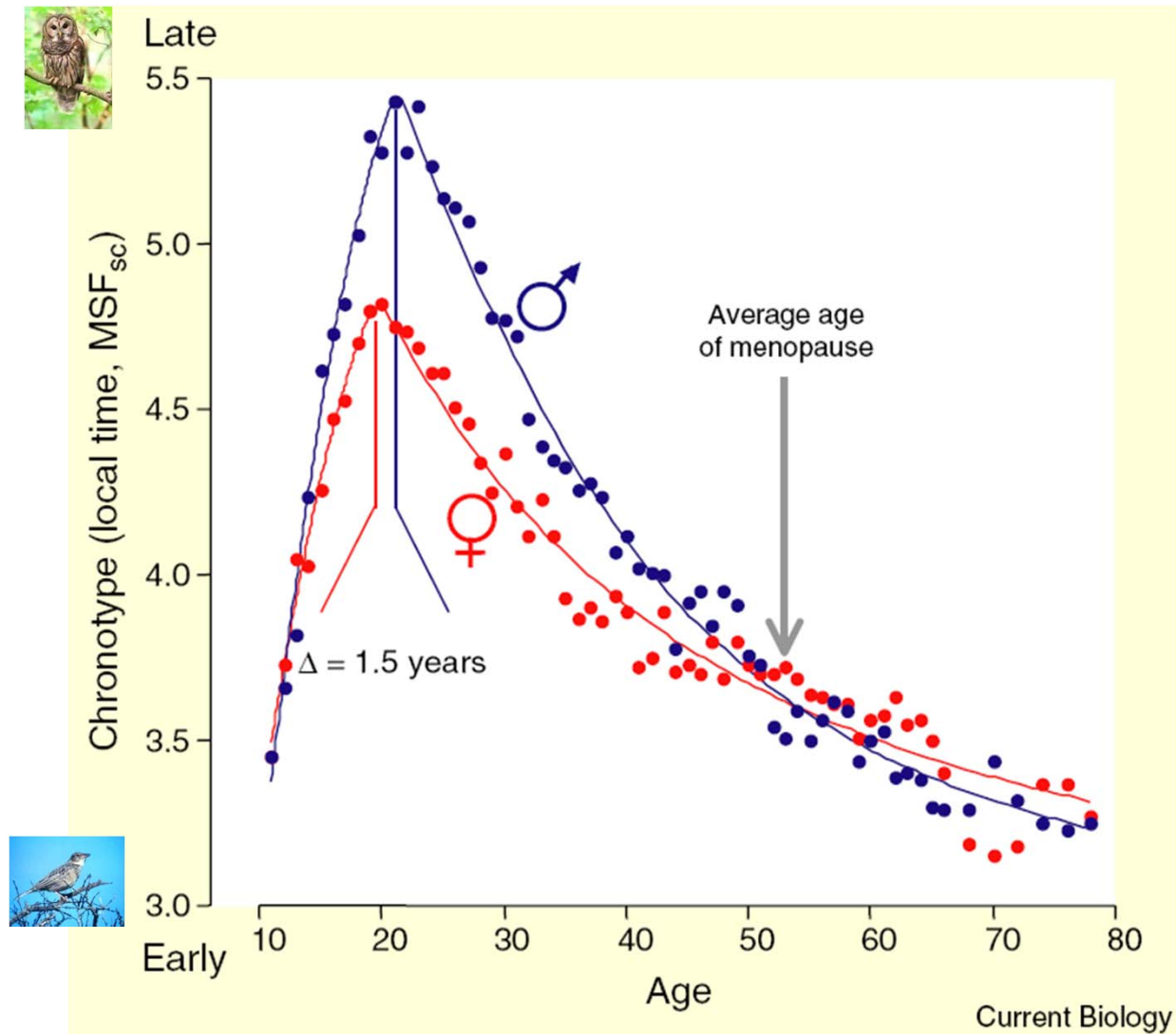
Part "positiva" del cicle



Part "negativa" del cicle

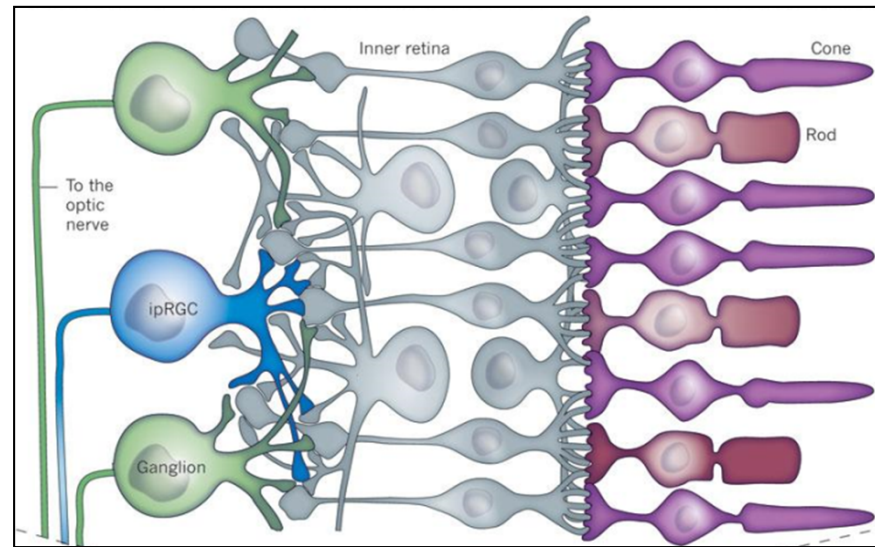


Munich chronotype questionnaire



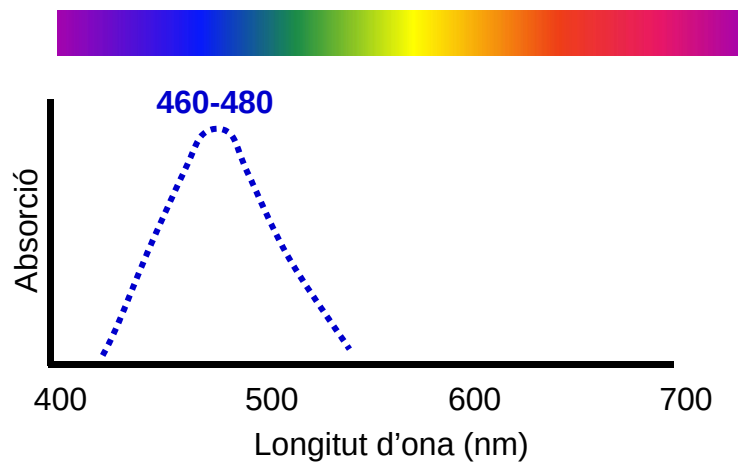
Retina: fotoreceptors

NO-formació
d'imatges



Visió

Cèl.lules ganglionars
fotosensibles (melanopsina)



Escotòpica Fotòpica

Bastons

Cons

