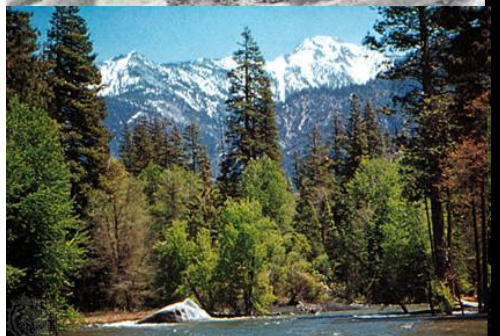
THE BRIGHT SIDE

THE DARK SIDE

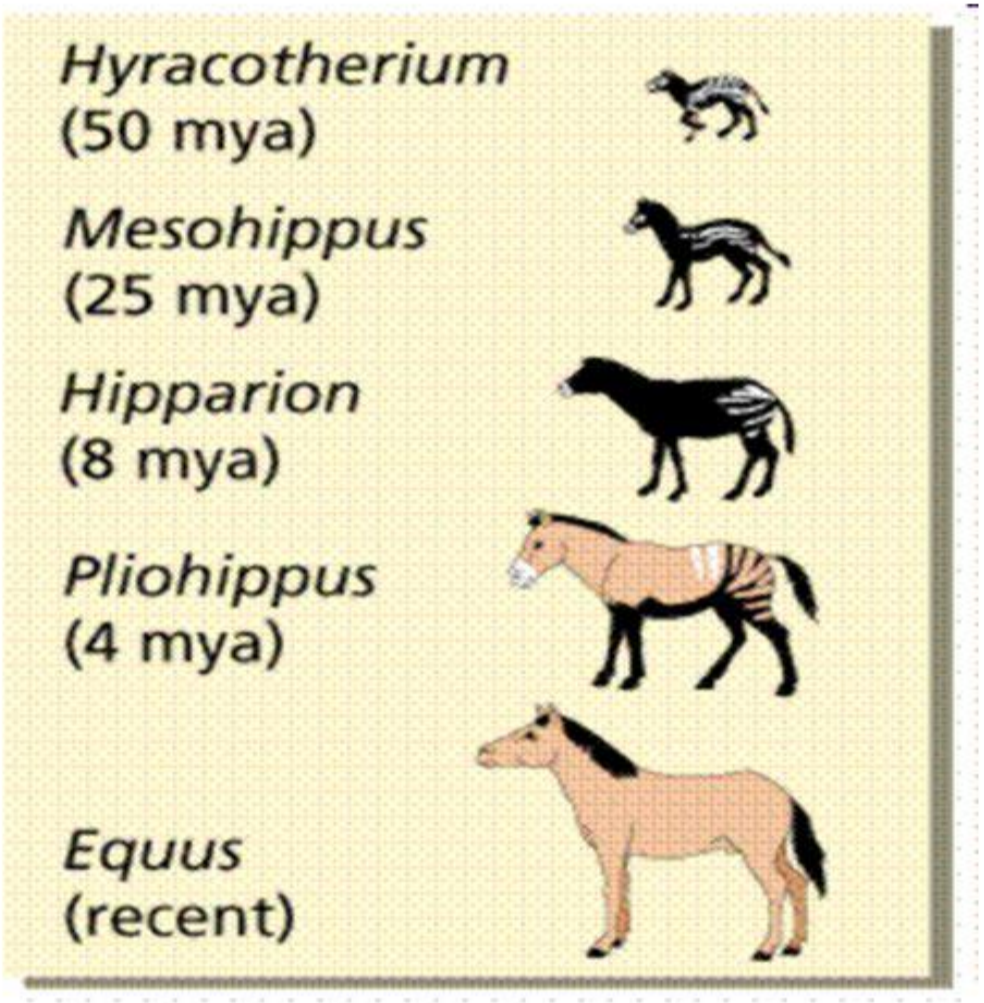


SIM1, FTO, CDKAL1, SLC30A8, HHEX, EXT2, IGF2BP2, LOC387761, CDKN2B, MC4R (all to be further analyzed)…

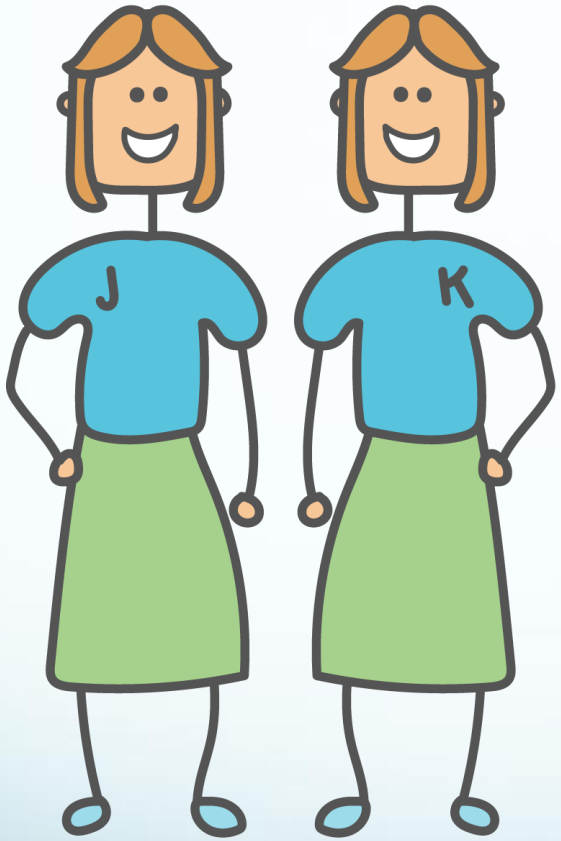
Genetic Changes

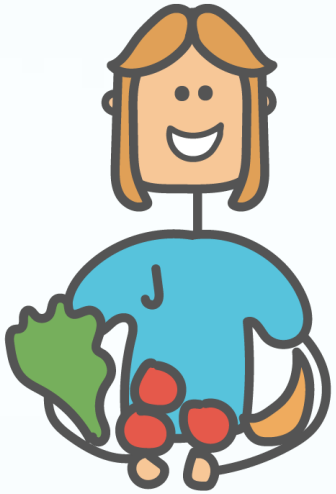
Sono necessari da 184 a 1840 generazioni di selezione naturale (da 5.300 a 53.000 anni) per una popolazione umana sottoporsi a cambiamenti genetici significativi.

Poiché i tassi di obesità sono quasi triplicati in poche generazioni, l'aumento probabilmente ha più a che fare con i cambiamenti al nostro ambiente e stile di vita rispetto ai nostri geni.

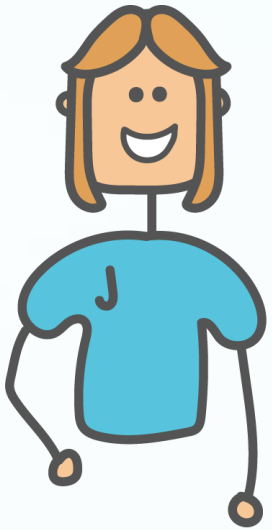


Jennifer & Karen
Identical twins born with genes that absorb fats twice as fast as the average person

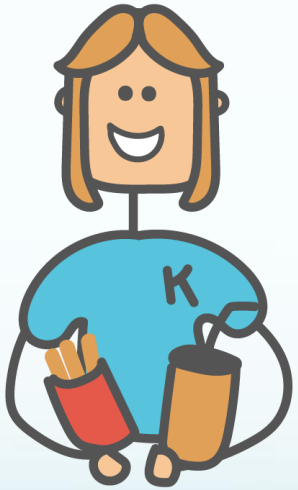




Jennifer
Eats healthy low fat food



Jennifer
obesity genes **not** triggered

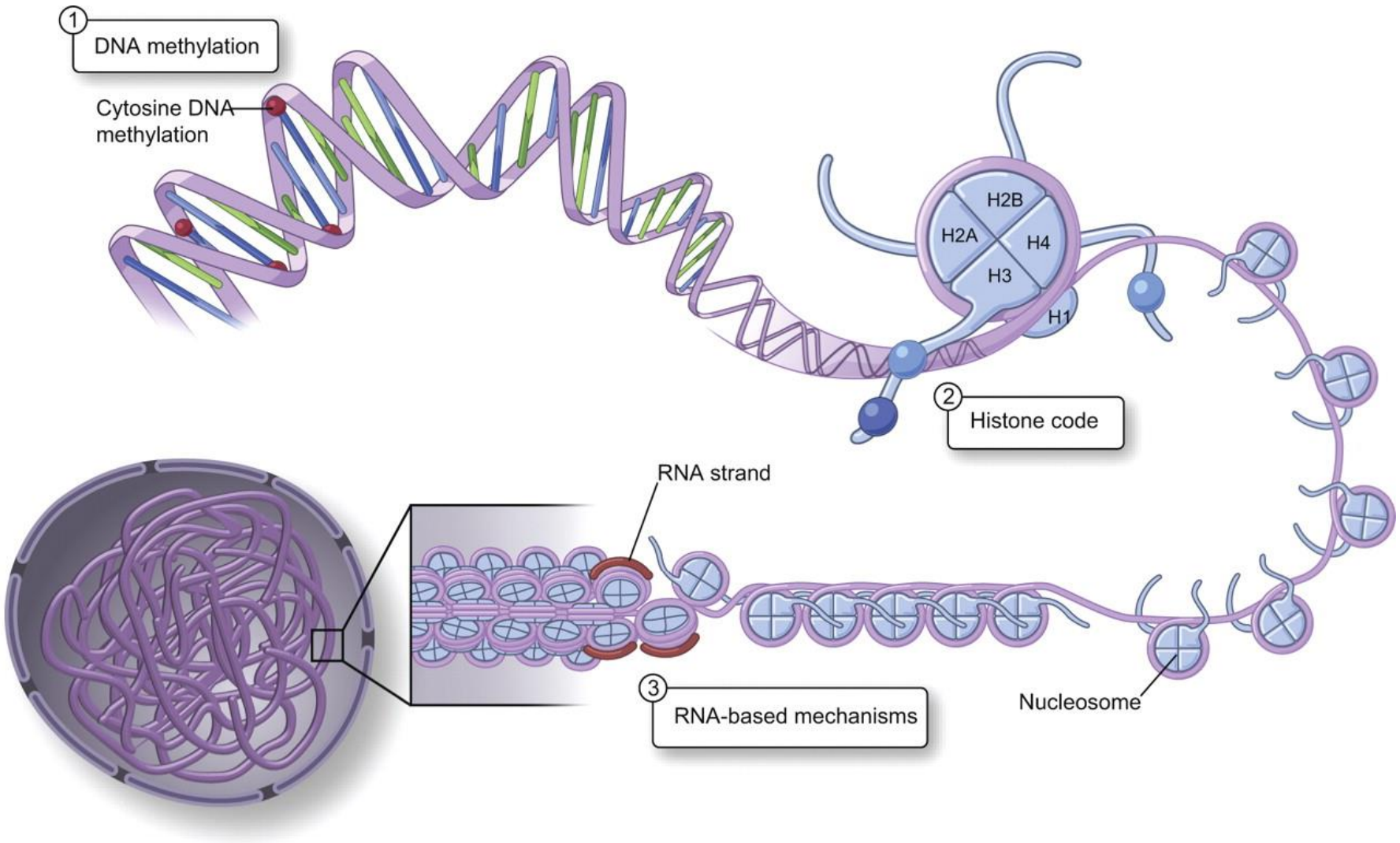


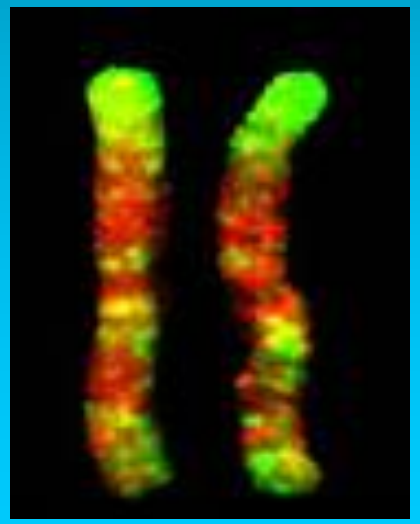
Karen
Eats fatty unhealthy food

Karen
obesity genes triggered

L’epigenetica: Che cos’hanno addosso i geni

Meccanismi epigenetici





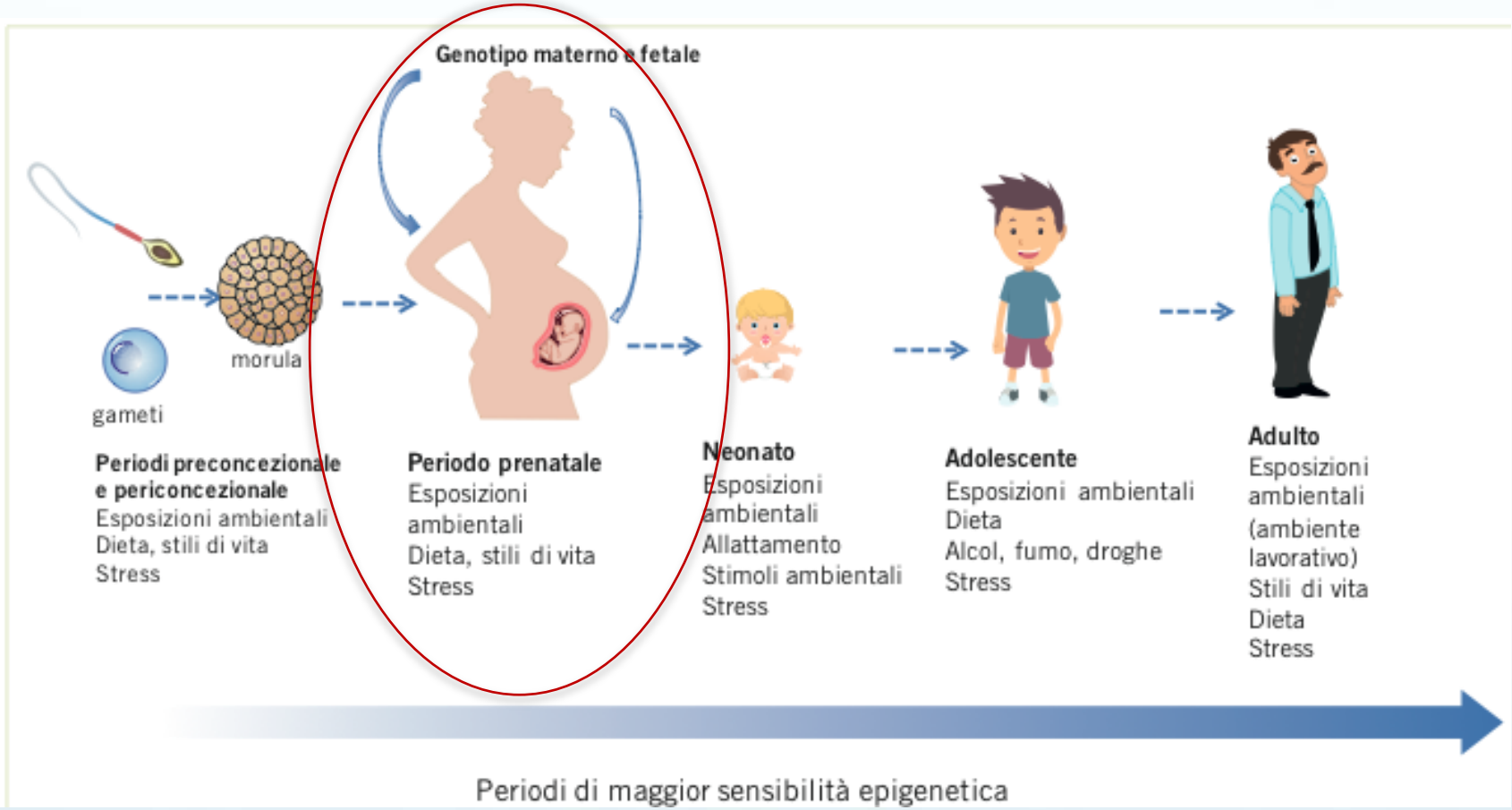
Monozygous twins share a common genotype and are genetically identical

There is significant phenotypic discordance:

- **Mental disorders**
- **Cancer**

Una teoria emergente: la DOHaD

Developmental Origins of Health and Diseases (Barker et al., 2002)



Ipotizza che le esposizioni ambientali precoci (prenatali e nei primi anni di vita) possano modificare il rischio di malattie ad insorgenza nell'età adulta

- Il DNA e' scritto a penna, non si può cambiare,
- L'epigenetica, invece, e' ciò che e' scritto a matita e può essere modificato

- Danielle Reed

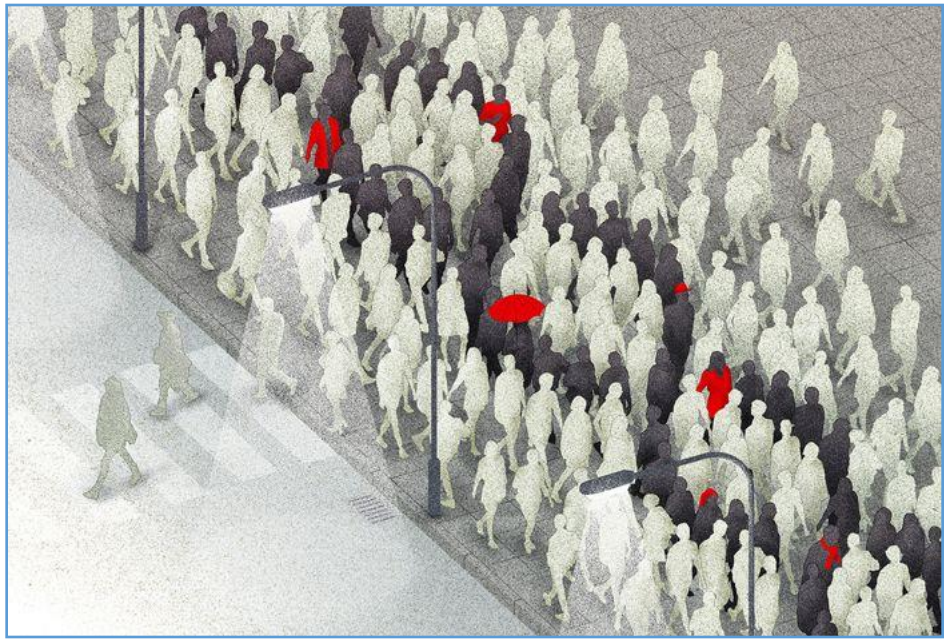
First 1,000 days

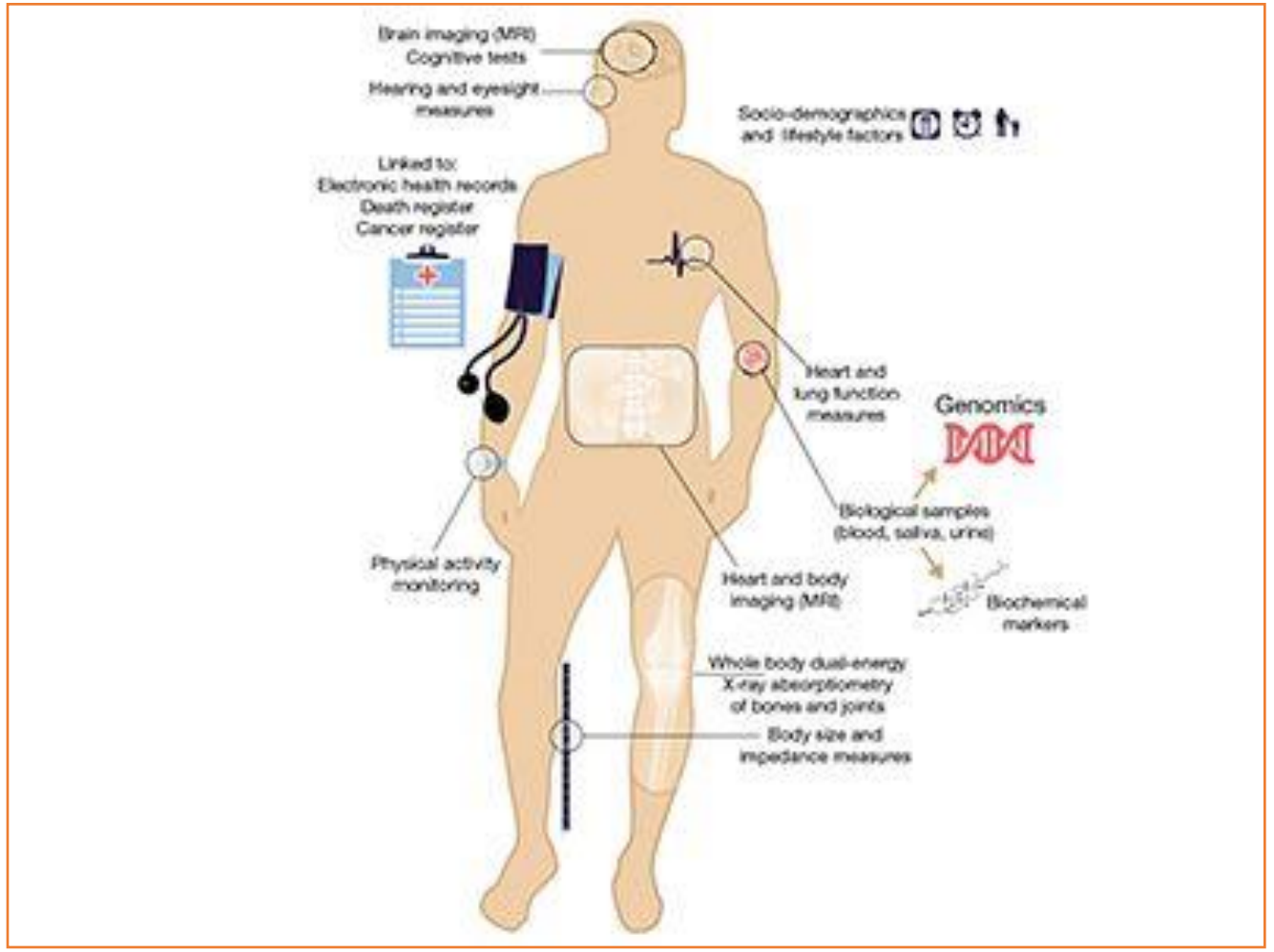
The environment and the characteristics of an individual have a greater impact during early stages of life and will affect health and wellbeing across the lifespan

- Pre-conceptional phase
- Early stages of pregnancy
- Late stages of pregnancy
- Early childhood

Prevention is most efficient if started in early stages of life

UK Biobank data on 500,000 people paves way to precision medicine





Editorial| Volume 392, ISSUE 10150, P796, September 08, 2018, The Lancet

•Are we ready for universal genomic sequencing for newborns?

There are important unresolved scientific and ethical concerns for the use of genomic technologies.

it is crucial to develop more robust research globally to further understand scientific complexities and uncertainties in sequencing.

Camilleri:

«Quando uno nasce, gli viene dato un ticket con malattie e gioie»