Moving figures

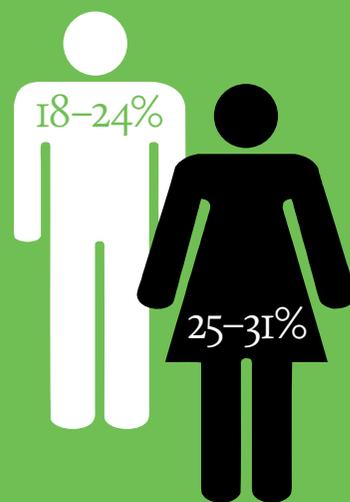*A numerical look at exercise, energy and movement*

WHAT IS ATP?

ATP stands for adenosine triphosphate, a molecule involved in the transfer of energy in living cells.

ATP MOLECULES PER SECOND

9000000 0000000 0000000

The number of ATP molecules made per second in humans.
Source: Nick Lane, *Power, Sex and Suicide*

PERCENTAGE OF BODY FAT

18–24%

25–31%

Percentage of body fat classed as 'average' for men (left) and women (right).
Source: www.acefitness.org/blog/112/what-are-the-guidelines-for-percentage-of-body-fat

DISCOUNTING FAT, THE BODY CONSISTS OF...

Skin 8.5%
Bone 20.6%
Muscle 50%
Other* 20.9%

* Undifferentiated tissue, such as organs, spinal cord and gastrointestinal tract.
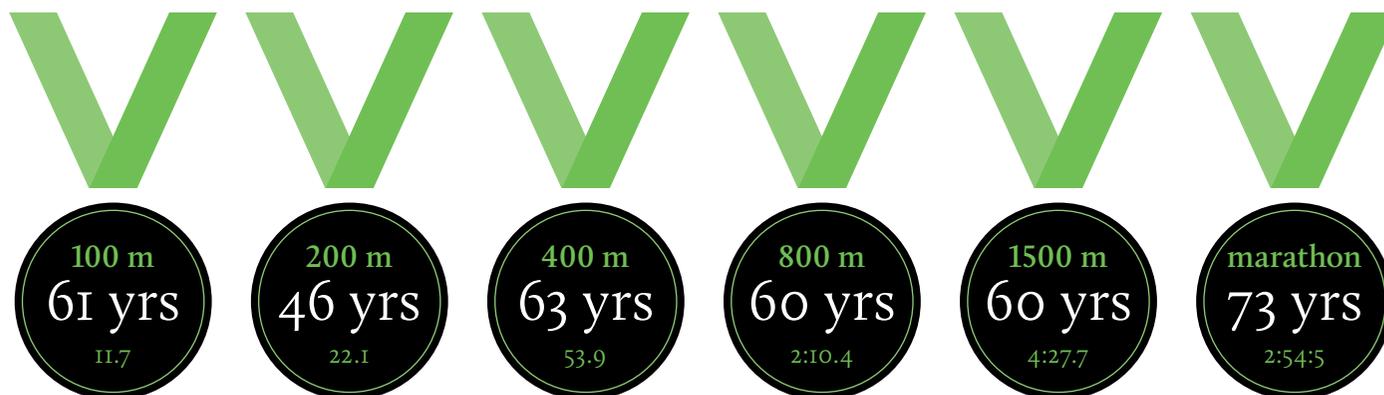Source: www.sfu.ca/~ward/Cadavre.pdf
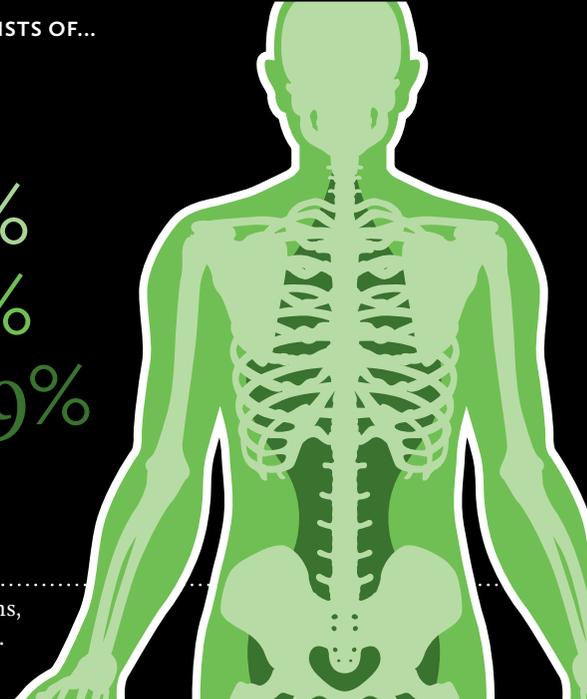
ATP TURNOVER: MARATHON RUNNER VS. SPRINTER

10 g/s

50 g/s

A marathon runner needs about 10 g ATP/second. Muscles' total ATP content is about 50 g, which is used up in a second by a sprinter. Source: Guy Brown, *The Energy of Life*

MODERN RECORDS SET BY OLDER ATHLETES THAT BEAT WINNING TIMES FROM THE 1896 OLYMPICS

| 100 m	200 m	400 m	800 m	1500 m	marathon
61 yrs	46 yrs	63 yrs	60 yrs	60 yrs	73 yrs
11.7	22.1	53.9	2:10.4	4:27.7	2:54:5

Each medal from top: event; age of older athlete surpassing winning Olympic time; their time. For 100 m, 200 m and 400 m, times in seconds; for 800 m and 1500 m, minutes:seconds; for marathon, hours:minutes:seconds. Source: Tanaka H and Seals DR. J Physio 2008;586(1):55–63.

ENERGY USED IN DIFFERENT ACTIVITIES

1.3

5–8

8

14

The energy we use expressed as multiples of our resting metabolic rate – metabolic equivalent of task (MET). Source: sites.google.com/site/compendiumofphysicalactivities

REACTION TIME BY AGE

Age (years)	16	24	35	44	56	63
Reaction time (ms)	295	300	309	324	347	374
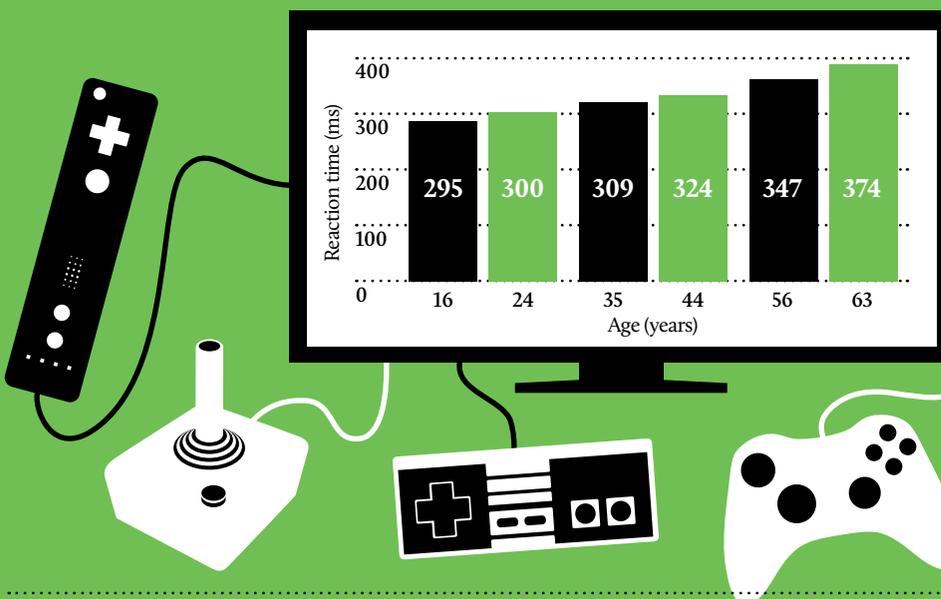
In milliseconds, averaged between sexes and rounded.
Source: wellc.me/u8gWRR

FINDING DATA

Putting this diagram together, we found that different sources gave different numbers for the same thing. Why don't they match?

Well, data can be interpreted in different ways, and estimates can be made using different methods and/or baseline data. Definitions matter, too – different sources might define 'exercise' or 'adult' differently.

Which should you choose? The source itself is important – is it reliable? Are the figures recent? How might an organisation's 'agenda' affect how it calculates and presents data?