



Confédération
Européenne de
Volleyball



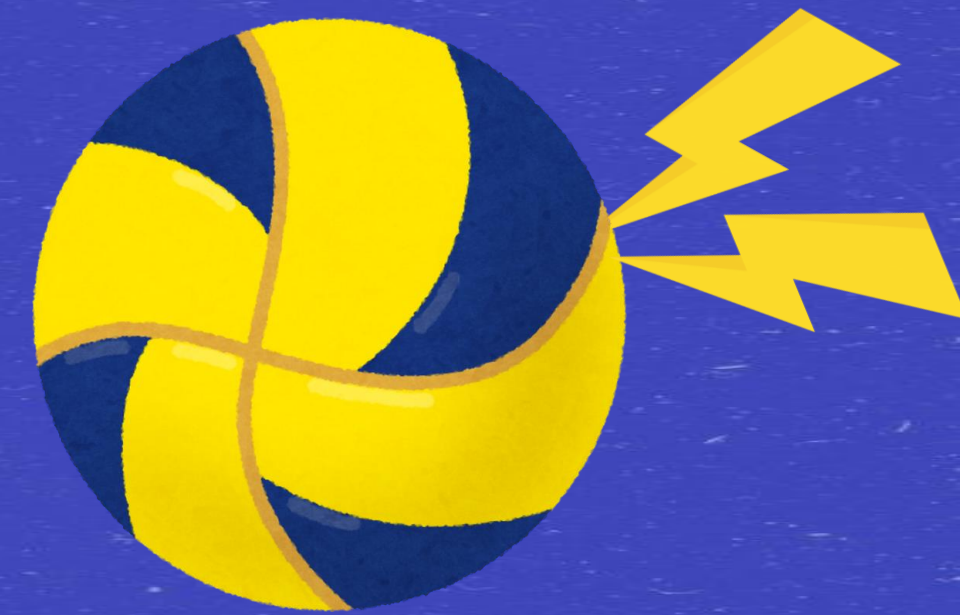
Sofia, Bulgaria
13 – 15 September 2024
CEV Coaches Convention



play volleyball
grow with it



Neuroscience in sports



**Dr Ranko Rajović (Serbia/Slovenia),
Rok Tomažič (Slovenia)**

CEV Coaches Convention - September 2024 - Sofia, Bulgaria



play volley all
grow with it



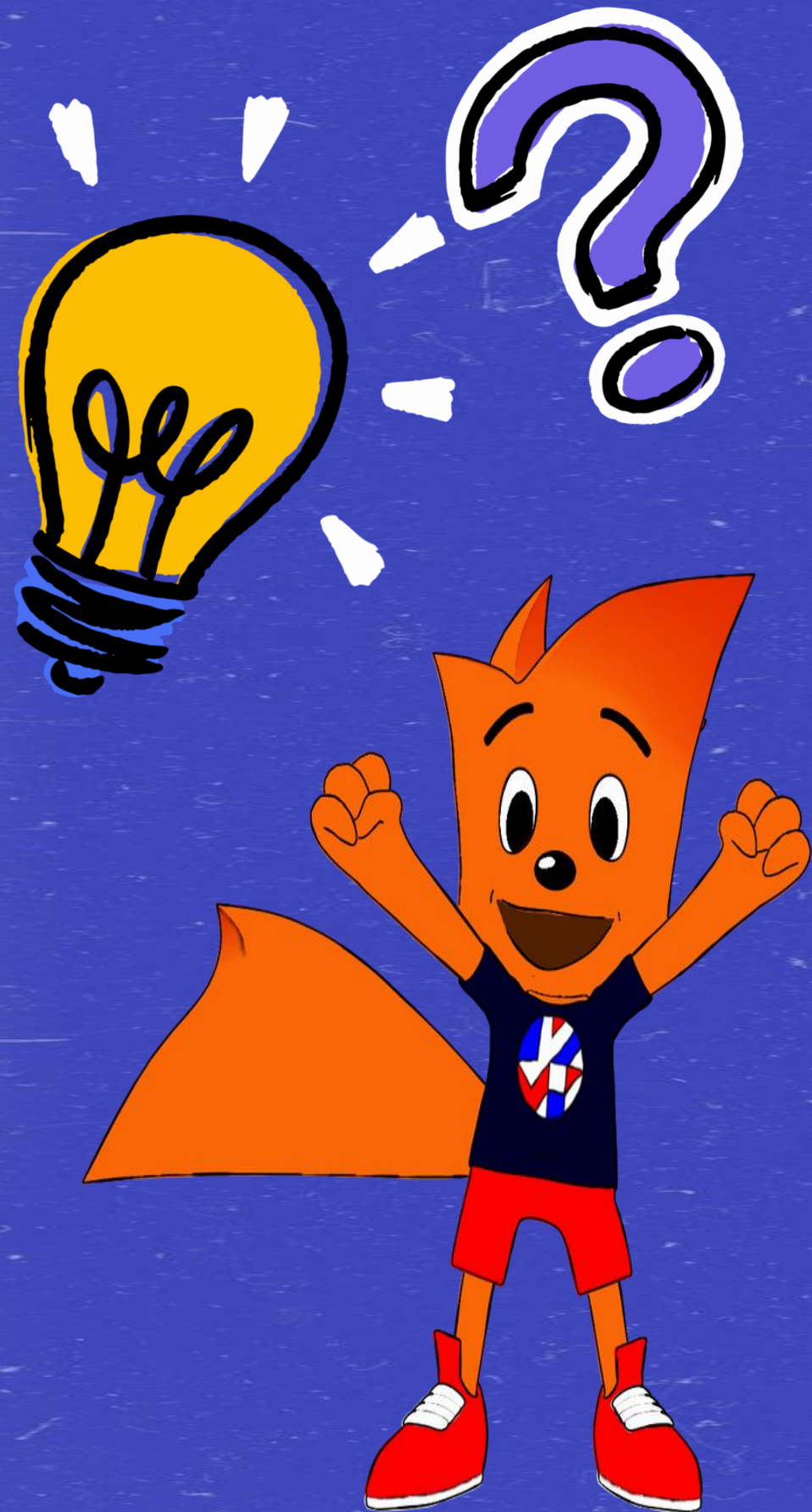


fMRI



- Croatia – 10% of kindergarten children can't start with school
- Montenegro – 90% of students, can't pass entrance exam

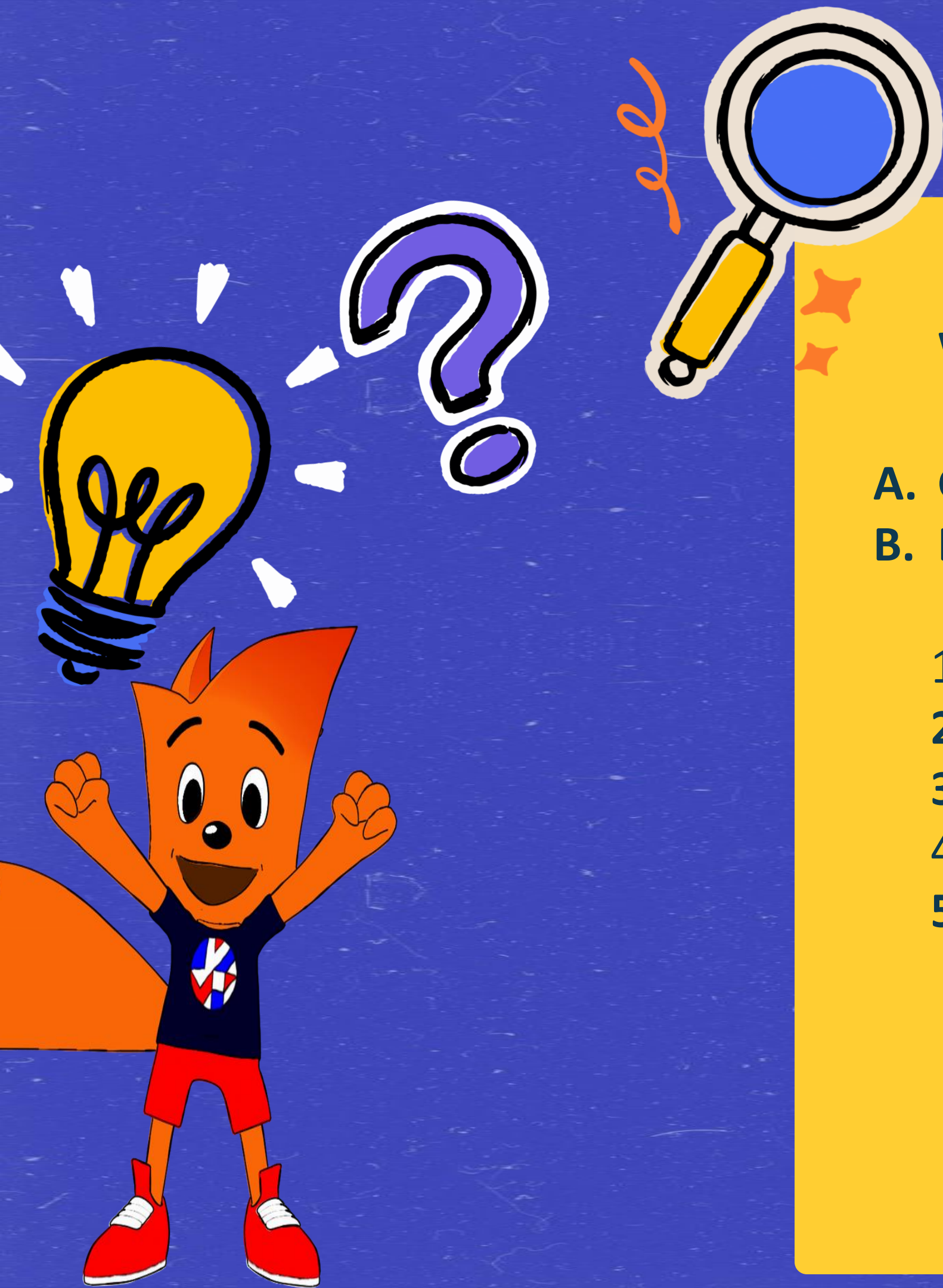




✦ ✦ Each new generation is weaker than the last

We are seeing a **decrease** in Motor skills, Attention, Focus, General knowledge, Emotional control and Empathy

and an **increase** in Speech disorders, ADHD, dyslexia, dyscalculia, dyslalia



Why do we have this problem?

A. Genetics

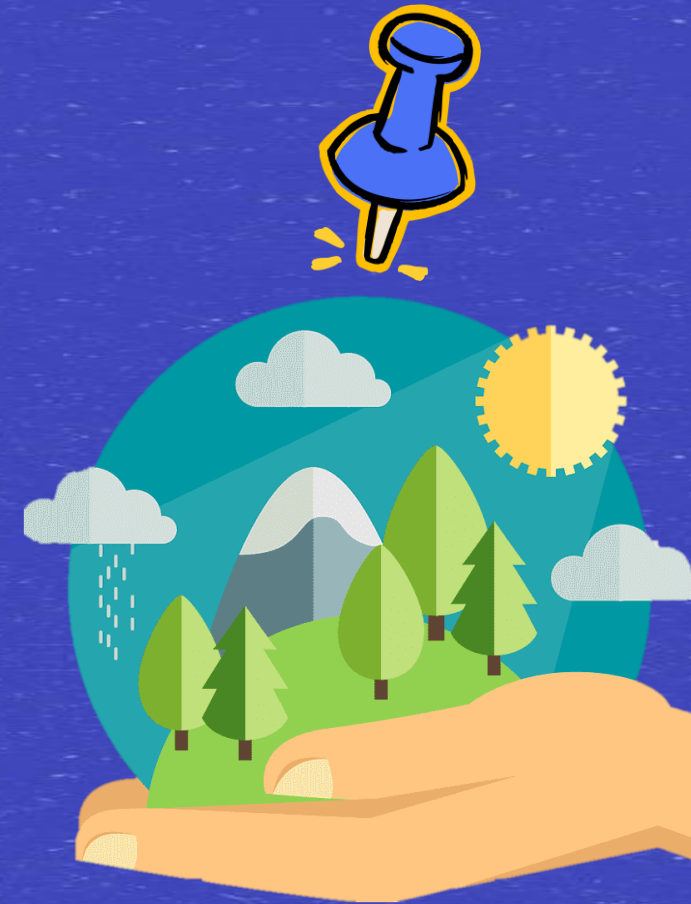
B. Environment

1. Pregnancy
2. **Physical Inactivity** (flat feet, obesity, weak bones)
3. **Overprotection by parents**
4. Old teaching methods in kindergartens and schools
5. **Video games and social media**

Of course, there are many more...



What is the influence of genetics? (in %)



What is the influence of environment? (in %)



A yellow lightbulb with a black outline and a glowing yellow interior, surrounded by white motion lines. A large, stylized black arrow with a white outline points from the lightbulb towards the text on the right.

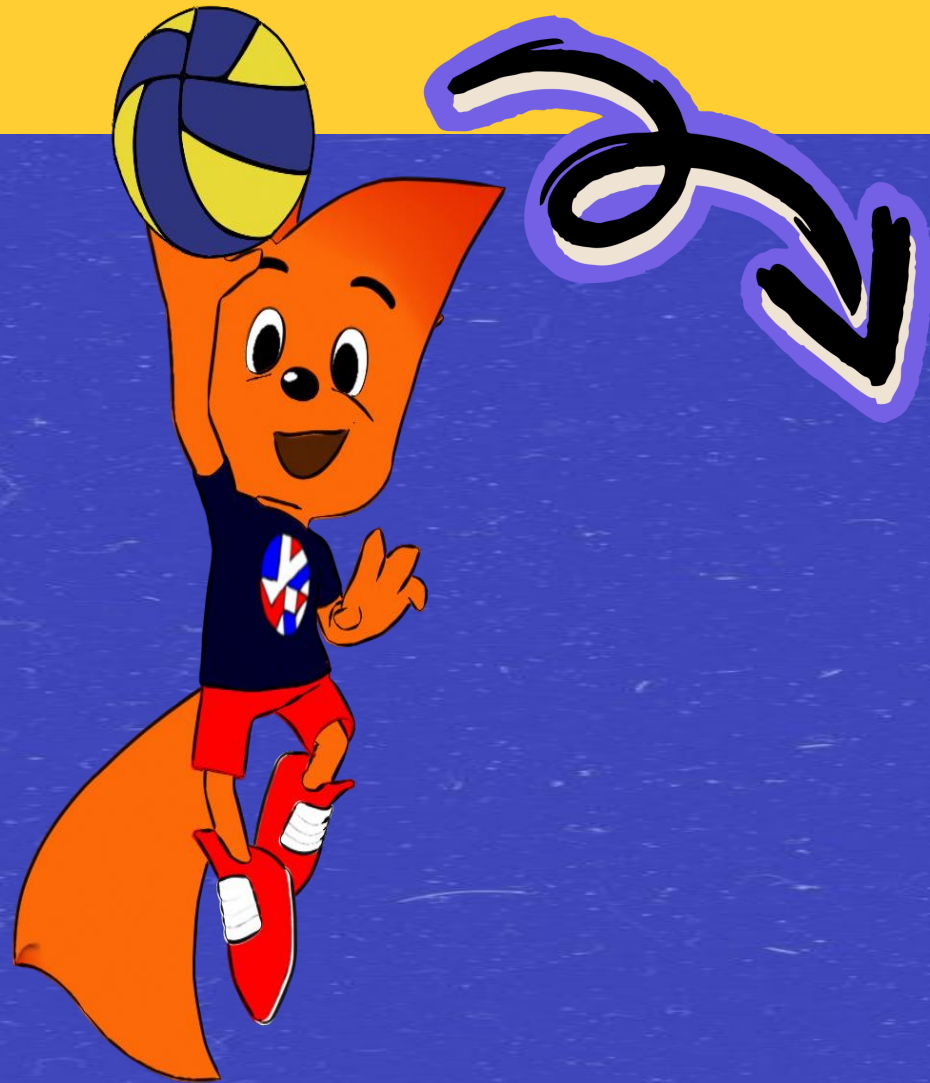
Why is physical activity important?


1. Bone health
2. Weight regulation
3. Flat feet
4. **Cognitive development**
(Chaddock L.)





How active are kids today?



A stylized illustration of a glowing yellow lightbulb with radiating lines, symbolizing an idea or innovation.A thick, hand-drawn style arrow that curves from the lightbulb towards the LinkedIn logo.The LinkedIn logo, consisting of the word "Linked" in black and "in" in white inside a blue square.An illustration of a coach in a grey shirt and black pants holding a clipboard, talking to a young athlete in a blue shirt and yellow shorts.

9 out of 10 most in demand
jobs did not exist 10 years ago
(2018 research)

A stylized illustration of a glowing yellow lightbulb with radiating lines, symbolizing an idea or innovation.A stylized illustration of a black arrow with a white outline, pointing downwards from the lightbulb towards the text.The LinkedIn logo, consisting of the word "Linked" in black and "in" in white inside a blue square.

9 out of 10 most in demand
jobs did not exist 5 years ago
(2024 research)



Functional knowledge

A cartoon hand with a blue sleeve pointing towards the first puzzle box.

What looks like a mushroom and is always wet?

Šta je to, liči na pečurku i uvek je mokro?

What loses one third when turned upside down?

Šta je to, kad ga okrenemo naopačke, izgubi trećinu?

When there was Czechoslovakia...

Kad je postojala Čehoslovačka...

How did the geese help preserve some of the greatest wisdoms of mankind?

Kako su guske pomogle da sačuvamo neke od najvećih mudrosti čovečanstava?

An illustration of a female volleyball player in a purple and black uniform, jumping to hit a volleyball.



10 countries

Romania

Germany

Italy

France

Finland

Switzerland

Ireland

Egypt

Brazil

Indonesia

Romania

Germany

Italy

France

Finland

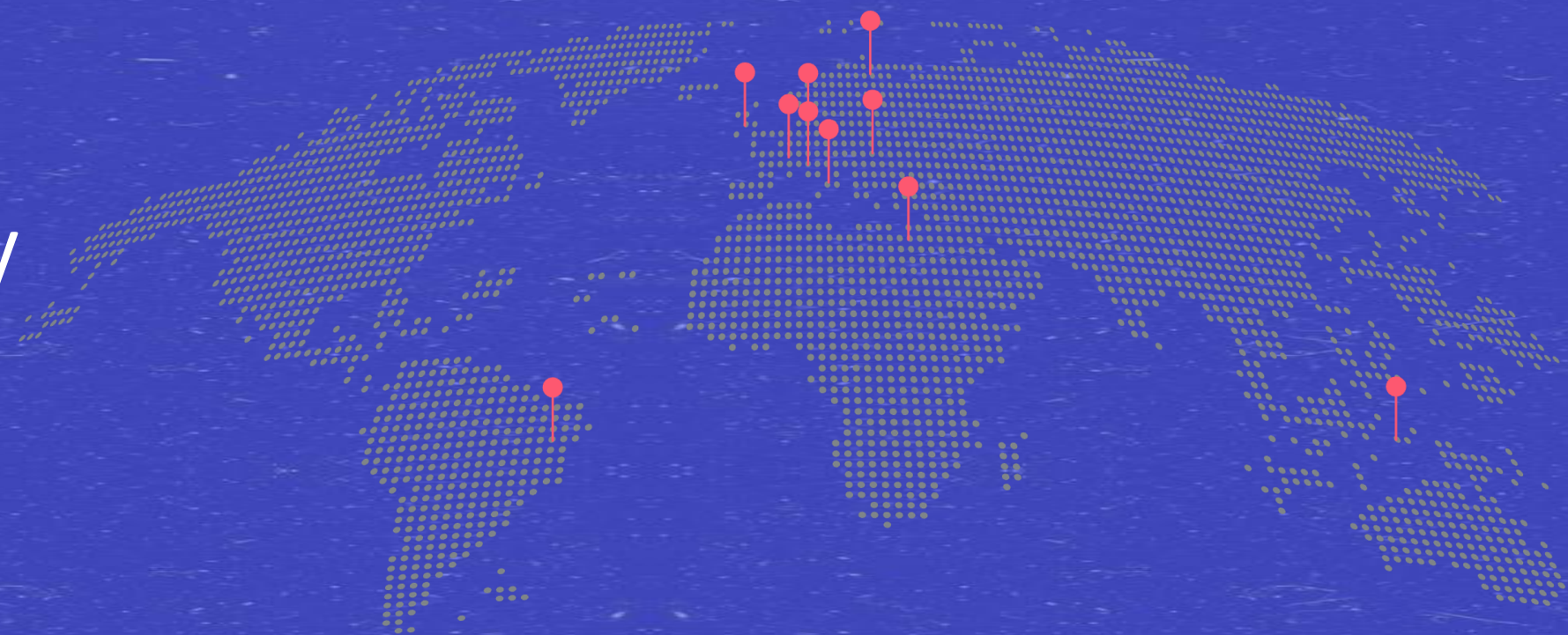
Switzerland

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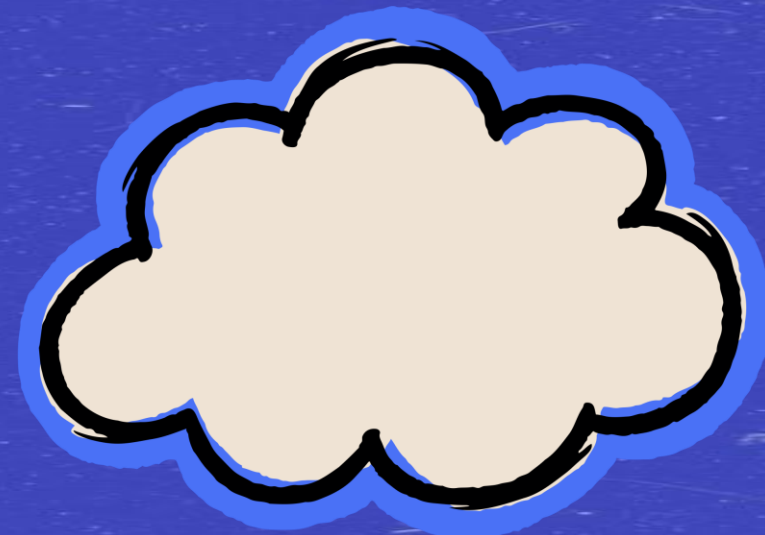


What connects
giraffe and
number 11?





When do you meet a new person in the street...

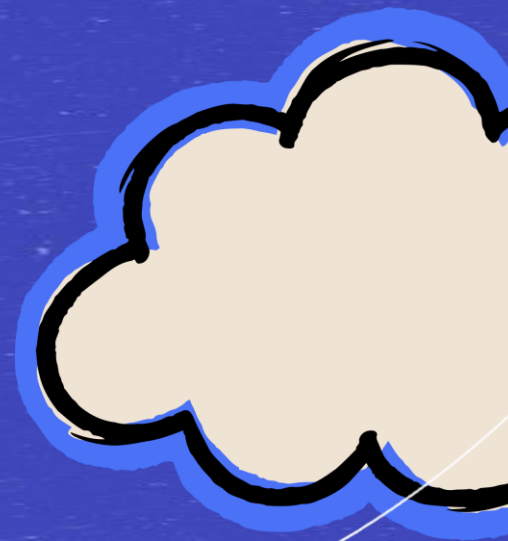




Question

Why was the **computer** the **main news** in almost all the world's media on **May 11, 1997**?

After that, new priorities must have been set – but they weren't





Gary Kasparov vs IBM deep blue

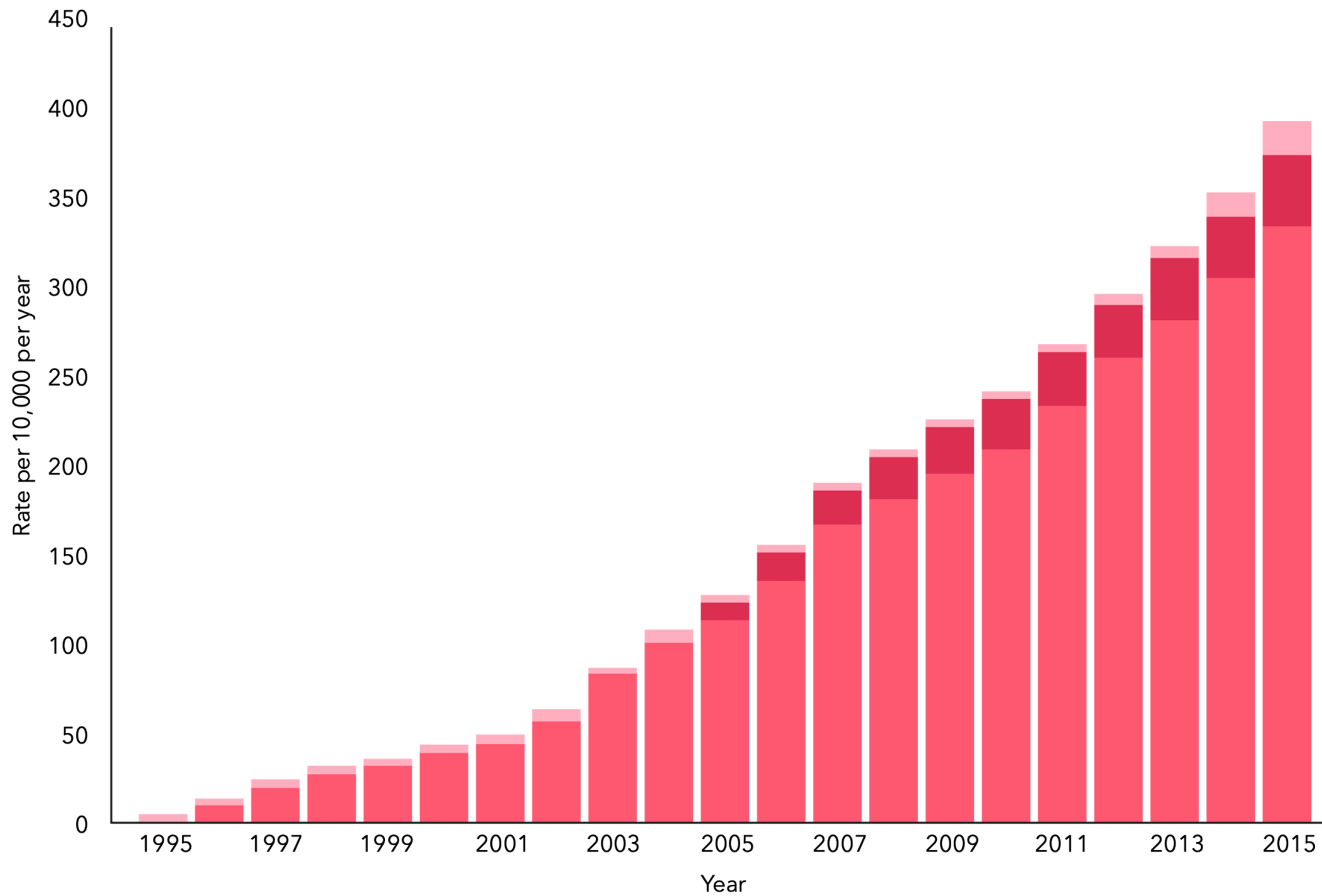


Priorities of the future

- New ideas
- Creativity
- Teamwork
- Empathy
- Learning through play



We haven't set new priorities in education



Attention-deficit hyperactivity disorder prescription rates in the UK Clinical Practice Research Datalink, 1995-2015, stratified by drugs.

Methylphenidate, Atomoxetine, Dexamfetamine

Source: British Pharmacological Society

Kids brains are different from our brains



Flying



Soup

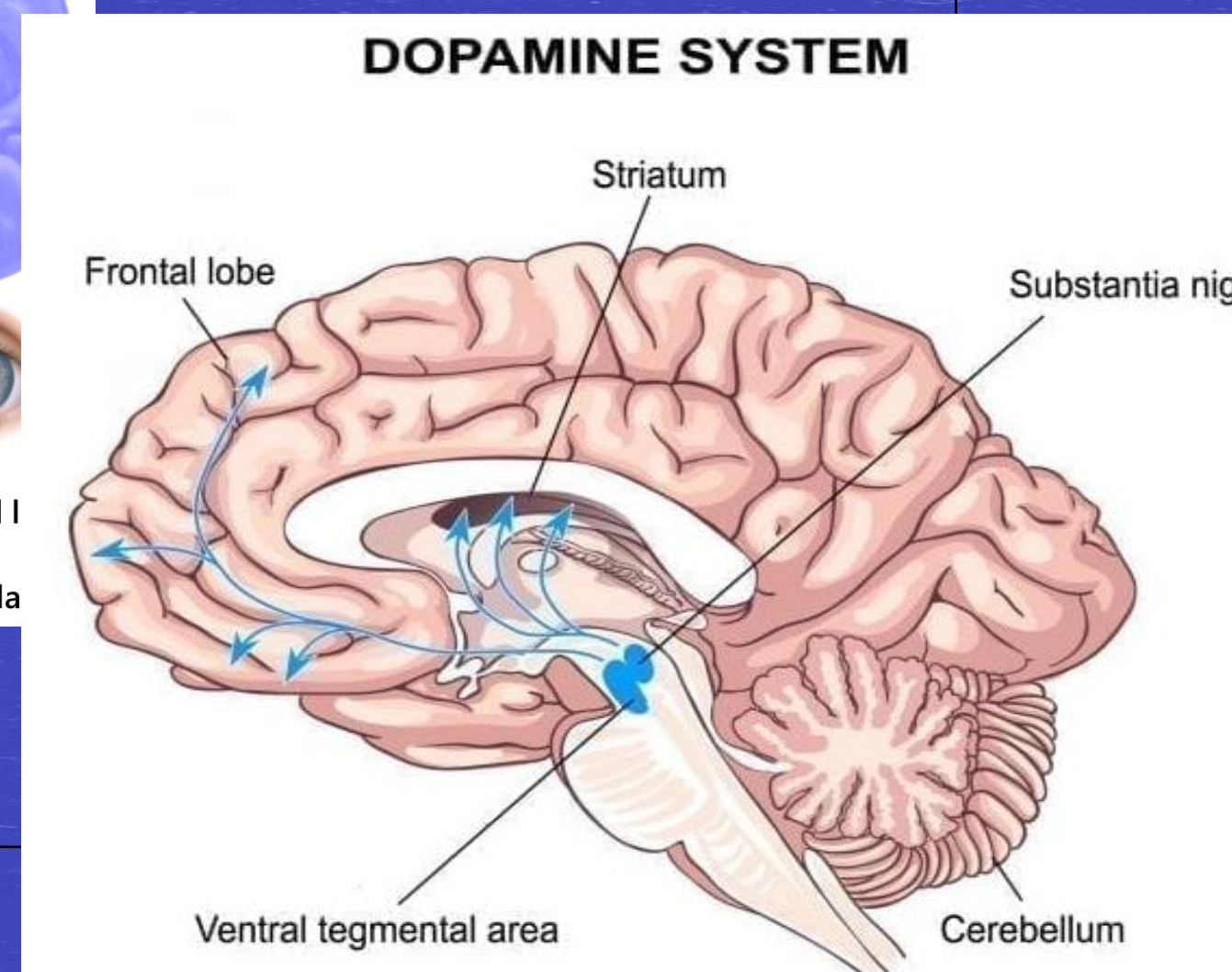
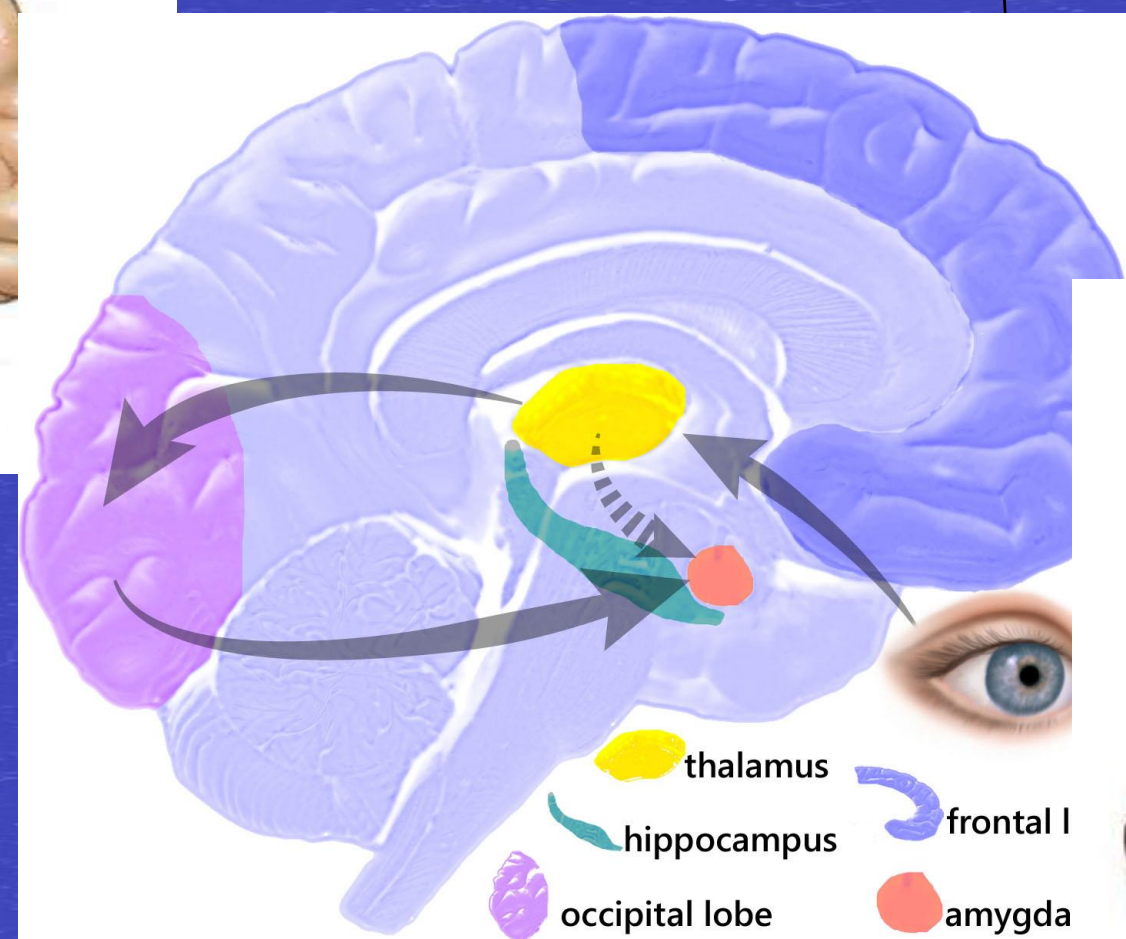
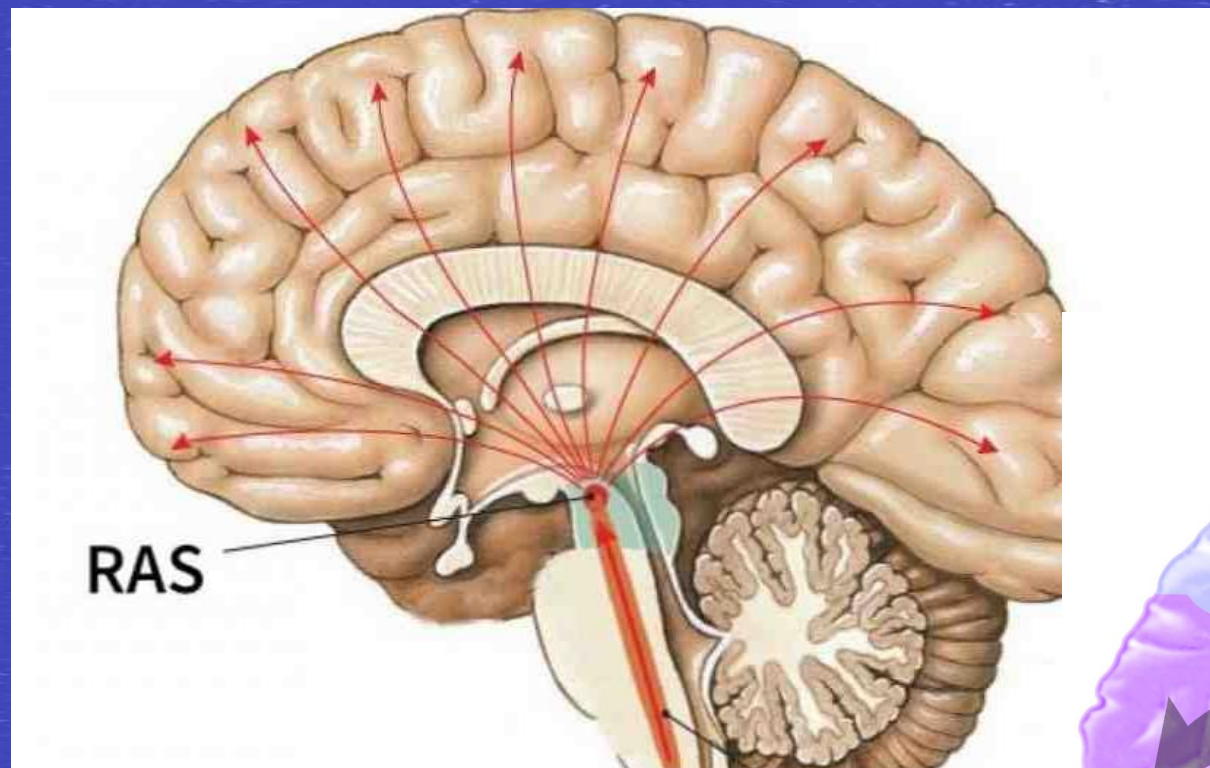


Waterfall



So they can imagine our instructions totally different

RAD Acronym



Van Gogh and 43



The Red Vineyard



The Starry Night



Olive trees with
yellow sky and sun



Self portrait with bandaged ear





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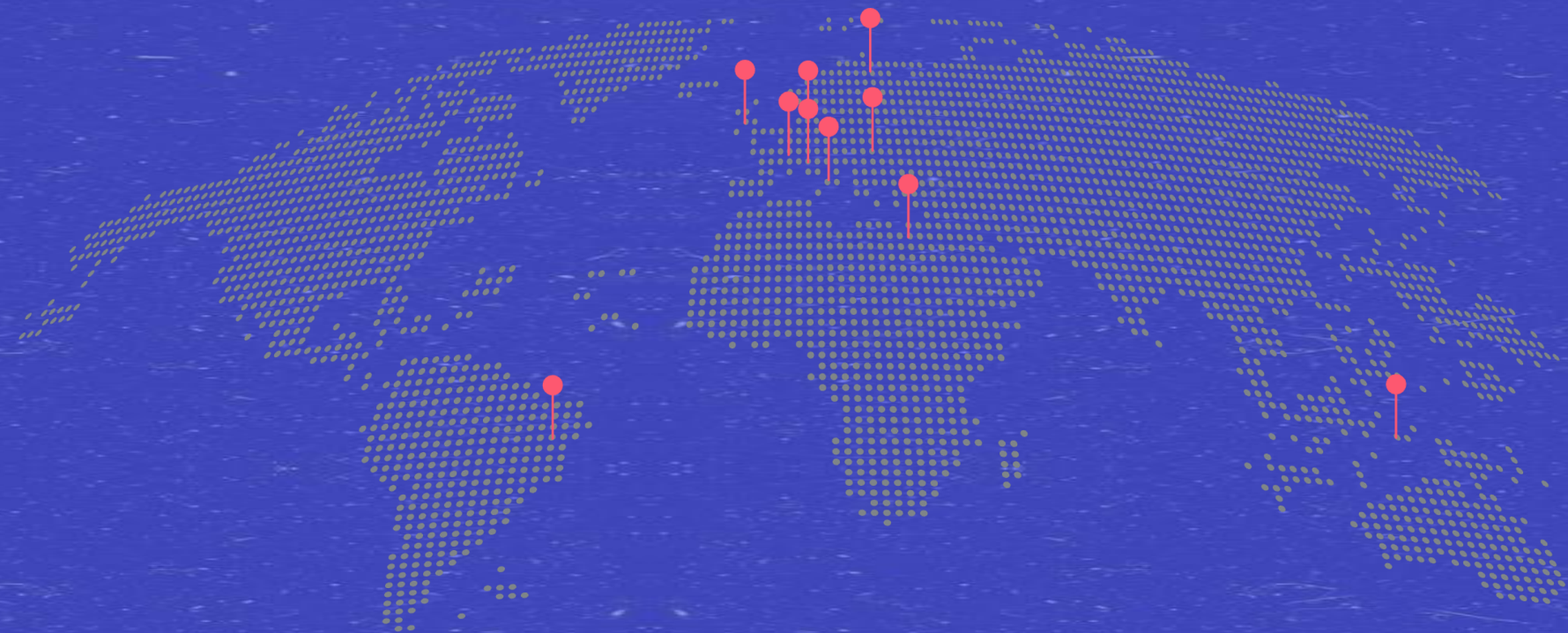
Switzerland

Ireland

Egypt

Brazil

Indonesia



Illogical stories



One line in the poem:

Our mom would fly across the world



A magnifying glass icon with a yellow handle and a blue lens, positioned in the top left corner of the yellow box.

Parent mistakes







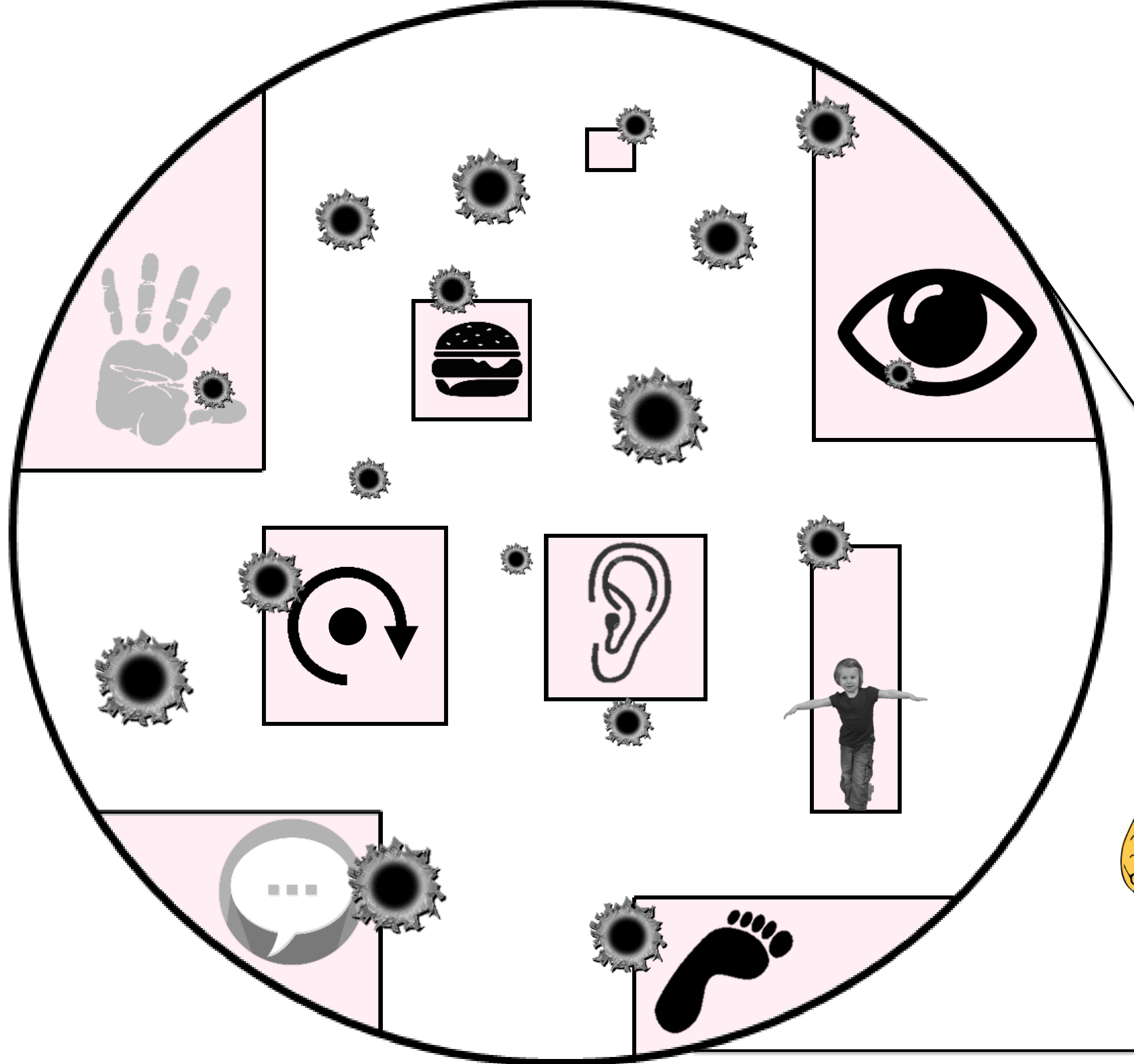






Video games and screens



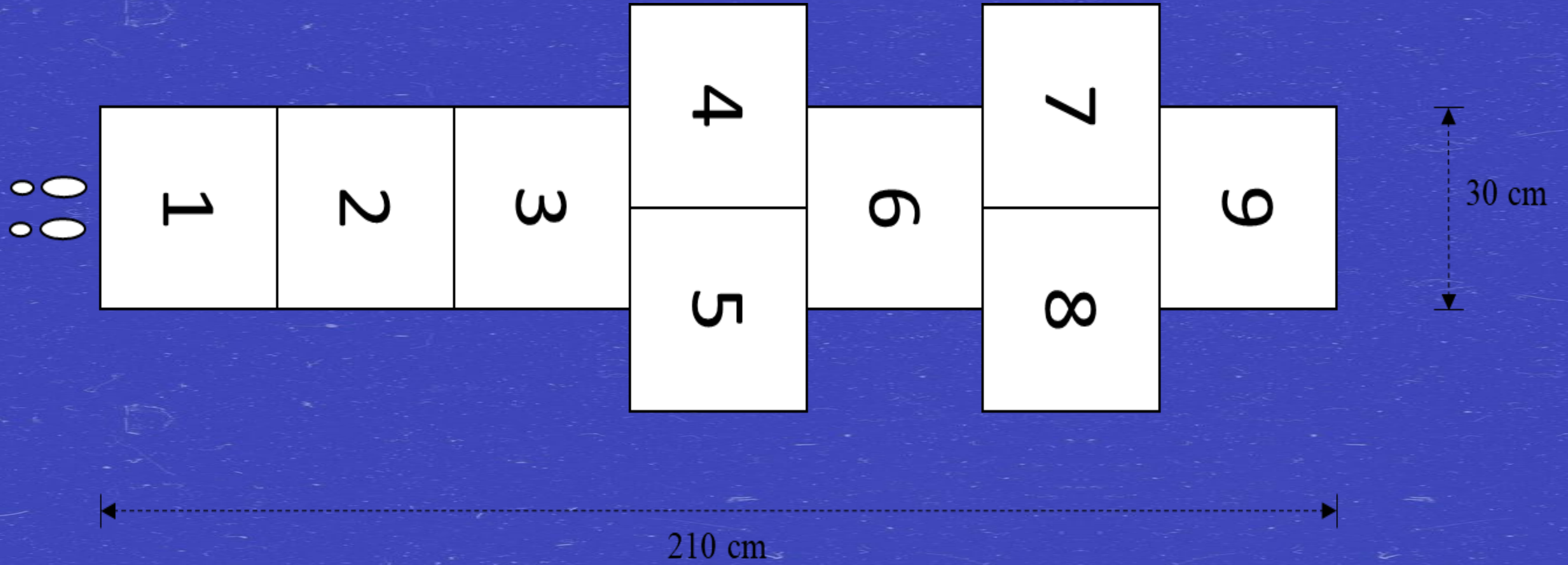




Usain Bolt



Polygon

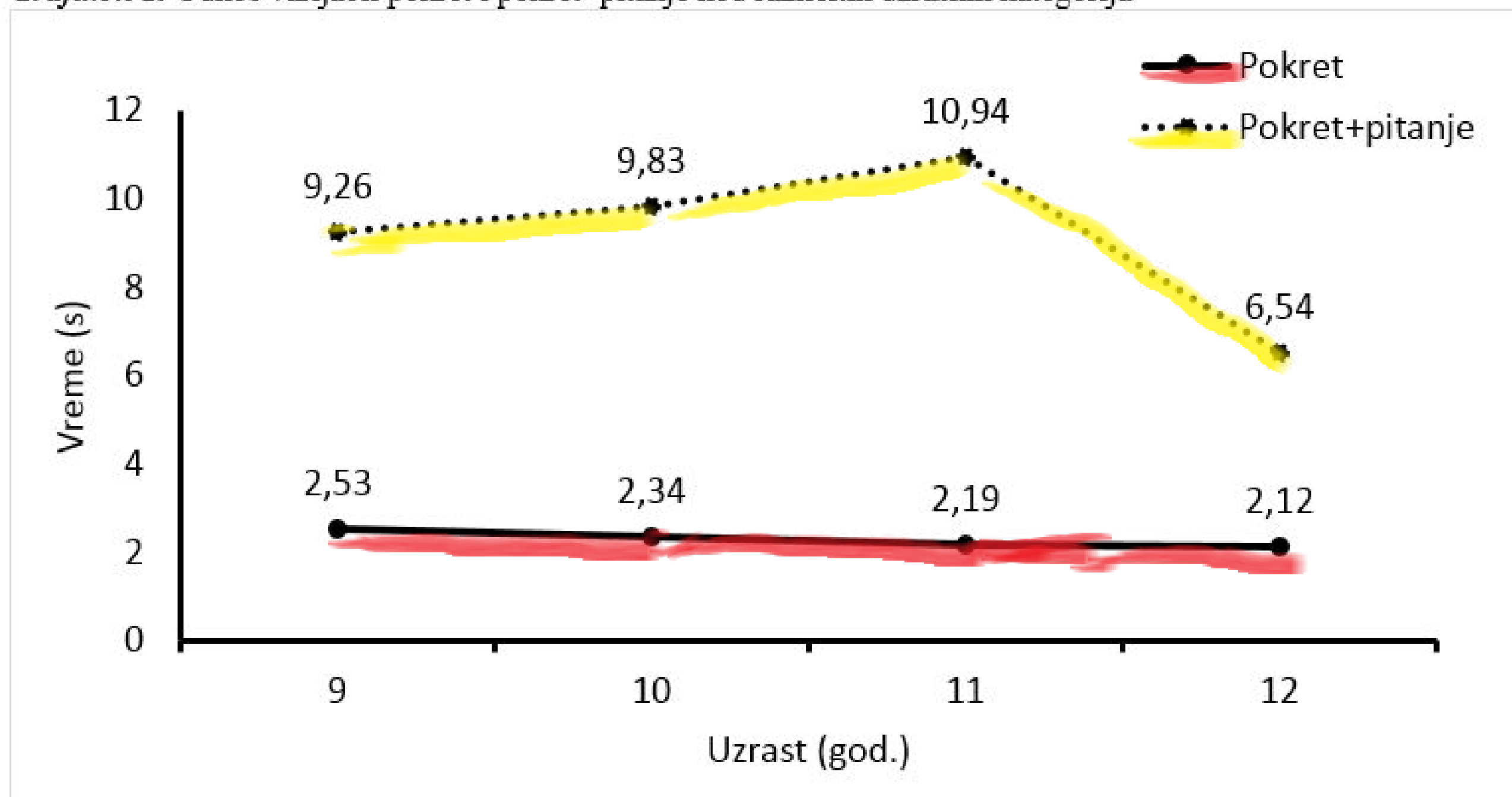


Motoric exercise and cognitive task



Na grafikonu 1. Prikazan je odnos dve varijable (pokret i pokret+pitanje) kod različitih uzrasnih kategorija. Rezultati su pokazali da je razlika između ovde dve varijable u odnosu na uzrast bila oko 3 do 5 puta. To znači, kada je pokretu dodato pitanje, tada su ispitanici bili znatno sporiji.

Grafikon 1. Odnos varijabli pokret i pokret+pitanje kod različitih uzrasnih kategorija



Motoric exercise and cognitive task



1995 2015

6	5	5	2	15	10	?	-	-	+
	-	-	-	-	-	-	-	-	+



Motoric exercise and cognitive task



1995 2015

6	5	5	2	15	10	?	-	-	+
	-	-	-	-	-	-	-	-	+
	180	180	180	180	30	180	180		180
	180	180	180	180	180	180	180	180	



**Digital Natives:
Harder to get them interested and focused for an hour or more...**



Learn through play/games...



- Fast calculating...

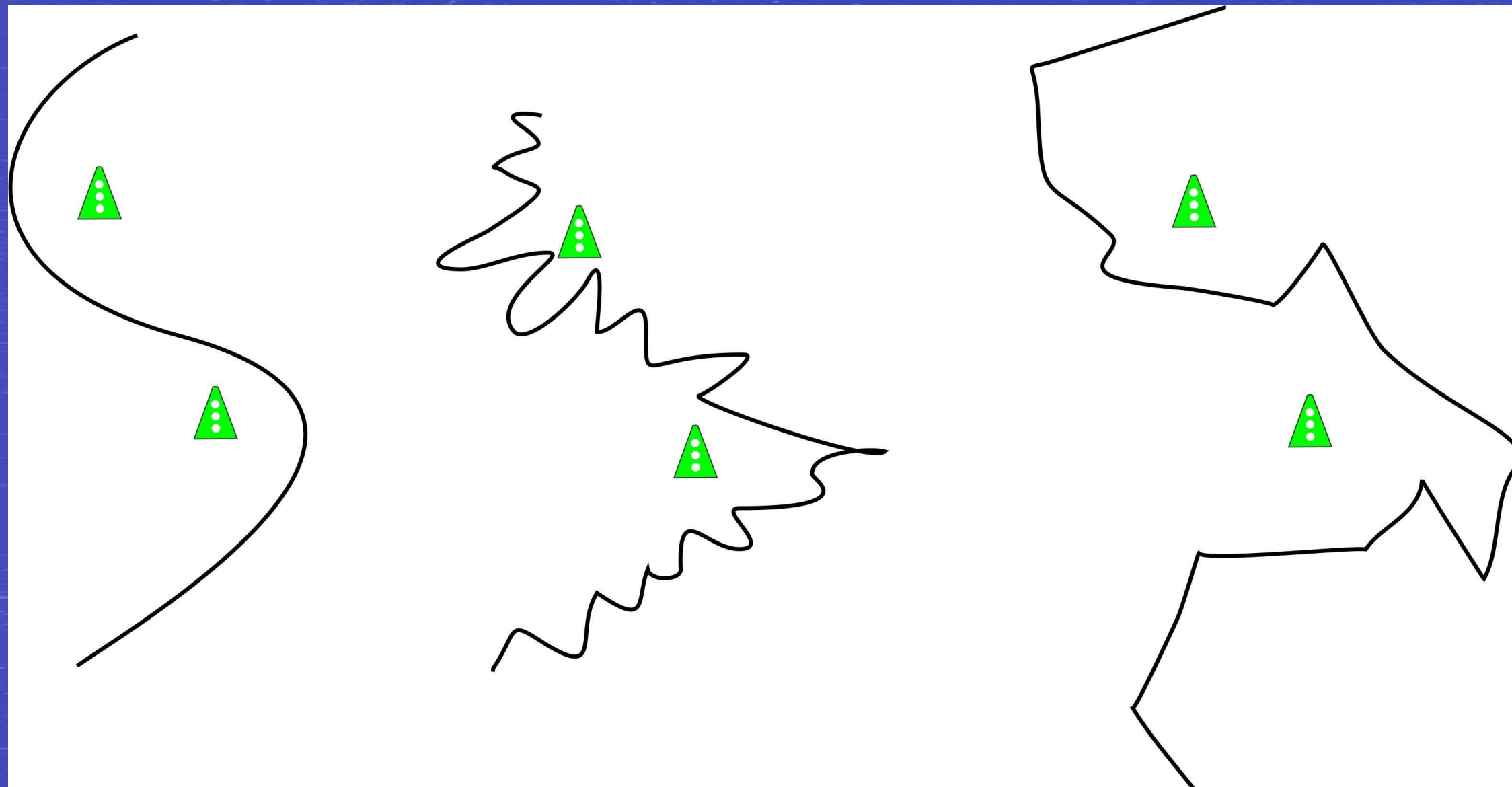


- How many burpee's can you do in 1min?



Do the sport that kid's signed up for... 'KTB'

- How does a Ski turn looks like in kids head?



So its important to look at the same thing, and then discuss it, teach it...

It has to be totally clear to both sides..

Short story

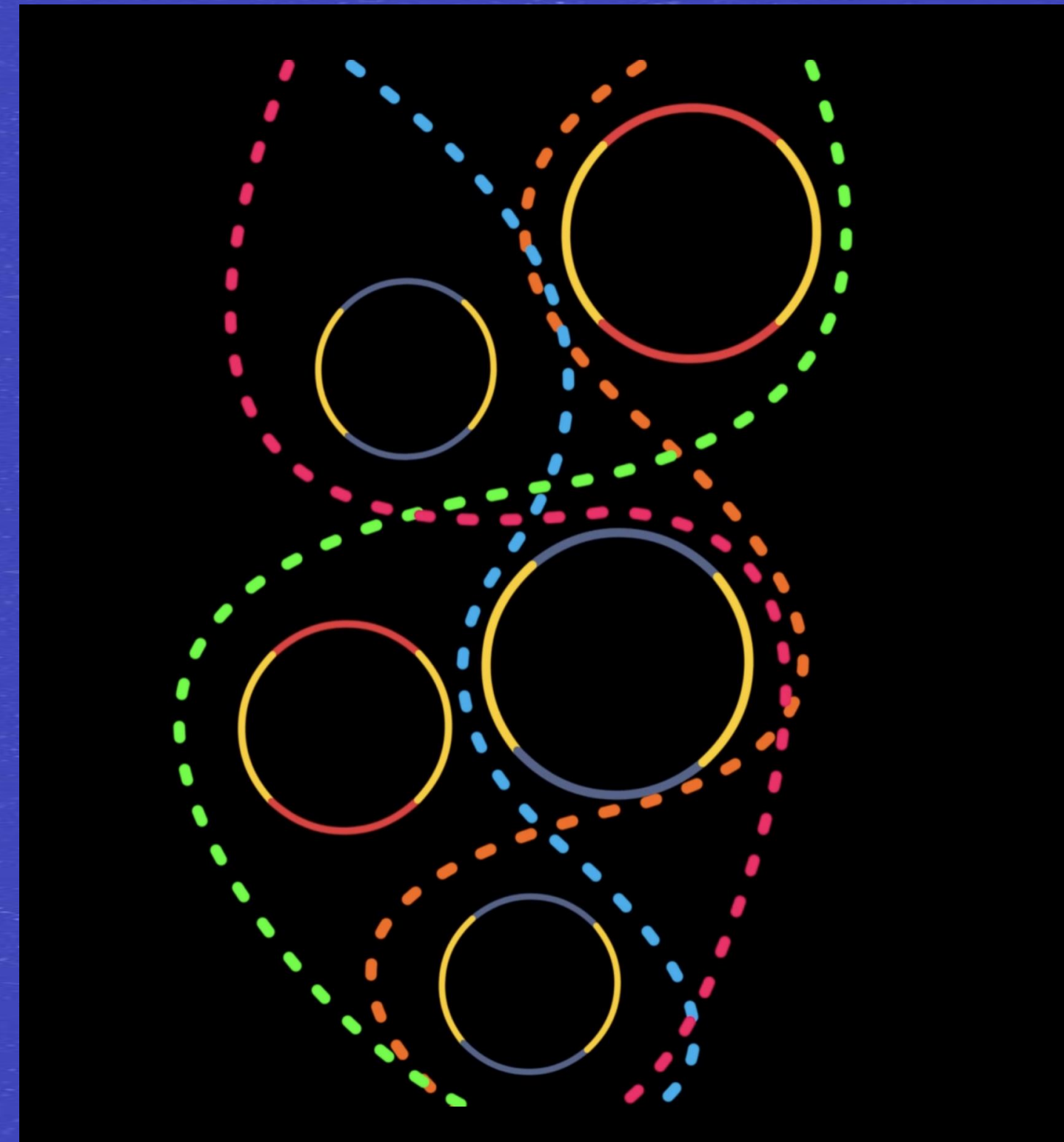
First 1h classes

Just to make it true the hour. I had to constantly reassure their behaviours by always giving them candy. This is wrong....

then 2h

now 4h+

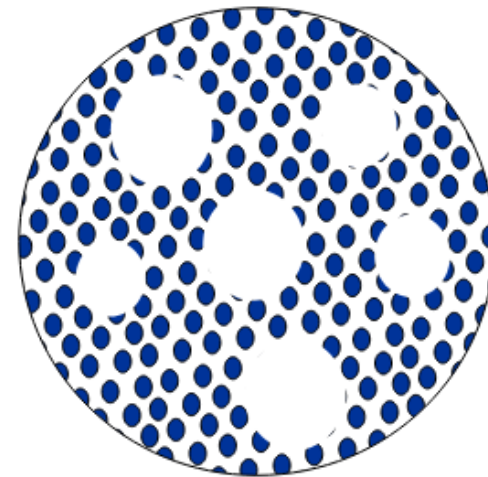
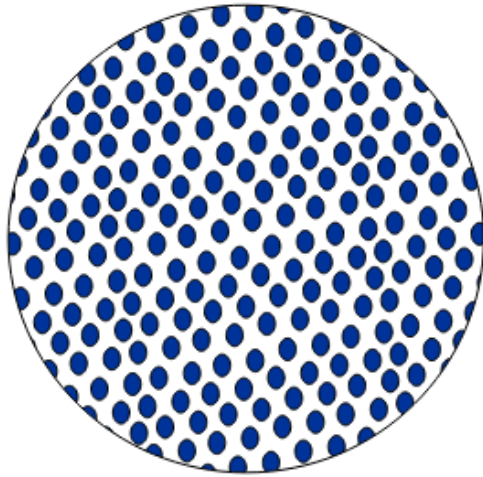
Keep them motivated and in focus





Brains information base 'then'

Brains information base 'now'



Few examples



5 five & lines[®]
INTELLIGENT SPORTS EQUIPMENT







Thank you for your attention

ntclearning.com





Second Day

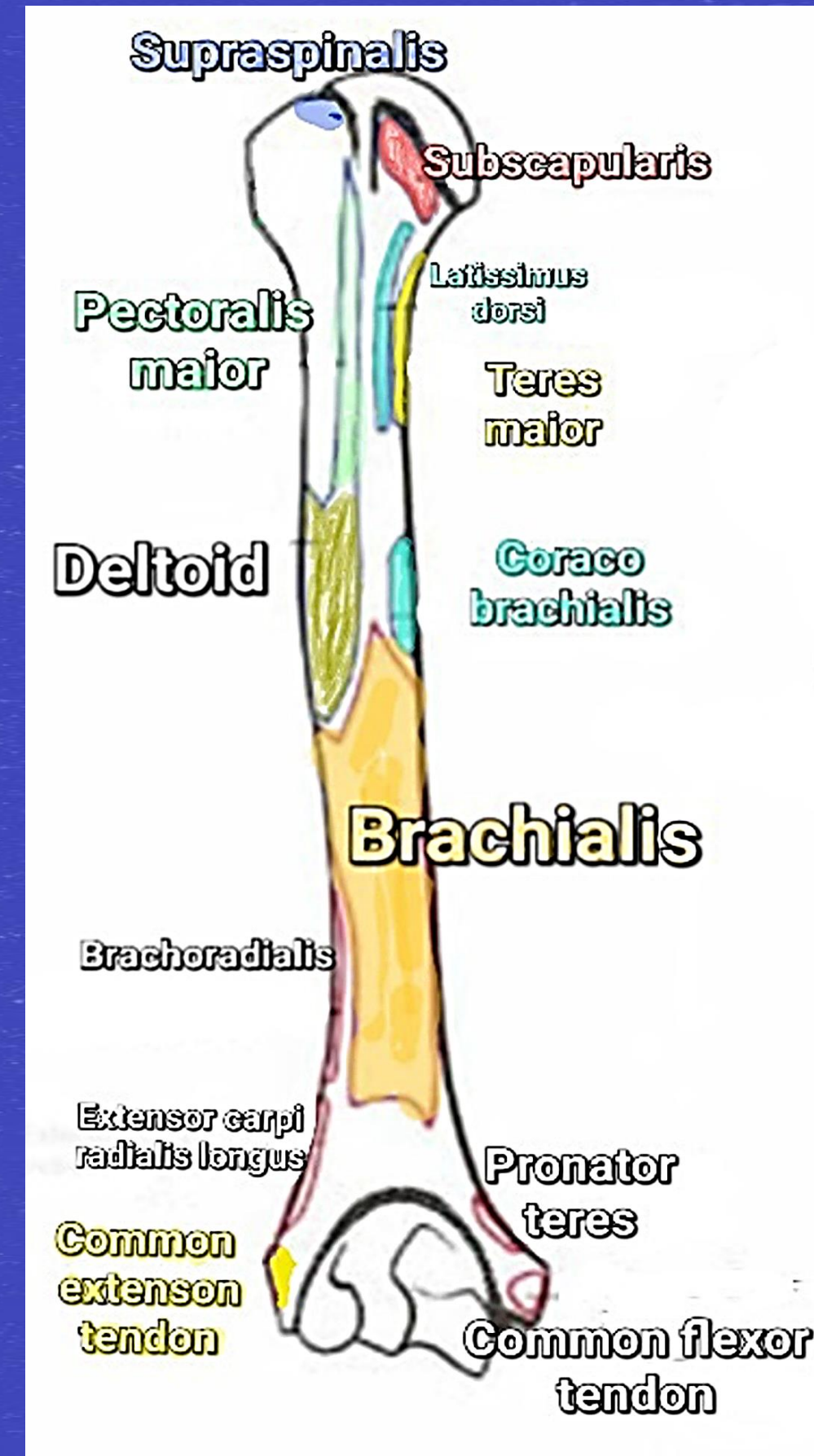
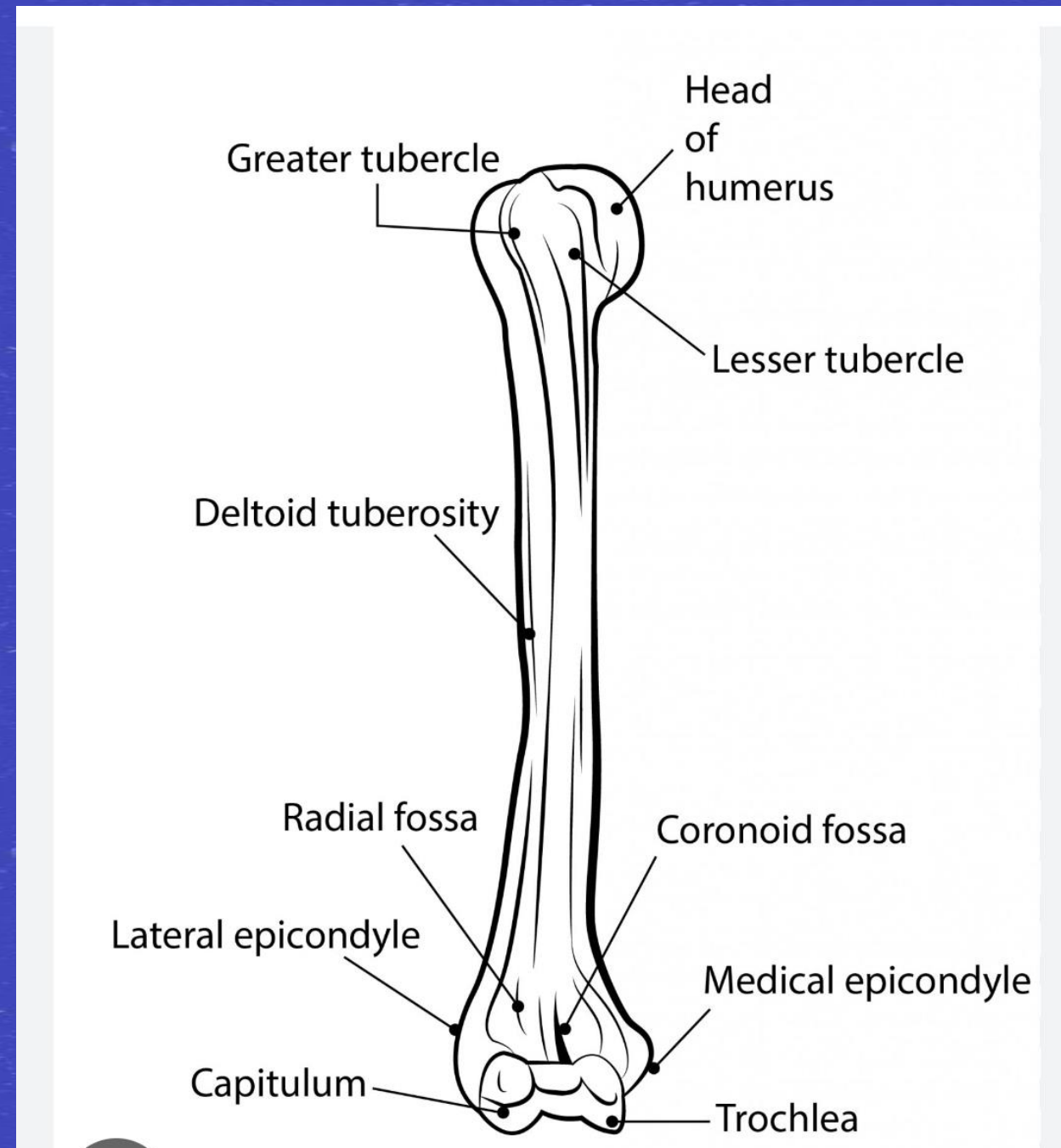
Game day and night



Wise ball



Bones – NTC Dino park



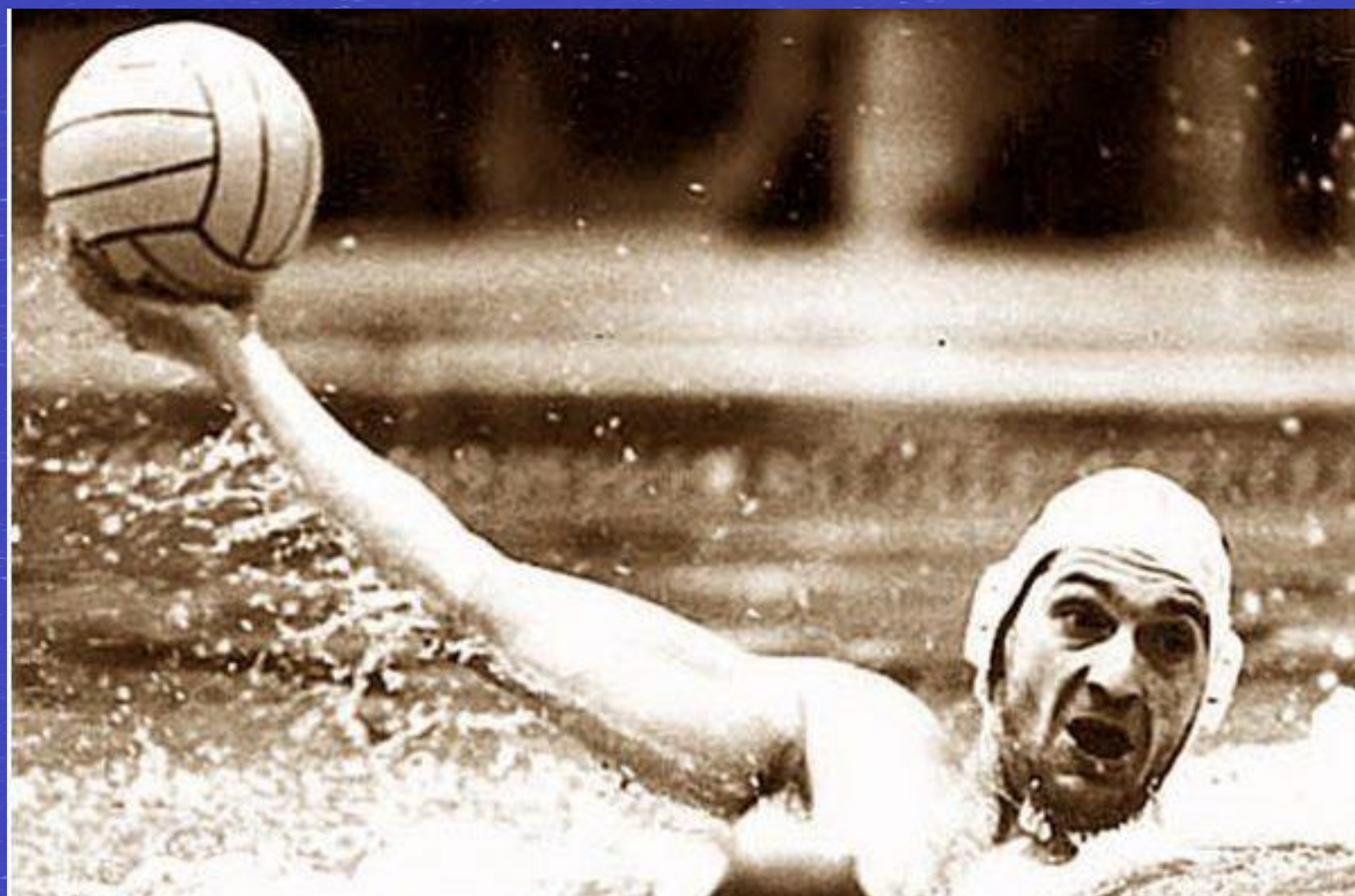




Speed up phenomenon

- Tomos automatic
- Fox
- Igor Milanovic
- Spust
- Denver - LA



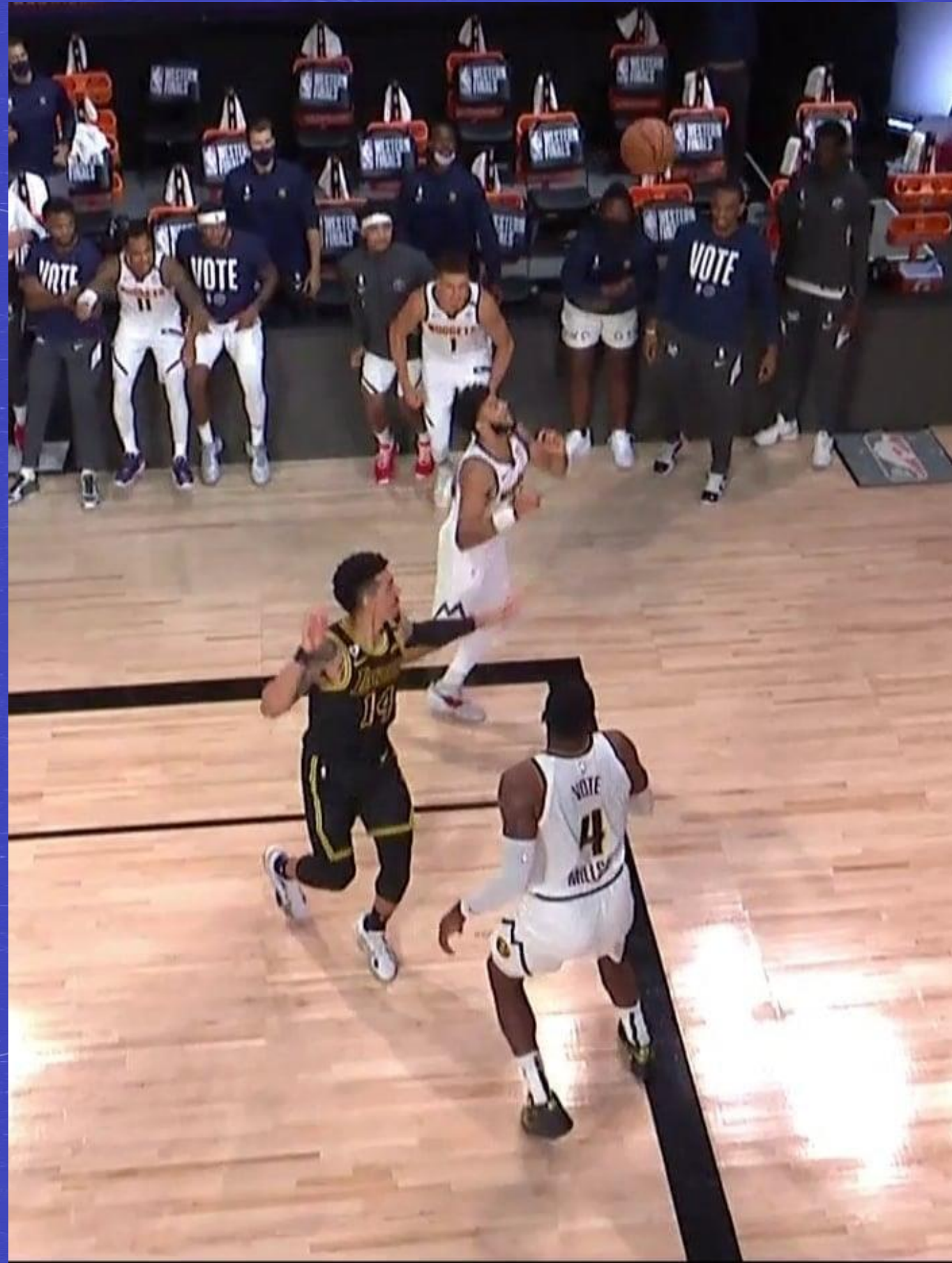


22.8.1986.











THANK
YOU

