

***NUTRITION AS
YOUR 6TH PLAYER
ON THE ICE?***

 martin
čupka

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HOW DOES NUTRITION AFFECT PLAYER PERFORMANCE OR THE RESULT OF A MATCH?





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PHD. DEGREE IN SPORTS NUTRITION (COMENIUS UNIVERSITY IN BRATISLAVA)

11 YEARS OF EXPERIENCE AS A SPORTS NUTRITIONIST

10 OLYMPIC ATHLETES, 21 DIFFERENT SPORTS

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**ŠIMON NEMEC
(NEW JERSEY DEVILS)**



**JAKUB GRIGAR
(OLYMPIC MEDALIST
IN CANOE SLALOM)**



**DOMI ŠKORVÁNKOVÁ
(CAPTAIN OF SLOVAK
FOOTBALL TEAM)**



**MARTIN SVRČEK
(SOUDAL QUICKSTEP -
WORLD TOUR CYCLING)**

**WHAT CAN YOU DO AS A
COACH FOR YOUR TEAM
WHEN IT COMES TO
NUTRITION?**

WHAT MAKES THE DIFFERENCE?



FUELING FOR PERFORMANCE

PRE MEAL

HYDRATATION

INTRA MEAL

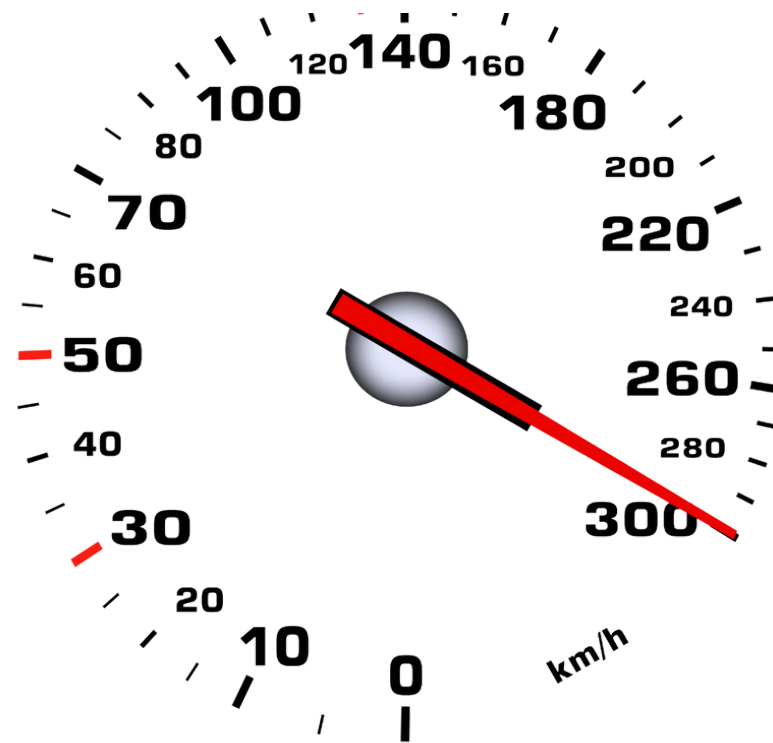
POST MEAL

ACTION



WHAT KIND OF CARS DO YOU LIKE?



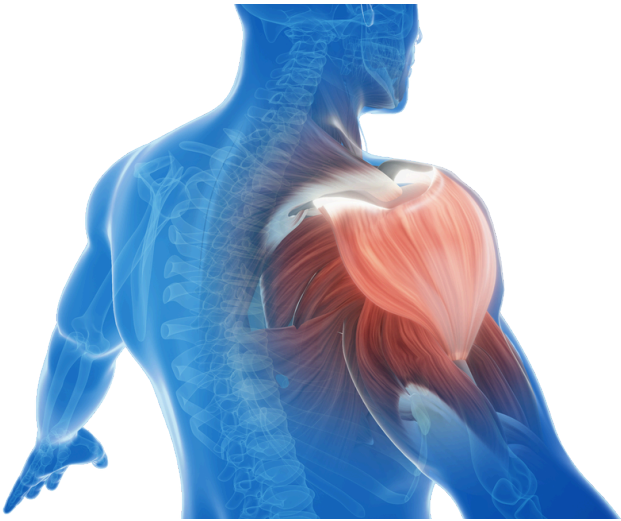




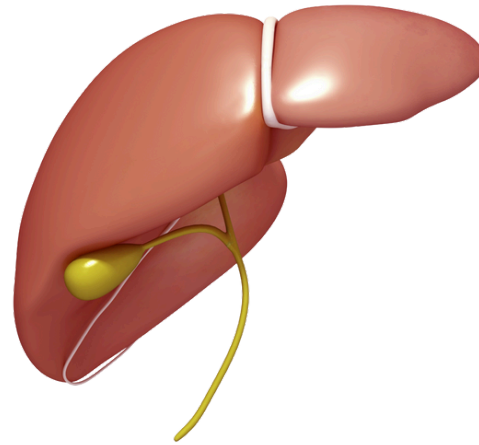
**WHAT FUEL DO YOU USE
AS A SOURCE OF ENERGY
FOR PERFORMANCE?**



WHERE DOES THE ENERGY FOR PERFORMANCE COME FROM?



MUSCLE: ~300 g
(1200 kcal)

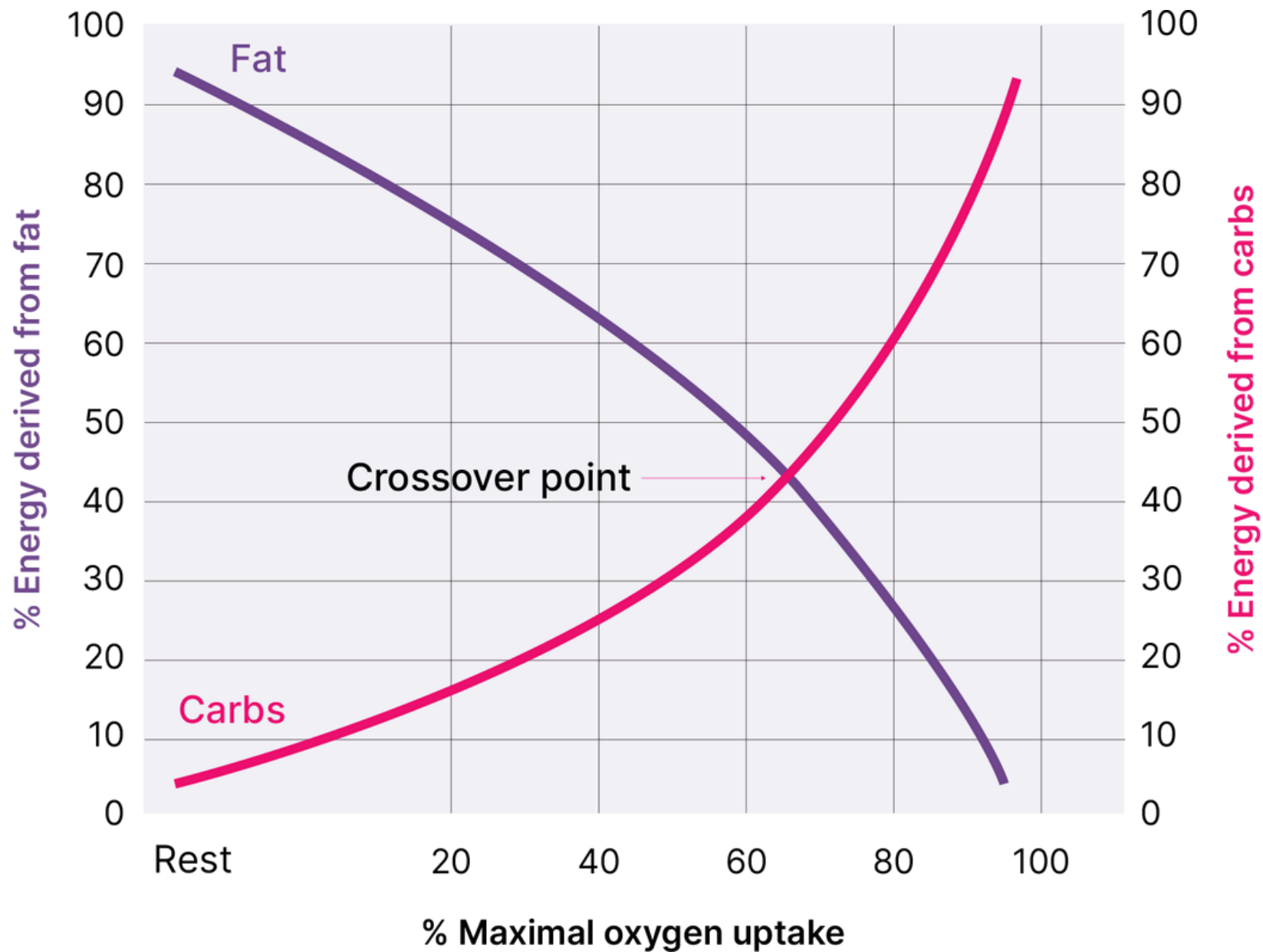


LIVER: ~70 g
(280 kcal)



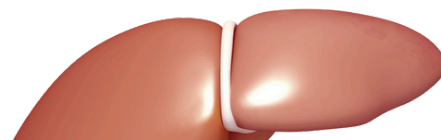
FAT: >6000 g
(72000 kcal)

CARBOHYDRATES (GLYCOGEN)



(Crossover concept by Brooks & Mercier, 1997)

WHERE DOES THE ENERGY FOR PERFORMANCE COME FROM?

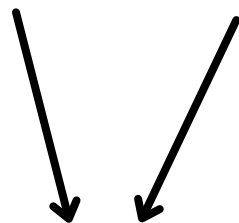


APROX. 50X LESS STORAGE OF CARBOHYDRATES !

MUSCLE: ~300 g
(1200 kcal)

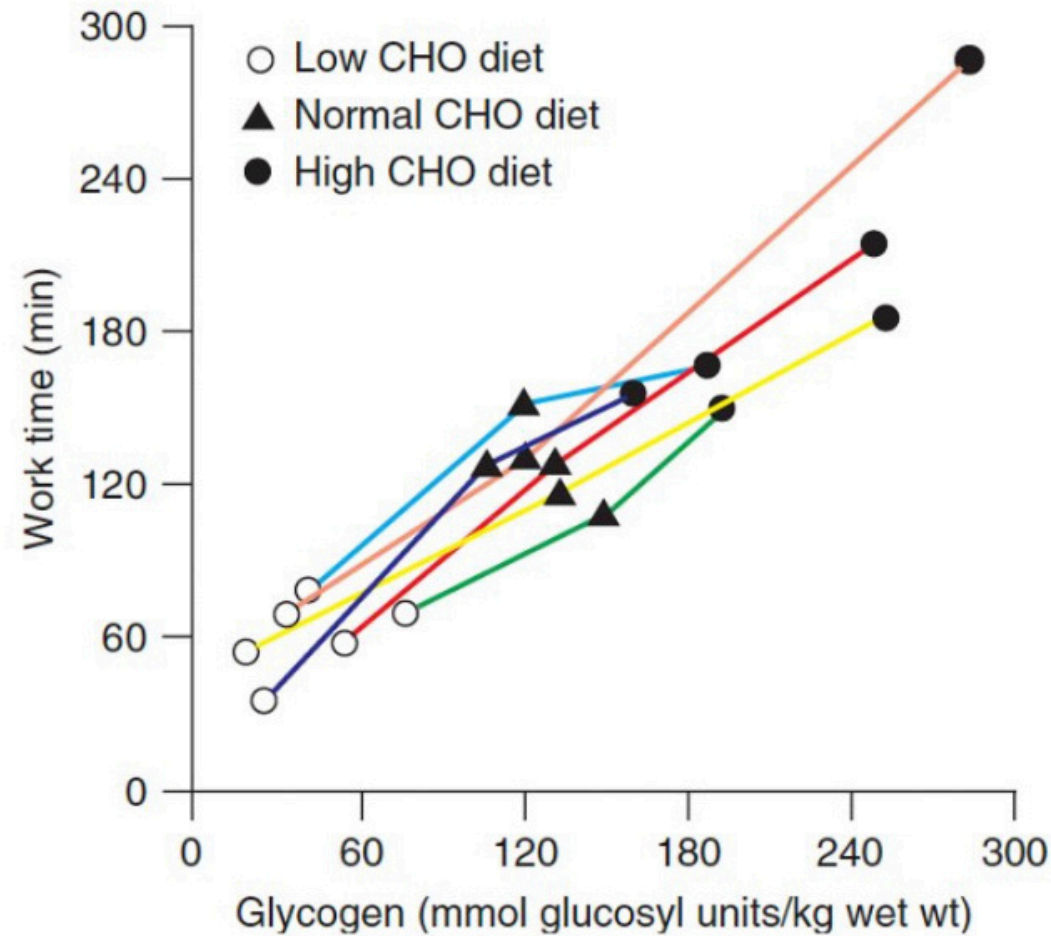
LIVER: ~70 g
(280 kcal)

FAT: >6000 g
(72000 kcal)



CARBOHYDRATES (GLYCOGEN)

WE KNOW THAT MORE THAN 50 YEARS

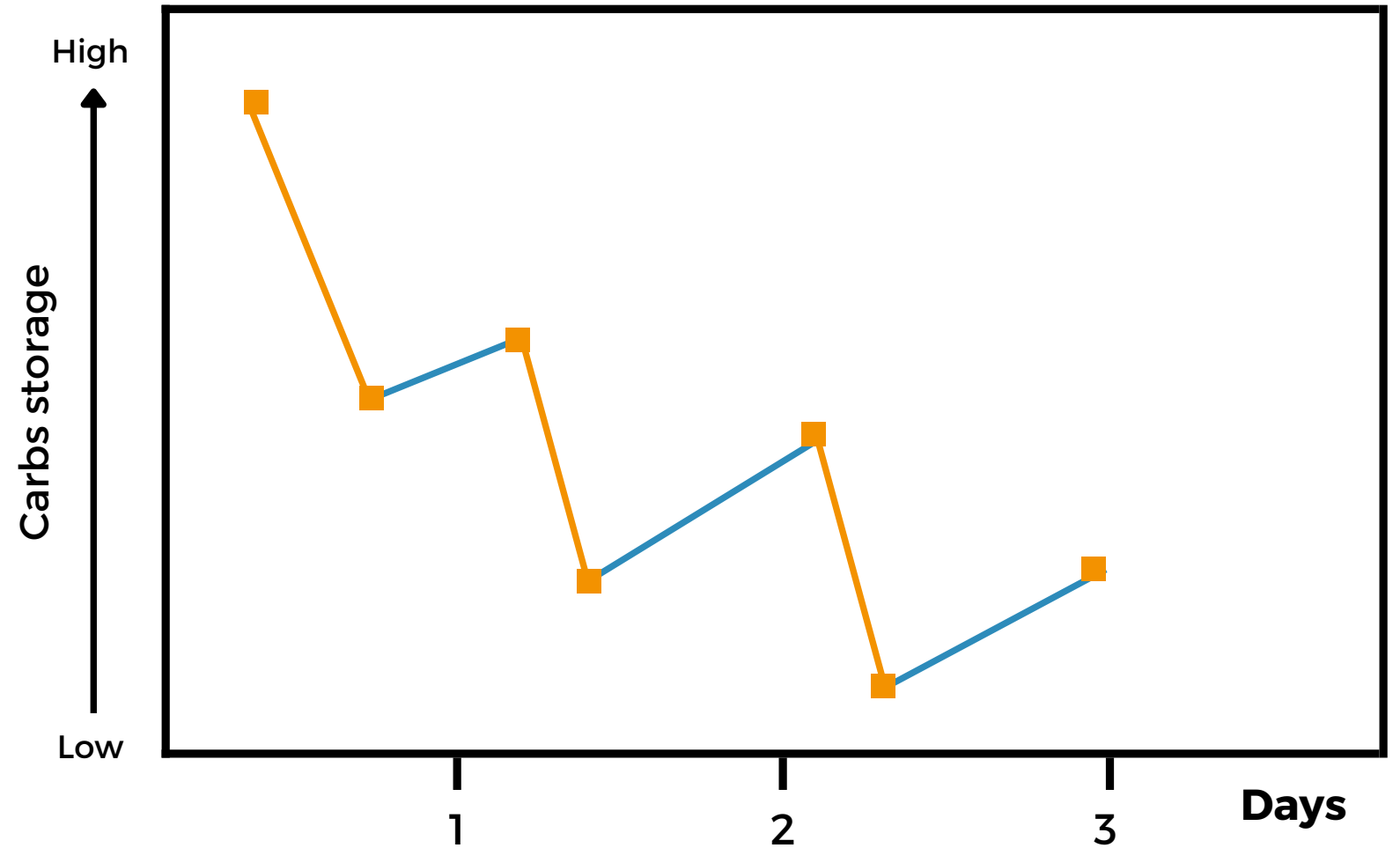


Graph directly sourced from 'Biochemistry for Sport and Exercise Metabolism', adapted from Bergstrom et al., 1967

PETER A.K.A RANDOM NUTRITION



PETER A.K.A RANDOM NUTRITION

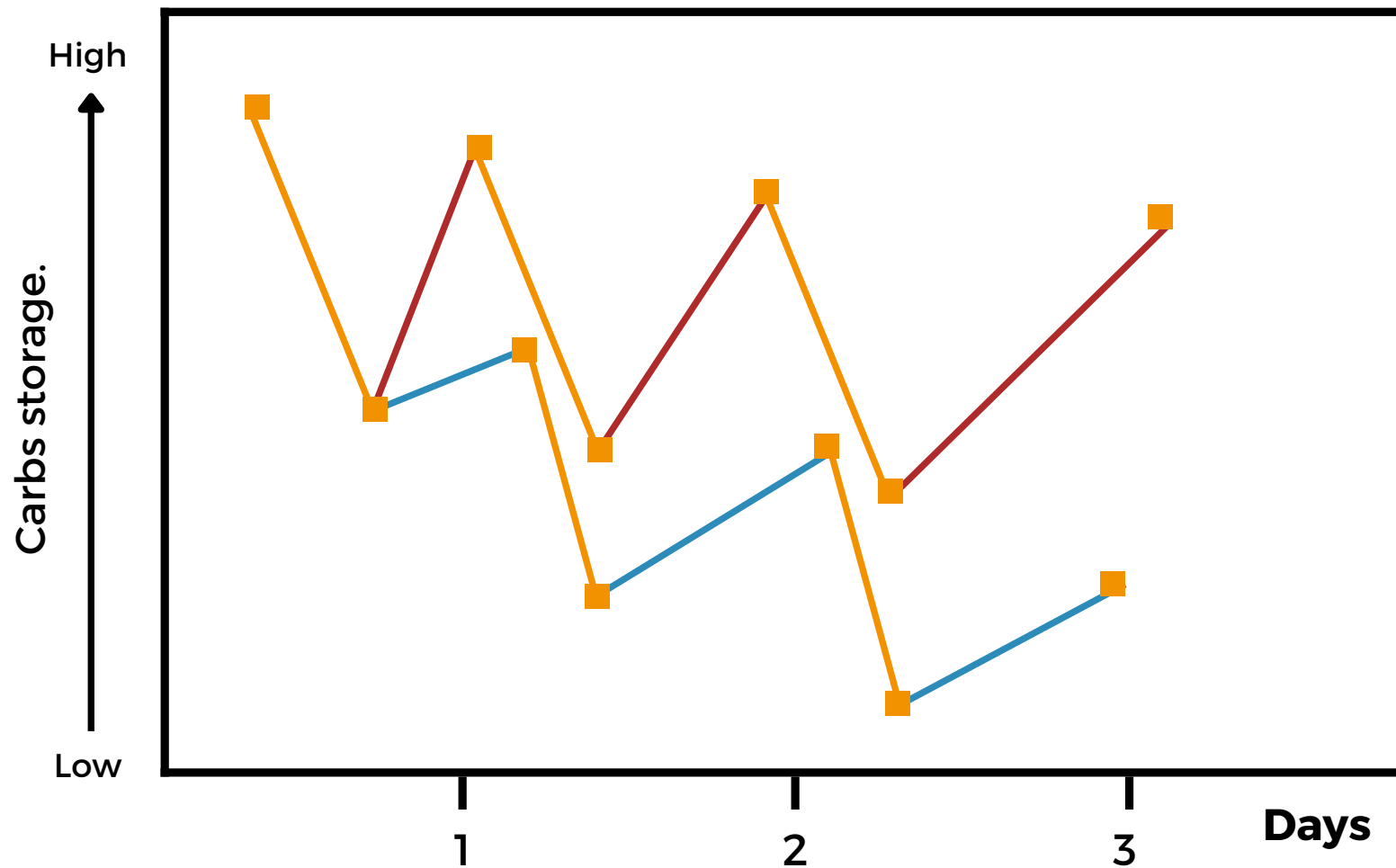


■ Training load
— Lack of nutrition

MARTIN: PLANNING AHEAD



MARTIN: PLANNING AHEAD



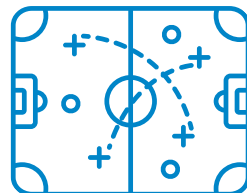
- Training load
- Enough nutrition (mainly carbs)
- Lack of nutrition

IMAGINE THE DIFFERENCE BETWEEN

HIGHER PASSING ACCURACY



LONGER SHIFTS W/O HEAVY LEGS



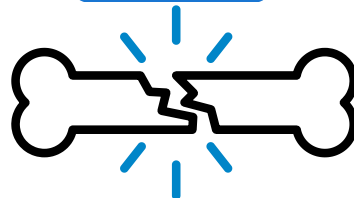
**HIGHER AVERAGE SPEED
THROUGHOUT THE MATCH**



CONFIDENT PERFORMANCE



**REDUCED RISK OF
INJURIES / DISEASES**



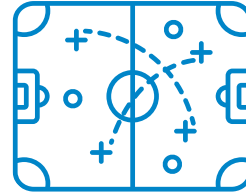
IMAGINE THE DIFFERENCE BETWEEN

HIGHER PASSING ACCURACY



LOSING PUCKS / MORE TURNOVERS

LONGER SHIFTS W/O HEAVY LEGS



EARLY FATIGUE / WEAK IN TACKLES

**HIGHER AVERAGE SPEED
THROUGHOUT THE MATCH**



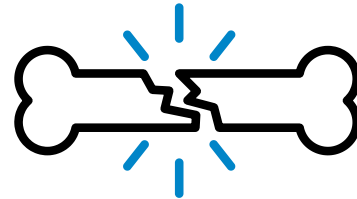
SLOWER PLAYERS IN 3RD PERIOD

CONFIDENT PERFORMANCE



HIGHER REACTION TIME

**REDUCED RISK OF
INJURIES / DISEASES**



**FREQUENT OUTAGES FROM
TRAINING AND MATCHES**

MORE BLOOD IN MUSCLES = LESS BLOOD FOR DIGESTING



NUTRITION TIMING BEFORE TRAINING

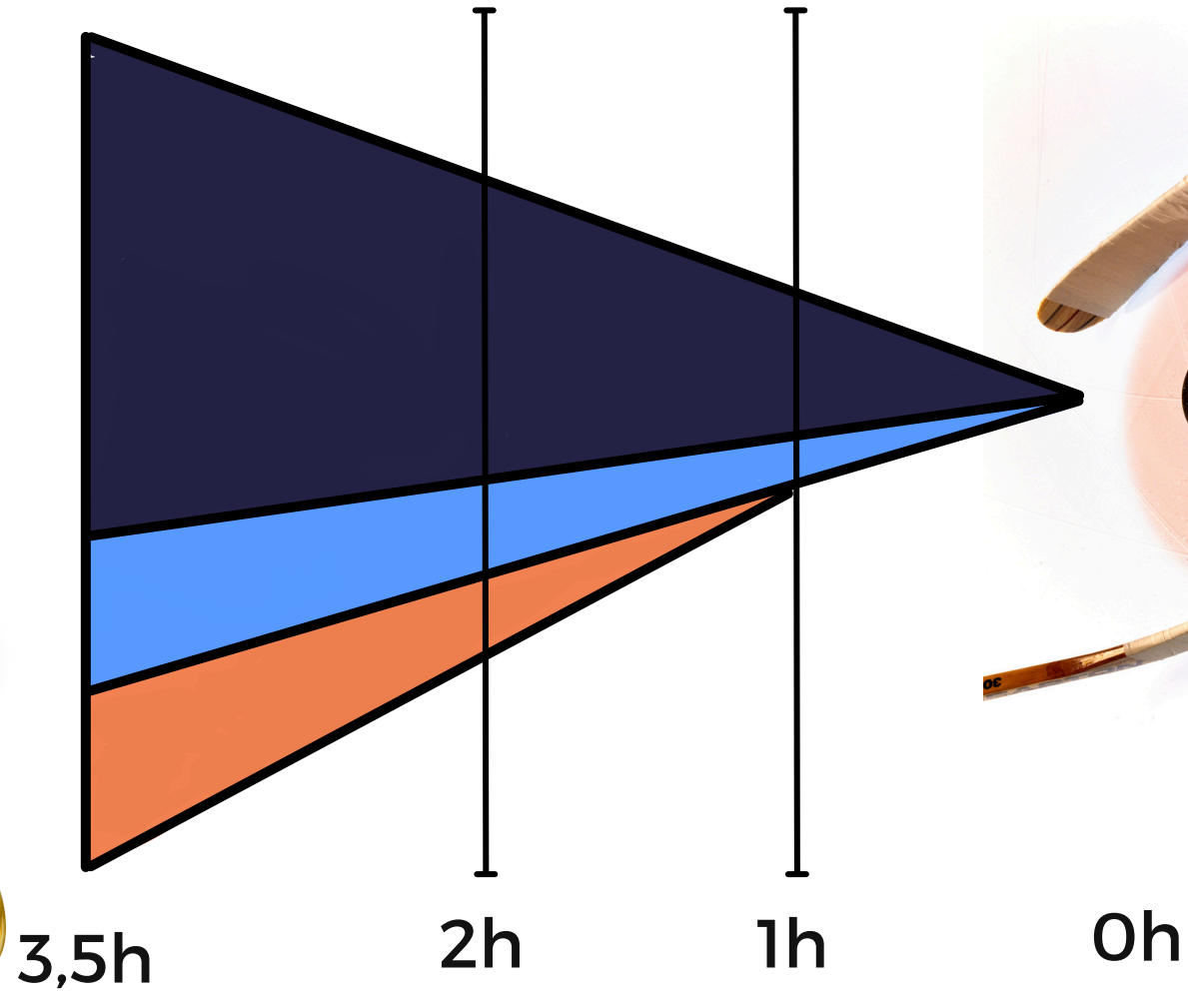
Carbs



Protein



Fat / Fiber



WHAT TO EAT BEFORE TRAINING?

4h

3h

2h

1h

0h

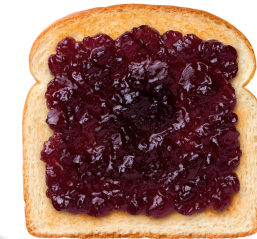
“Athlete plate”
(protein + carbs
+ fat + fiber)



↓ Fat / Fiber



↑ Fluid
(mainly carbs)



GAME DAY - 16:00 (ITA-HUN)

MEALS

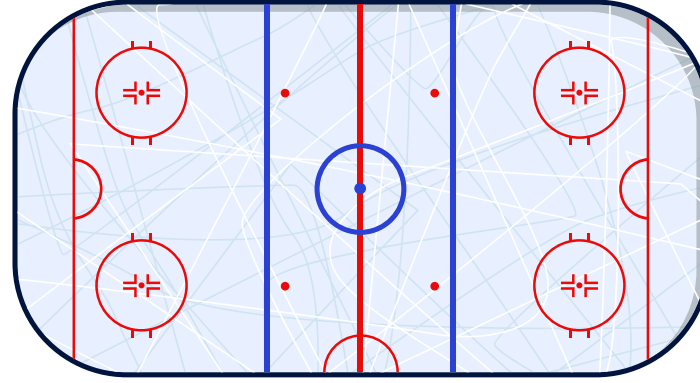
LUNCH - 12:00

SNACK - 14:30

SNACK - 18:15

DINNER - 19:00

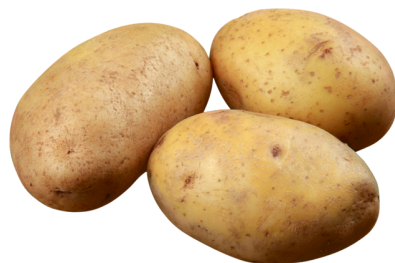
2ND DINNER - 21:00



EXAMPLES



WHAT IS THE DIFFERENCE?



POST-WORKOUT NUTRITION CAN HELP:

1. **"Rehydrate"** (lost fluids)
2. **"Replenish"** lost energy stores (carbohydrates)
3. **"Repair"** Stop the "destruction" of muscles and start their recovery (proteins)
4. Improve future performance (adaptation and progress)

WHAT DO U NEED AFTER TRAINING?

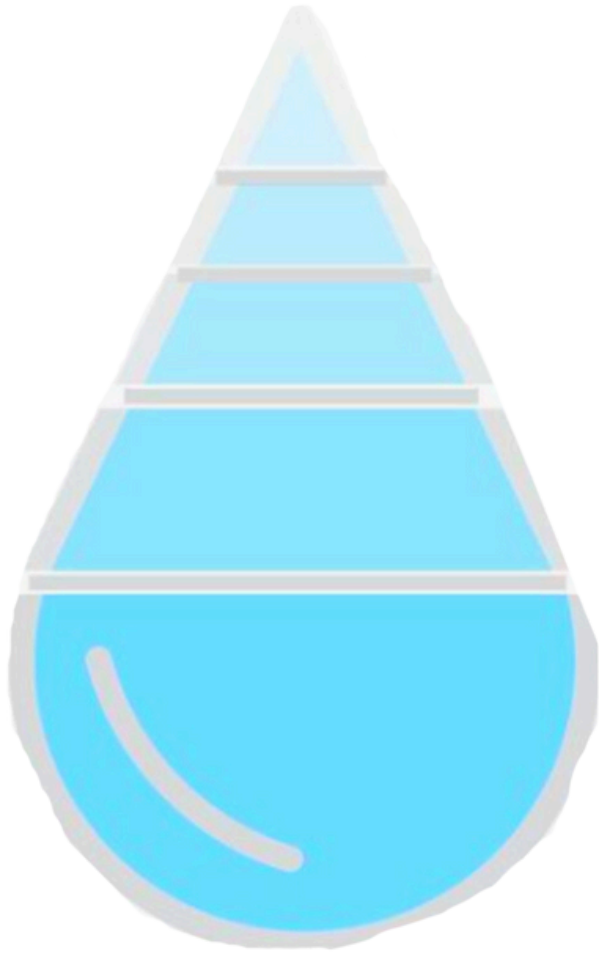
REPAIR > REHYDRATE > REPLENISH



**WHAT COULD BE EVEN MORE
IMPORTANT THAN FOOD??**



SWEAT IS NOT JUST WATER!



SWEAT IS NOT JUST WATER!

Calcium (0-120 mg/L)

Magnesium (0-36 mg/L)

**Potassium
(160-390 mg/L)**

**Chlorides
(710 - 2840 mg/L)**

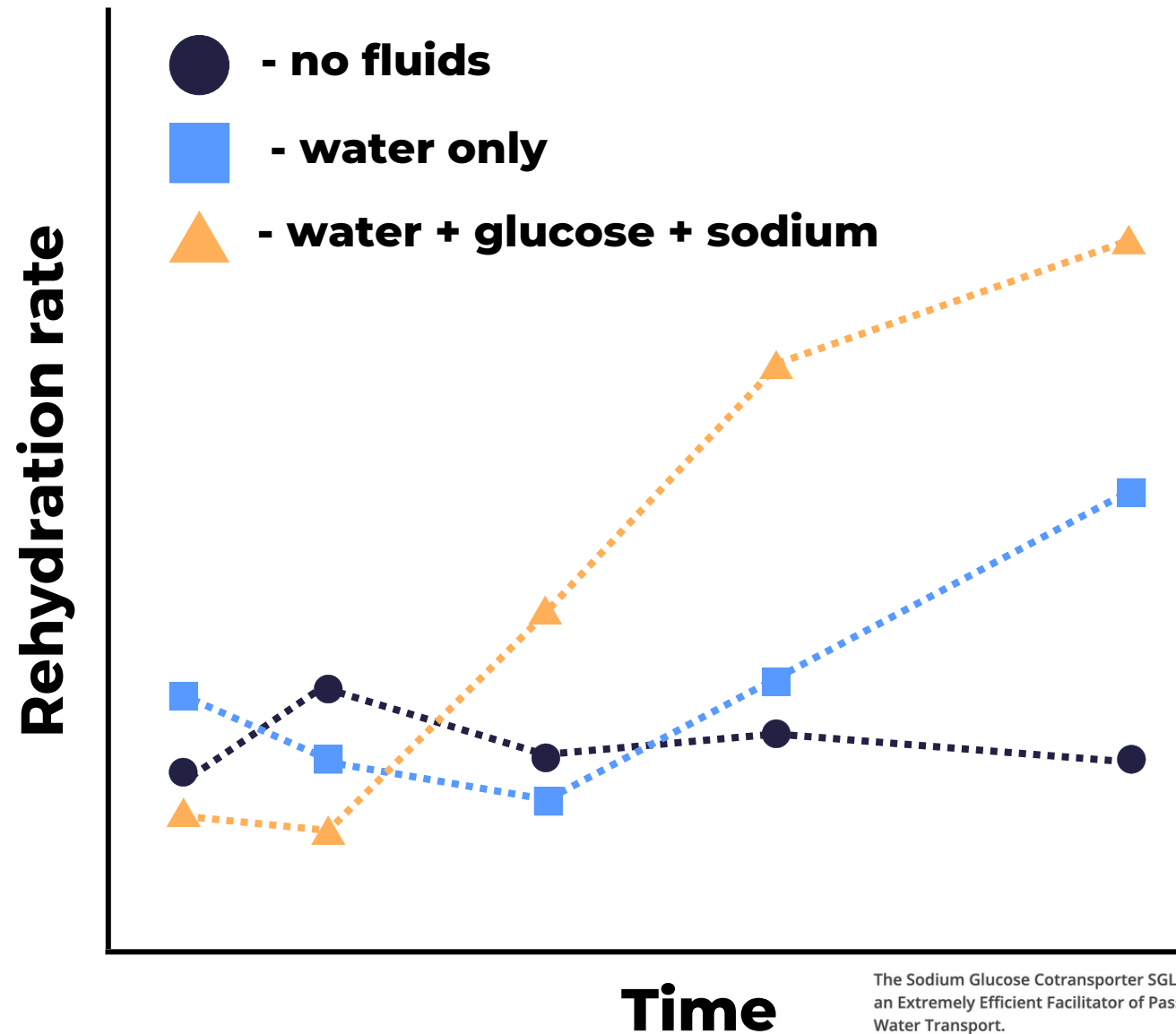
**Sodium
(460-1840 mg/L)**

They ensure muscle activity. Losses are low. It is enough to consume in a regular meal / after exercise.

Sodium, chlorides and potassium together regulate and maintain fluid balance, muscle tension, blood pressure and others. Topping up even during performance.



PLAIN WATER IS NOT ENOUGH



The Sodium Glucose Cotransporter SGLT1 Is an Extremely Efficient Facilitator of Passive Water Transport.

Erokhova L¹, Horner A¹, Ollinger N¹, Siligan C¹, Pohl P²

HOME MADE SPORTS DRINK?

Sodium / Chlorides

Potassium

Glucose (carbs)

HOME MADE SPORTS DRINK?

Sodium / Chlorides
Potassium
Glucose (carbs)



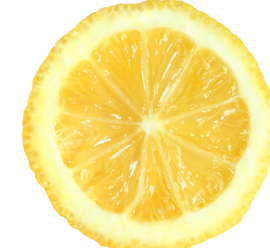
Pinch of salt



Pinch of salt



Cup of juice



Lemon juice



Spoon of honey



Cup of water



HOME MADE SPORTS DRINK?

Sodium / Chlorides
Potassium
Glucose (carbs)

Anything more is just
empty marketing



Pinch of salt



Pinch of salt



Cup of juice



Lemon juice



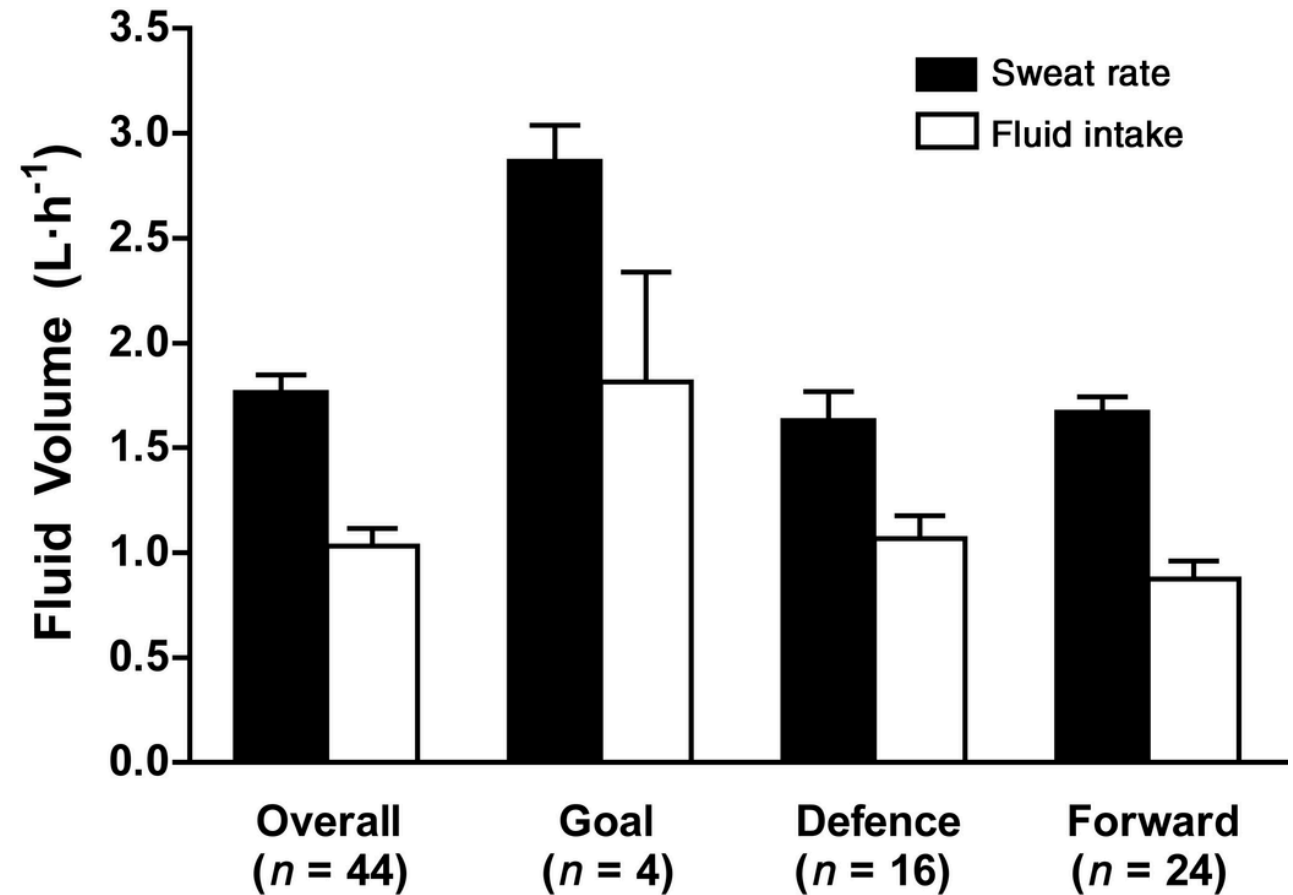
Spoon of honey



Cup of water



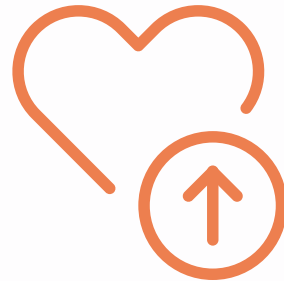
BIGGEST RISKS OF DEHYDRATION?



BIGGEST RISKS OF DEHYDRATION?



Higher core temperature =
↓ (an)aerobic performance



Lower BP / Higher HR with the
same training load / intensity



↑ Reaction time, ↓ decision
making, ↑ risk of injury

HOW TO AVOID THAT?

Weight before (g) Weight after (g) Lost weight(g)

 - =

Lost weight(g) Fluid intake (g) Total sweat lost (g)

 + =

Total sweat lost (ml) Training time (h) **Sweat rate (ml/h)**

 / =

1g=1ml

HOW TO AVOID THAT?

Weight before (kg) Weight after (kg) Lost weight(kg)

$$\boxed{81} - \boxed{79,4} = \boxed{1,6}$$

Lost weight(kg) Fluid intake (kg) Total sweat lost (kg)

$$\boxed{1,6} + \boxed{1,5} = \boxed{3,1}$$

Total sweat lost (l) Training time (h) **Sweat rate (l/h)**

$$\boxed{3,1} / \boxed{1,5} = \boxed{1,55}$$

1g=1ml

**IF MORE INFORMATION WAS THE ANSWER, THEN WE'D
ALL BE BILLIONAIRES WITH STANLEY CUPS...**



WHAT WAS THE MOST USEFUL FOR YOU?



FUELING FOR PERFORMANCE

PRE MEAL

HYDRATATION

INTRA MEAL

POST MEAL

ACTION



WHAT WAS THE MOST USEFUL FOR YOU?



FUELING FOR PERFORMANCE

PRE MEAL

HYDRATATION

INTRA MEAL

POST MEAL

ACTION

WHAT YOU CAN TRANSFER TO ACTION RIGHT NOW?

QUESTIONS OR COLLABORATION?



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