Teljesítményfokozás és sérülés megelőzés összekapcsolása a sportban.
A XXI.század elvárásai

Integration of Performance enhancement and injury prevention. Expections in the 21st century

Dr. Molitorisz Dániel

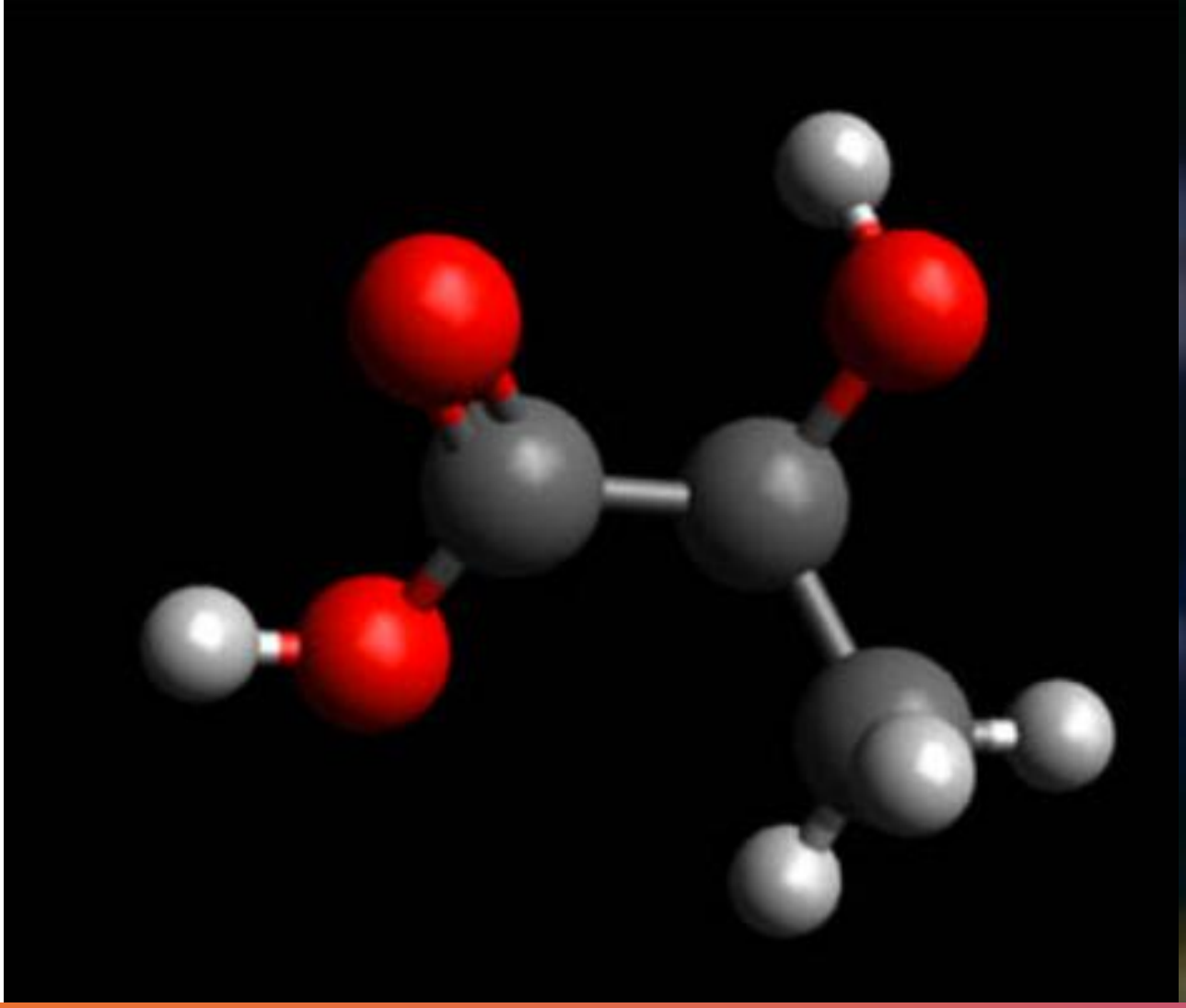
ISSC 2025

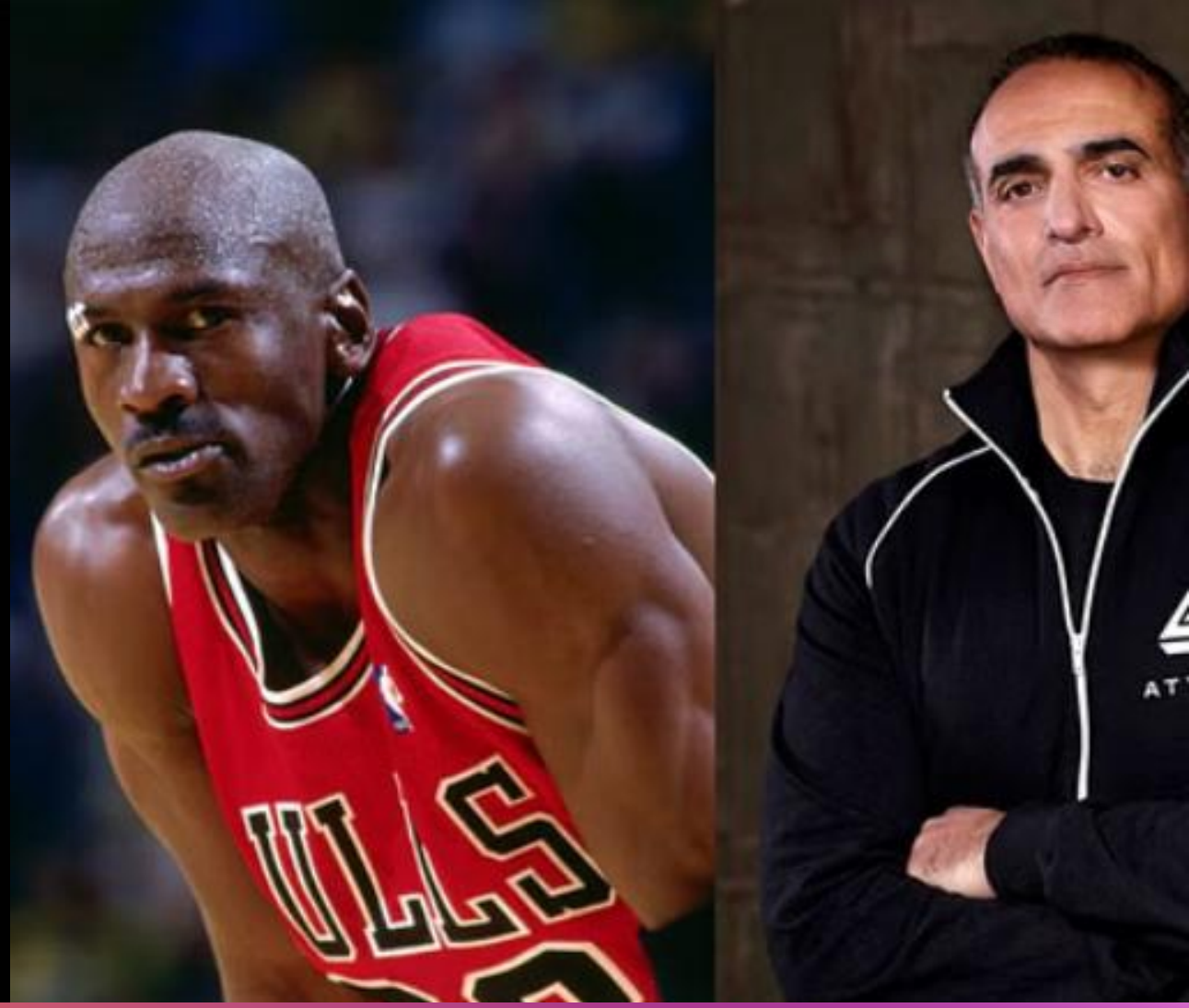
12th September
Békéscsaba

IV. BÉKÉSCSABAI NEMZETKÖZI SPORTTUDOMÁNYOS KONFERENCIA

IV. INTERNATIONAL SPORTS SCIENCE CONFERENCE, BÉKÉSCSABA

GÁL FERENC EGYETEM | MAGYAR RÖPLABDA SZÖVETSÉG | BÉKÉSCSABA

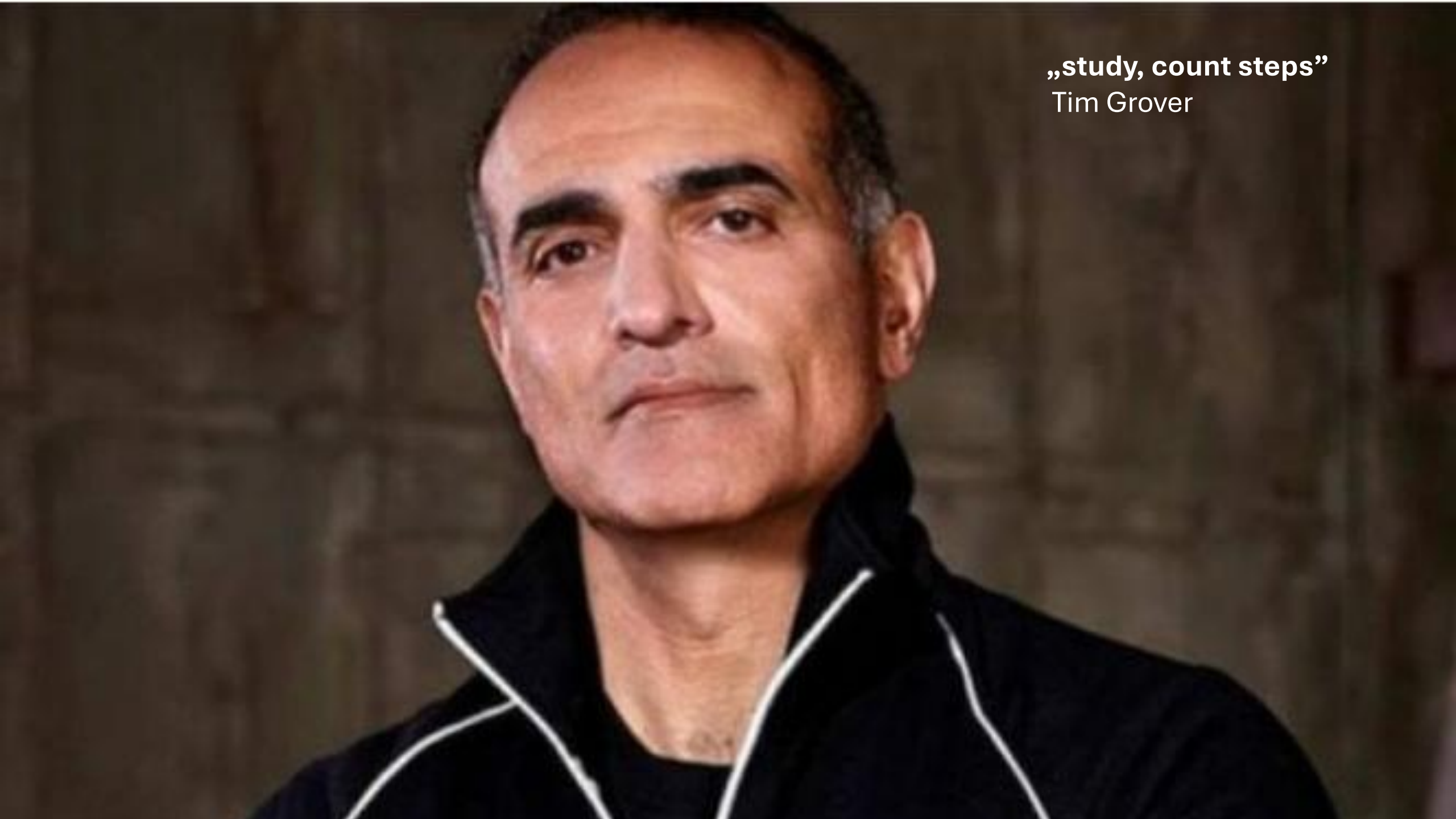




Legjobb eredményt elérni
Legkisebb erőbefektetéssel
Sérülésmentesen

Legendary participants

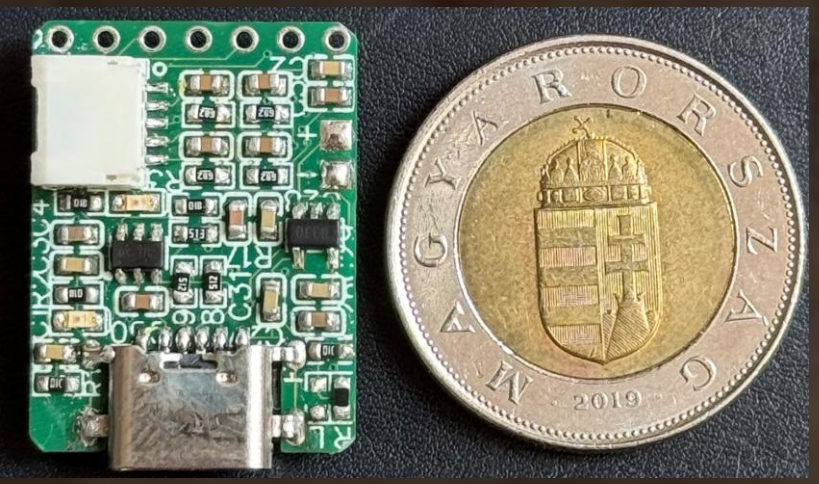
Getting the best result
Least amount of effort
Lowest occurrence of injury


„study, count steps”
Tim Grover

1992

„study, count steps” Tim Grover on Training Kobe Bryant and Michael Jordan (Extended) | The Tonight Show

2025



„study, count steps” Tim Grover on Training Kobe Bryant and Michael Jordan (Extended) | The Tonight Show

High level performance

The physics:

the larger the contact surface, the better balance is granted

The more time for acceleration, the higher velocity is achievable

TITANS
VOLLEYBALL
KRAKOW 2016

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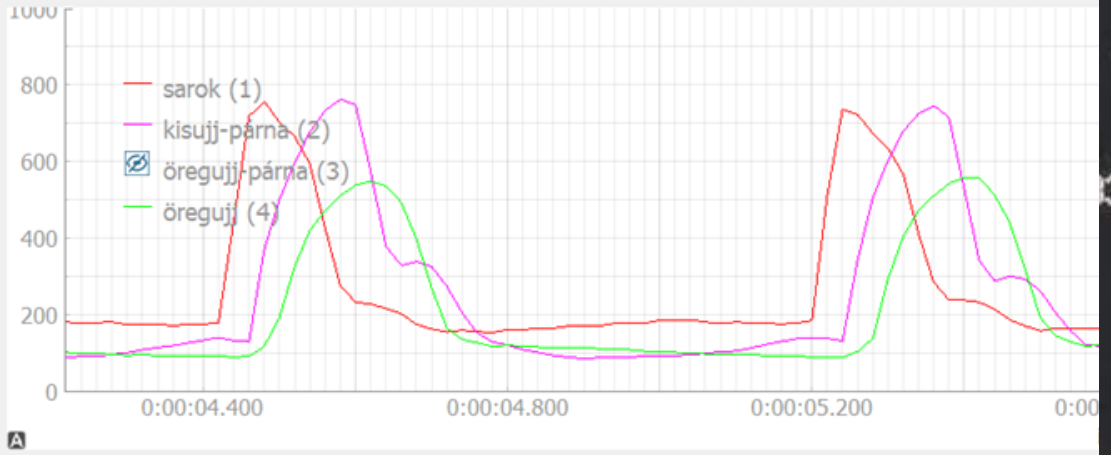

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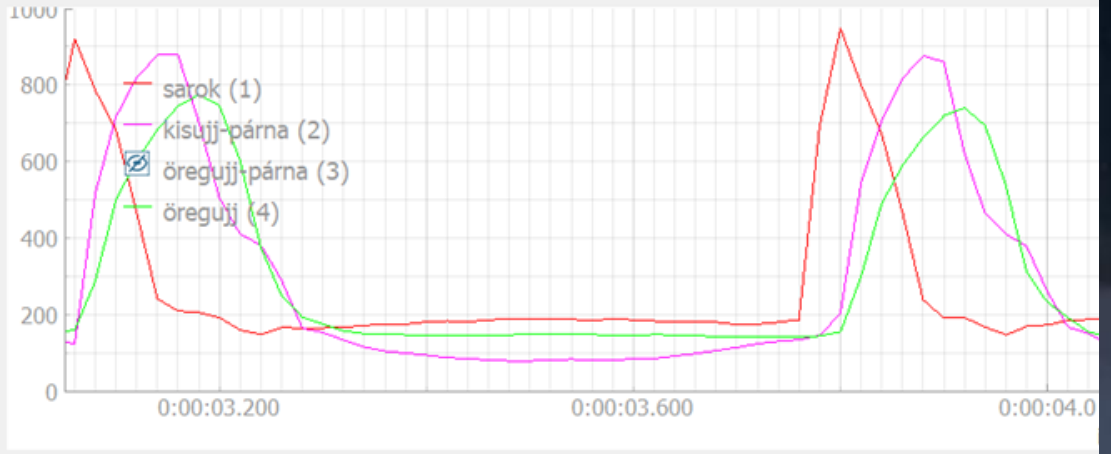

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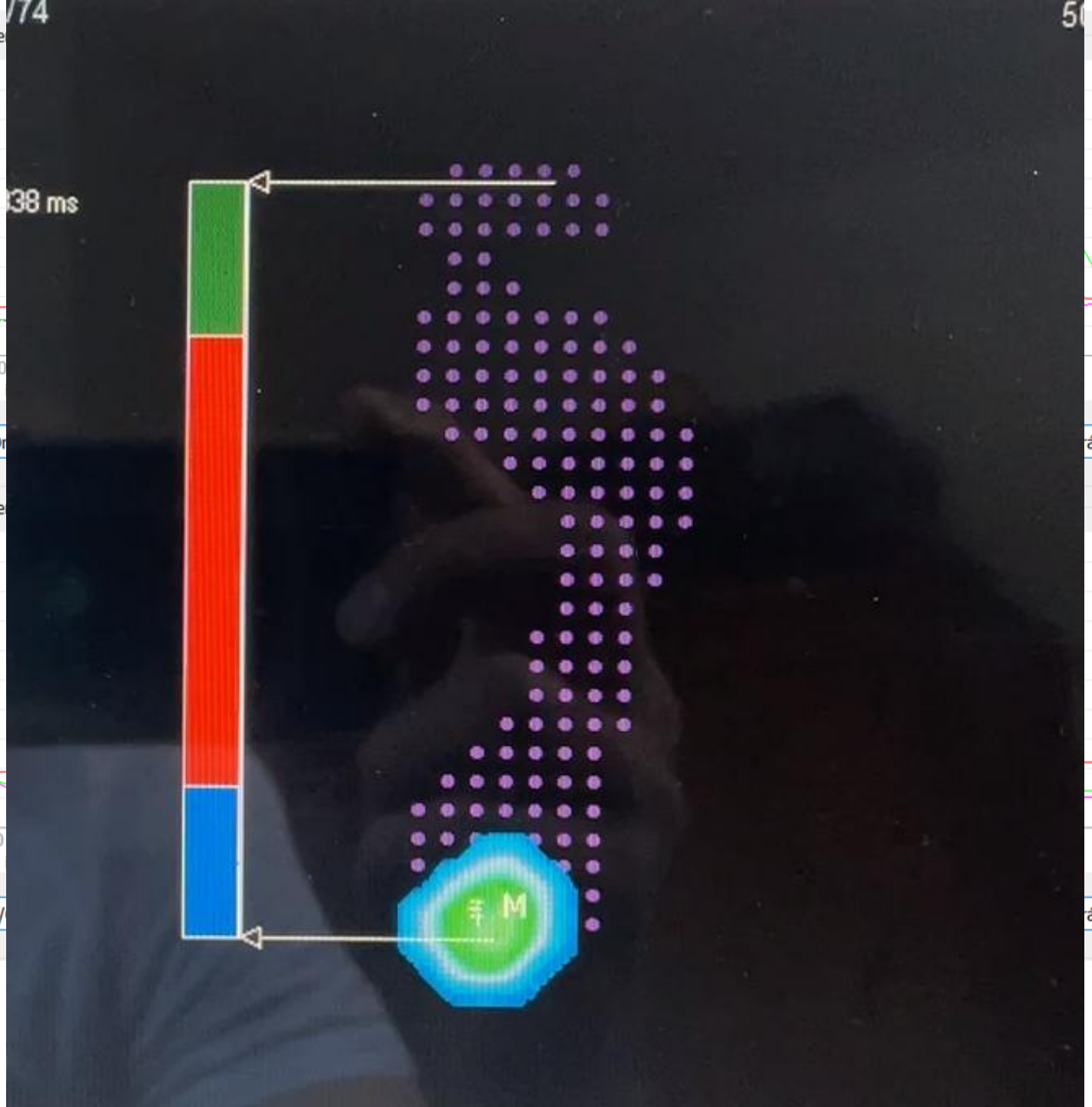

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n 0-01-34.csv' bezárása

t 0-04-00.csv' bezárása

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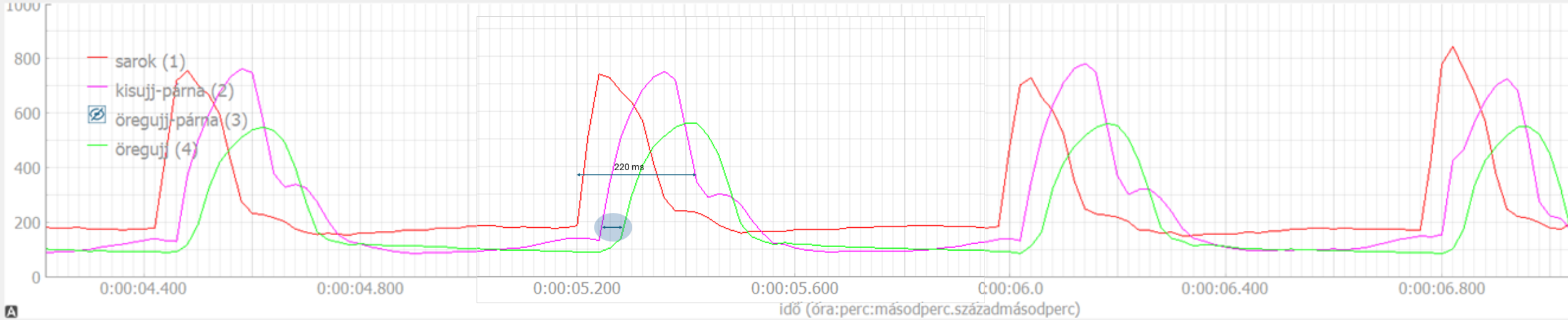

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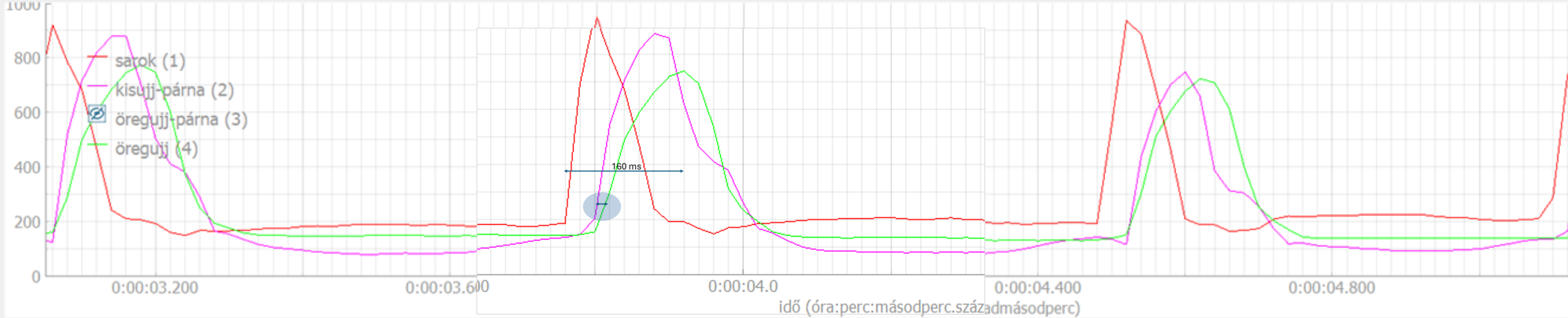

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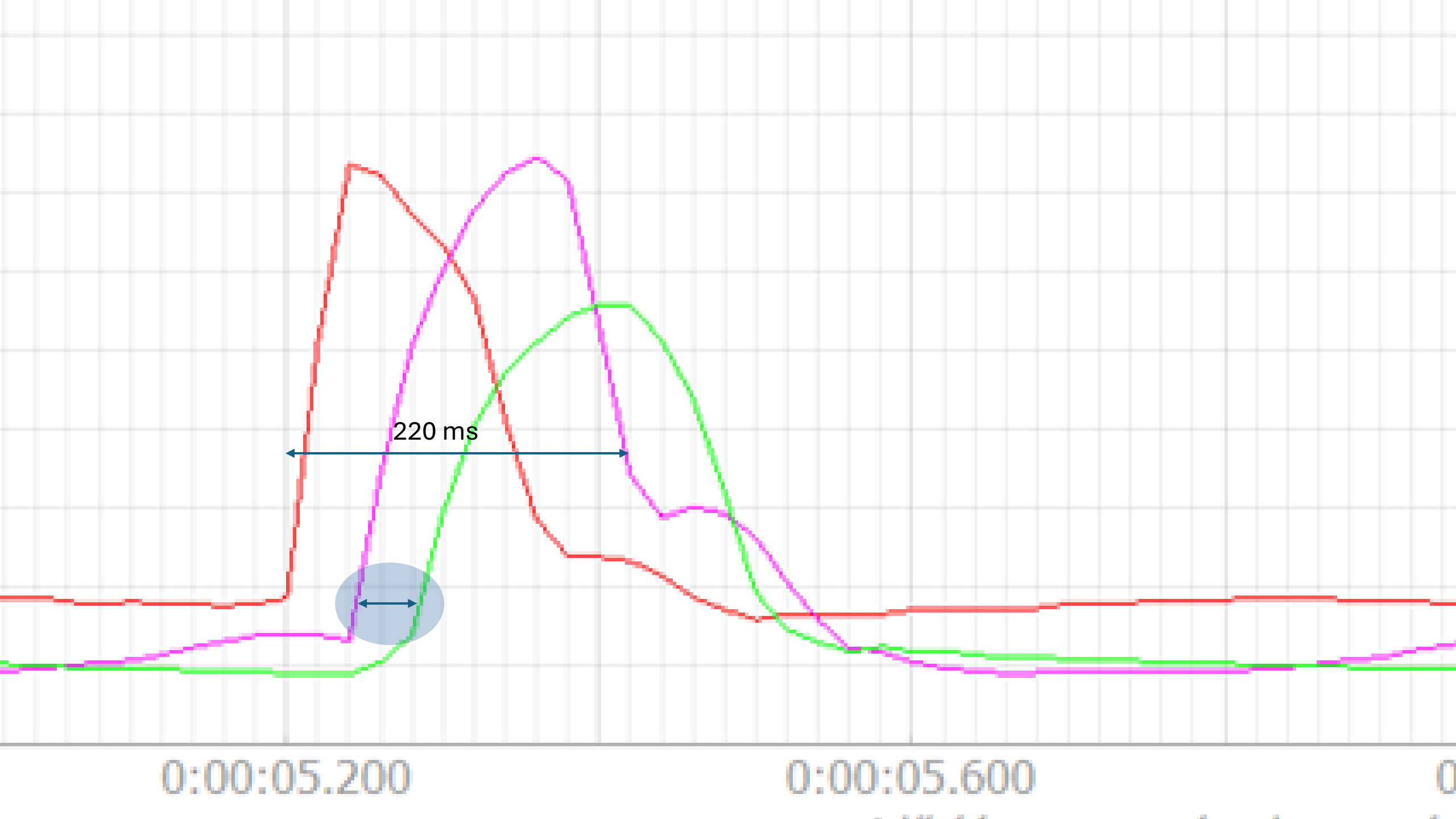
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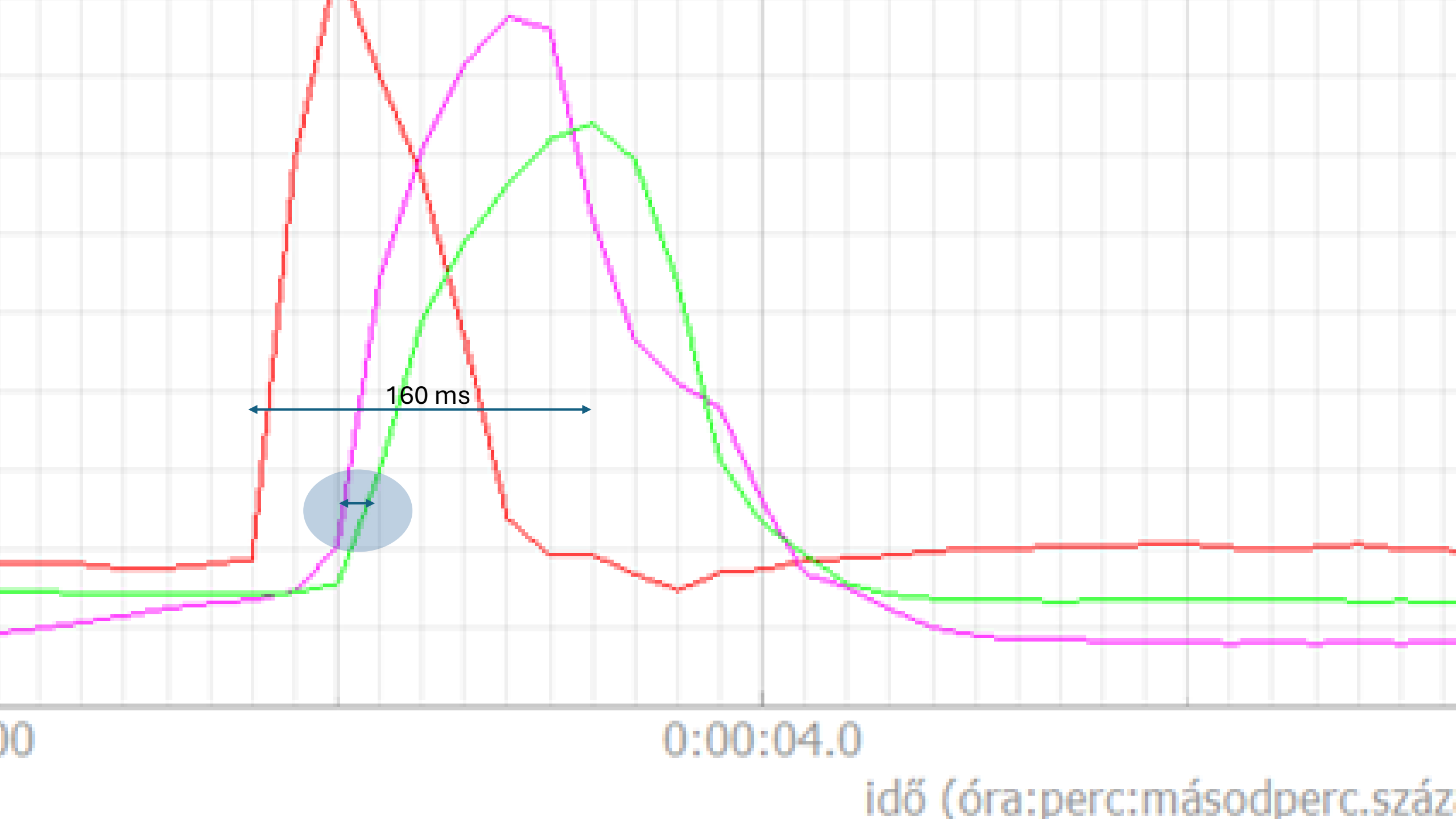
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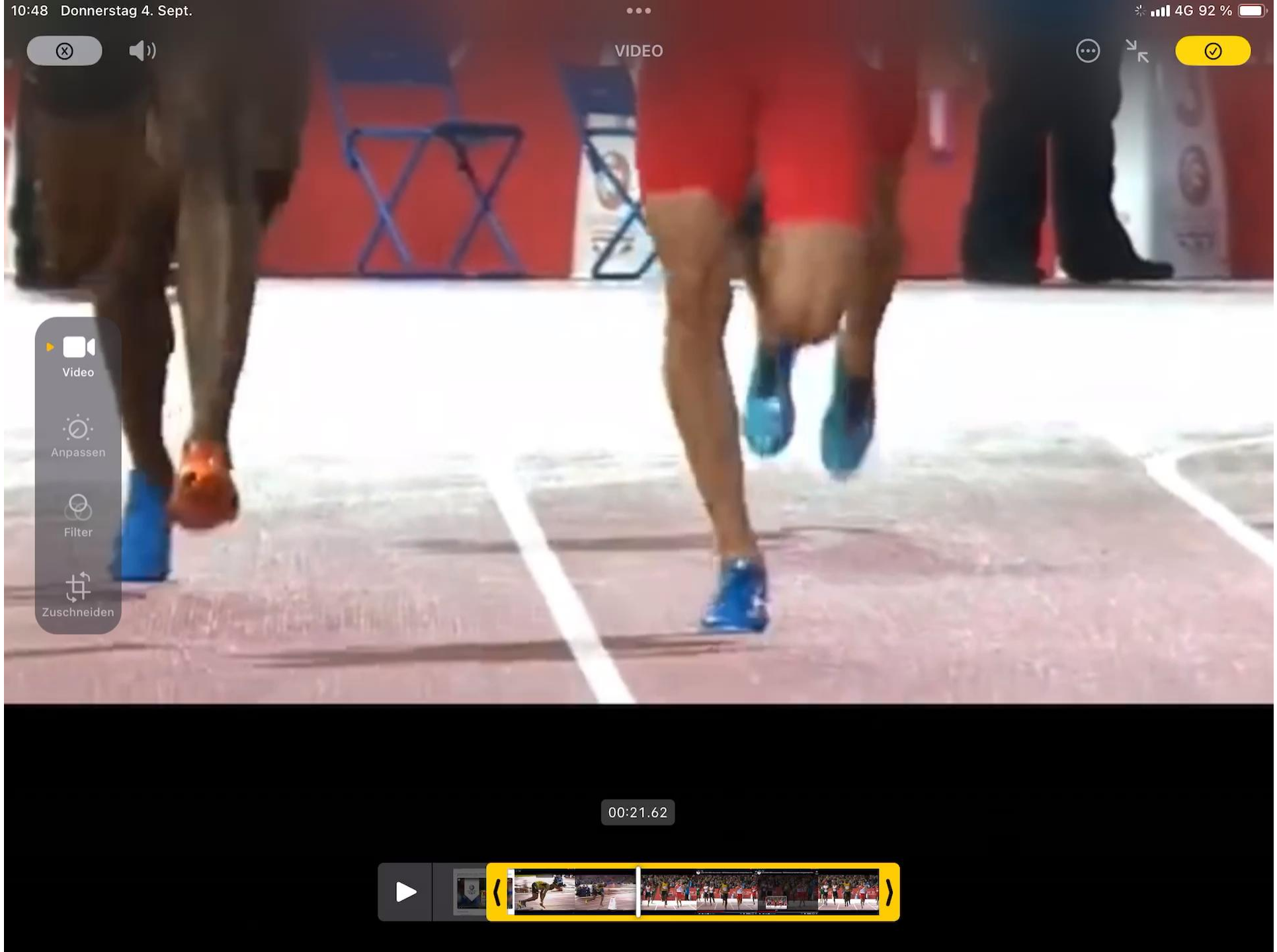
Zum Beenden nach unten streichen.
JAM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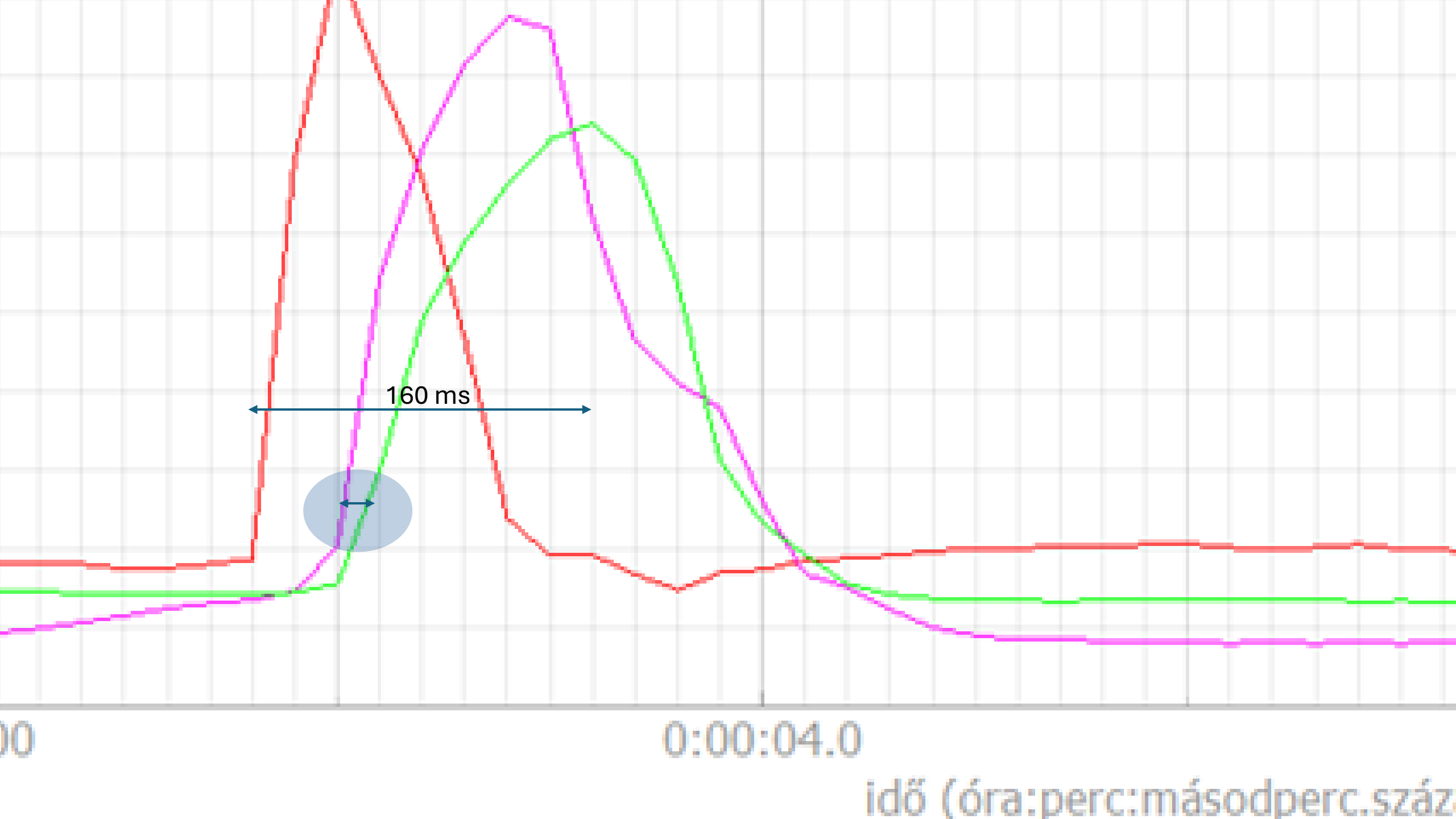
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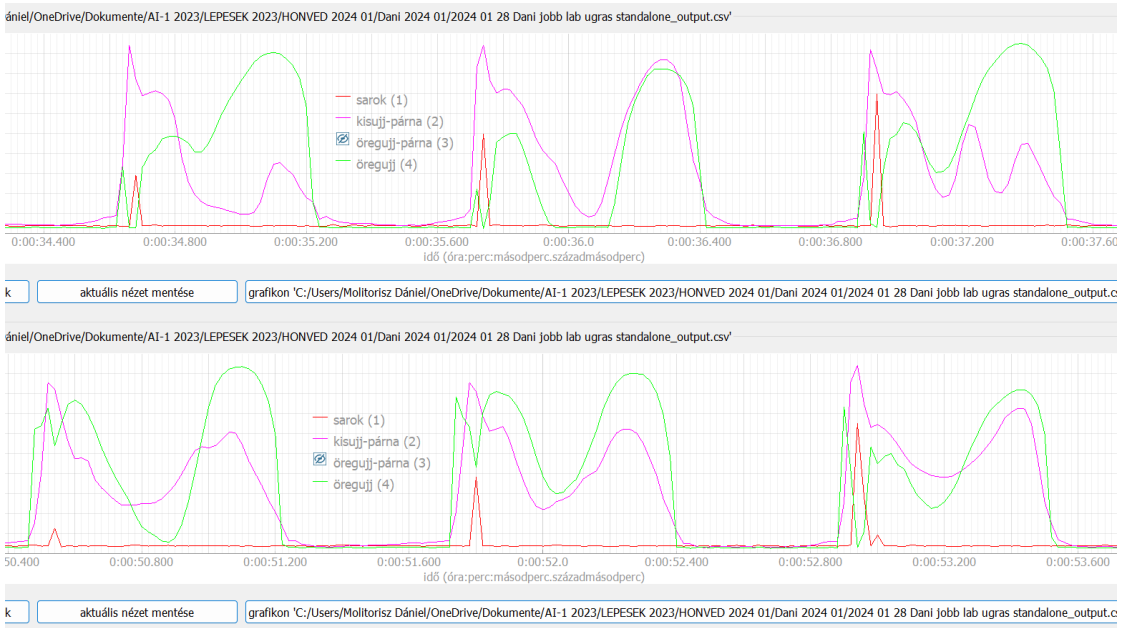
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öregujj-párna (3)
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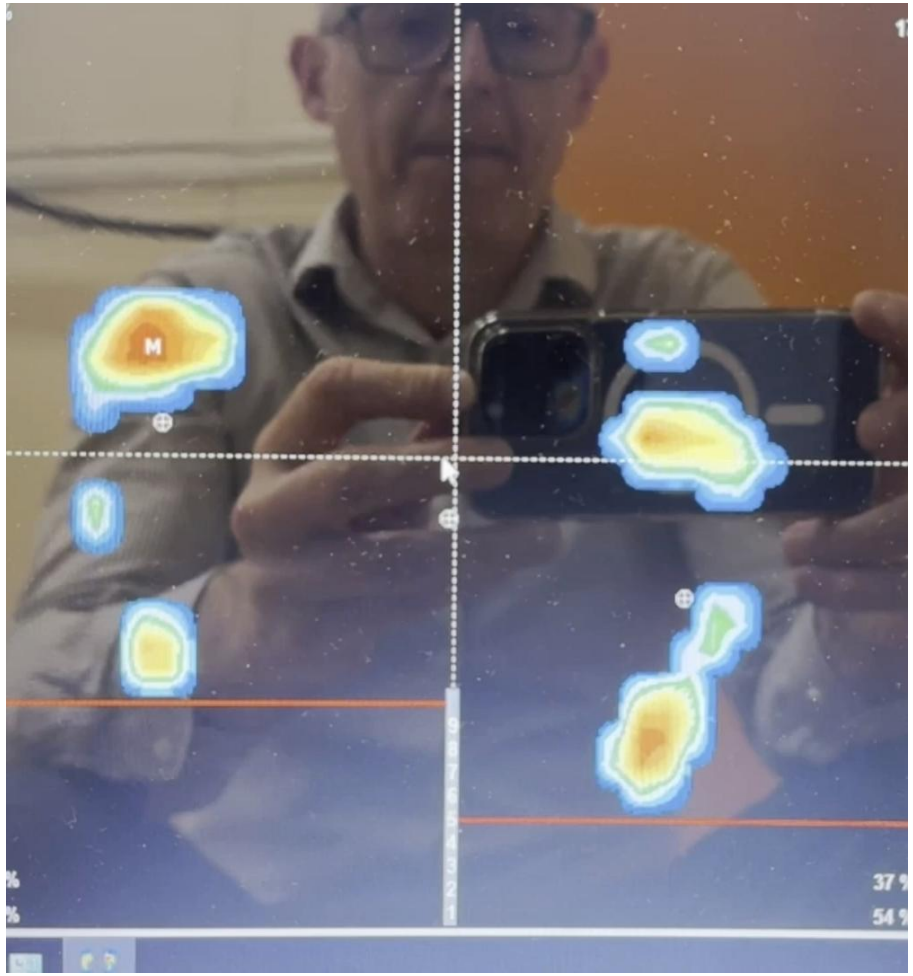

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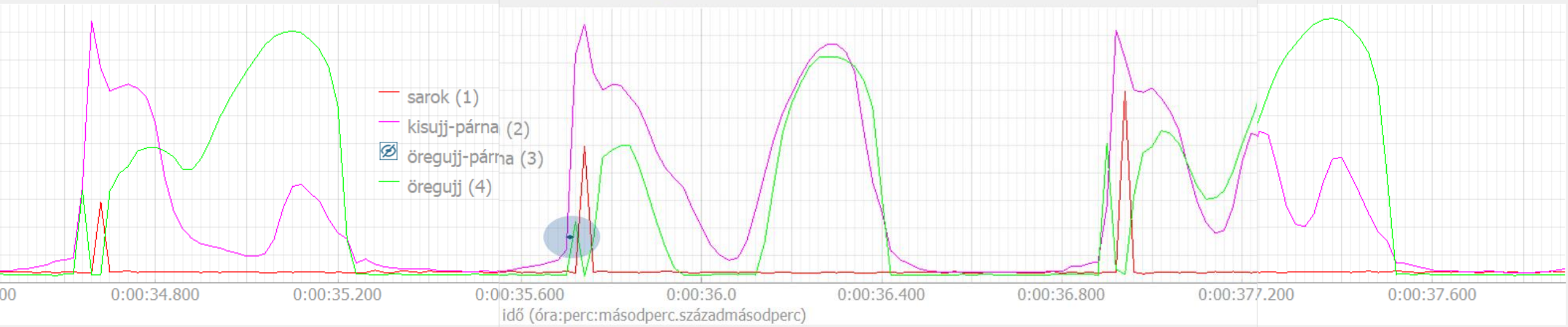

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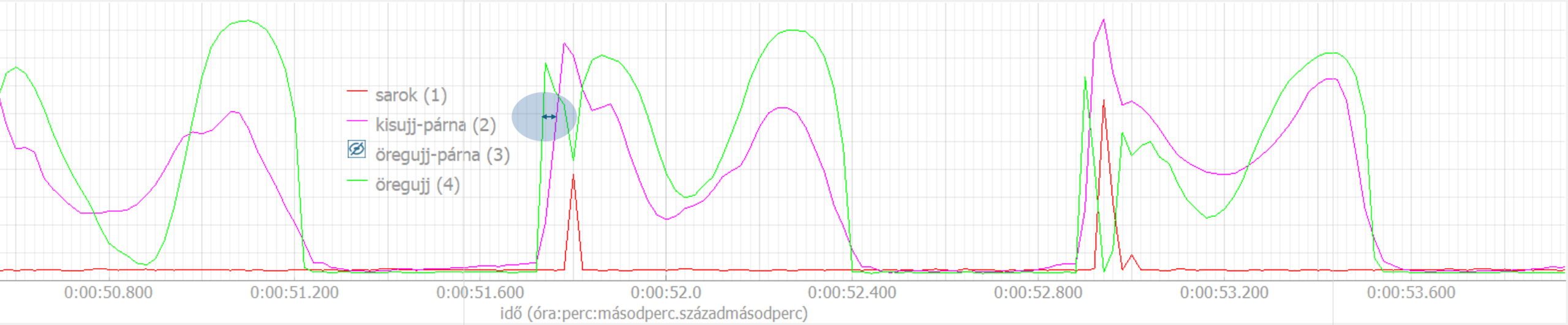

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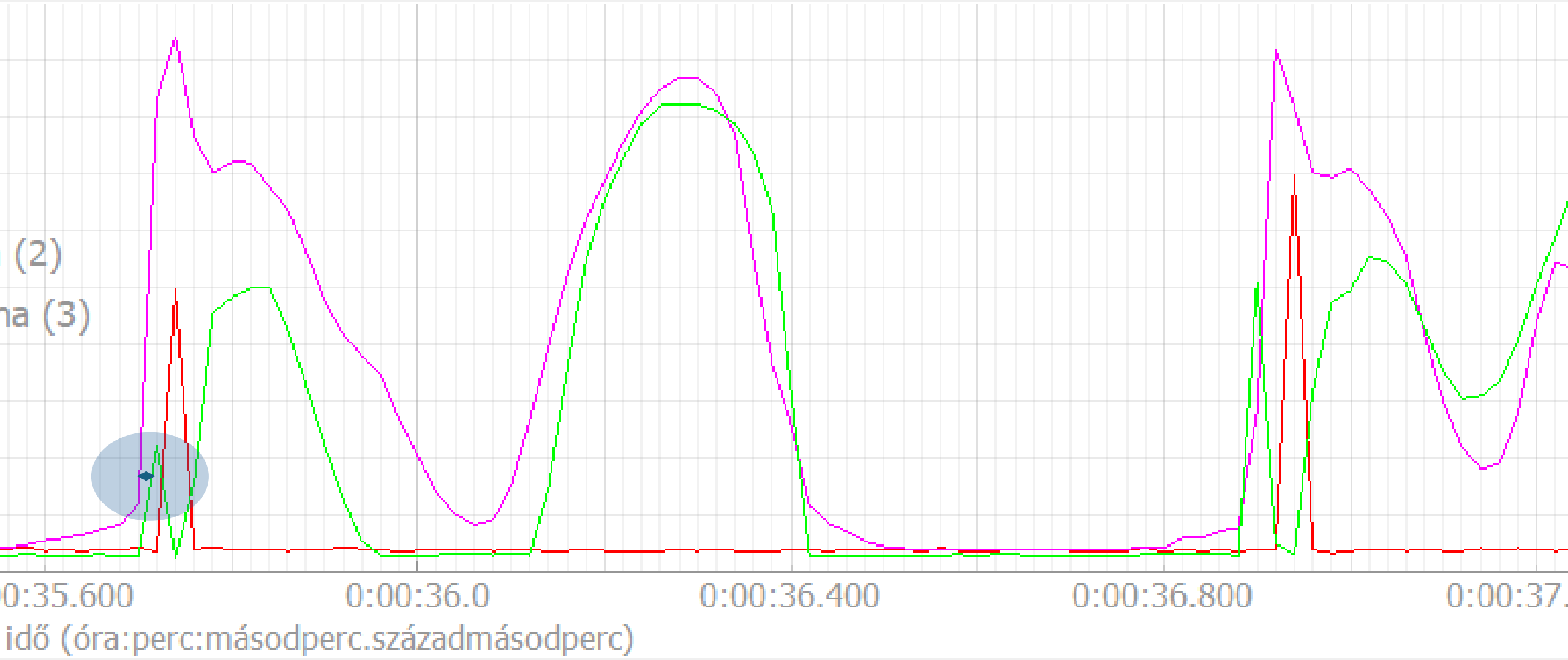

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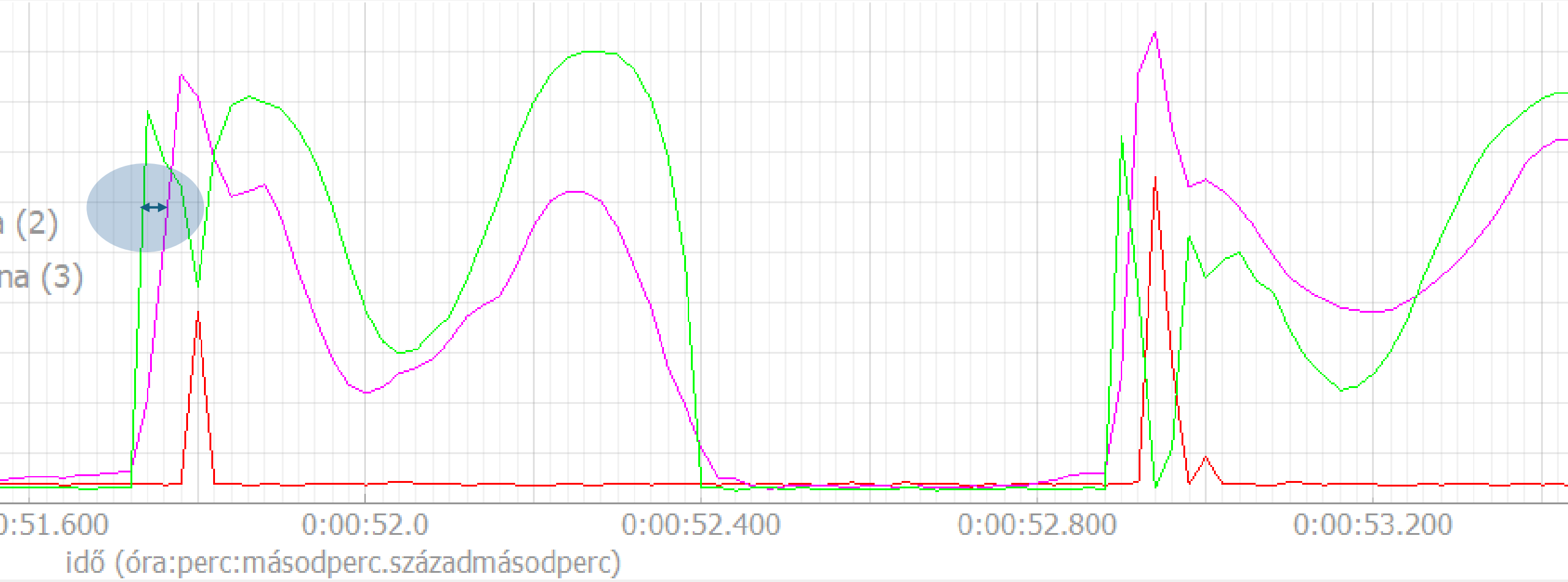

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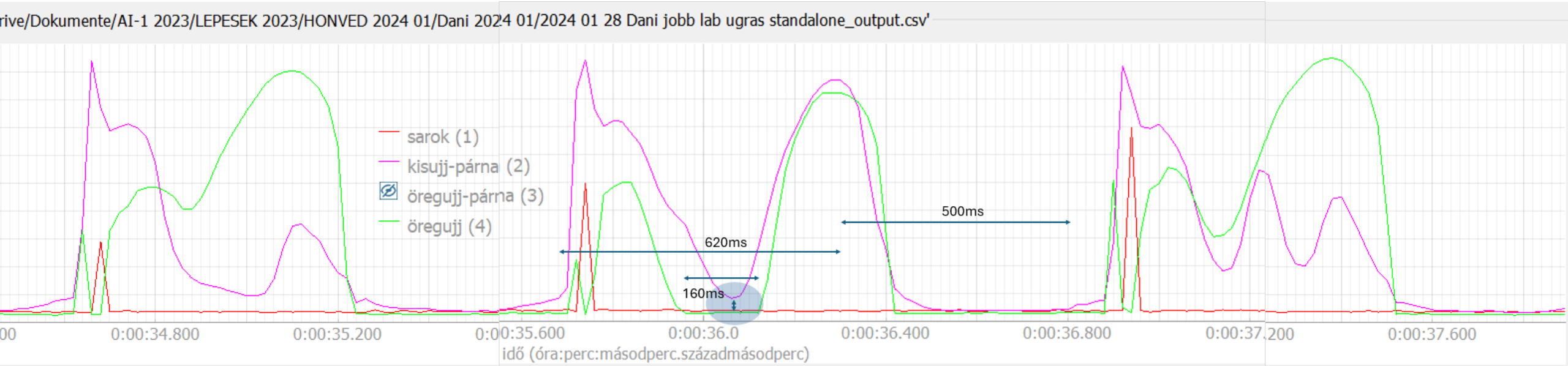

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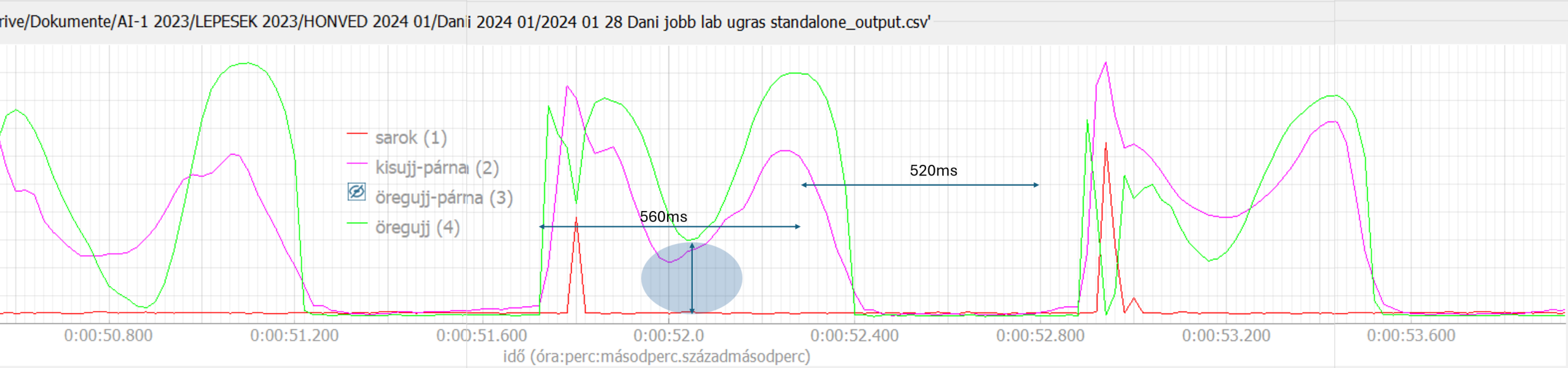

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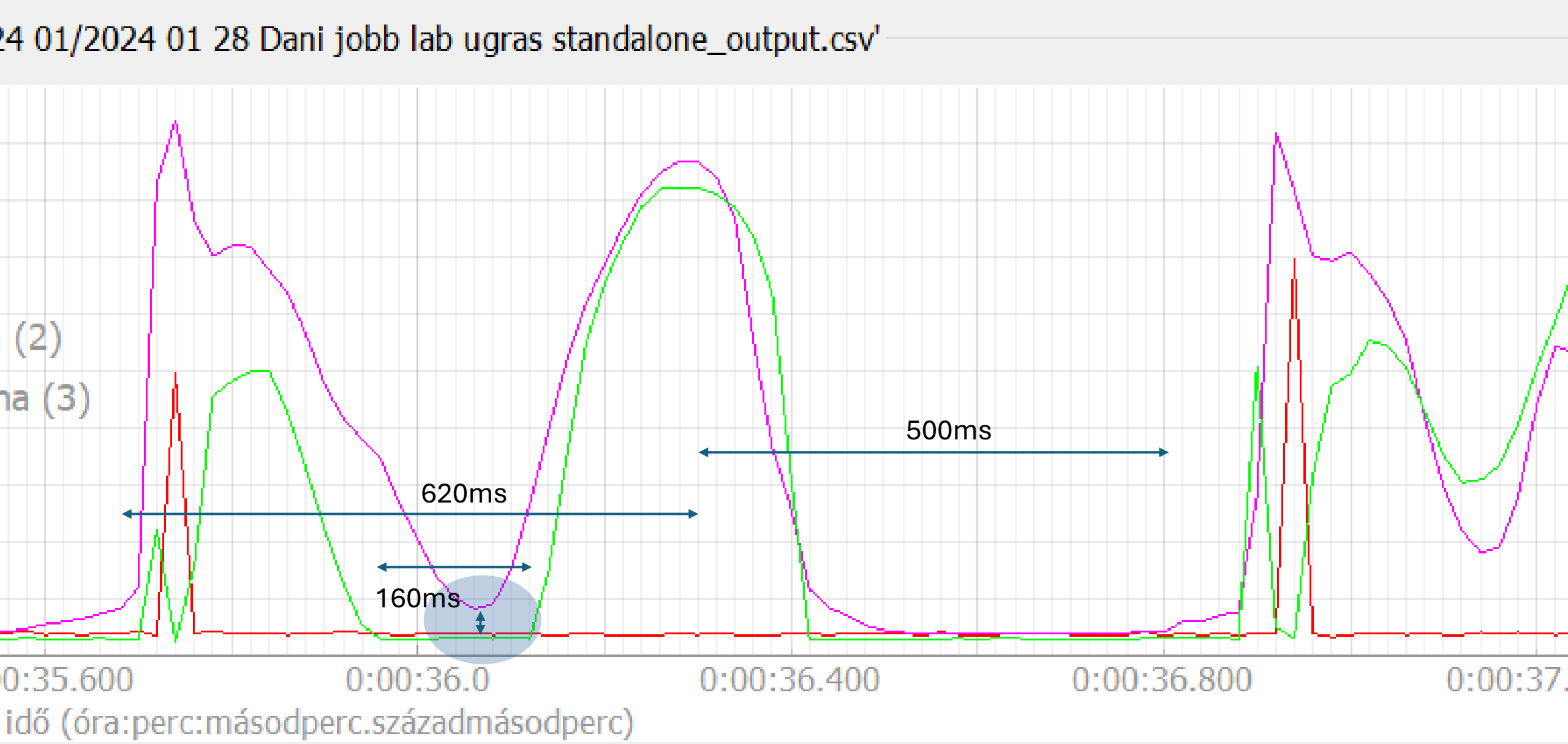

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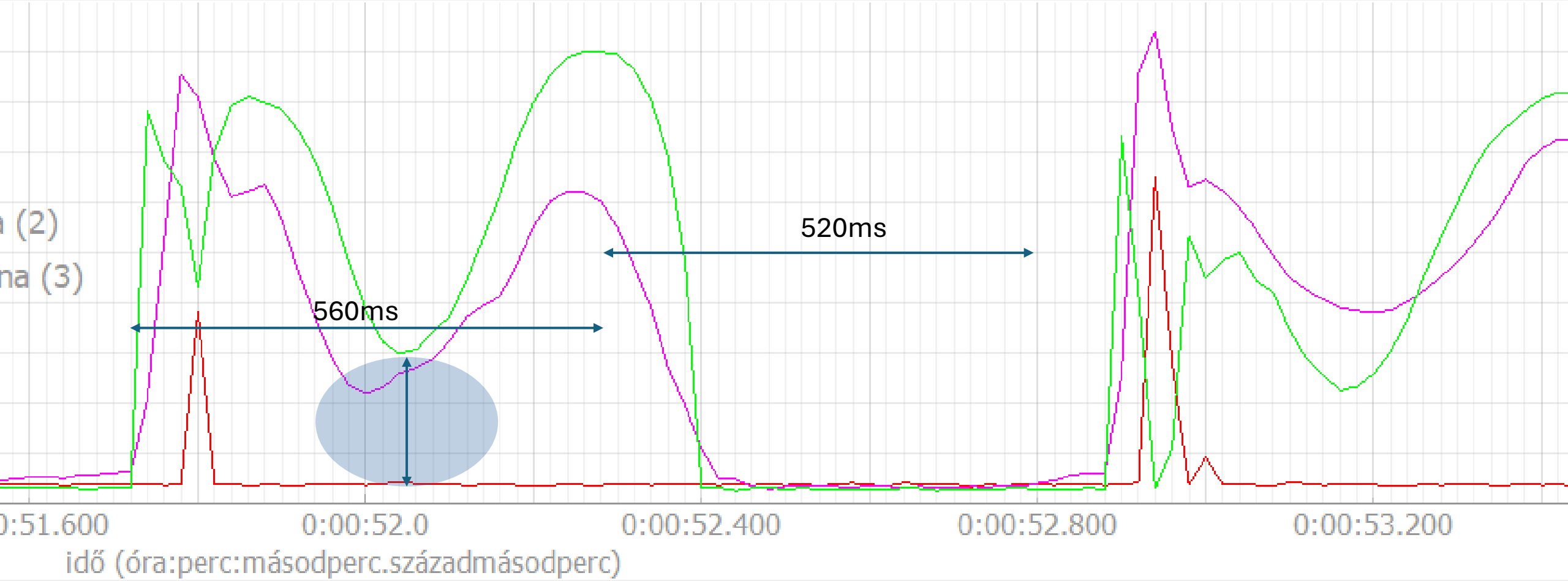

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TITANS
VOLLEYBALL
KRAKOW 2016

10
13

NBA
ESPN

VOLVO
VOLVO
FILA

THE PHYSICS BEHIND IT

Ground reaction force decrease

Ground reaction force 0

Elevation of big toe

Unstable balance

ONE UNIVERSAL INCITING MOMENT

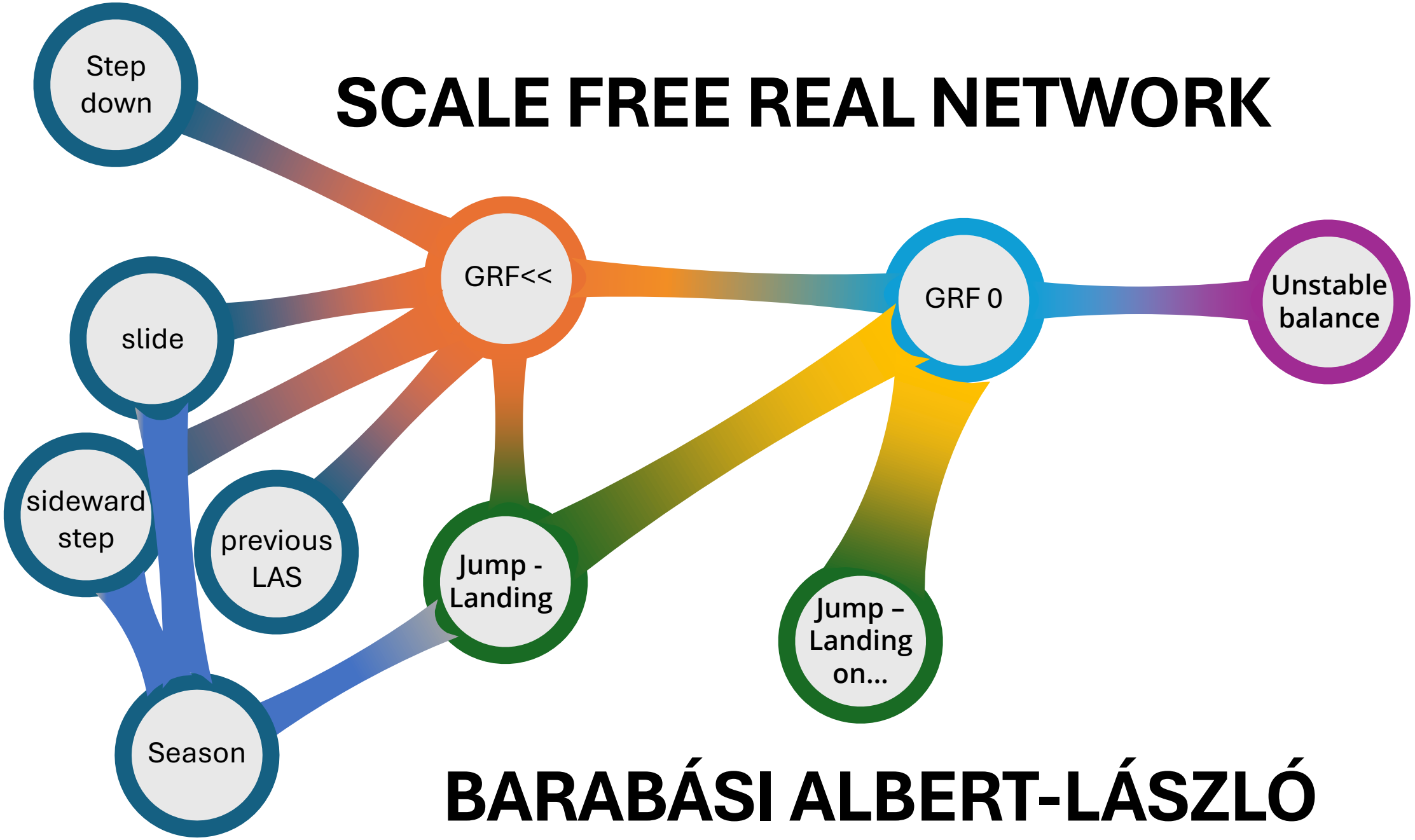
UNSTABLE BALANCE / EQUILIBRIUM

- exists only temporarily, will not return into it
- moves always into stable balance position
- **Predictable !!**

TEKINTSÜK A SÉRÜLÉSRE EGY MŰKÖDŐ HÁLÓZAT TERMÉKEKÉNT

IMAGINE LAS NOT AS AN ACCIDENT, BUT AS SEQUENCE OF LINKED MOVEMENT ELEMENTS

SCALE FREE REAL NETWORK



BARABÁSI ALBERT-LÁSZLÓ

10
7
13
ROMLABDA

Injury localisation of acute injuries among adolescents and adults (>16 years; n = 2,700) (own data)

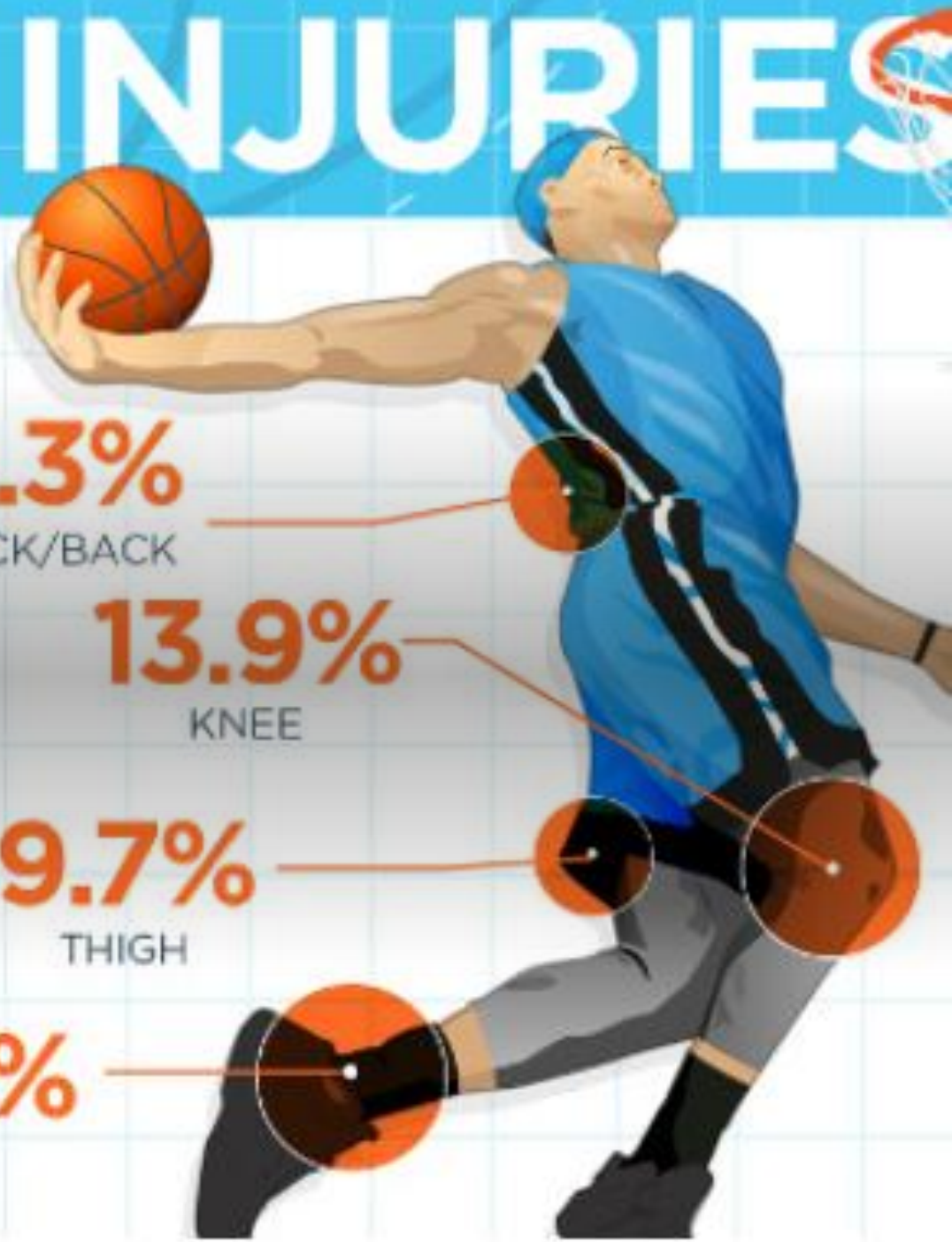
Tennis Injuries – By Body Part

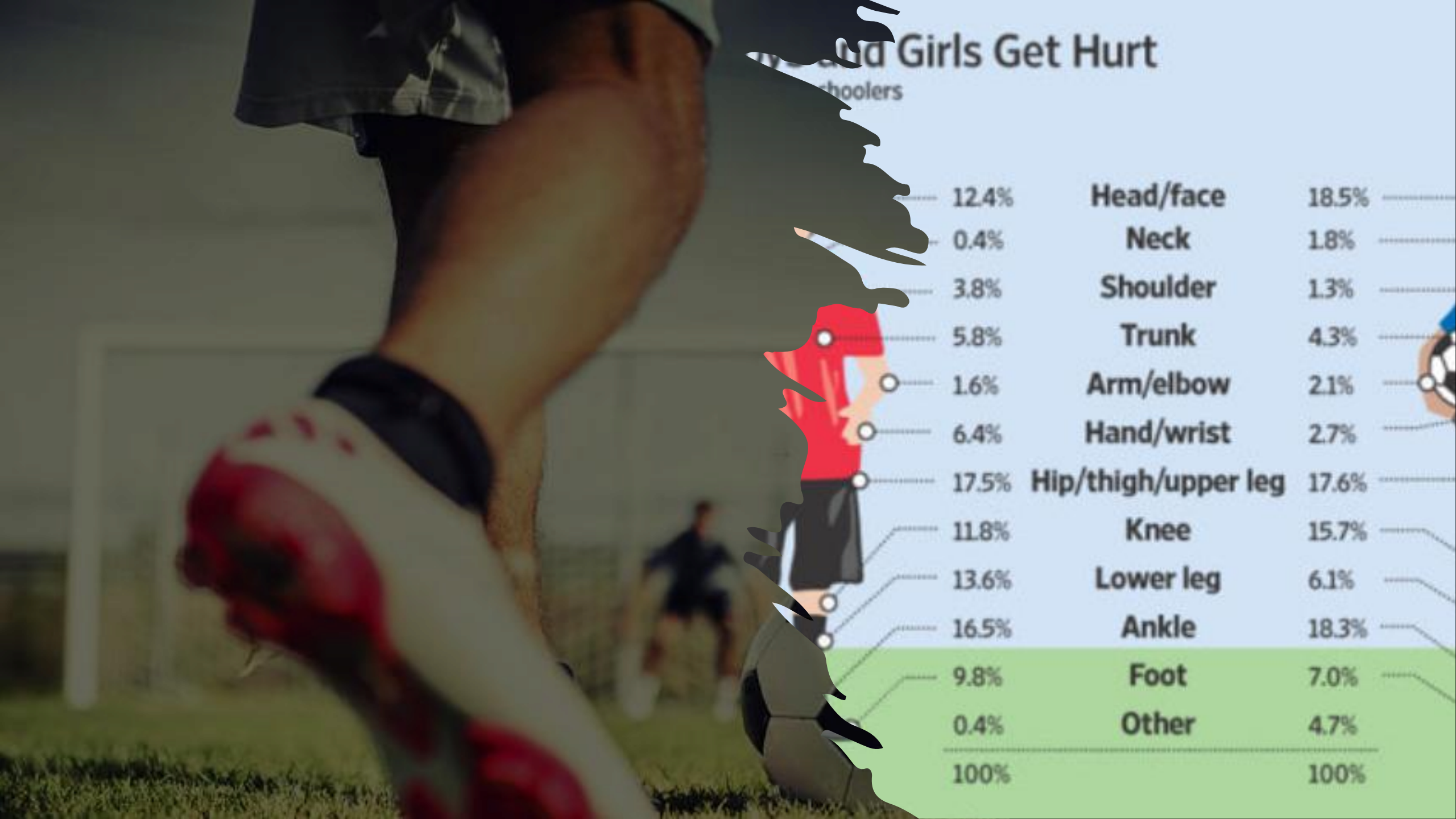
SIDELINING INJURIES

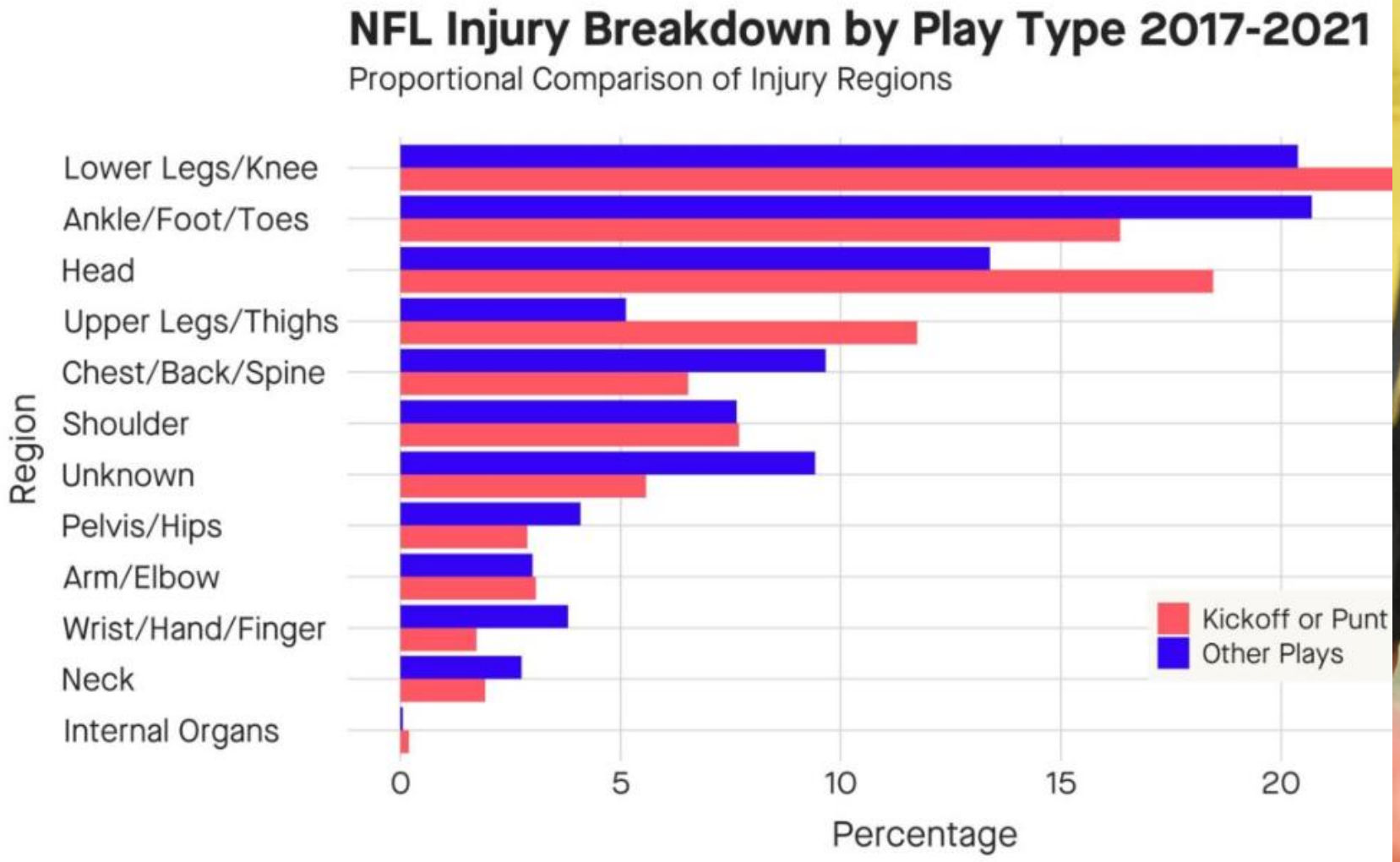
TOP INJURIES IN THE NBA

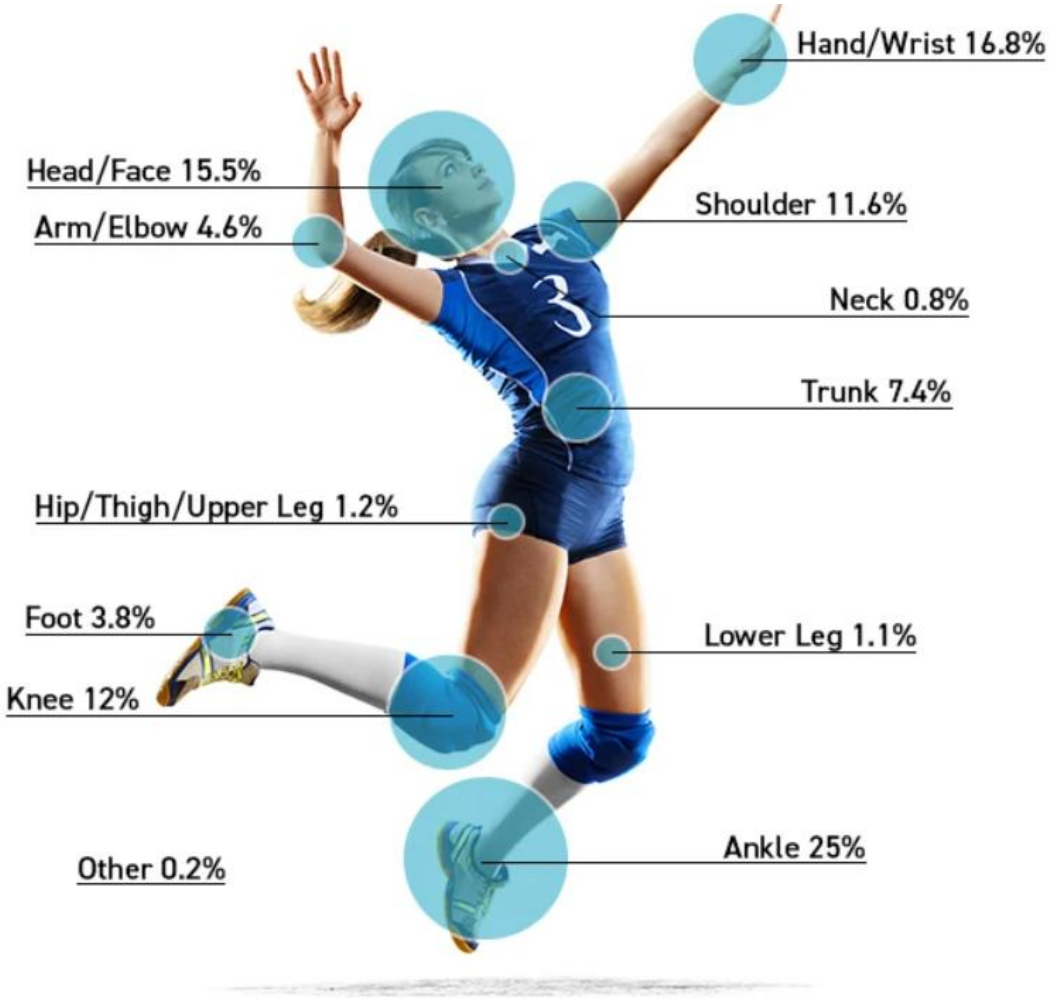
FOR 2014-2015
NBA REGULAR SEASON

GE imagination at work




d Girls Get Hurt
hoolers
12.4% Head/face 18.5%
0.4% Neck 1.8%
3.8% Shoulder 1.3%
5.8% Trunk 4.3%
1.6% Arm/elbow 2.1%
6.4% Hand/wrist 2.7%
17.5% Hip/thigh/upper leg 17.6%
11.8% Knee 15.7%
13.6% Lower leg 6.1%
16.5% Ankle 18.3%
9.8% Foot 7.0%
0.4% Other 4.7%
100% 100%


NFL Injury Breakdown by Play Type 2017-2021
Proportional Comparison of Injury Regions
Region
Lower Legs/Knee
Ankle/Foot/Toes
Head
Upper Legs/Thighs
Chest/Back/Spine
Shoulder
Unknown
Pelvis/Hips
Arm/Elbow
Wrist/Hand/Finger
Neck
Internal Organs
0
5
10
15
20
Percentage
Kickoff or Punt
Other Plays



LEARN MORE ABOUT VOLLEYBALL INJURIES AT PERFORMANCEHEALTH.COM/ARTICLES

460,000 U.S. high schoolers play volleyball each year

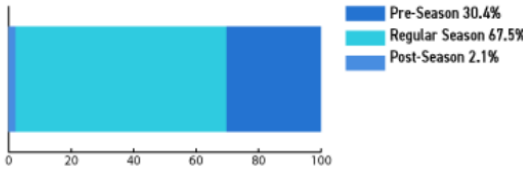
Of those players, 410,000 are girls

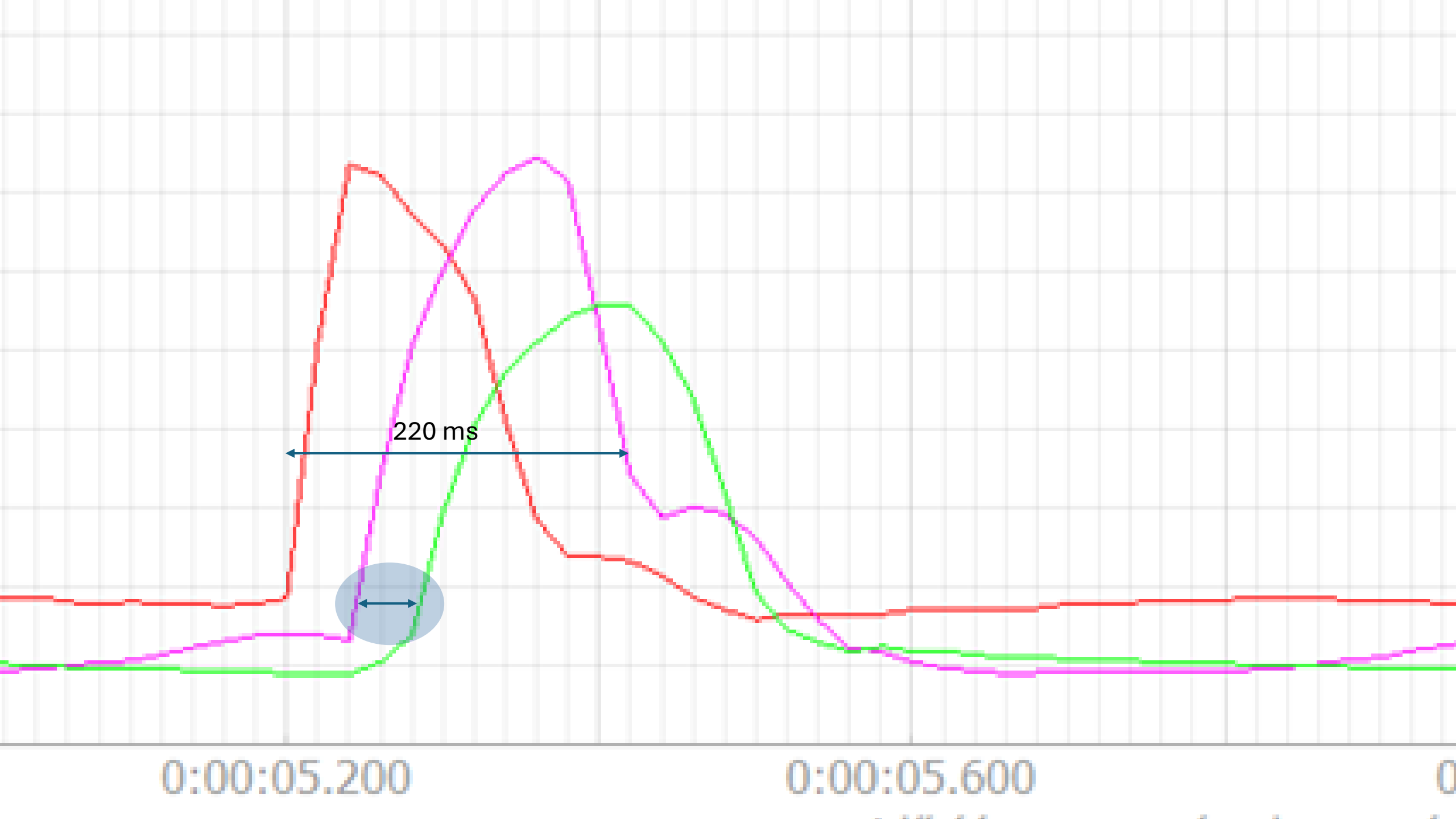
The 10 Most Common Volleyball Injuries

1. **Ankle Sprain/Strain** (23.6%)
2. **Concussion** (15.3%)
3. Hand/Wrist Sprain/Strain (9.8%)
4. Shoulder Other (6.6%)
5. Knee Sprain/Strain (6.3%)
6. Trunk Sprain/Strain (5.1%)
7. Shoulder Sprain/Strain (5%)
8. Knee Other (4.4%)
9. Hand/Wrist Fracture (4.3%)
10. Hand/Wrist Other (2.2%)

New vs. Reoccuring Injuries

Injuries By:

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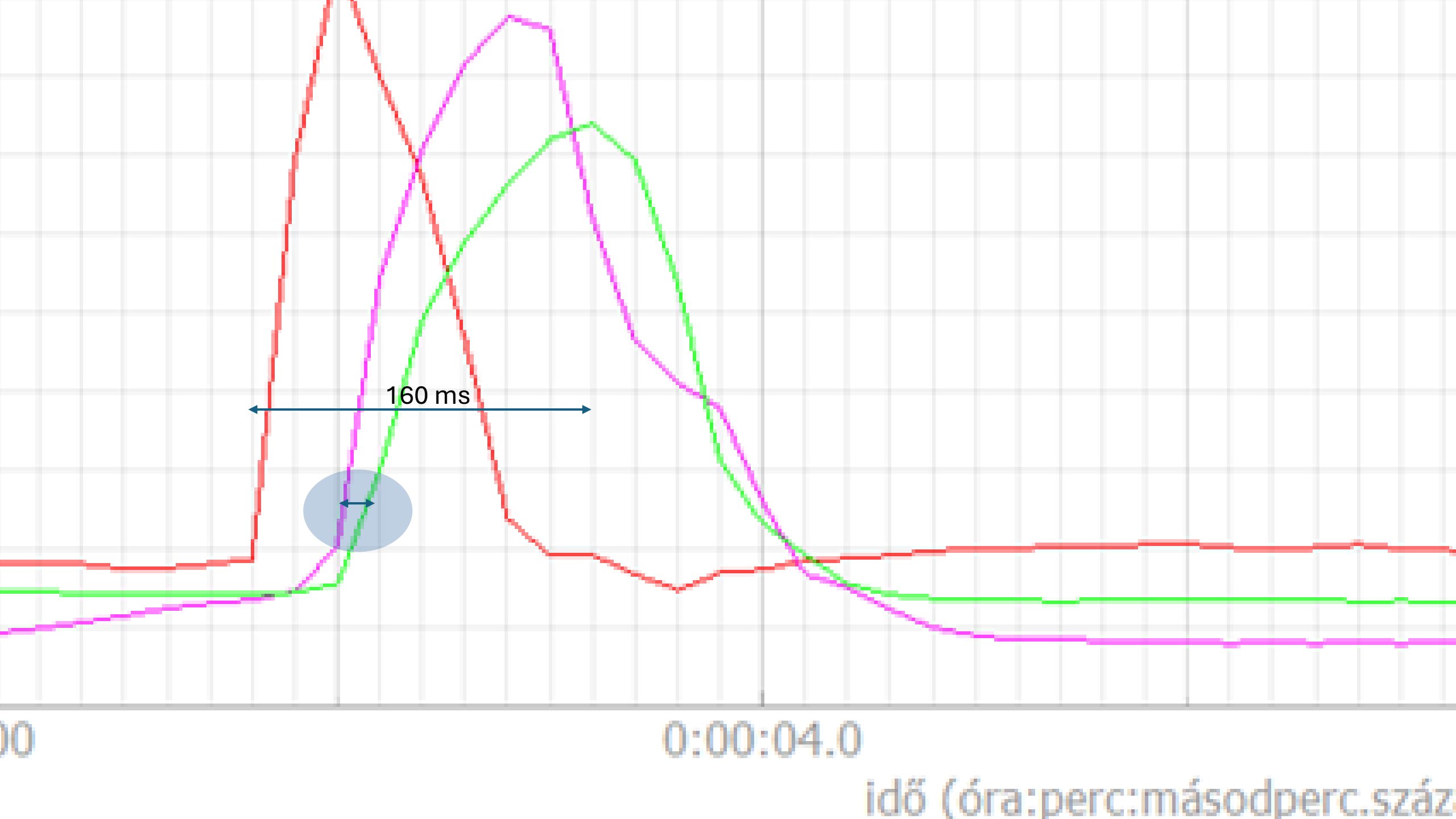
160 ms
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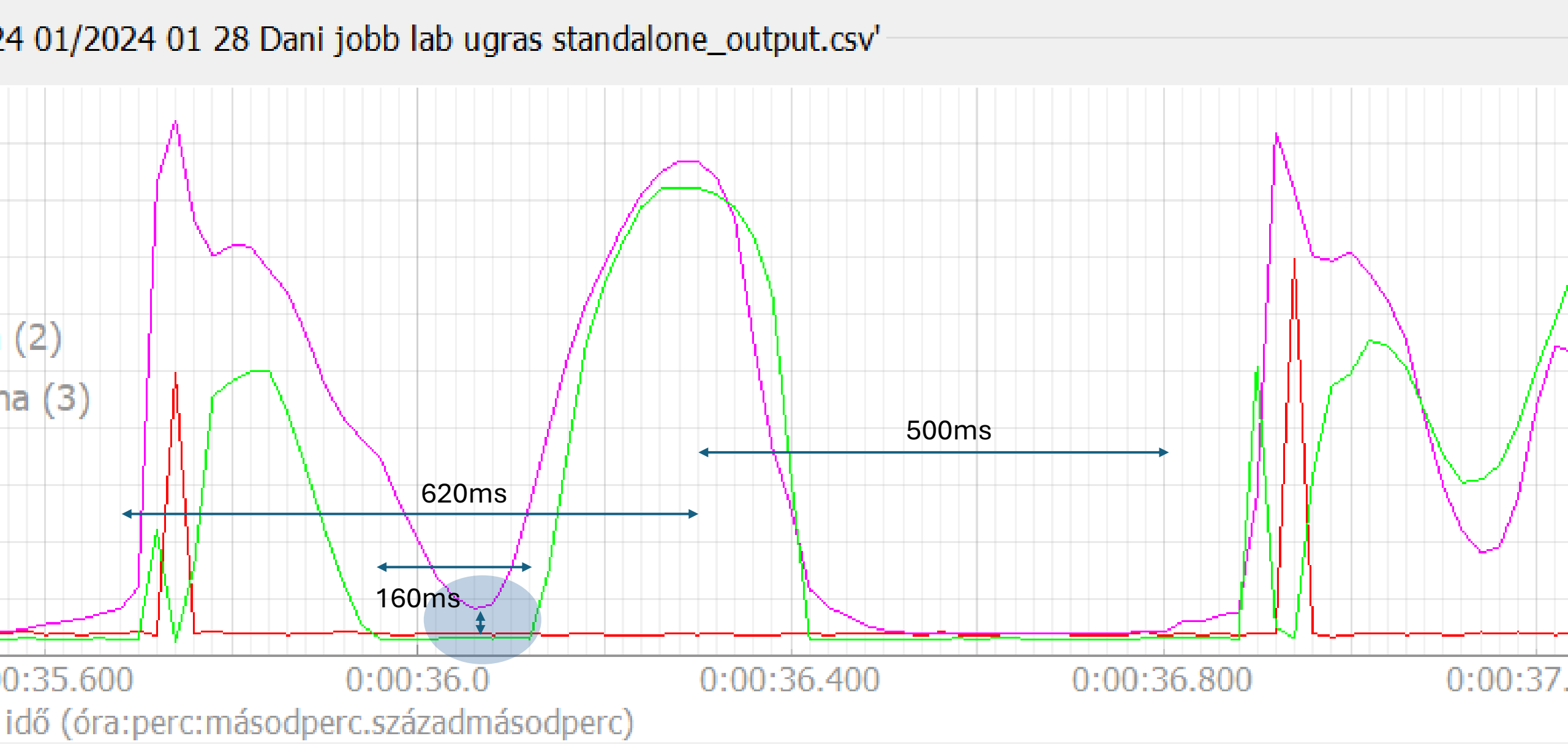

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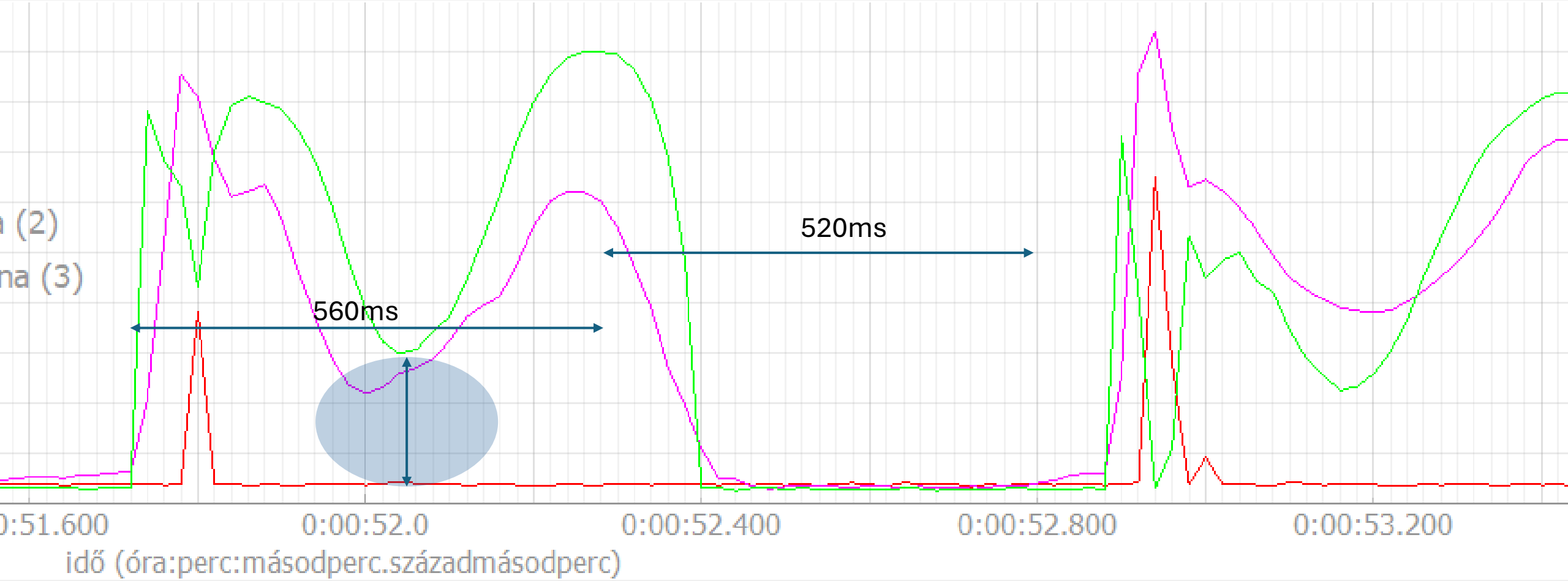

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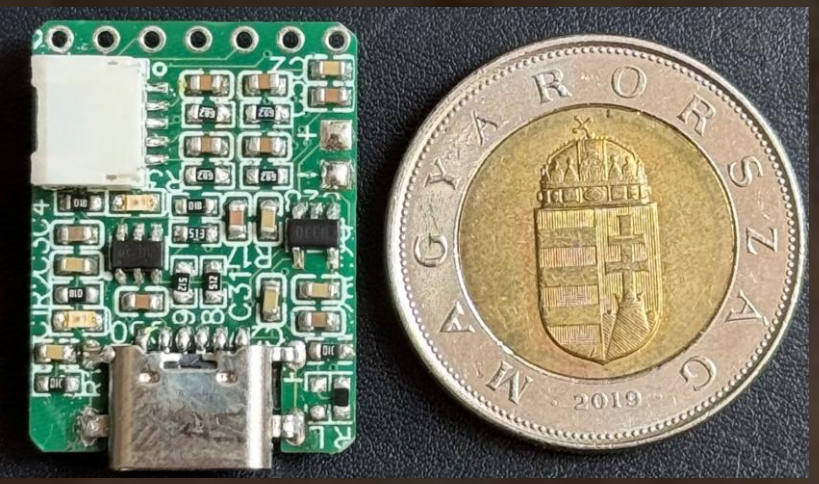

„study, count steps” Tim Grover

2025

„study, count steps” Tim Grover

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Rehabilitation

JUMP LANDING TASK

TEACHED WALK AND RUN

Rehabilitation

Balancing

Stable to stable single foot jump

Stable to unstable single foot jump

Unstable to stable single foot jump

Unstable to unstable single foot jump with task