eo SwimBETTER

A PROPOSAL FOR EUROPEAN SWIMMING

The coach's extra set of eyes, *underwater.*

What an in-water force sensor can contribute to junior and youth development at EuropCamp 2026 — Dijon.

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eo · eolab.com · Presented to European Federations

WHY I'M HERE TODAY

A short proposal — and an open invitation.

European Swimming wants to identify the current weaknesses and the future potential of its emerging swimmers. eo SwimBETTER was built to do exactly that — objectively, in the water, in real training.

I'd like to walk you through what the technology does, show you a 10-week case study, and propose how we cooperate with the science team led by Marek, Augusto and Riku — both at Dijon and across the season.

TODAY'S 15 MINUTES

01 What EO SwimBETTER actually is

02 What it measures (the six things)

03 10-week case study: Annabelle Hoover, 16

04 Why it matters for emerging talent

05 Proposal for Dijon — and the season

THE PROBLEM

From the deck, the most important things are invisible.

What the eye misses

Wrist angle, lateral force, downward push, hand drag — none of it is visible from above the surface, even to the best coach.

Why video isn't enough

Underwater video shows shape. It doesn't show force, power distribution, or the asymmetries quietly costing tenths every length.

Why "work harder" stalls

When a young swimmer plateaus, more volume rarely fixes it. Better information does — and they need it before habits set in.

THE TECHNOLOGY

A palm sensor that turns every length into measurable data.

Worn during normal training. No camera setup, no lab. The handset captures every stroke and pairs to the deck-side app.

01

Capture

A lightweight handset on each palm samples force and motion at high frequency. Athletes train normally — sets, drills, racing.

02

Quantify

Software resolves every stroke into propulsion, lateral force, downward force, hand path, power output and symmetry — left vs right.

03

Coach

Coach and athlete see the same chart on the deck. The session ends with a diagnosis, not an opinion.

Designed for the deck. Built for daily training. Used by coaches, not just labs.

WHAT IT MEASURES

Six things every coach has wanted to see — and now can.

Force Field

How much of every stroke goes forward versus sideways, up or down.

Propulsive Power

Watts produced per stroke, per hand — left and right, independently.

Distance Per Stroke

Metres travelled for every pull. The single best efficiency proxy.

Average Velocity

Real in-stroke speed (m/s), not lap-clock averages diluted by walls.

Stroke Rate

Cadence per minute, broken down by arm and lap, set against power.

Hand Path & Consistency

3D path of each hand and how repeatable it is across lengths.

Together they describe not just how fast a swimmer is, but why.


3
3

CASE STUDY · 10 WEEKS

Annabelle Hoover

Age 16 · USA · All four strokes

BEFORE

Times had stopped dropping. Growth had plateaued. More volume wasn't moving the needle.

BASELINE

Captured every stroke, every length. The data showed only 38% of her force was propulsive.

AFTER 10 WEEKS

Personal bests in every event. A Finals at New England Senior Championships. Futures qualifier in 5 events.

It wasn't a setback. It was clarity. And it became an opportunity.

From the eo Labs case study

BASELINE DIAGNOSIS

What 30 minutes of data revealed.

38%

of Annabelle's stroke force was actually propelling her forward.

WHERE THE OTHER 78% WENT

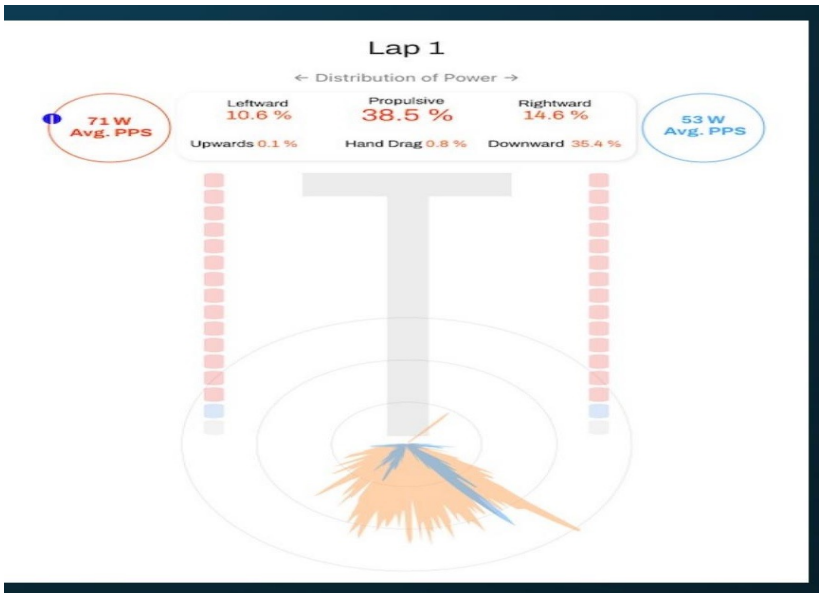
Downward force	35.4 %
Lateral (left)	10.6 %
Lateral (right)	14.6 %
Hand drag	0.8 %
Upward force	0.1 %

Energy spent. Time lost. Invisible from the deck.

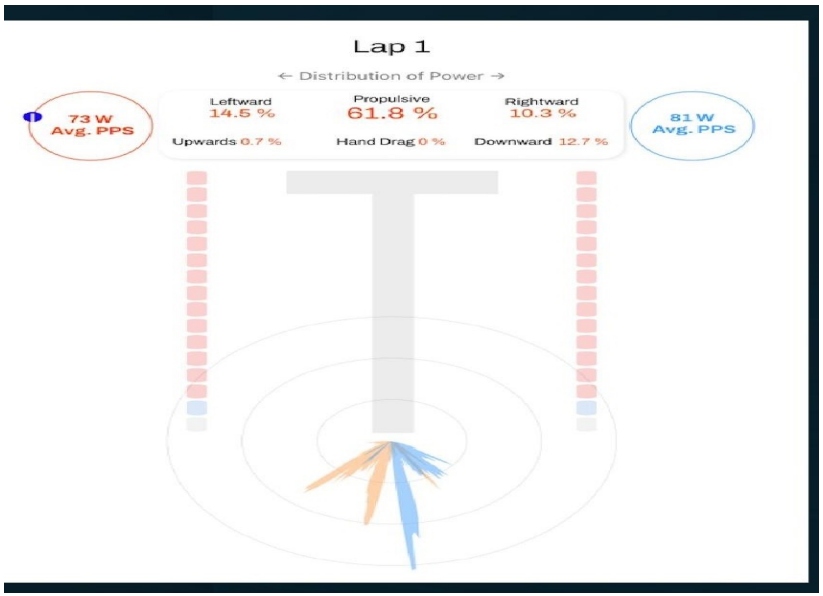
THE TRANSFORMATION

Same swimmer. Same pool. Ten weeks of better information.

BEFORE — baseline — 38.5% propulsive



AFTER — 10 weeks — 61.8% propulsive



The chaos becomes a vector.

WHAT CHANGED IN THE POOL

Personal bests, every stroke, every distance.

Event	Before EO	After EO	Δ
50 Backstroke	28.95	**26.20**	**−2.75 s**
100 Backstroke	1:02.53	**55.58**	**−6.95 s**
200 Backstroke	2:07.96	**1:59.49**	**−8.47 s**
100 Breaststroke	1:14.35	**1:08.38**	**−5.97 s**
200 Breaststroke	2:33.32	**2:23.00**	**−10.32 s**
100 Butterfly	1:03.91	**57.17**	**−6.74 s**
200 Butterfly	2:13.62	**2:05.48**	**−8.14 s**
100 Freestyle	57.33	**53.64**	**−3.69 s**
200 Freestyle	2:06.86	**1:57.07**	**−9.79 s**
200 IM	2:10.07	**2:04.45**	**−5.62 s**
400 IM	4:34.49	**4:23.59**	**−10.90 s**

AGGREGATE

11

personal bests

across all four strokes

Biggest drop

−10.90 s

400 m Individual Medley

All times reflect personal bests achieved during the 10-week period using EO SwimBETTER as part of normal training.

WHY THE TIMES DROPPED

The four biomechanical drivers behind every PB.

Average Velocity

BEFORE

1.29 m/s

AFTER

1.43 m/s

+11%

higher is better

Distance per Stroke

BEFORE

3.34 m

AFTER

4.57 m

+37%

higher is better

Propulsive Power

BEFORE

43.2 W

AFTER

65.5 W

+52%

higher is better

Strokes per Lap

BEFORE

7.20

AFTER

5.00

−31%

lower is better

These are not isolated wins. Each metric is mechanically linked to the next — fix the force field, and velocity, DPS and SPL all follow.

OUTCOMES

From plateau to qualification — in one season.

A Finals at the New England Senior Championships — every event entered.

At 16 years old.

Futures Championships qualifier — 5 events.

50 / 100 / 200 Back · 200 IM · 400 IM. Advanced to finals there too.

Knocking on the door of Junior Nationals.

Right as her college recruiting window opens.

This is what one young swimmer did with ten weeks of clear data.

WHY THIS MATTERS AT DIJON

The window between 13 and 17 is where stroke habits set.

Annabelle's story isn't unique — it's representative. Across 22+ federations and 100-plus athletes, every camp brings the same pattern: a handful of swimmers who have plateaued, dozens with hidden asymmetries, and coaches who would benefit from a shared, objective language.

EO SwimBETTER gives the science team a baseline for every athlete in 30 minutes — and gives every visiting coach something they can act on the same week.

22+
national federations

120
athletes (born 2008–2012)

30
minutes to baseline a swimmer

4
strokes, all measured

Athletes see why they swim the way they do. **Coaches** leave with concrete drills tied to data. **Scientists** get a multi-federation dataset.

PROPOSAL

How we cooperate — at Dijon, and across the season.

At the camp

On site for the full week. Baseline every athlete who wants one. Daily debriefs with the science team led by Marek, Augusto and Riku. Joint sessions with visiting coaches.

Across the season

Recurring data captures with participating federations between camps. A shared dashboard view per nation. Quarterly review of cohort progress against the EJC benchmark.

Research pathway

Open to co-authored studies and PhD partnerships with European universities. Anonymised, multi-federation data on emerging-age biomechanics is rare — and valuable.

Coach development

Workshop modules built with Walter Bolognani, Kevin Renshaw, Geert Janssen and others. The data is only useful if the coach can read it.

A win-win: federations get answers. Athletes get faster. The sport gets data it has never had at this age.

LET'S BUILD THIS TOGETHER

Three things we'd like to agree today.

01 An invitation to Dijon

On site for the full week with the science team and visiting coaches.

02 A working session with Marek, Augusto and Riku

Before the camp — to align on protocols, capture cadence and what the science team wants out of the dataset.

03 A season-long pilot with a number of federations

To prove the model at scale and create the basis for the longer European cooperation.

Happy to meet anyone during the week — or before. Get in touch at **eolab.com** · **jaimie.fuller@eolab.com**