



SCIENCE and INNOVATION of SPRINT COACHING





ADN SWIM PROJECT

Full-time Staff

1. General Manager
2. Team Manager
3. Head Coach
4. Strength & Conditioning Coach
5. Biomechanics Analyst
6. Data Analyst
7. Sports Doctor
8. Posturologist





ADN SWIM PROJECT

Part-time Staff

1. Sports Scientist
2. Dentist (expert in postural conditions)
3. Orthopedic
4. Nutritionist
5. Breathing Specialist
6. Other Sports Coaches



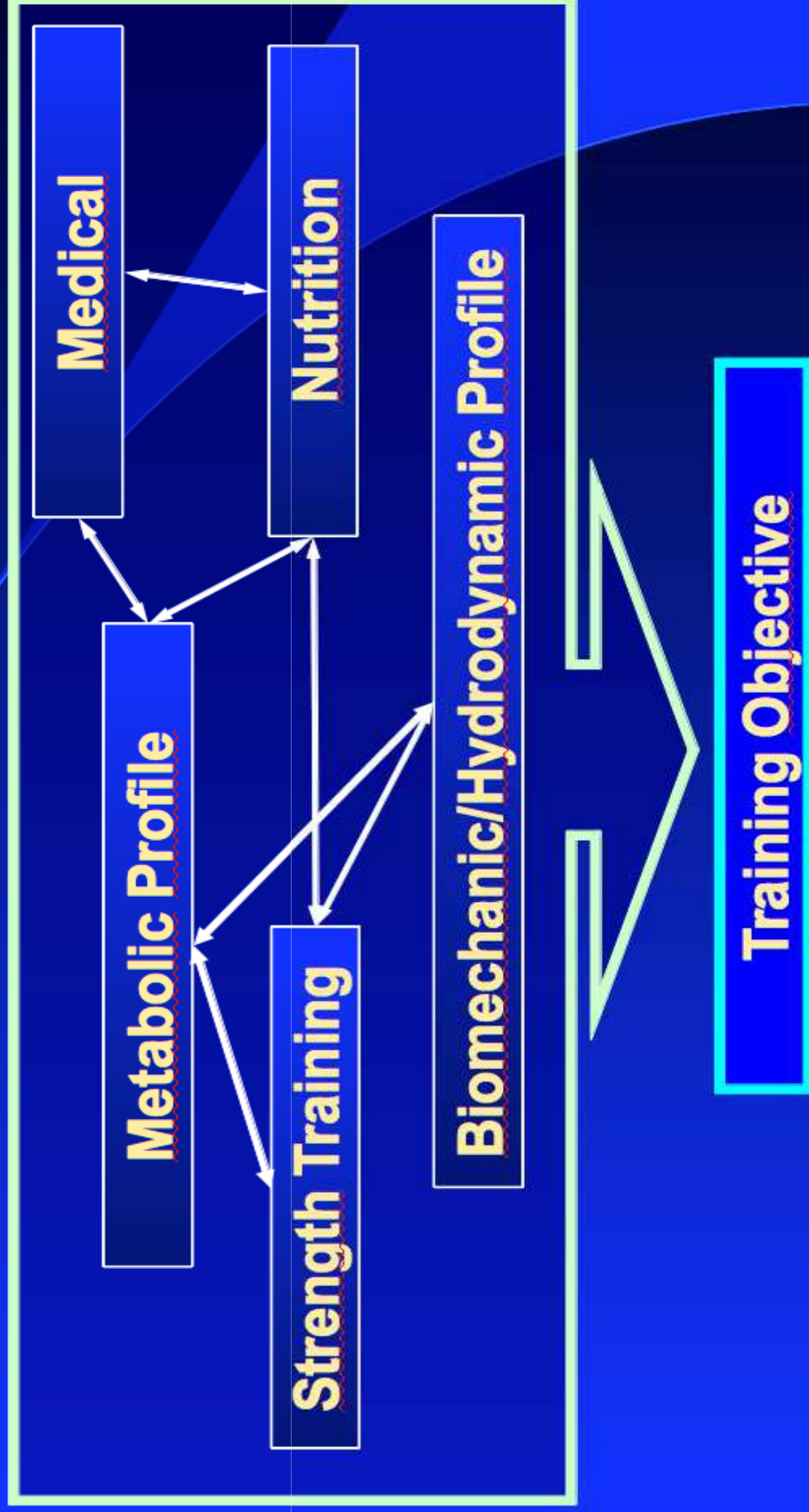


ADN SWIM PROJECT

Way to work



Multidisciplinary Approach





ADN SWIM PROJECT

First steps

Several meetings during the first weeks with ADN

1. Check swimming background
2. Set personal goals
3. Undergo battery test





ADN SWIM PROJECT

Posturology

Postural evaluation and identification of possible movement malfunctions



“The better the alignment of the skeletal segments, the better the performance of the control elements, such as the nervous and muscular systems”

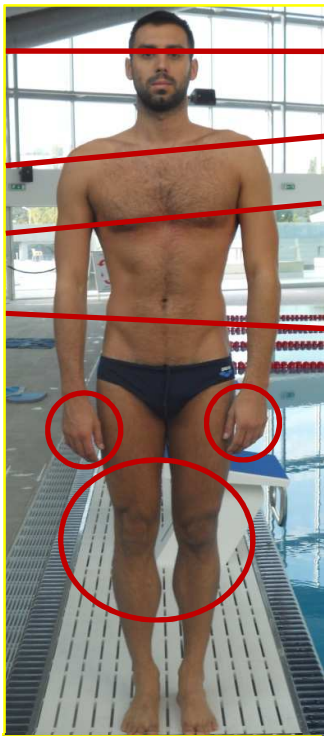
[S.A. Sahrman]



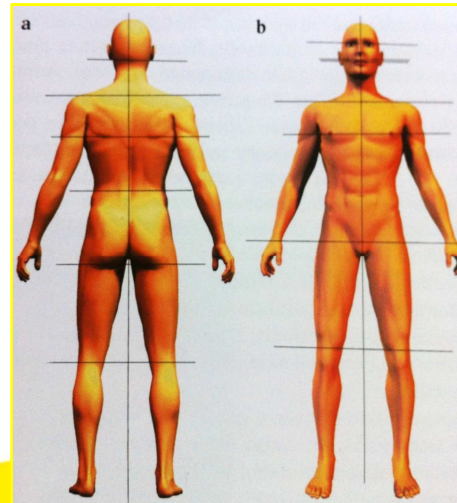
ADN SWIM PROJECT

Athlete start-up screening

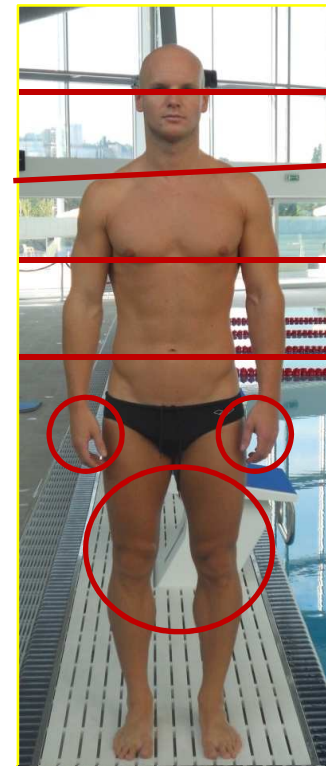
- Eye horizontal evaluation
- Shoulder height evaluation
- Bosom horizontal line evaluation
- Iliac crests height evaluation
- Upper & lower limbs medial, neutral or kateral rotation evaluation
- Varum, central or valgum knee evaluation



M. Cavic

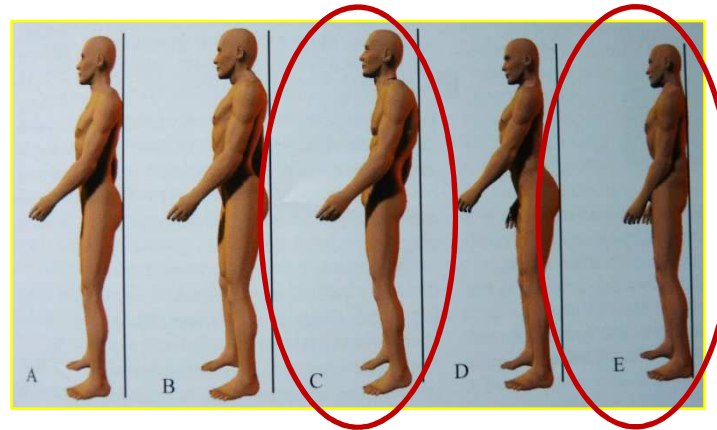
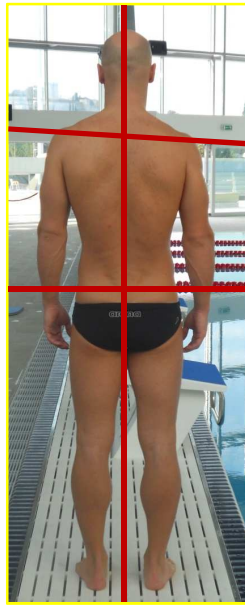
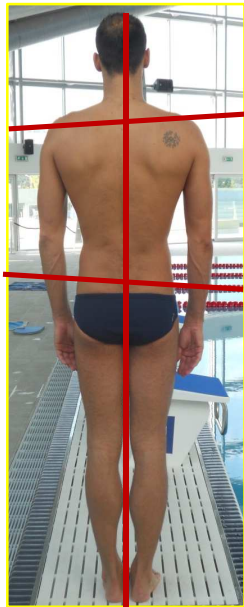


Normotype



E. Korotyshkin

Posterior and lateral view



Postural profiles of Bricot

Classification of the athletes according to Bricot postural profile



CAVIC

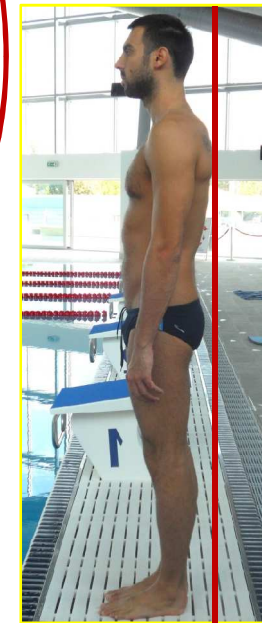
KOROTYSHKIN

E

C

Very slight spine sagittal curves

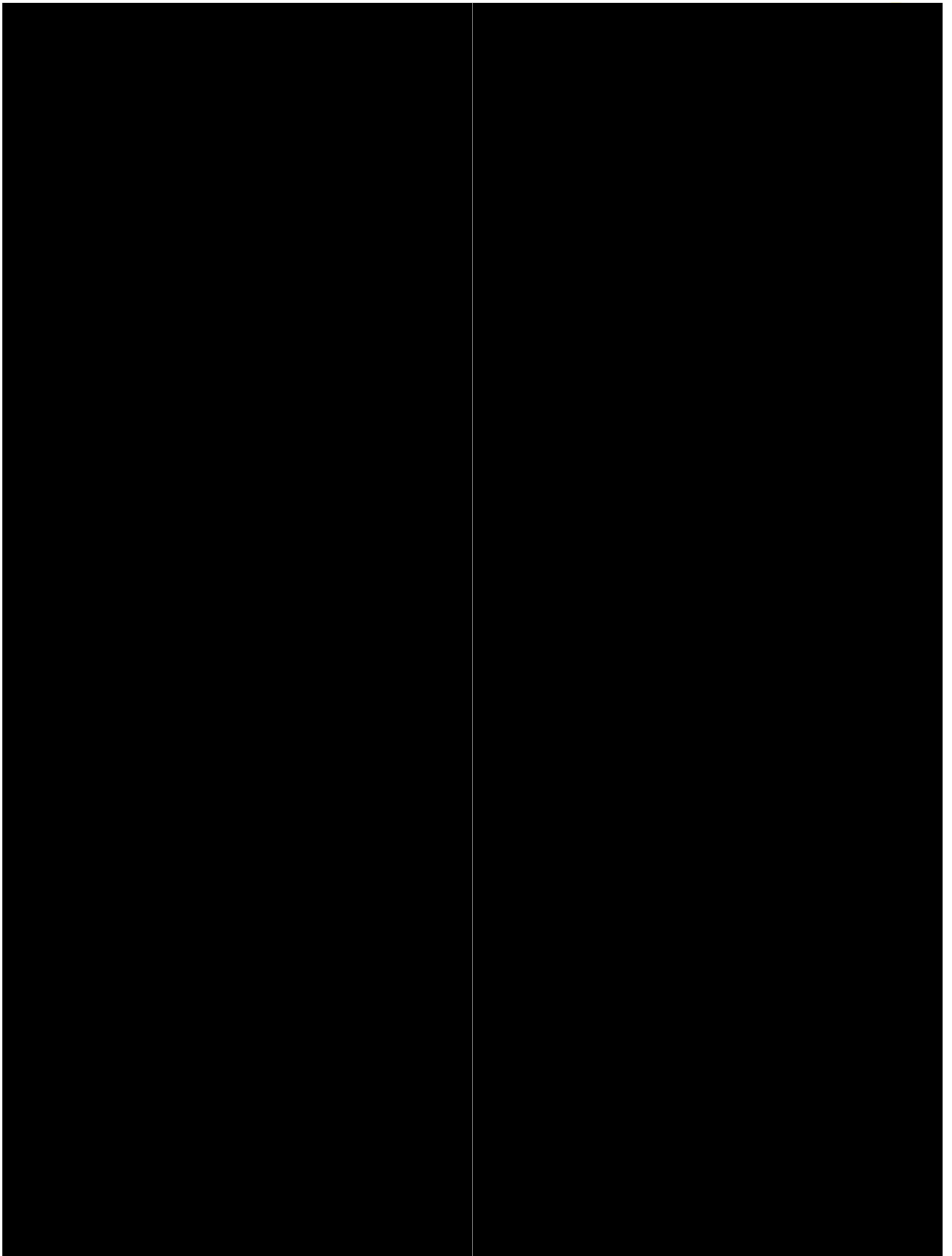
Very large spine sagittal curves



- Shoulder evaluation
- “Michaelis holes” evaluation
- Evaluation with plombs wire

- Spinal curves evaluation
- Knee evaluation
- Occipital-scapulas-sacrum alignment evaluation







DRY LAND TRAINING FOR SWIMMING



DRY LAND TRAINING FOR SWIMMING



www.francescocuzzolin.com

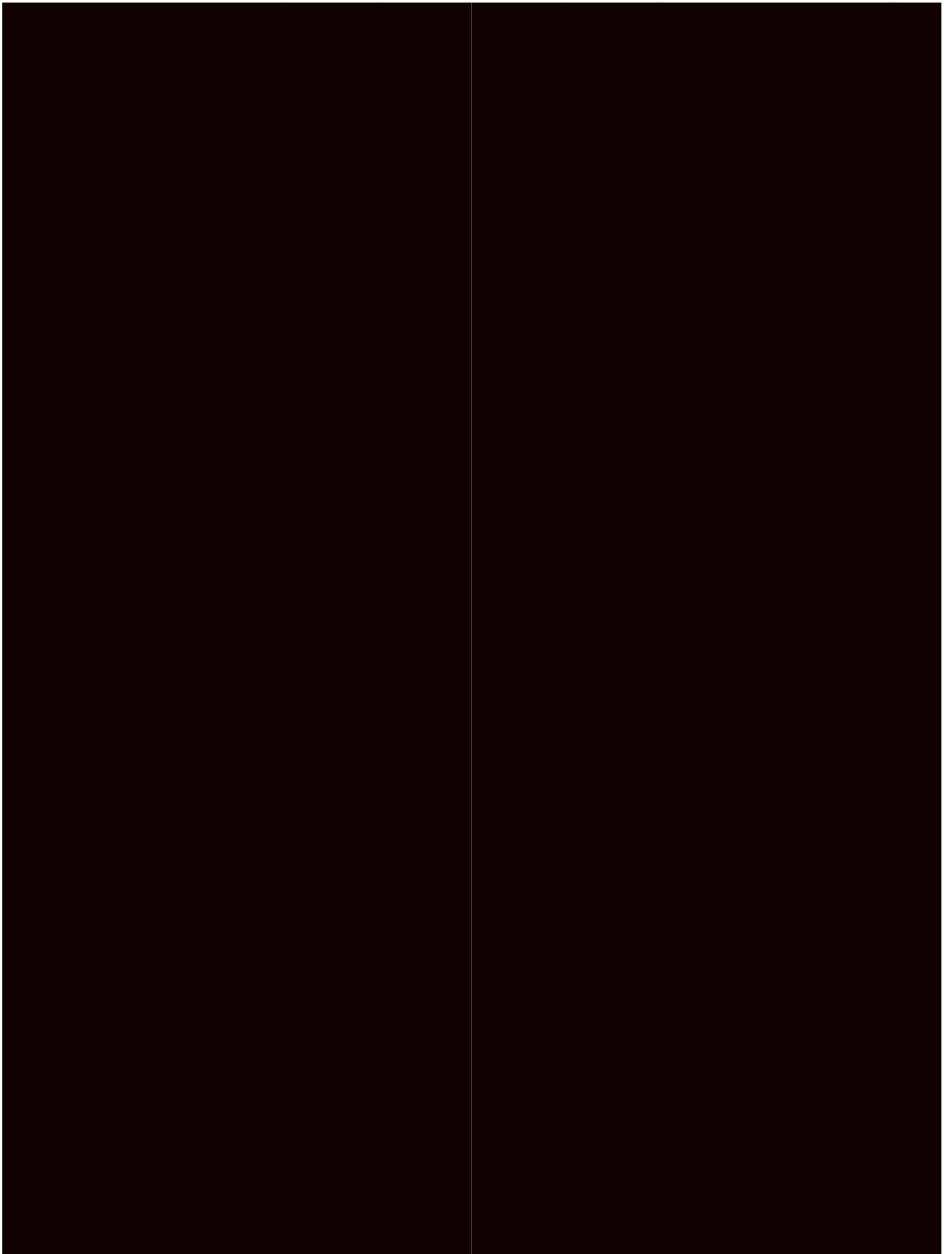


STRENGTH - POWER and PERFORMANCE

Evidence Based

Gian Mario Migliaccio, PhD
Sport Science Lab







Water Evaluation of high-level swimmers



Giorgio Gatta
University of Bologna







POWER SET

25mt. pool

4times § 4shots elevated double arm lat pull down 3kg m. ball

+

2times 25fly pull boy max power upper body / 2times 25fly cord out +
75easy swim

2times § 4shots by arm elevated single arm

+

25free paddles and pull boy pull arm straight just one arm + 75easy

3times § 3times 6'' vertical fly kick max speed with different resistance

+

(parachute – weight – belt)

1x100 10m. kick fins on the surface with 3kg m. ball outside + easy swim

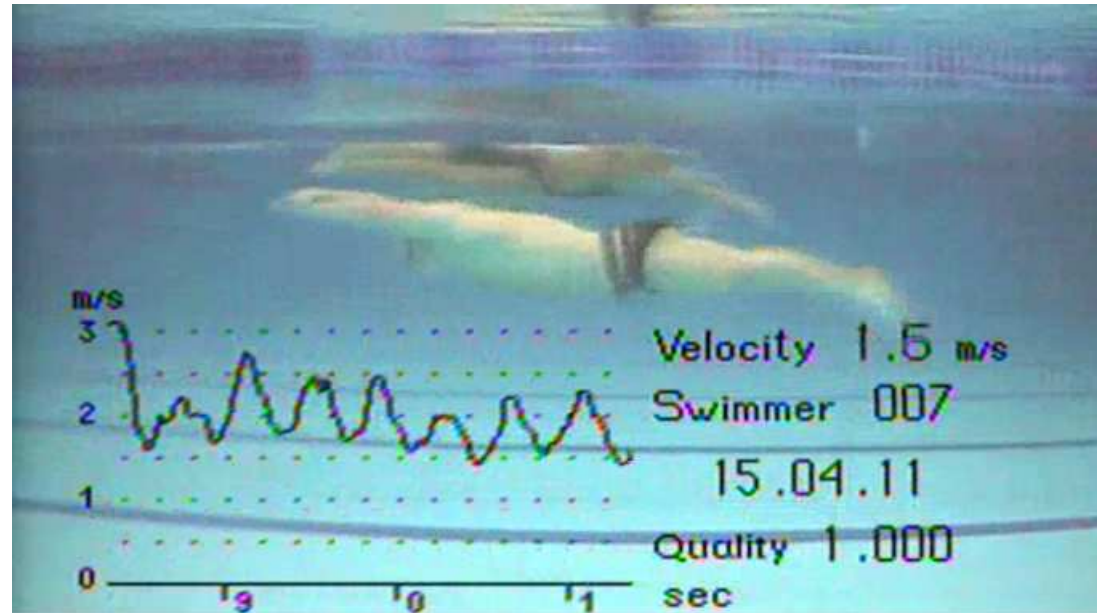
15m. max kick underwater cord out + easy swim

25m. max kick + easy swim



TECHNIQUE

SWIM WELL
To
SWIM FAST





Technical Analysis



Quantitative

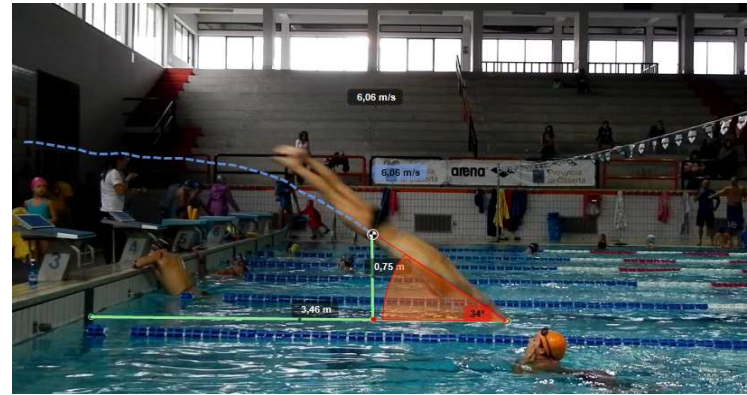


Qualitative

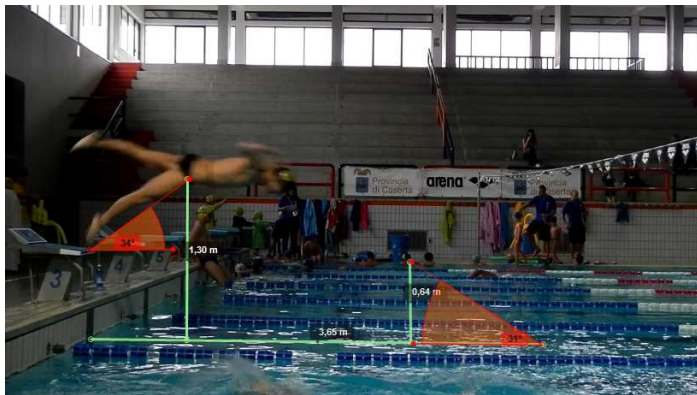


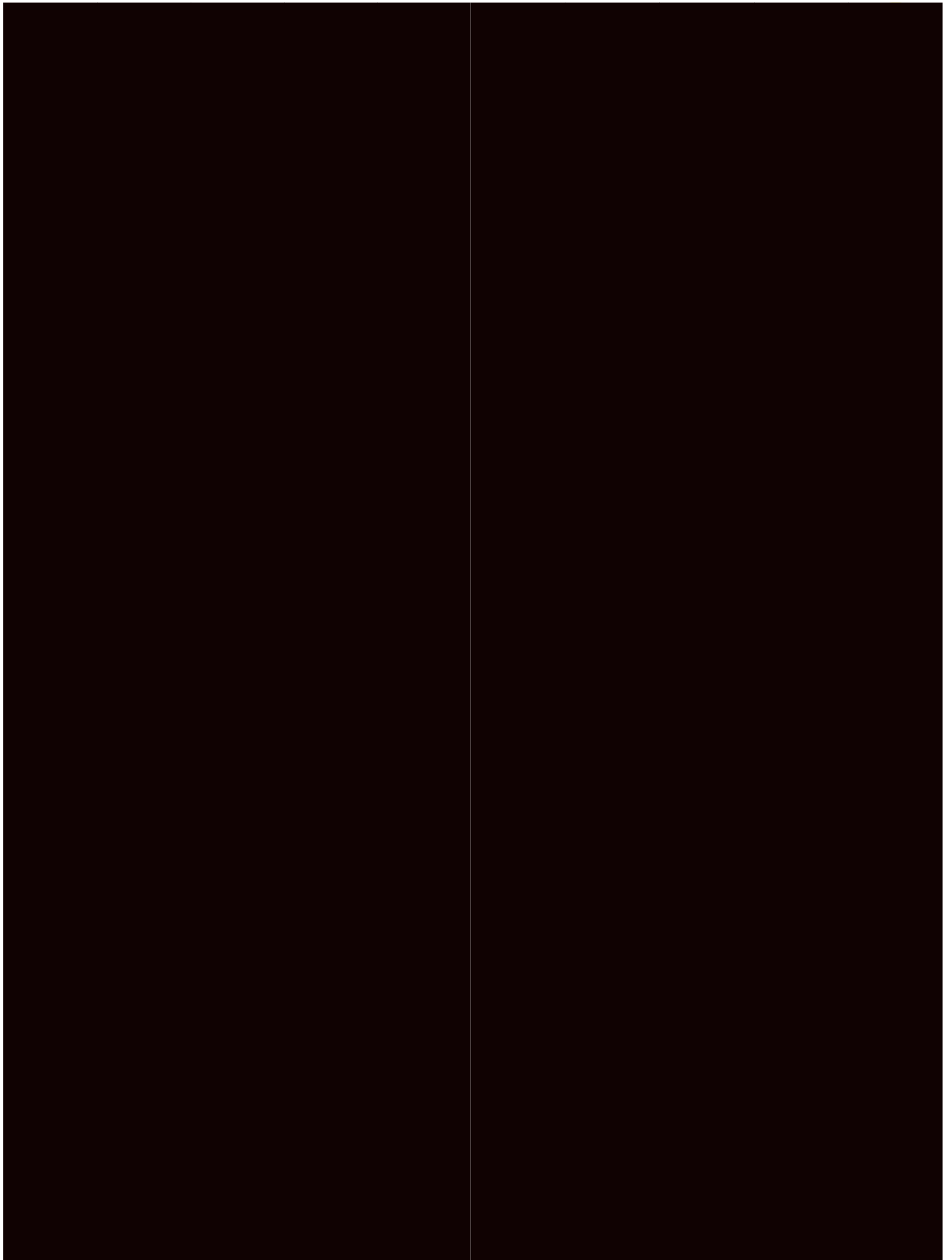


Flight distance (october 2014): 3.46 m Personal Best 50 m Freestyle: 21.52 s



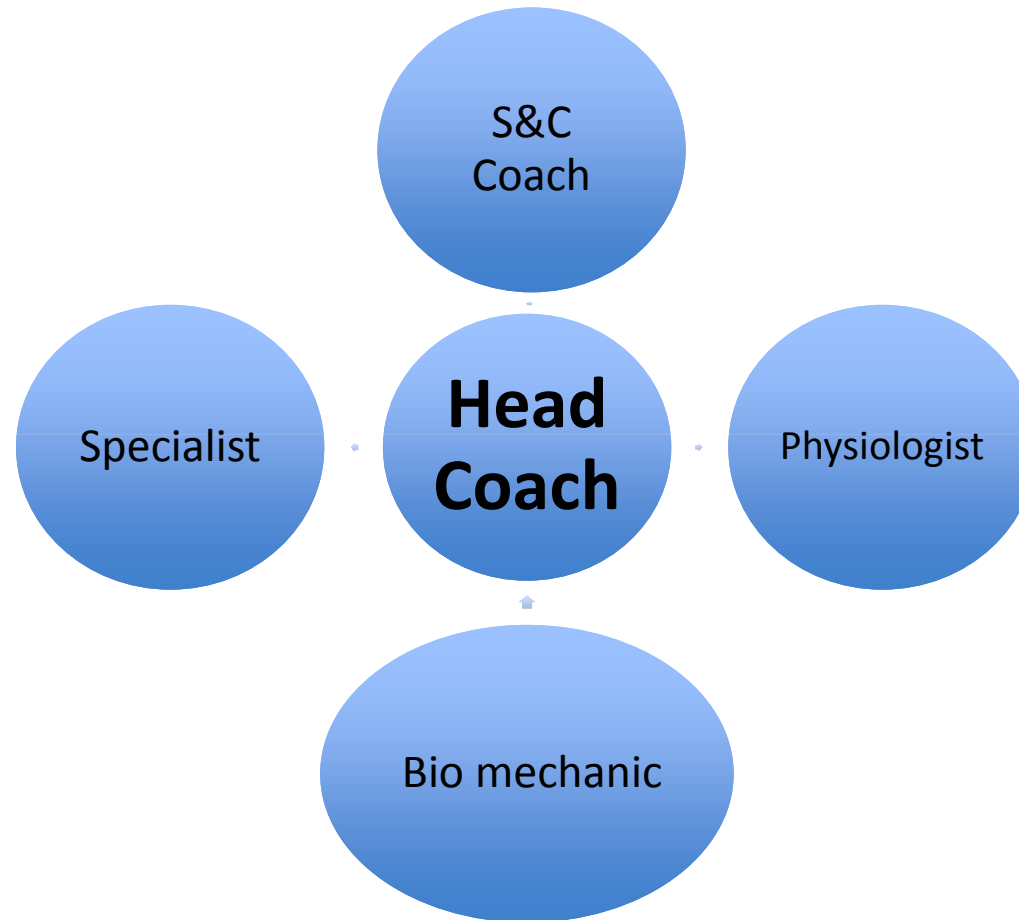
Flight distance (november 2014): 3.65 m Personal Best 50 m Freestyle: 20.97 s







DATA ANALYSIS





SET

distance per stroke

50m. pool

10x50fly on 1'15'' with 12 strokes request

31.9 – 32.2 – 31.4 – 31.1 – 30.9 – 31.4 – 31.2 (all with 11 strokes)

31.0 – 30.9 – 30.5 (all 10 strokes) all set 160pulses

300easy

8x50 on 1'30'' 3)fly with 13strokes request 1)easy

28.9 – 28.7 – 28.5 (all three 14 strokes)

28.5 – 28.4 – 28.4 (all three 13 strokes) all set 180pulses

400easy

6x50 2) on 1'30'' 15strokes request **28.0 14 strokes 28.5 15 strokes** 2)easy

2) on 2' with 17strokes request **26.0 17strokes 25.9 17 strokes** 2)easy

1000m. set

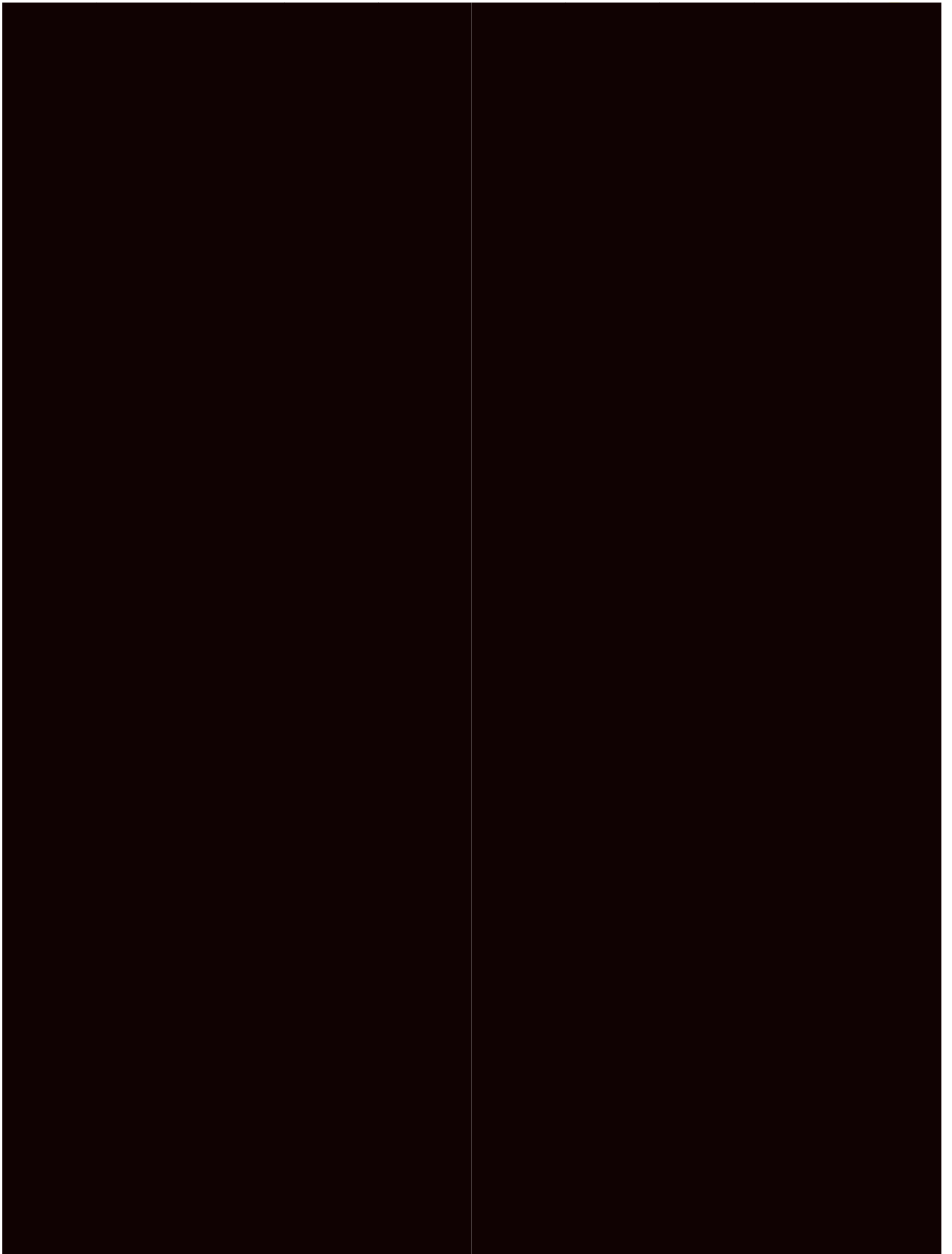


RACE ANALYSIS



LOS ANGELES 1984: Michael Gross 2.02cm – 18 + 20strokes
ATLANTA 1996: D. Pankratov – 15mt. sub 5"9 12 + 22strokes
ATENE 2004: M. Phelps – reaction time / 15mt. = Shanghai

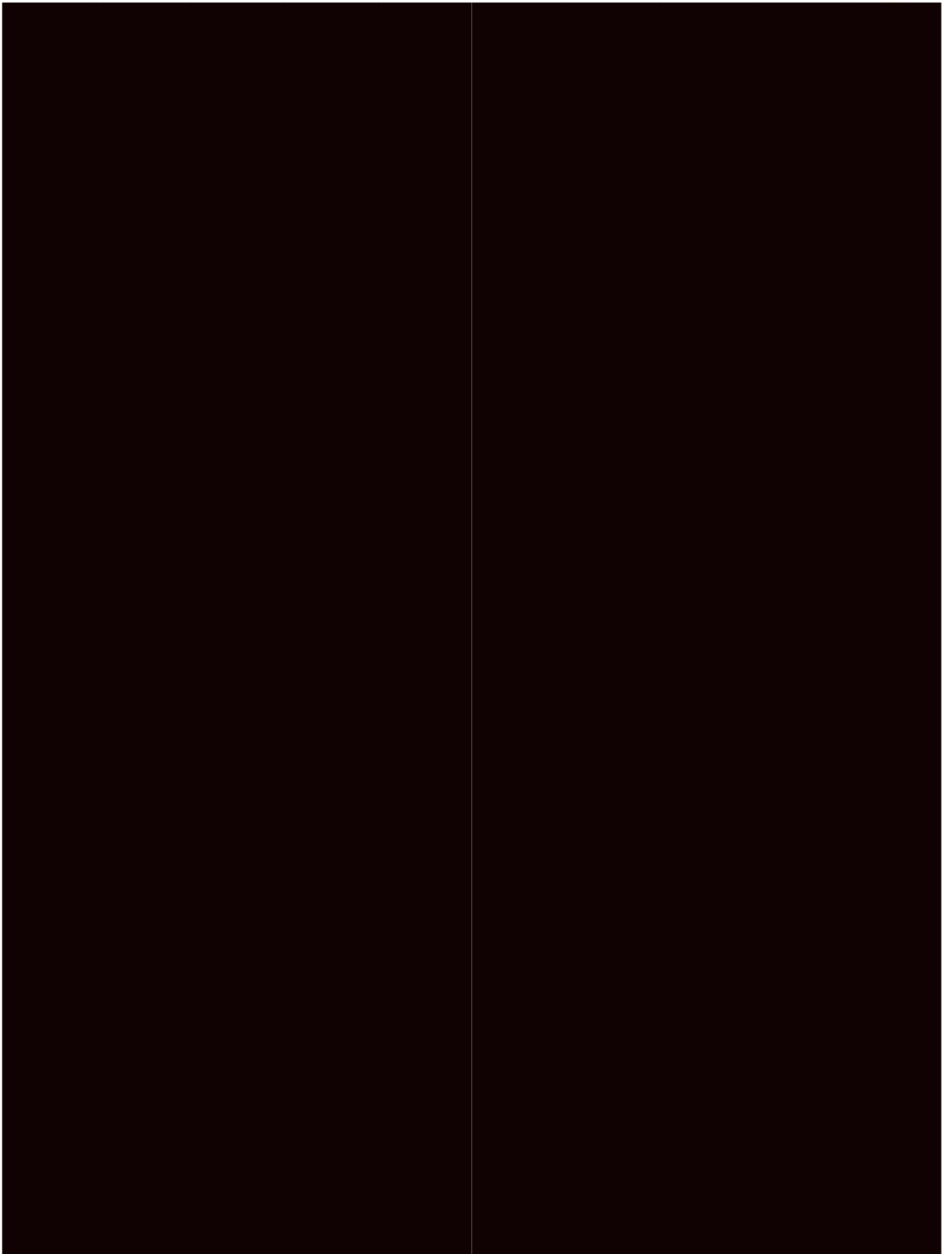






SCIENCE is the New Swimming







HYPOXIA & HYPERCAPNIA

Specific sets

Low intensity Set

8x50 on 1'

1-3° free max 3 breaths

4° 25 swim underwater + 25 easy swim

2x150 kick fins first and last 25m. Underwater; rest 1'

6x50 free on 1'15'' max 2 breaths per 50 with last 15m kick underwater

2x200 kick fins last 50m underwater kick; rest 1'

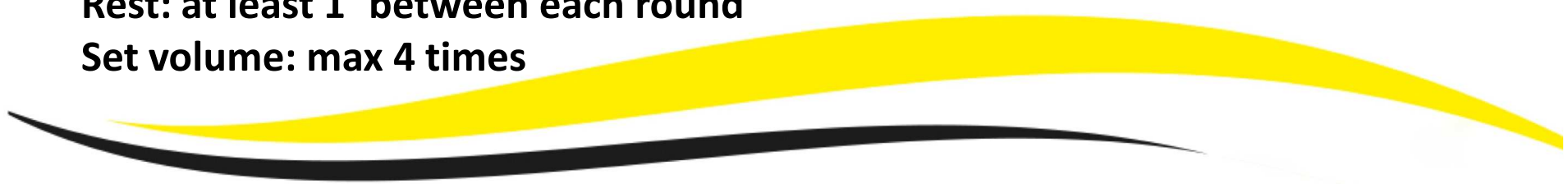
High intensity Set

2 * (30'' static on the bottom + 25m. Kick underwater fast + 25m. fly max 2 breaths)

2* (30'' static on the bottom + 35m. Kick underwater + 15m. Free hypoxic)

Rest: at least 1` between each round

Set volume: max 4 times





BREATH and CONSCIOUSNESS



