

OXYSTORM[®]

Stamina takes a big leap

The first nitrate extract from
amaranthus species to maintain high
level of performance



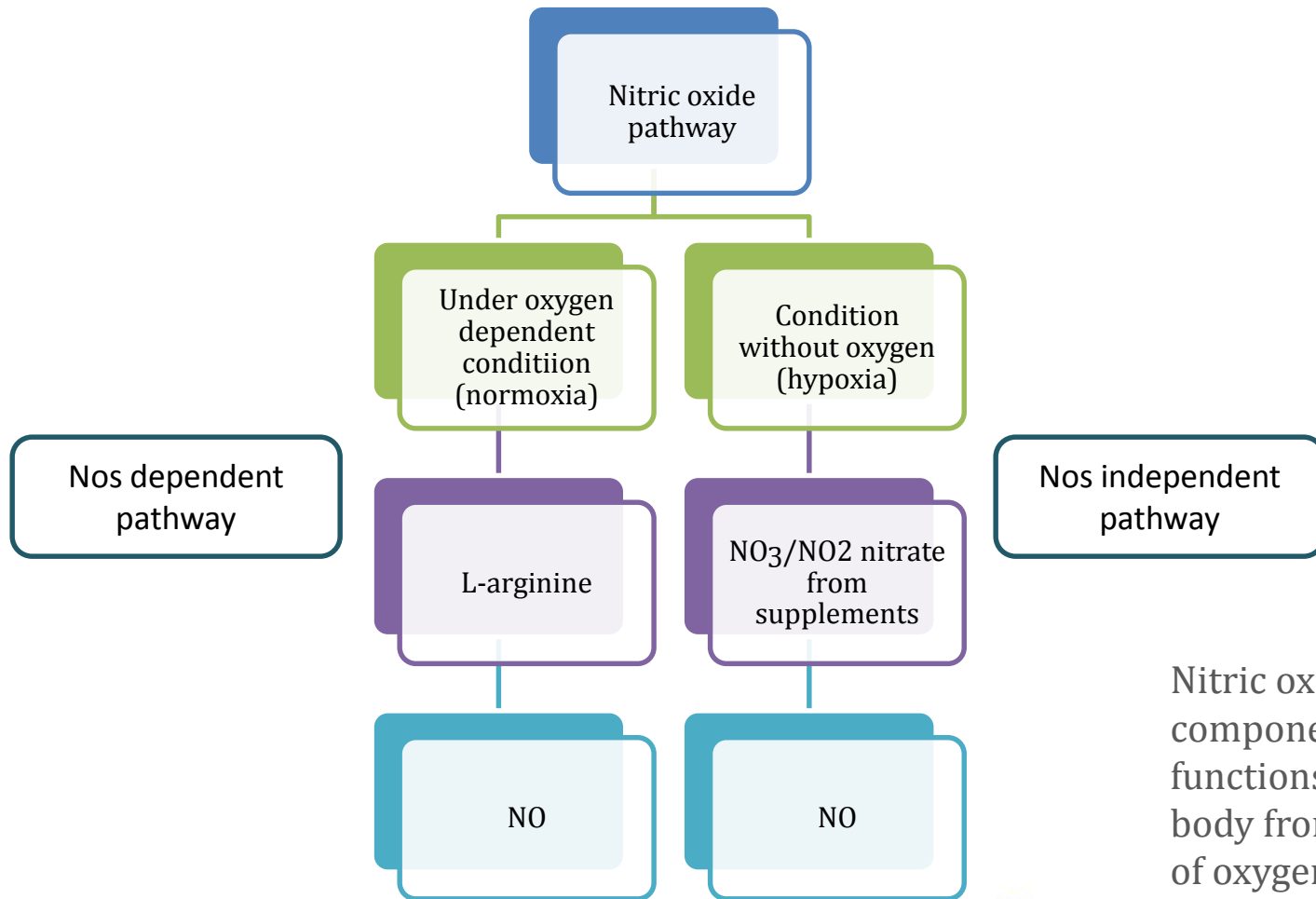
Amaranth leaves



- Amaranth is valued as a leafy vegetable all over India
- Extensively used as food
- Amaranth contains naturally occurring nitrate (NO_3) which is a source of nitric oxide (NO)
- Rich source of protein and potassium



Nitric oxide - pathways



Nitric oxide (NO) is an essential component for several body functions. It is produced in the body from L-arginine in presence of oxygen and nitric oxide synthases (NOS) enzyme

What is Oxystorm ?



- Extract of amarathus; one of the richest sources of nitrates discovered
- Standardized to contain 9% nitrate
- Contains 8%-14% potassium
- No oxalates
- No sugar
- 100% water soluble



Oxystorm[®] vs beet root extract



Parameter	Oxystorm [®]	Beet root extract
Nitrate	9% - 10% (HPLC)	<2% (HPLC)
Oxalate	Not detected (HPLC)	10% - 15% (HPLC)
Potassium content	8% - 14%	<2%
Sugar	Nil	15%
PH	7	5,5



Human bioavailability study



Randomized, open label, placebo controlled, single center, two period, two sequence, single dose, crossover bioavailability study

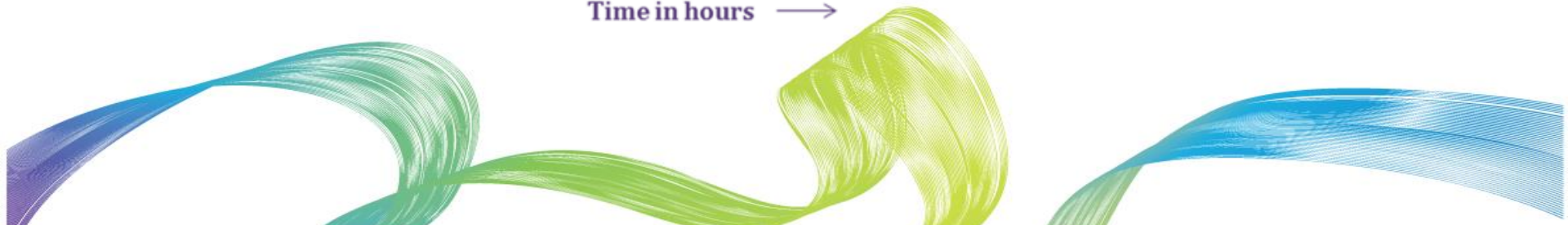
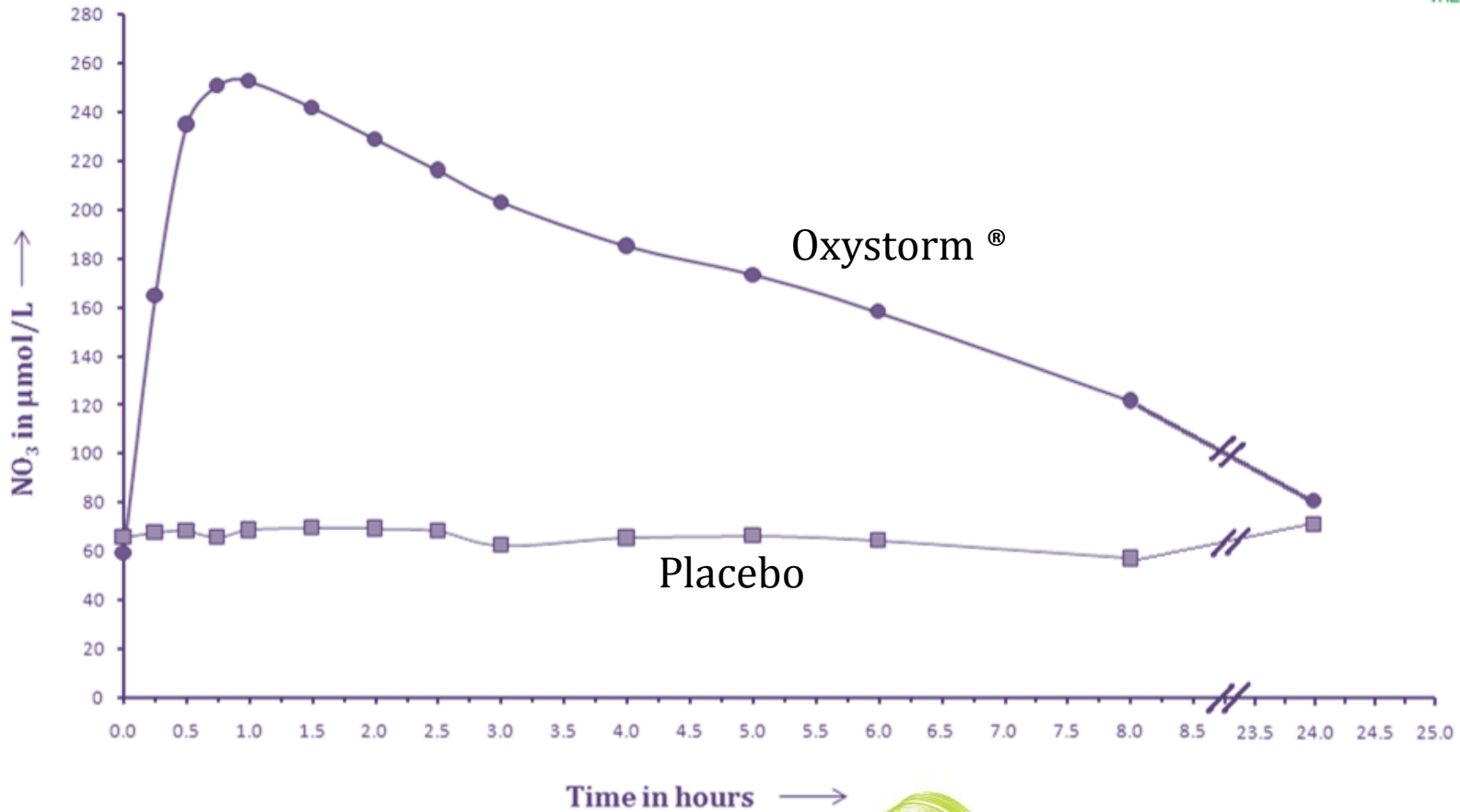
- 16 healthy human adult male subjects
- 2000mg Oxystorm powder or placebo with 300ml water (single dose)
- Objectives
 - Nitrate and nitrite content in blood plasma and saliva samples over 24h
 - Safety and tolerability of a single dose of Oxystorm®
 - Analytical procedure for NO_3 and NO_2 :UPLC method

» Published: Nutrition, volume 32, issues 7-8 pages748-753



Human bioavailability study

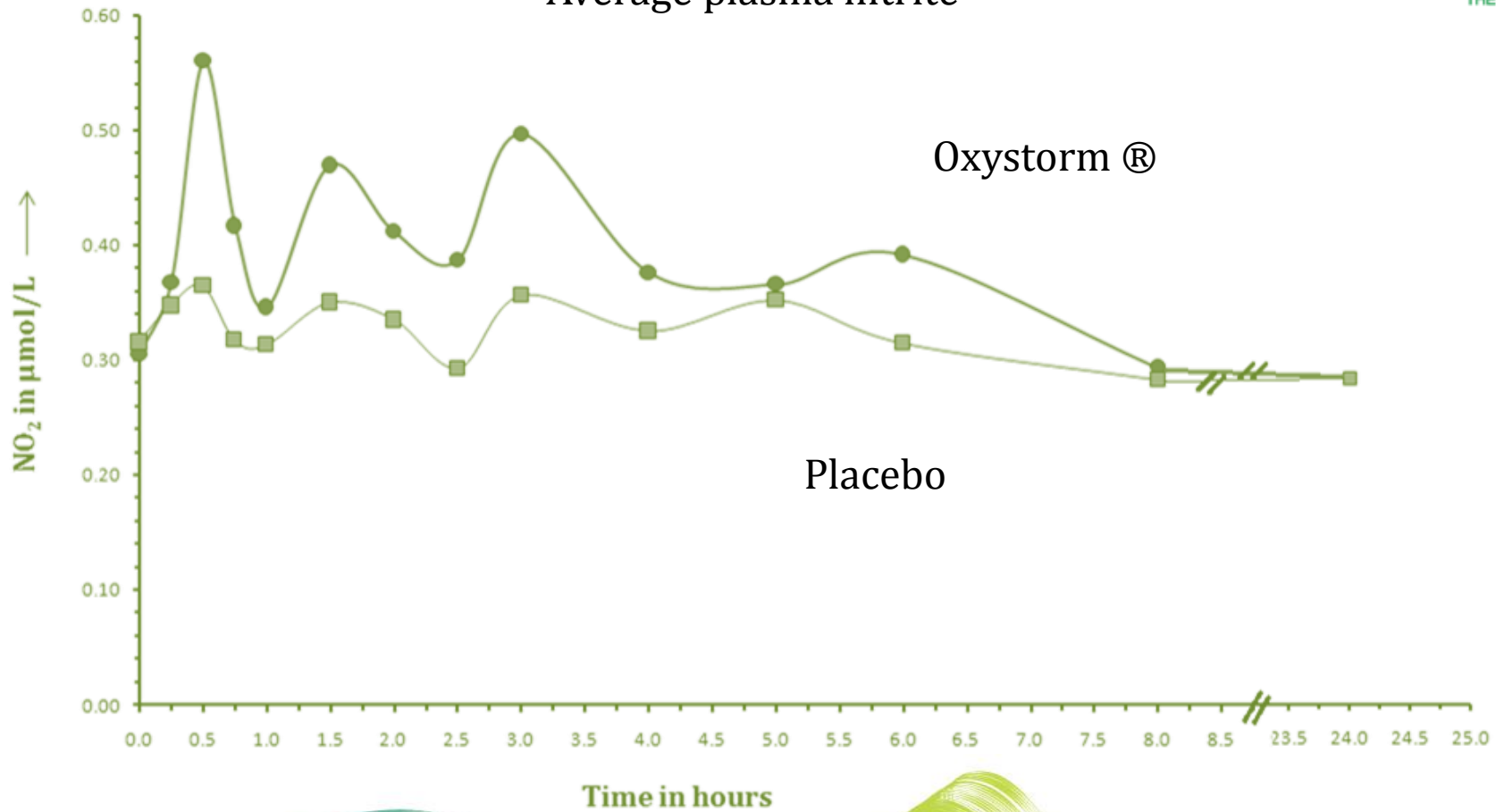
Average plasma nitrate



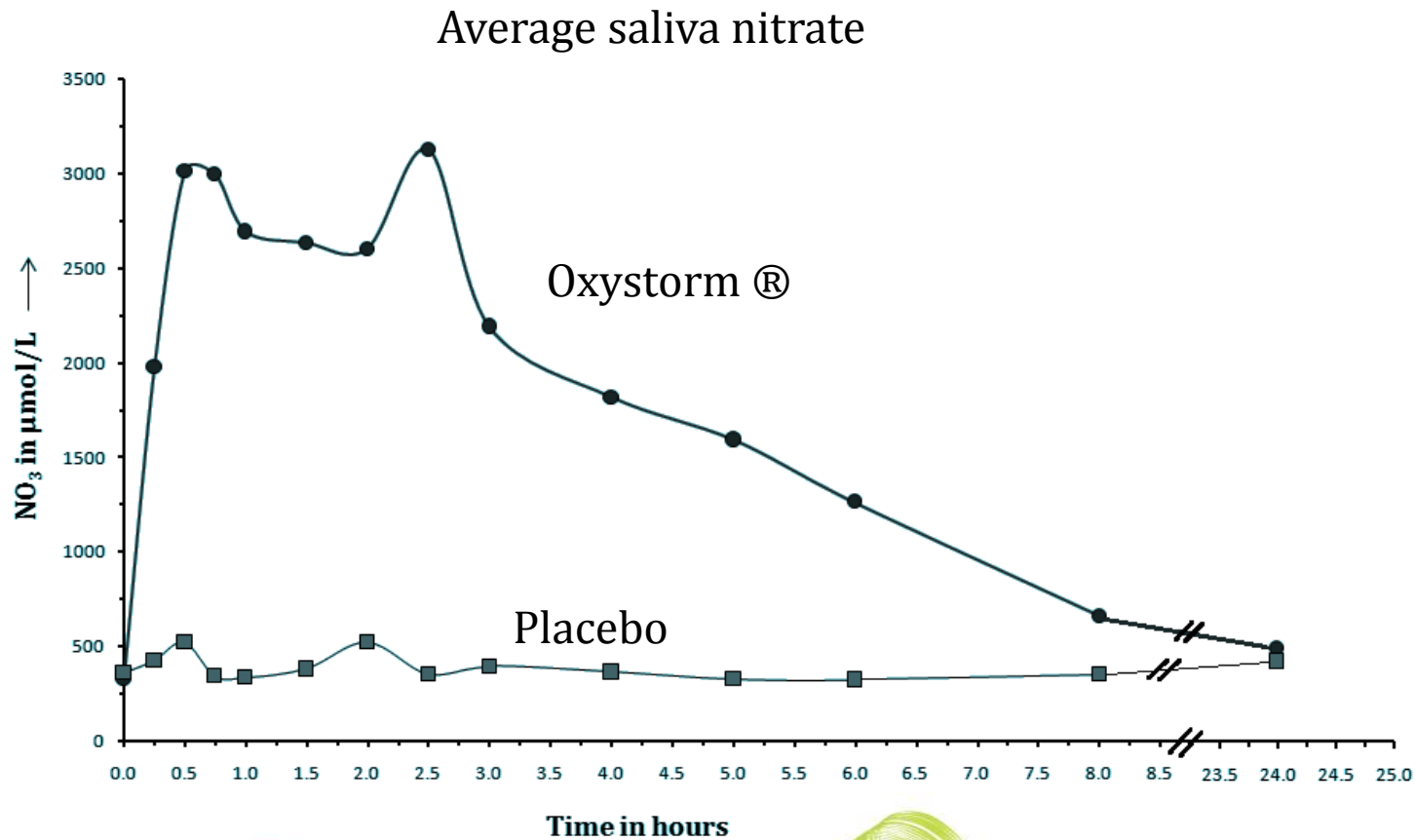
Human bioavailability study



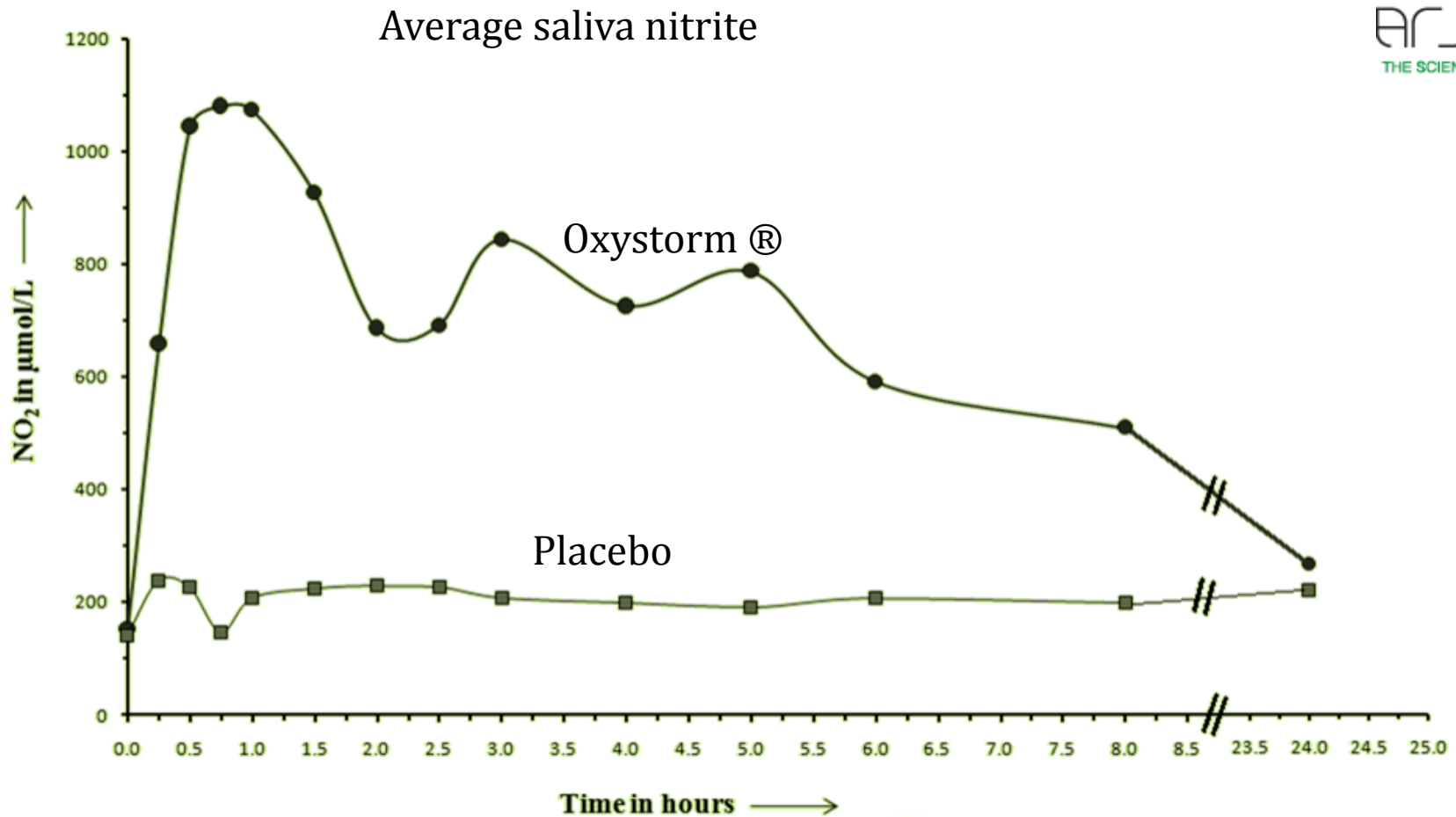
Average plasma nitrite



Human bioavailability study



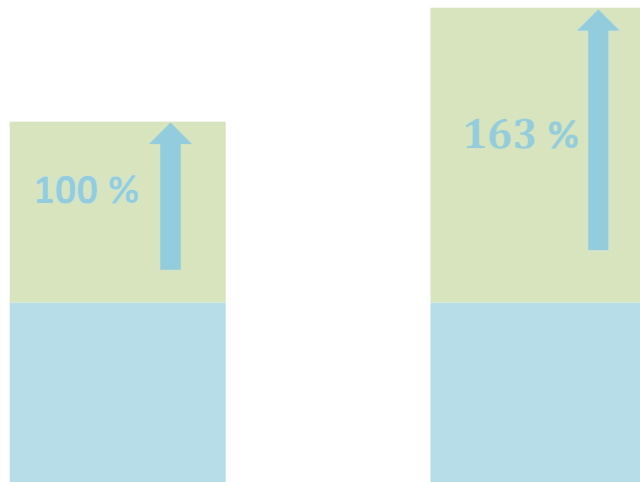
Human bioavailability study



Human bioavailability study - Results



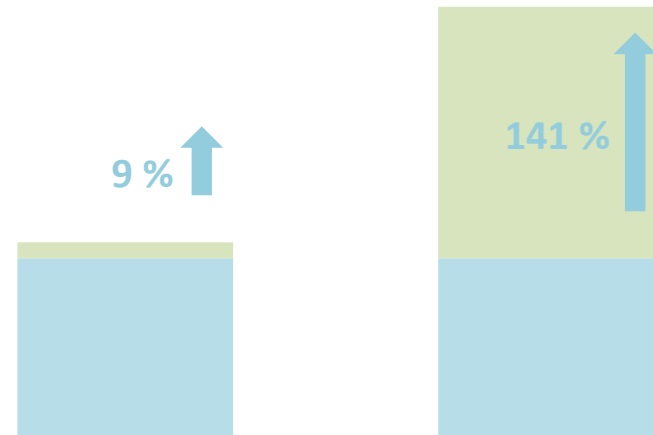
Bioavailability of NO₃ from Oxystorm v/s placebo



Plasma NO₃

Saliva NO₃

Bioavailability of NO₂ from Oxystorm v/s placebo



Plasma NO₂

Saliva NO₂

Fast absorption and sustained presence in blood and saliva
Safe and well tolerated by all subjects



Human endurance study 1



Randomized, pilot, double blind, placebo controlled, cross-over, human, study to evaluate the efficacy of Oxystorm® on physical endurance in healthy volunteers

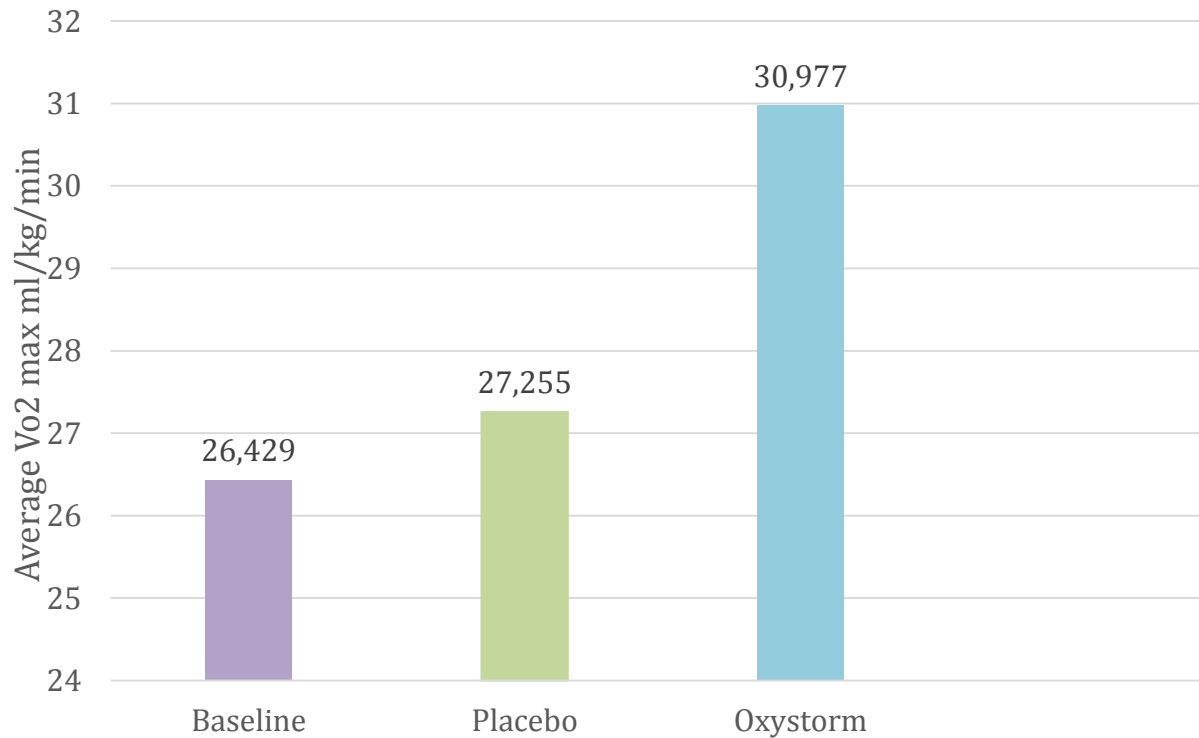
- 12 healthy human adult subjects
- 2000mg of Oxystorm® or placebo with water
- Test procedure
 - Exercise test on treadmill (Bruce treadmill test)
 - 30 sec supramaximal cycling test
 - Serum lactate pre and post exercise
 - Plasma and saliva NO_3 and NO_2 levels at baseline, pre and post exercise



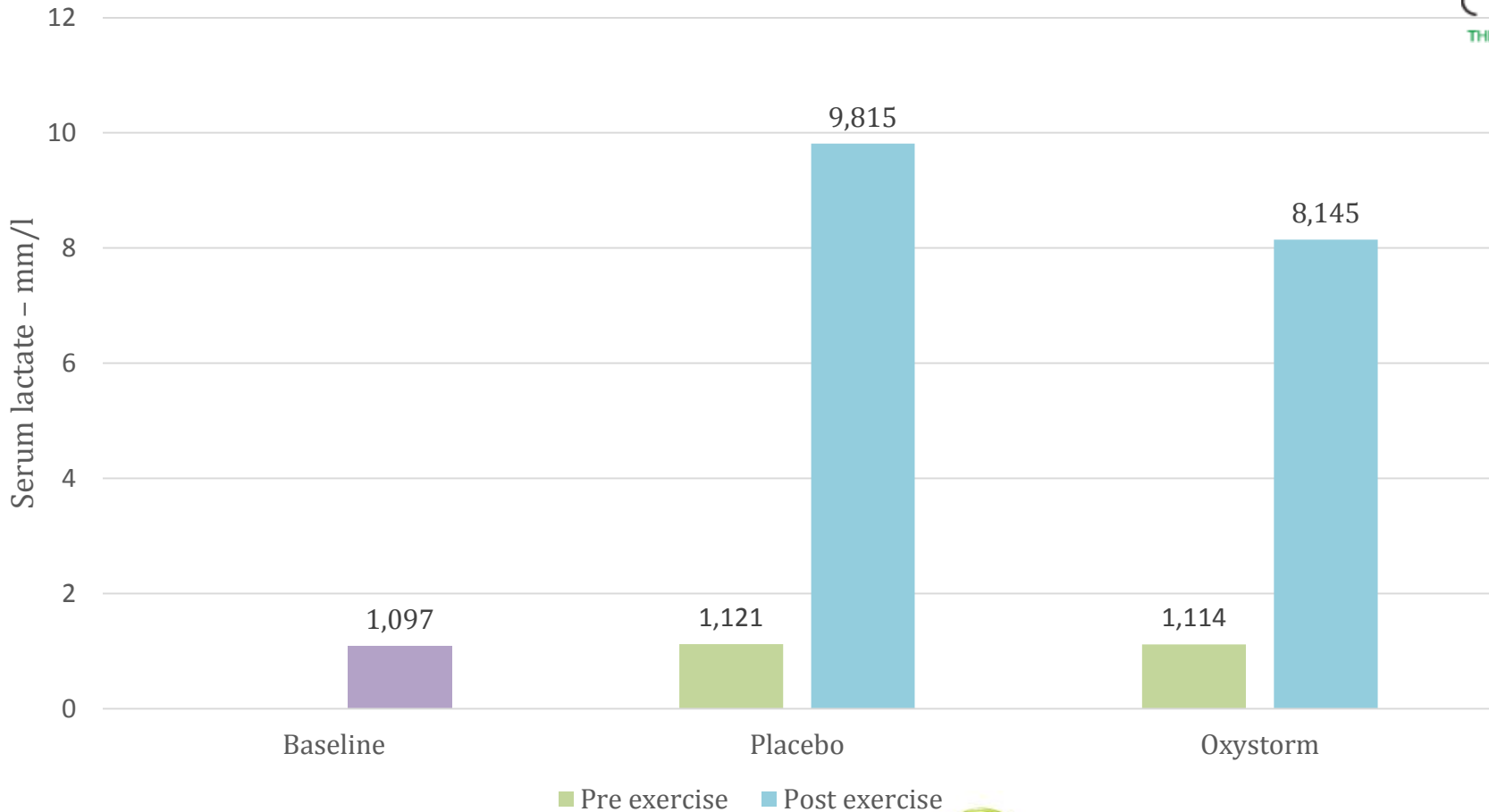
Human endurance study 1 - VO_2 max



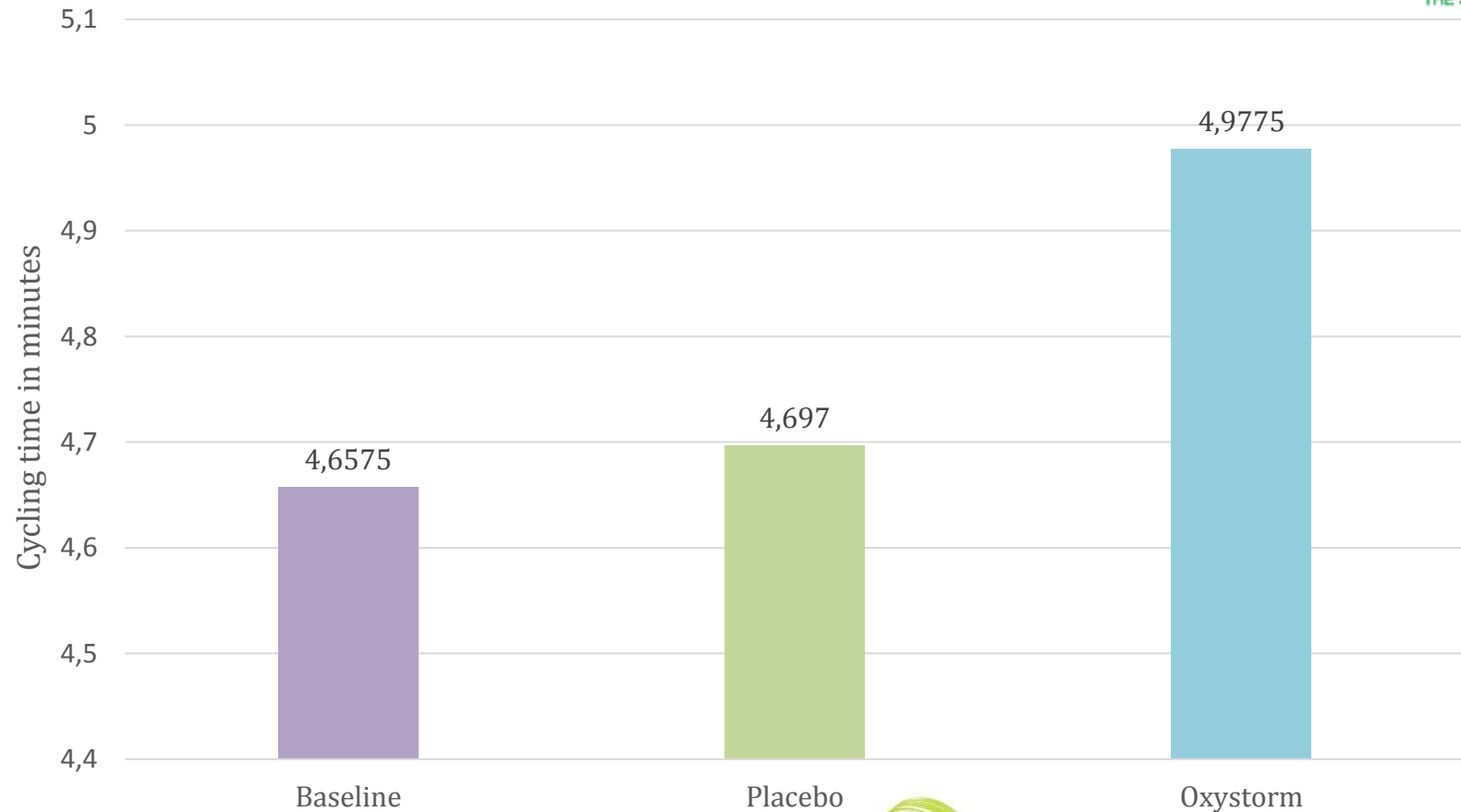
VO_2 max is the measure of maximum volume of oxygen an athlete can use.



Human endurance study 1 – Serum lactate levels



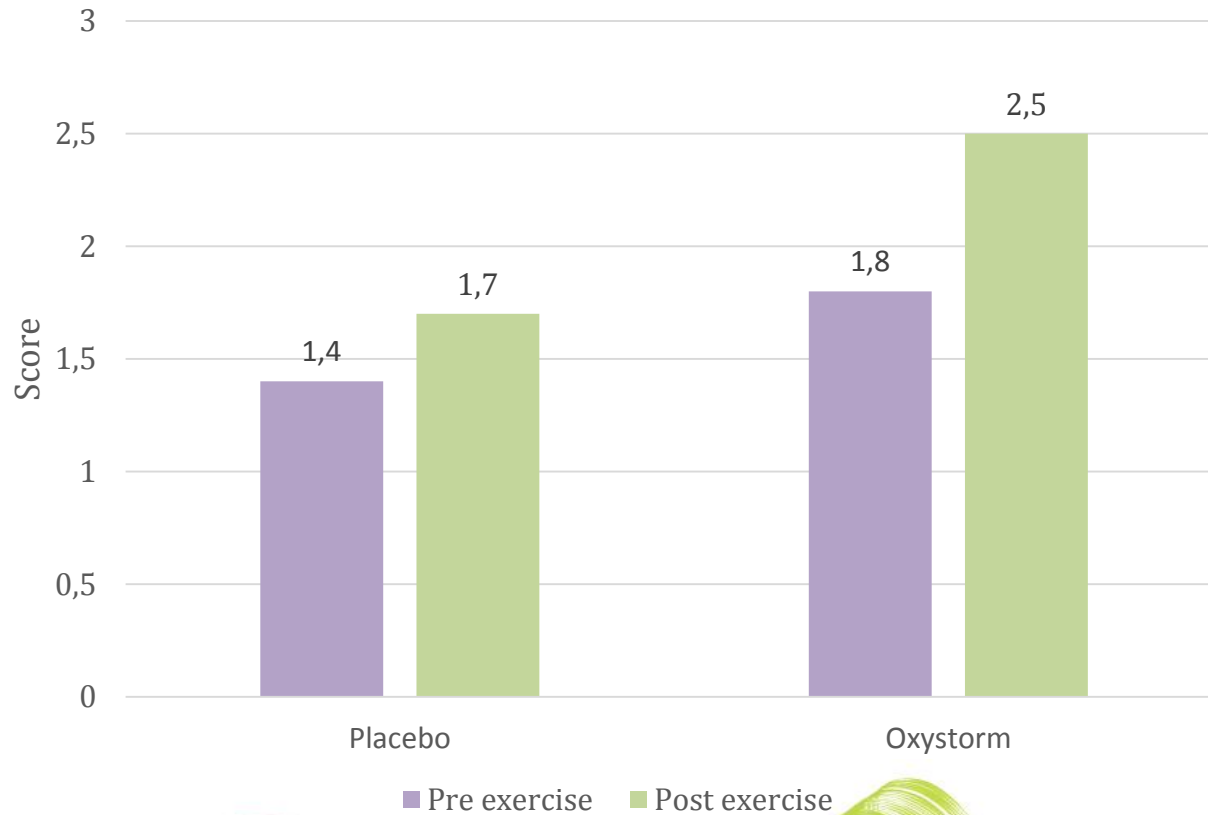
Human endurance study 1 – Cycling time



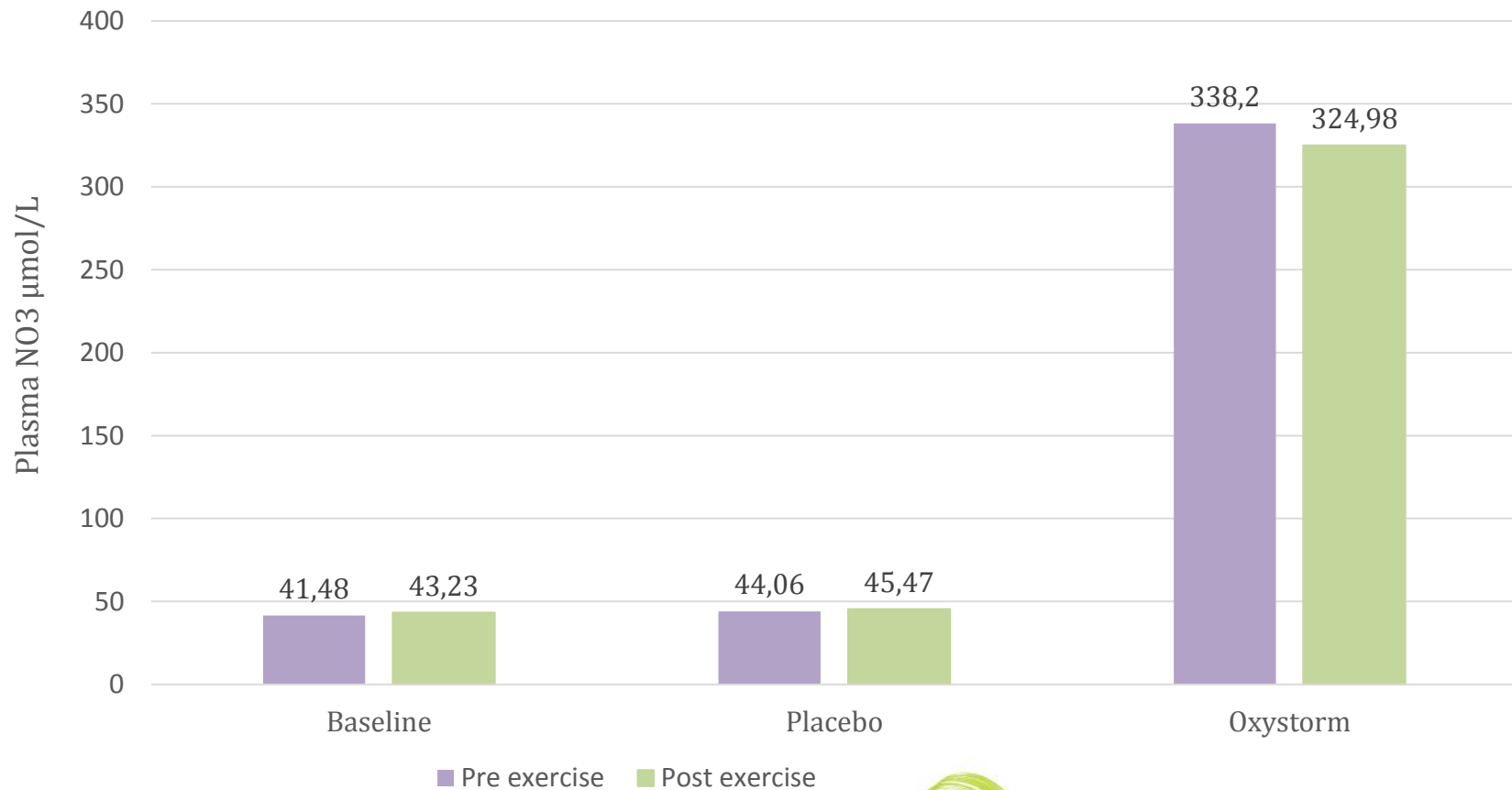
Human endurance study 1 – ExSE score



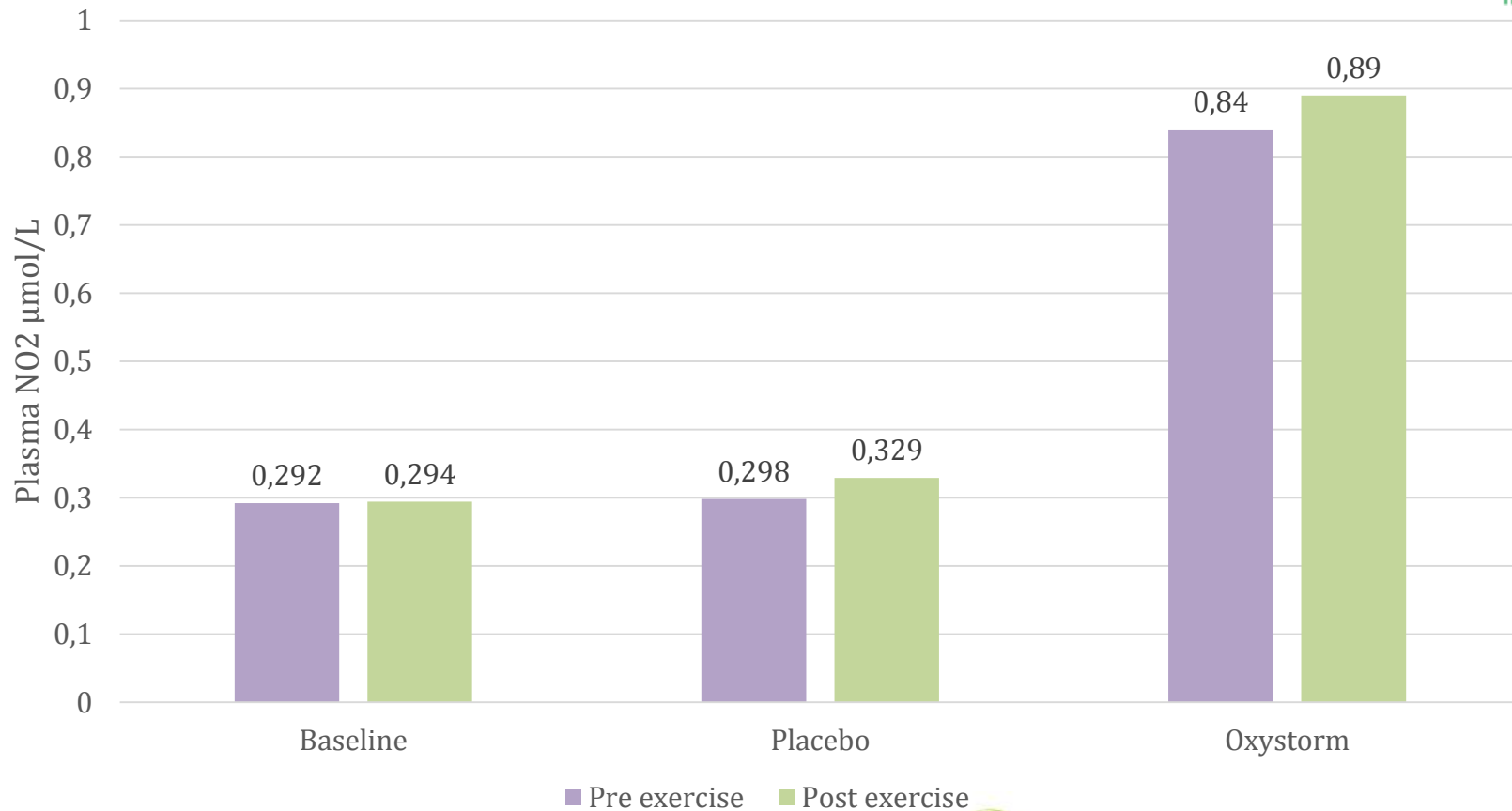
- Exercise self-efficacy scale assesses an individual's beliefs in their ability to continue exercising



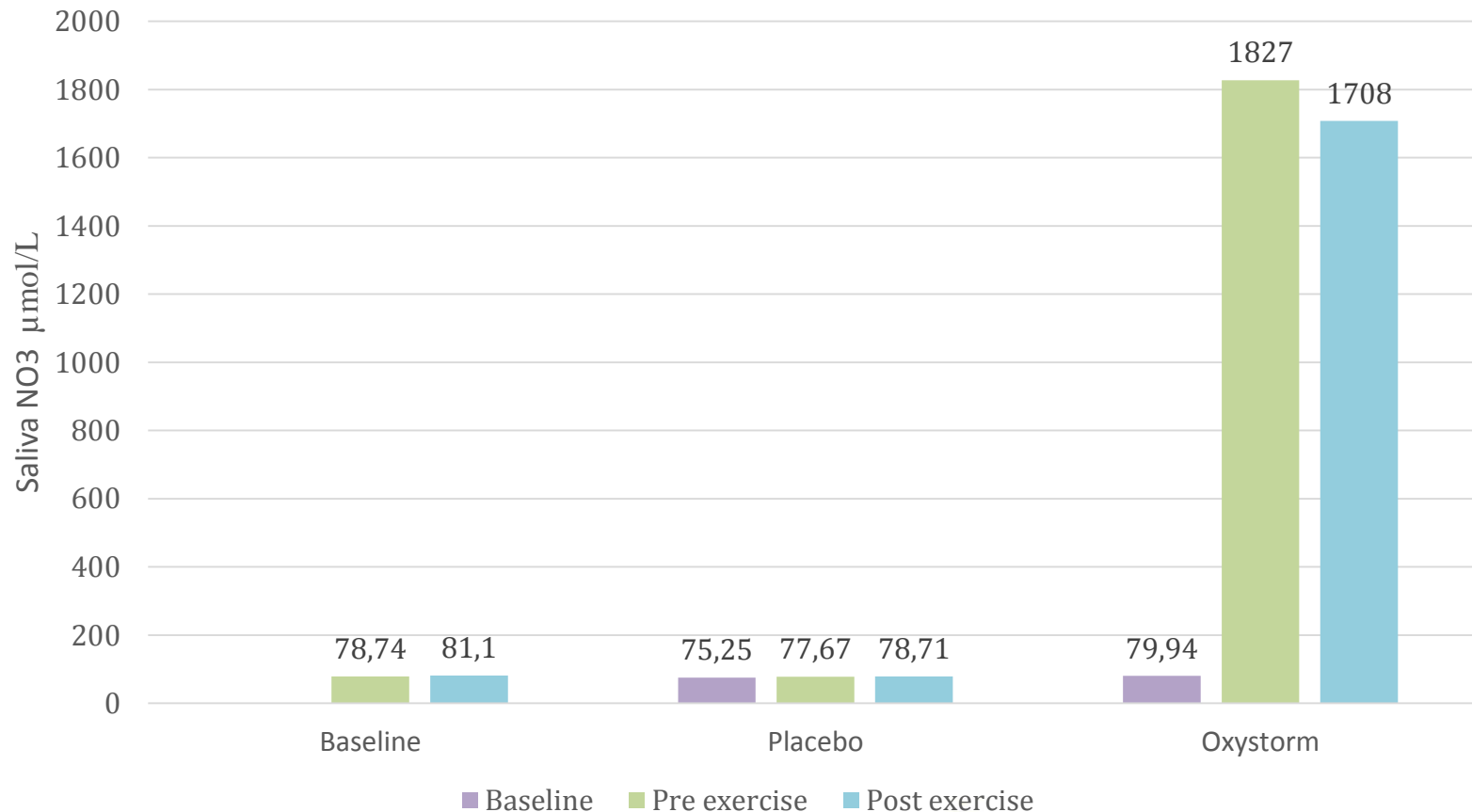
Human endurance study 1 – plasma nitrate level during treadmill test



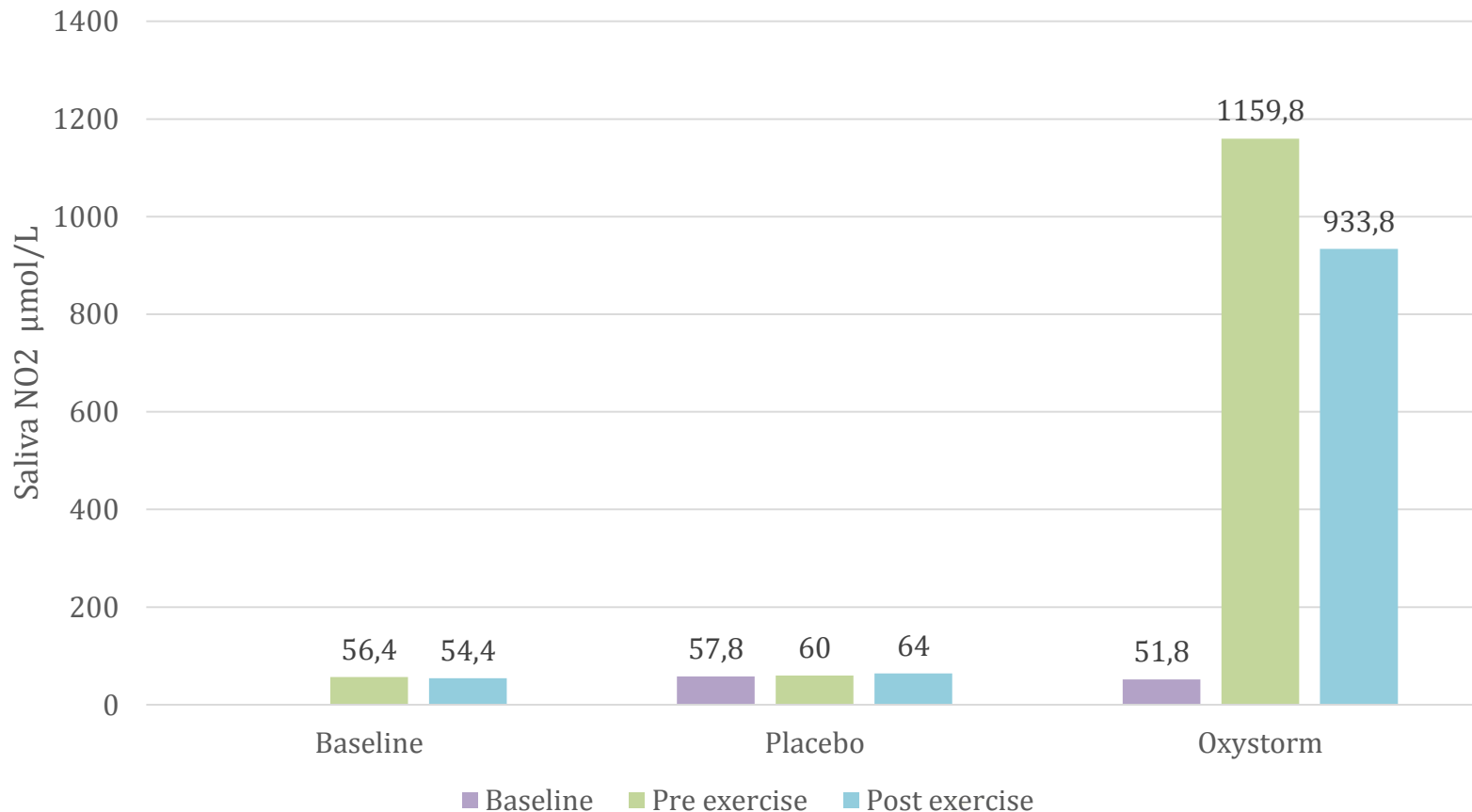
Human endurance study 1 – plasma nitrite level during treadmill test



Human endurance study 1 – saliva nitrate level during treadmill test



Human endurance study 1 – saliva nitrite level during treadmill test



Human endurance study 2

The effects of Red Spinach Extract on variables related to blood flow and exercise performance



- Department of Cell Biology and Physiology, Edward Via College of Osteopathic Medicine , Auburn Campus, Auburn, AL USA
- School of Kinesiology, Auburn University, Auburn, AL USA

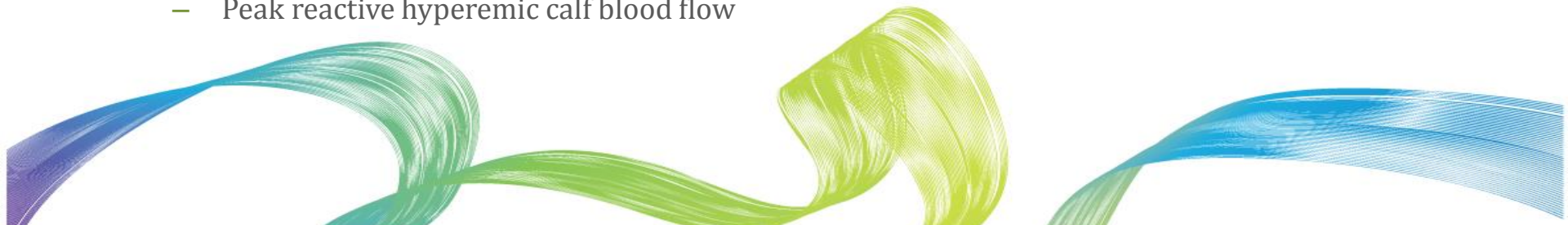
– Published : Eur J Appl Physiol, Sept 2016; DOI 10.1007/s00421-016-3478-8

- 15 Healthy recreationally active human subjects
- Double blind cross over study
- 1000mg of Oxystorm or placebo with water

Test procedure:

Graded Exercise Test: 23 minute Bruce protocol on treadmill

- VO₂max
- Plasma lactate
- Plasma NO_x, prostacyclin
- Peak reactive hyperemic calf blood flow



Human endurance study 2 - results



ARJUNA
THE SCIENCE OF NATURE

- 1. ↑NO_x from Oxystorm at ALL non-baseline time points**
 - Peak NO_x concentration at 1.5 hours post ingestion
 - Increased circulating nitrates for at least 4.5 hrs post ingestion
- 2. ↑ Ventilatory Threshold**
 - As percent of VO₂max ~ 6% over placebo
- 3. ↑ Peak reactive hyperemic calf blood flow**
 - 31% increase over placebo
- 4. ↔ Prostacyclins**
 - Favors vasodilation by ↑NO₂⁻ to NO conversion
- 5. ↑ Exercise economy**
 - Allowed subjects to work more in the aerobic zone



Toxicity study



- Acute toxicity study (OECD 423)
 - Safe at 2000 mg/kg in rats
 - LD50, MTD and MLD > 2000 mg/kg
- 28 days repeated dose sub-acute toxicity study (OECD407)
 - Safe at 1000 mg/kg daily
 - No mortality
 - No significant change in biochemical & hematological parameters
 - No-observed-adverse-effect-level (NOAEL) in rats is 1000 mg/kg



Oxystorm[®] in brief

- Increase $VO_2\text{max}$ and modulate in serum lactate levels
- NO promotes vasodilation and increase blood flow
- Enhance exercise capacity
- NO_3 in Oxystorm absorbed fast in gut, concentrate in saliva, converts to NO_2 in mouth in presence of oral bacteria and gets absorbed. NO_2 in body reduced to NO under less oxygen condition
- Fast and prolonged action at 1000mg as a single dose 1h before exercise
- Safe for long term use
- 100 % water soluble product



Worldwide examples



STAMINA TAKES A BIG LEAP

