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# Integratori nell'attività sportiva:

un effettivo aiuto per la performance?

Stefano Amatori, PhD

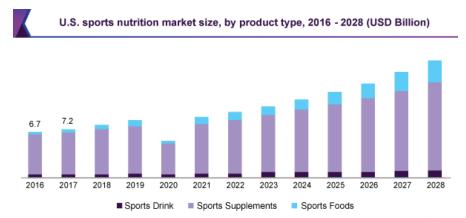
Università degli Studi di Urbino Carlo Bo

## **Some Supplement Stats**

Pills, capsules, herbal preparations and other products that come in small pots.

Size of supplements market in 2019 (billion USD) Europe North APAC LATAN

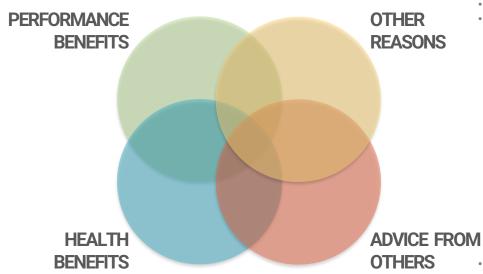
40-70% of athletes use supplements





## Why do athletes use supplements?

- GAIN COMPETITIVE EDGE
- **INCREASE ENERGY**
- **OPTIMISE RECOVERY**
- ABILITY TO TRAIN HARDER
- I FAN BM & STRFNGTH



- FINANCIAL GAIN (SPONSORSHIP)
- CONVENIENT PROVISION OF ENERGY
- 'JUST IN CASE' INSURANCE POLICY

- CORRECT NUTRIENT DEFICIENCIES
- IMPROVE SLEEP OUALITY
- REDUCE SICK DAYS
- **OPTIMISE NUTRITION**

- COACHES
- **FELLOW ATHLETES**
- 'BEST ATHLETES USE IT'

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4%

## Why do athletes use supplements?

**HEALTH MAINTENANCE** 30.2% PREVENT NUTRITIONAL DEFICIENCIES

20.5% INCREASE ENERGY / IMPROVE PERFORMANCE

15.6% IMPROVE RECOVERY

14.0% INCREASE LEAN BODY MASS / STRENGTH

8.6% ENHANCE IMMUNITY

**5.4%** MEDICAL INDICATIONS

5.7% OTHER REASONS







## **Supplements for Optimal Sports Performance**

### Medical **Supplements**

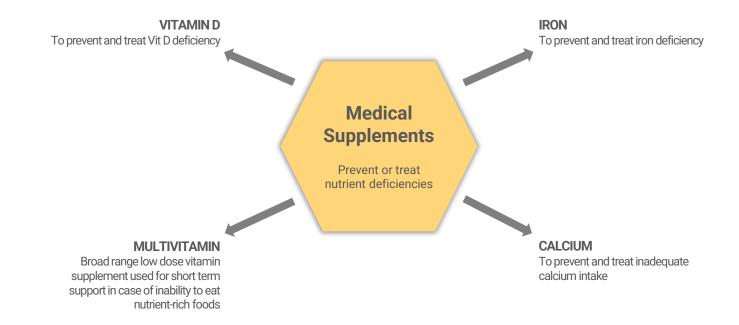
Prevent or treat nutrient deficiencies

### **Sports Food**

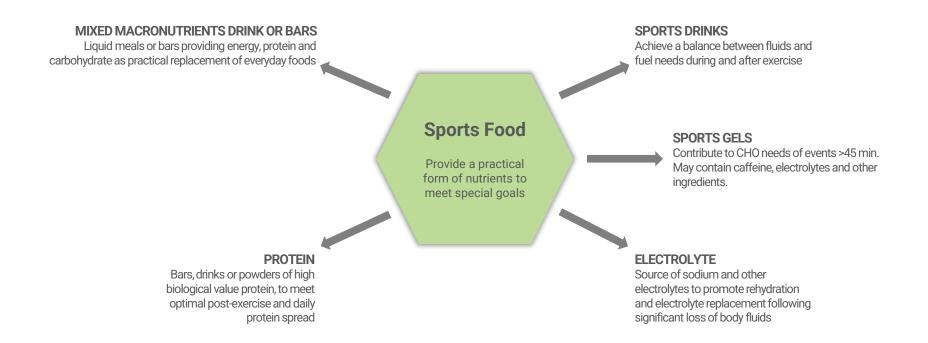
Provide a practical form of nutrients to meet special goals

### Performance **Supplements**

Offer direct performance enhancement



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#### **CAFFEINE**

Functions: reduction of perception of effort, fatigue and pain.

Effective in sporting scenarios involving endurance, intermittent, sustained high-intensity/power and skill protocols.

# **Performance Supplements**

Offer direct performance enhancement

#### **BICARBONATE**

Function: increase capacity to buffer the excess H+ produced by exercise generating high rates of anaerobic glycolysis (e.g. events of 2-10 min, intermittent team sports).

#### **BETA-ALANINE**

Function: increased intra-cellular buffering by increases in muscle carnosine content via chronic supplementation.

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Effective to enhance high-intensity exercise performance ranging from 30s to 10min.

#### **CREATINE**

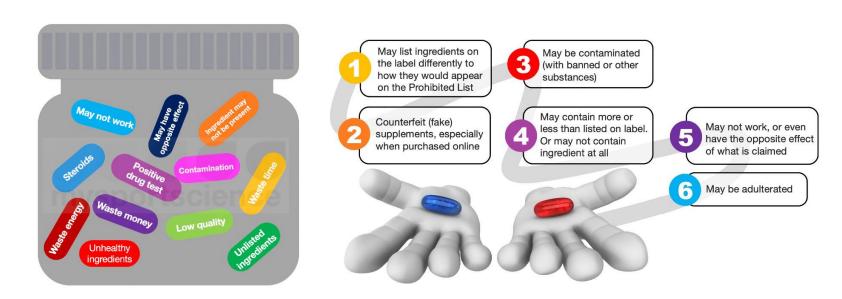
Function: increased the recovery of phosphocreatine stores during repeated high-intensity bouts of exercise. May be used to directly enhance performance or to support athlete to train harder.

#### NITRATE / BEETROOT JUICE

Inorganic nitrate in beetroot works to produce Nitric Oxide through an oxygen-independent pathway. Associated with improved exercise economy, to improve endurance exercise performance, enhances muscle contractile function to improve power and sprint exercise performance.



## **Supplements and associated risks**



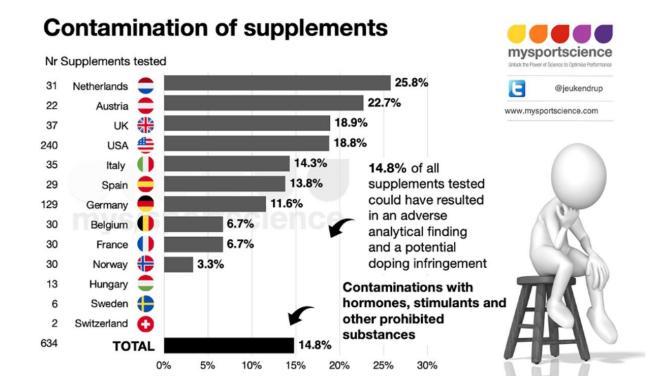
Always perform a careful risk benefit analysis and do everything to minimize risks.





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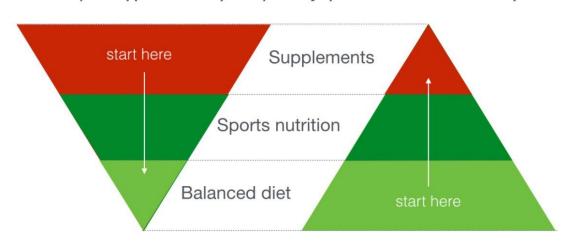




## How would you construct a pyramid?

The sports nutrition pyramid by many athletes (and supplement companies)

Evidence-based approach by sports dietitians and other experts



Supplements should be the icing on the cake, the tip of the pyramid or the roof of a house that is built on a solid foundation



### Supplement decision chart



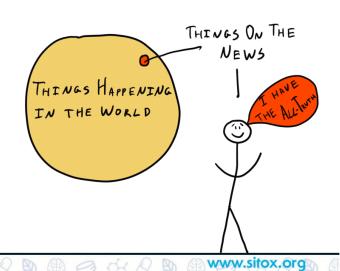
International Journal of Sports Physiology and Performance, 2016, 11, 841 http://dx.doi.org/10.1123/JJSPP.2016-0513 © 2016 Human Kinetics. Inc.



# **Extreme Positions in Sport Science** and the Importance of Context: It Depends?

# Is it necessary to take nutritional supplements to attain maximal performance?

It depends. Each athlete is different and I don't think general rules can be applied in this area, neither to suggest that all athletes should take supplements, nor to suggest the opposite. There are a lot of things to consider, and I am not only talking about the demands of the sport and the athlete's nutritional habits. Psychological aspects, the "culture" of the sport, social and even financial aspects also need to be analysed. This issue is more complex than it may seem at first glance. – *Iñigo Mujika* 







## THANKS FOR YOUR ATTENTION!

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