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**FEDERATION OF**  
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Sir H. N.  
 **Reliance**  
Foundation Hospital  
And Research Centre  
RESPECT FOR LIFE

and

 **Reliance**  
Foundation | **YOUTH**  
**SPORTS**

*This presentation is prepared for educational purposes only.  
Individual consultations with registered health professionals are required for customized advise.*

# Introduction to Supplements

*Know them, before you Use them*

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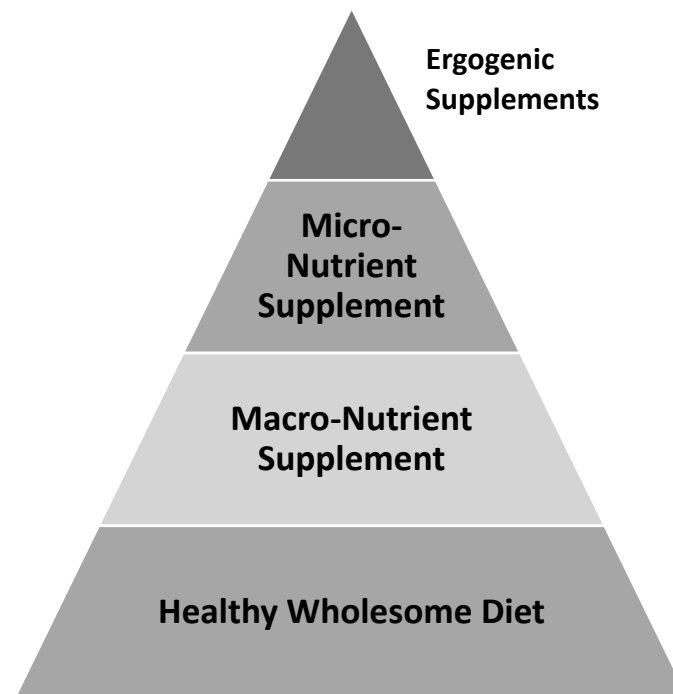
## Outline

- ❖ What are supplements?
- ❖ Supplements: Classification
  - ❖ Mechanism of action of each supplement
- ❖ Supplement- Decision tree
- ❖ Reading a Supplement Label
- ❖ Safety of supplements
- ❖ Important websites
- ❖ Summary
- ❖ References



## To Supplement= In addition to

- Nutrition through the 'whole food approach' makes a valuable contribution to successful performance
- Relevant Dietary Supplements only **Support** the existing nutrition plan and in no means can replace the positive impact that food makes on performance



## WHAT ARE SUPPLEMENTS?

- **DEFINITION:**
- **A food, food component, nutrient, non-food component;**
- **Purposefully ingested;**
- **In addition to the habitually-consumed diet;**
- **To achieve a specific health and/or performance benefit**

# BROAD CLASSIFICATION OF HIGH-EVIDENCE SUPPLEMENTS

Energy Providing	Functional Foods & Recovery	Micro-nutrient	Performance enhancing
Sports drinks	Protein, specific amino acids like glutamine, BCAA	Vitamin D	Caffeine
Energy drinks	Electrolyte drinks	Iron	Creatine
Sports Gels	Omega-3 fatty acids	Calcium	Nitrates
Energy Bars	Vitamin C	Vitamin C	Beta-alanine
	Curcumin		Sodium-bicarbonate

*Note: Specific supplements for immunity, weight management, injury also exist*

## SPORTS & ELECTROLYTE DRINKS

TYPE	Typical Composition	Action	Nutrient Timing
Isotonic Sports drink	5–8% CHO, 10–35 mmol/L sodium, 3–5 mmol/L potassium	Simultaneous delivery of fluids + Carbohydrates	During-Training/ Immediately-Post Training/Post weigh in
Electrolyte drink	50–60 mmol/L sodium, 10–20 mmol/L potassium, typically low CHO (2–4%)	To replenish loss of electrolytes; lost either during training/while making weight	During Training/ Post weigh-in



# PROTEIN

Typical Composition	Types/Form	Action	Nutrient Timing
20-25g of protein, 1-5g carbohydrate, 0-2g fat/ serve	<ul style="list-style-type: none"> <li>• Whey, Soy, Pea (Fast absorbing)</li> <li>• Casein, Milk Protein (Slow absorbing)</li> <li>• Filtration process: Concentrates, Isolates, Hydrolyzed</li> </ul>	<ul style="list-style-type: none"> <li>• Post-Training Recovery</li> <li>• Lean muscle mass gains</li> <li>• Portable Nutrition</li> </ul>	<p>Fast absorbing (Post-Training)</p> <p>Slow absorbing (Bed-time)</p>



# CAFFEINE

Typical Composition	Types/Form	Action	Nutrient Timing
3-6mg/Kg Body weight/d (Example: 3 * 50= 150mg)	Anhydrous (Pill/Powder)	<ul style="list-style-type: none"> <li>Stimulant- improves alertness &amp; vigilance</li> <li>Reduces Rate of Perceived Exertion</li> </ul>	<p>45-60 min pre-training</p> <p>Avoid for evening sessions to avoid sleep disturbances</p>

100-150mg  
Caffeine/  
cup



# CREATINE

Typical Composition	Types/Form	Action	Nutrient Timing
Maintenance: 3-5g/day	Creatine monohydrate, Creatine HCL/Ethyl ester etc.	<ul style="list-style-type: none"> <li>Anaerobic energy system</li> <li>Lean Muscle mass gains</li> <li>Strength &amp; Power</li> </ul>	Pre-Training

Drawback: Weight Gain!



3-5g  
creatine/  
Kg



# NITRATES

Typical Composition	Types/Forms	Action	Nutrient Timing
300-500mg/d	Nitrate NO <sub>3</sub> <sup>-</sup>	<ul style="list-style-type: none"> <li>Improved blood flow, delivery of oxygen</li> <li>Removal of lactic acid</li> <li>Delays fatigue</li> </ul>	2-3h Pre-Training



200mg nitrates  
in 1 large  
beetroot



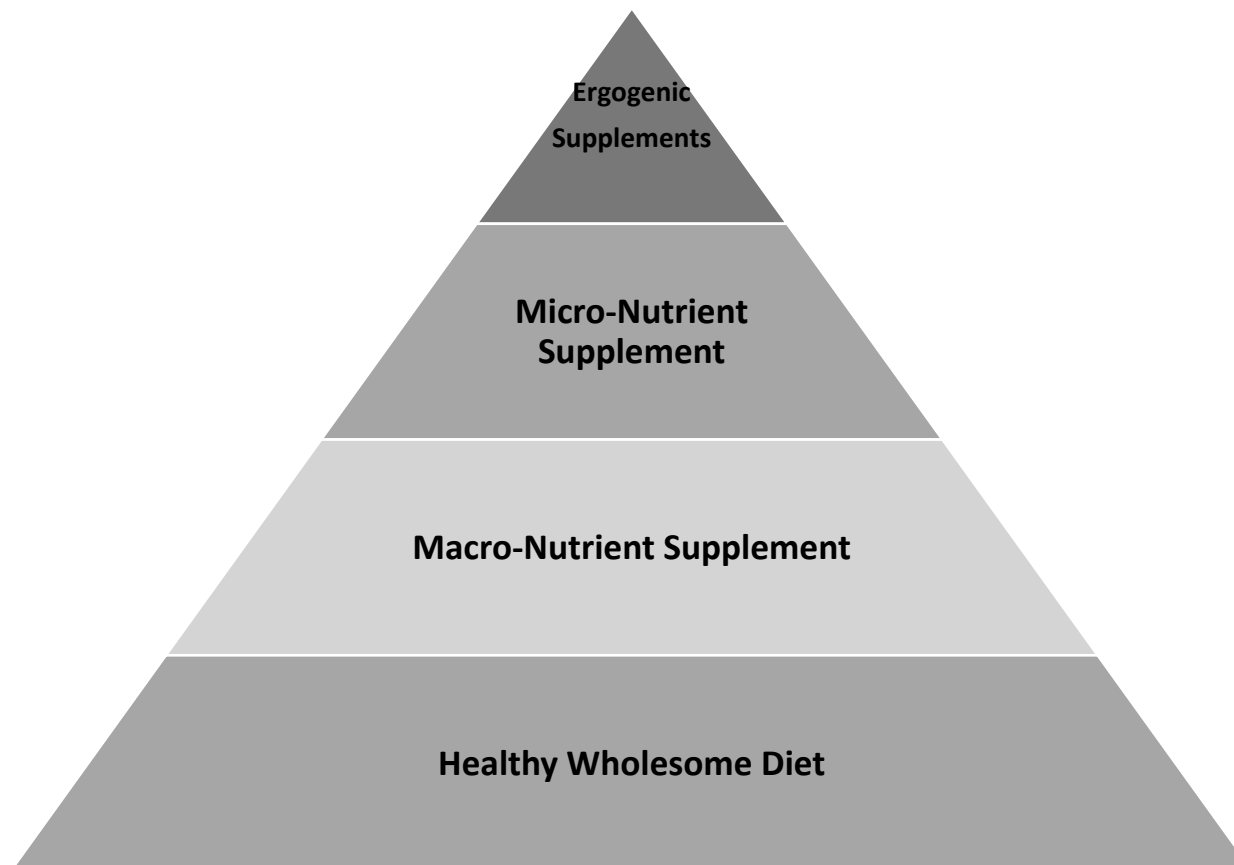
# BETA-ALANINE

Typical Composition	Types/Form	Action	Nutrient Timing
65mg/ Kg Body weight	Beta-alanine (May come along with histidine)	<ul style="list-style-type: none"> <li>Intra-cellular buffering capacity</li> <li>(beta-alanine + histidine = carnosine)</li> <li>Buffers lactic acid &amp; delays fatigue</li> </ul>	<p>Take in split doses Pre-Post training</p> <p>Needs to be taken over 8-12 weeks</p>

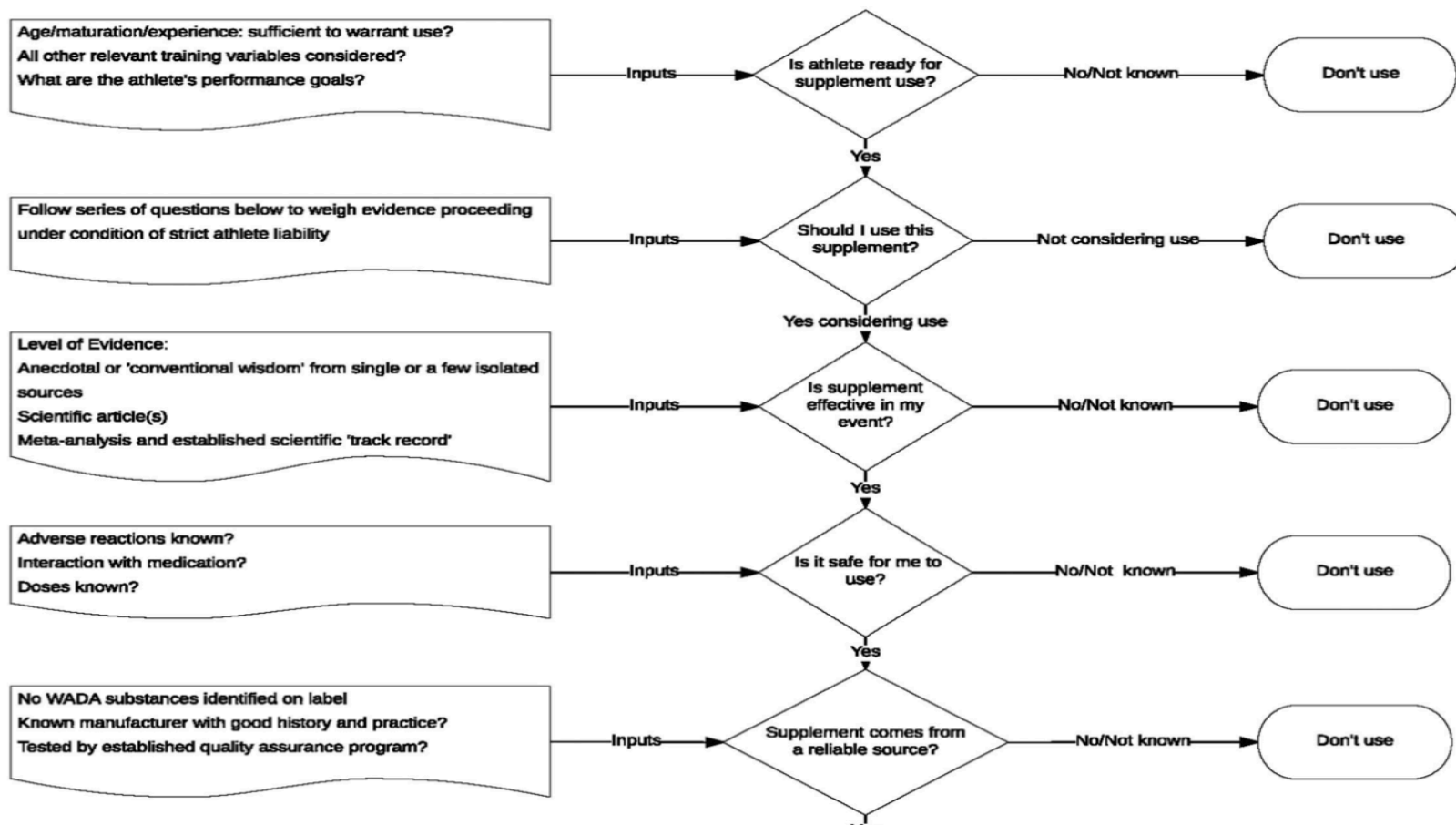
Drawback: Tingling sensations!



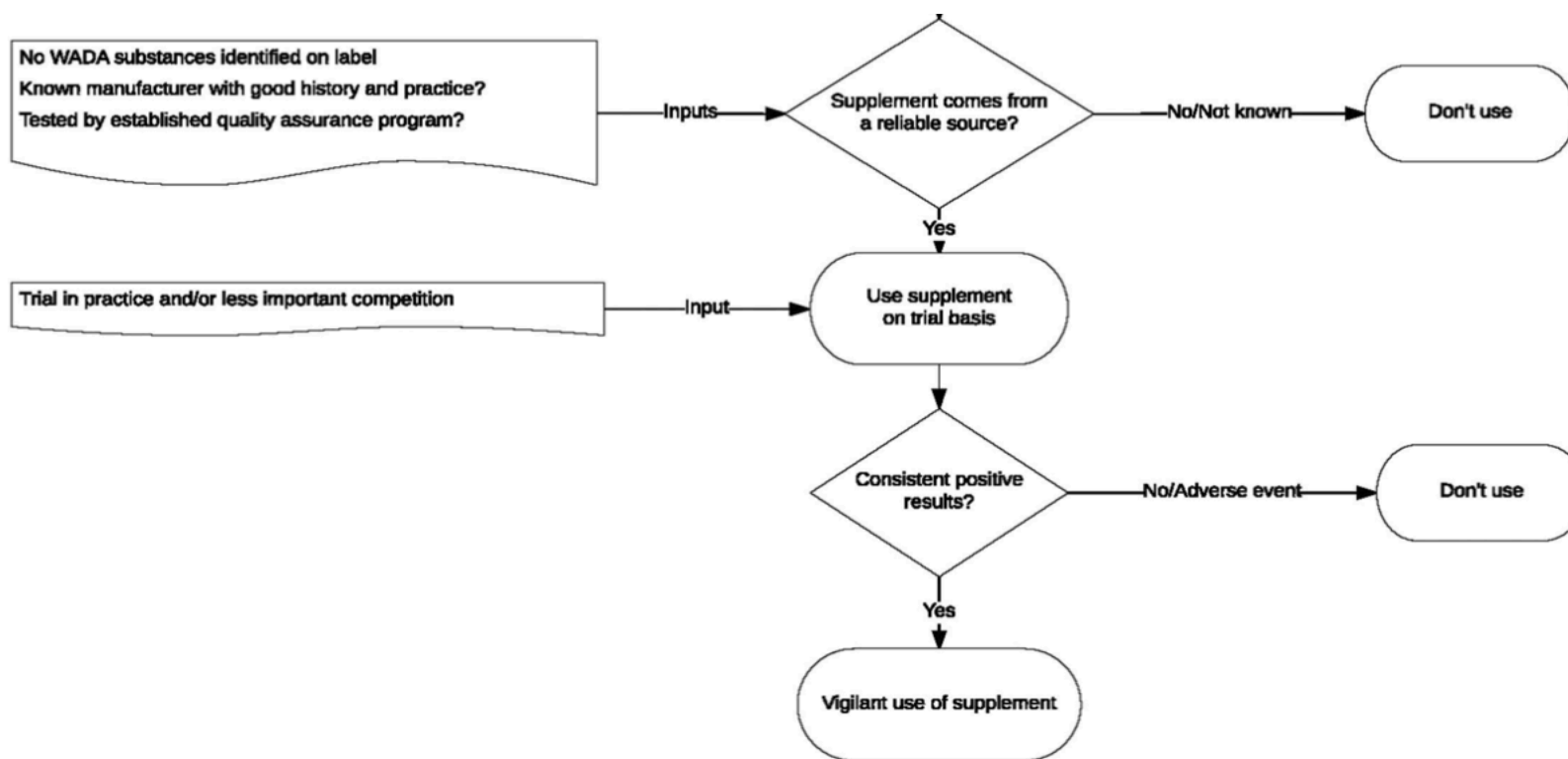
# SUPPLEMENT PYRAMID



# SUPPLEMENT USE: DECISION TREE



## SUPPLEMENT USE: DECISION TREE



**Figure 3** — Flow chart to guide informed decision making and reducing risk of ADRV during ergogenic supplement use.

# HOW TO READ A SUPPLEMENT LABEL?

<b>Nutrition Facts</b>	
About 27 servings per container	
Serving size 1 level scoop (33g)	
<b>Amount per serving</b>	
<b>Calories 120</b>	
% Daily Value*	
<b>Total Fat</b> 2g	<b>3%</b>
Saturated Fat 0g	<b>0%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 320mg	<b>14%</b>
<b>Total Carbohydrate</b> 1g	<b>&lt;1%</b>
Dietary Fiber 0g	<b>0%</b>
Total Sugars 0g	
Includes 0g Added Sugars	<b>0%</b>
<b>Protein</b> 24g	<b>48%</b>
Vit. D 0mcg 0%	Calcium 43mg 4%
Iron 8mg 45%	Potas. 83mg 2%

INGREDIENT: YELLOW PEA PROTEIN ISOLATE.

DISTRIBUTED & QUALITY TESTED BY:  
NOW FOODS, 395 S. GLEN ELLYN RD.  
BLOOMINGDALE, IL 60108, USA

\* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

<b>Typical Amino Acid Profile</b> (example) (per serving)**	
Essential Amino Acids	mg Per Serving
L-Histidine	590
L-Isoleucine***	1094
L-Leucine***	2009
L-Lysine	1758
L-Methionine	211
L-Phenylalanine	1322
L-Threonine	936
L-Tryptophan	211
L-Valine***	1183
Non-Essential Amino Acids	
L-Alanine	974
L-Arginine	2030
L-Aspartic Acid	2822
L-Cysteine	358
L-Glutamic Acid	4286
Glycine	986
L-Proline	1042
L-Serine	1248
L-Tyrosine	895

\*\*subject to natural variability  
\*\*\*Branched-Chain Amino Acids

Not manufactured with wheat, gluten, soy, corn, milk, egg, fish, shellfish or tree nut ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

This product is sold by weight not volume.

Store in a cool, dry, dark place after opening.

- Identity
- Net quantity
- Structure-function claim and disclaimer
- Directions for use
- Supplements Fact panel
- Ingredient list
- Name and address of manufacture

## THIRD PARTY LAB TESTING OF SUPPLEMENTS



Be Sure It's CL Approved





## ADDITIONAL SOURCES TO KEEP UPDATED

- National Center for Drug-Free Sport [www.drugfreesport.com](http://www.drugfreesport.com)
- World Anti-Doping Agency [www.wada-ama.org](http://www.wada-ama.org)
- International Olympic Committee (IOC) [www.olympic.org](http://www.olympic.org)
- National Collegiate Athletic Association (NCAA) [www.ncaa.org](http://www.ncaa.org)
- USADA's Supplement 411 [www.Supplement411.org](http://www.Supplement411.org)
- US Anti-doping [www.usada.org](http://www.usada.org)
- UK Anti-doping [www.ukada.org](http://www.ukada.org)
- Informed Sport [www.informed-sport.com](http://www.informed-sport.com)
- NADA-India [www.nadaindia.org](http://www.nadaindia.org)

## SUMMARY

- **Prioritize “whole foods approach”**
- **Supplements:-**
  - **Sports drinks for energy during training**
  - **Electrolyte drinks for rehydration post loss in sweat**
  - **Proteins for lean muscle gains and recovery**
  - **Caffeine for CNS stimulation**
  - **Creatine for energy & lean muscle gains**
  - **Nitrates for better oxygen & nutrition delivery**
  - **Beta-alanine as a lactic acid buffer**
- **Follow the supplement decision tree**
- **Read supplement label wisely**
- **Individual requirements based on training phases, individual goals, weight management etc. may vary.**
- **Always seek the advise of a qualified sports nutritionist and sports medicine doctor/specialist through inputs/discussions with coaches before starting any supplementation**



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***THANK YOU***

***QUESTIONS?***



and

