

Plant Powered Athletes

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Breakfast

The Michael Phelps' Typical 12000 Kcal Diet



3 Fried Egg Sandwiches
with Cheese and Veggies



Omelet made
of 3-6 Eggs



1 Bowl of Maize
Breakfast
Cereal



French-Toasts
with Powdered
Sugar



3 Chocolate
Chip Pancakes



2 Cups of
Coffee

Lunch



0.5 Kg of Pasta in
Tomato Sauce



2 Ham and Cheese
Sandwiches



Energy
Drinks

Dinner



0.5 Kg of Pasta in
Tomato Sauce



Large
Meat Pizza



Energy
Drinks



What do champions eat?



What do athletes require?

- Calories: 2000-5000 per day
- Increased antioxidants/
vitamins/minerals
- Protein: 1 g/kg body weight
to maintain: 1.4-1.8 g/kg
to build
- Excessive protein
increased risk of kidney
injury, delayed
recovery, immune
deficiency,
atherosclerosis,
reduced bone density





Consequences to the body

Intense exercise

Overcoming Oxidative Stress

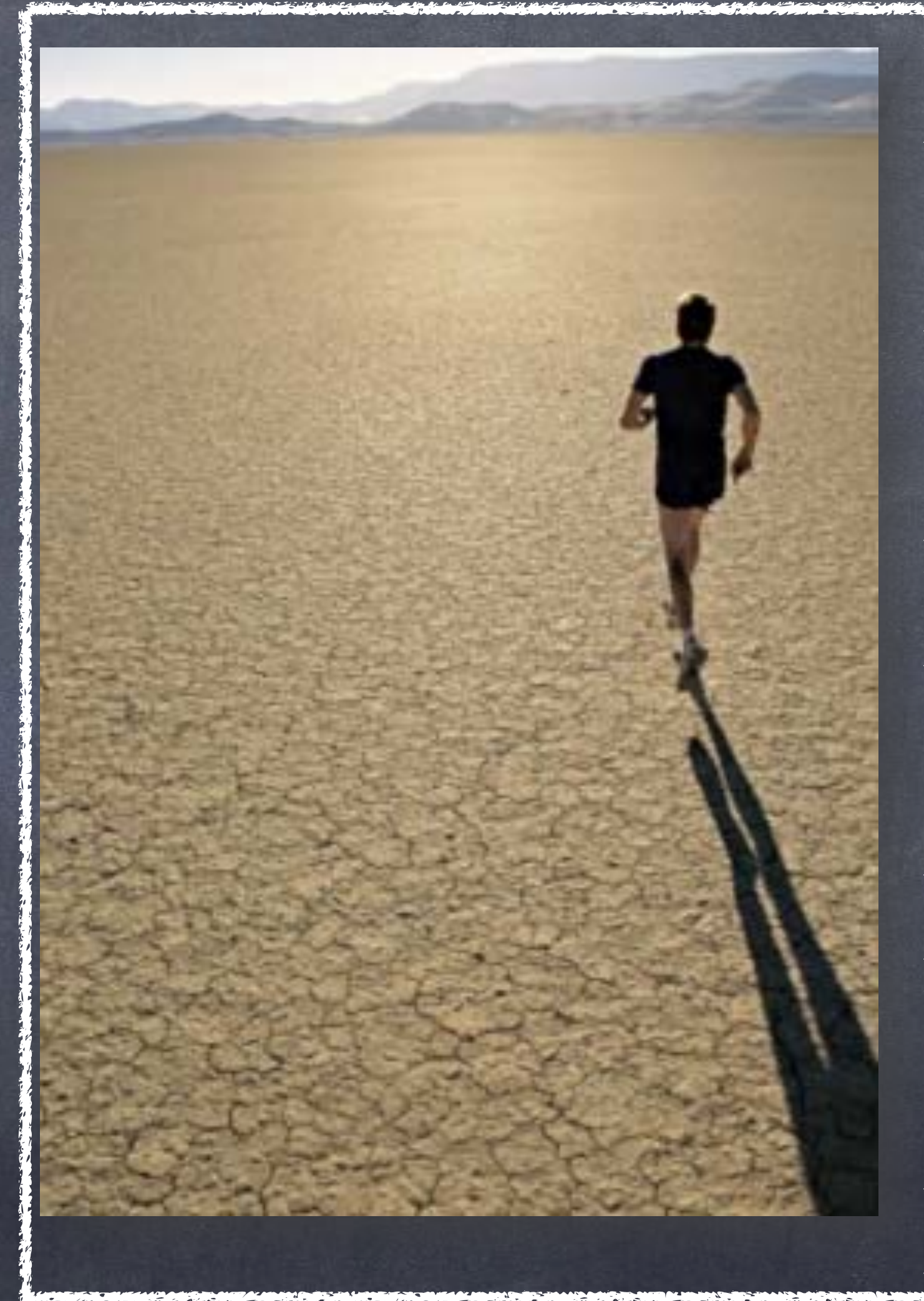
Oxidative stress: Imbalance between ROS and antioxidant system
Increased in acute, intense exercise tissue injury, myocyte injury in ultra marathoners
Impaired muscle contraction/power
Adverse mitochondrial dna protein damage
“Thus, an adequate intake of vitamins and minerals through a varied and balanced diet remains the best approach to maintain an optimal antioxidant status.”



Exercise Intensity

Oxidative Stress: Delayed Onset Muscle
Soreness-DOMS-muscle damage
Limits progression
Overuse injuries
Intense exercise-systemic inflammation
DNA damage
Free Radical Formation
Hypoxia
Connective tissue injury-Swimmers induced
tendonopathy
Micro tears

Antioxidant systems like glutathione
attempt to repair the damage
Can be suppressed for up to 2 weeks
after vigorous exercise bout
Lipid peroxidation in endurance
athletes-tissue damage and
increased risk of disease



Immune support

Illness

Immune system of athletes can be suppressed for 1-2 weeks following intense bout

Further impaired by diet

Increased risk for illness

- Micro biome impaired by high protein intake, sugar, processed food



Food regeneration

Anti-inflammatory medications increase oxidative stress

Supplements: Creative induces oxidative stress, BCAA- activates mTor

“Moreover, a growing body of evidence indicates detrimental effects of antioxidant supplementation on the health and performance benefits of exercise training.”

Broccoli assists in healing

Phytochemicals like isothiocyanate from broccoli stimulate mesenchymal stem cells in amounts commonly found in a serving-

Hormesis

High concentrations found in supplements can exacerbate DNA damage



Zanichelli, Fulvia, et al. "Low concentrations of isothiocyanates protect mesenchymal stem cells from oxidative injuries, while high concentrations exacerbate DNA damage." Apoptosis 17.9 (2012): 964-974.

Food Regeneration

Green Tea and grapes stimulate
chondrocytes to produce
cartilage

Vegetable soup decreased
inflammation, initiates cartilage
healing, decreases joint damage



Peltz, Lindsay, et al. "Resveratrol exerts dosage and duration dependent effect on human mesenchymal stem cell development." PloS one 7.5 (2012): e37162.

Chen CH, Ho ML, Chang JK et al (2005) Green tea catechin enhances osteogenesis in a bone marrow mesenchymal stem cell line. Osteoporos Int 16(12):2039-2045

Anti-oxidant solutions

Imperial College of London: 10 servings per day

Athletes: recommendation of 16-18 servings of F/V per day

Bicep Study

Maximum Reps-DOMS

Placebo group 22% loss of strength and peak pain 48 hours

Cherry group 4% loss strength and peak pain 24 hours

Polish Rowers

4 week trial vs Placebo

Group consuming chokecherry decreased free radicals in first 24 hours







Thank you!