



Nutrition and Hydration in Sports

A guide for Health and Performance

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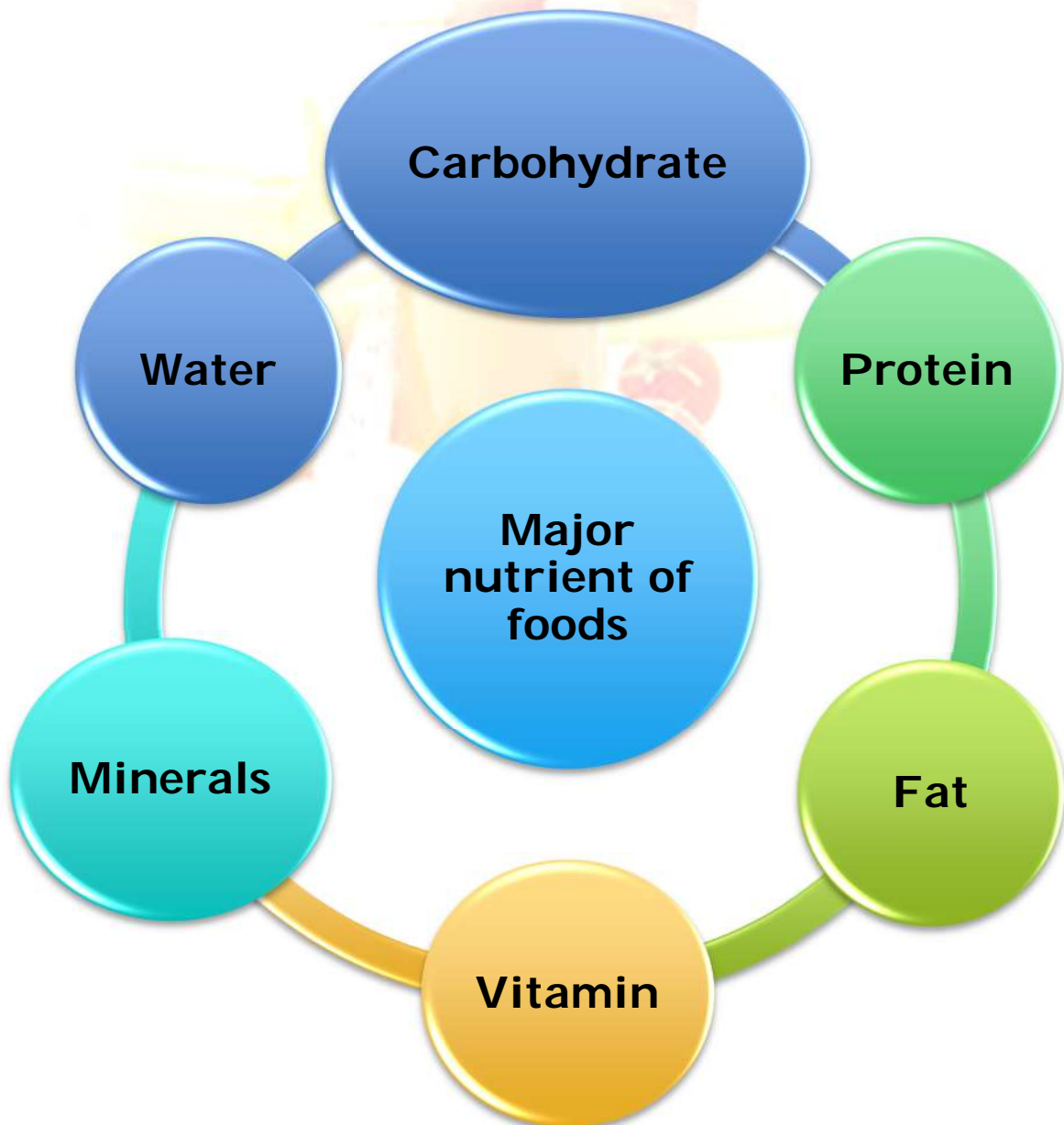
WHAT ARE NUTRIENTS?

NUTRITION

Nutrition is a basic human need and prerequisite to a healthy life. A proper diet is essential from the very early stages of life for proper growth, development and to remain active.

NUTRIENTS

Nutrients are components of food which are required for physical growth and development, maintenance of normal body function and physical activity. There are some non-nutrient components also present in various foods which help in maintaining health like phytochemicals, probiotics etc.



WHY IS NUTRITION IMPORTANT IN SPORTS?

Nutrition has been an integrated part of sports since long however its nature and principles have keep on changing along with growing experiences on players and researches.

The most important part of sports nutrition is developing healthy eating habits from the early stages of life. It will not only help in enhancing the performance but will also maintain an athlete's long term health.

Consuming appropriate food items before or after training/competition can help in recovery for next day's session.

Adequate fluid intake during training and competition plays a detrimental role for the performance of athletes.

Maintaining body weight for weight category sports prior to competition can be achieved through nutritional support without affecting the performance.



STEPS TOWARDS ENHANCING PERFORMANCE IN SPORTS THROUGH NUTRITION

Supplementation

Through proper consultation with doctor/nutritionist

Recovery & Hydration

The right amount to meet the physical requirement during training

Quantity of Food

How much
When
How often

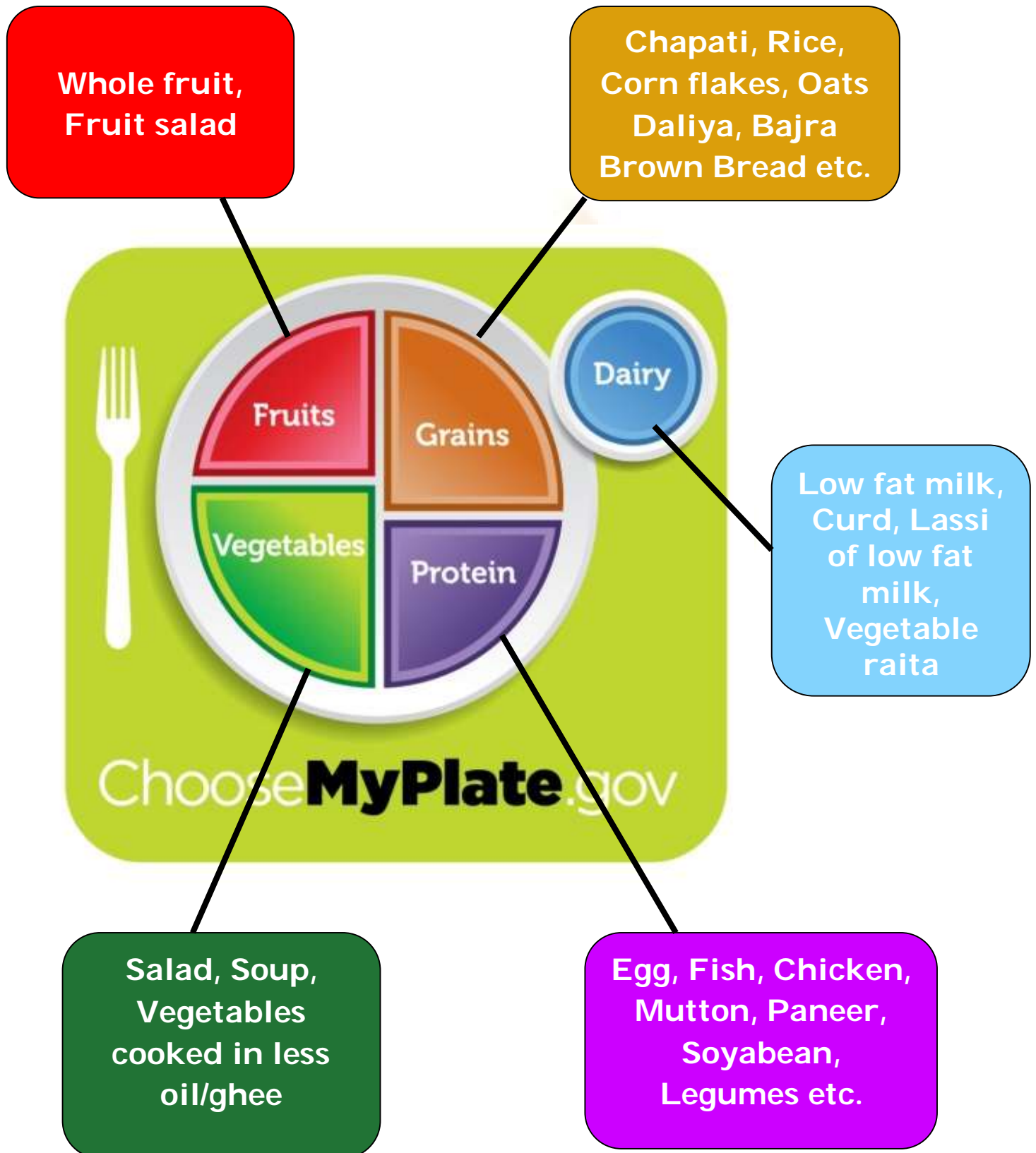
Quality of Food

The very first step is to make healthy and balanced food choices



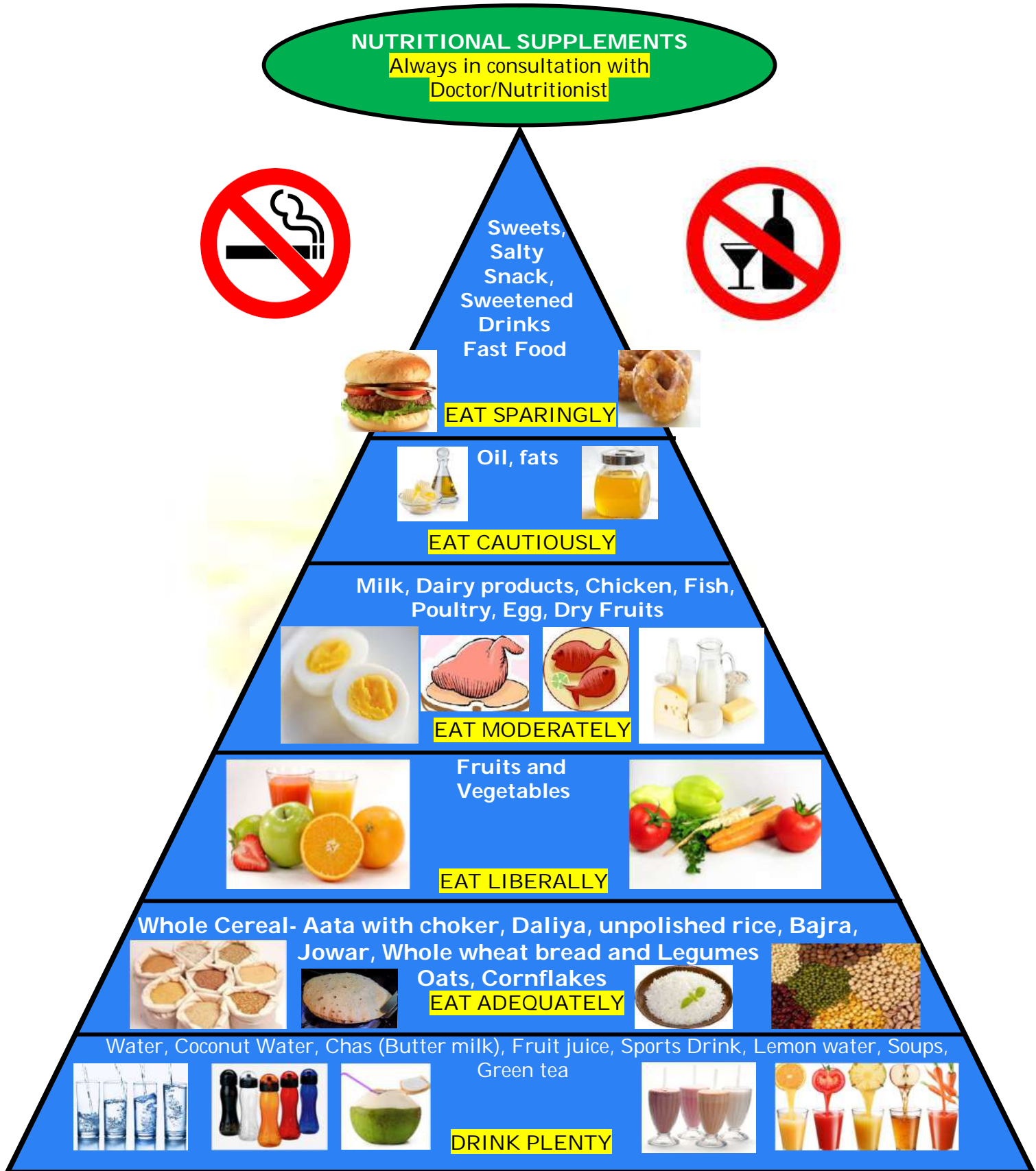
THIS IS WHAT YOUR PLATE SHOULD LOOK LIKE DURING ONE MEAL

Fruits and vegetables should make half part of your plate in each meal.























FOOD PYRAMID FOR SPORTS







A sports food pyramid is a pyramid shaped illustration in which the bottom includes food groups which needs to be consumed adequately for health and performance. The unhealthy or least recommended foods are on the top of Pyramid.



ALWAYS CHOOSE HEALTHY FOOD ITEMS FOR OPTIMAL PERFORMANCE IN SPORTS

FOOD ITEM/ GROUPS	Reduce intake of:	Add more of:
Cereals & Pulses	<p>Paratha, Butter nan, Biryani, Kulcha, Vada, Puri, Refine bread, Burger, Hot Dog, Paties, Samosa, Kachori</p>    	<p>Plain roti, Missi Roti, Rice, Pulav, Idli, Brown bread, Suji, Poha, Upma, Pasta, Dosa, Uttapam (with less oil), Khaman</p>     
Vegetables and Fruits	<p>Cooked vegetable with lots of oil, Fruit salad with cream, French Fries, Salad dressed with mayonnaise, Chips</p>      	<p>Green salad, Steamed or sauted vegetables, All whole fruits (seasonal), Fruit chat, Fruit smoothie, Fresh Fruit Juice, Boiled potato</p>
Milk & Milk products	<p>Whole cow milk, Whole Buffalo Milk, Milk shake, Ice cream, Cheese spread, Dahi vada etc.</p>   	<p>Low fat milk, Yoghurt, Curd, Vegetable raita, Low fat paneer, Lassi</p>  

ALWAYS CHOOSE HEALTHY FOOD ITEMS FOR OPTIMAL PERFORMANCE IN SPORTS

FOOD ITEM/ GROUPS	Reduce intake of:	Add more of:
Meat/ Fish/ Egg	<p>Red Meat (Mutton, Pork etc.), Outer surface of fish , Chicken Leg, Raw egg, Omelette, Half/quarter fried egg</p> 	<p>Fish/ chicken with less oil preparation & little fat, Boiled egg without yolk, Egg white omelette, Chicken except leg part</p> 
Soup and Beverages	<p>Any thick soup (with corn flour/butter/cream), Alcohol, Energy Drink, Carbonated drinks</p> 	<p>Clear soup, Tomato soup, Lentil soup, Homemade vegetable soup, Fresh Fruit juice, Low fat milk shakes, Chas (Butter milk), Low fat Lassi, Coconut water, Sports drink</p> 
Nuts	<p>Cashewnut, Fried and salted Cashew nut, Pistachio</p> 	<p>Walnut, Almonds, Dates, Anjeer, Black til, Kishmish</p> 

WHAT IS LOW FAT MILK/ LOW FAT MILK PRODUCTS?

- Skimmed milk and double toned milk can be classified as low fat milk. Fat is almost nil in skimmed milk and double toned milk has 1.5% of fat.
- Various milk brands in India sell double toned milk in yellow coloured packets. Skimmed milk is generally available in tetra pack (Milk cartons) stating skimmed milk or <math><0.5\%</math> of fat on it.
- Cow milk has high percent of fat with buffalo milk having highest fat percent among various milks consumed in India. Just removing cream after refrigeration from the top of the milk does not reduce much of its fat content.
- Paneer, curd, lassi made of skimmed milk or double toned milk are known as under low fat milk products.



WHAT IS RED MEAT?



Red meat is dark coloured meat like mutton, beef, pork, lamb, chicken leg etc. It has high percentage of fat in comparison to white meat like chicken breasts, fish etc. Regular intake of red meat can also increase the bad cholesterol (LDL-C) in your blood which can exert harmful effects on health and reduce performance.

WHAT ARE ENERGY DRINKS?

Energy drinks are sweetened/ carbonated drinks with caffeine and other stimulants added in it. There are chances of contamination of prohibited substances which comes under doping by World Doping agency in energy drinks. Further if an athlete consumes energy drinks on a regular basis it will reduce the performance effect of caffeine on that athlete. Therefore regular consumption of sports drinks should be avoided.



HEALTHY FOOD HABITS



Eat atleast 500-700g of fruits and vegetables to get vitamins, minerals and antioxidants required to improve your performance.



Eat breakfast daily and never skip a meal. Take small frequent meals in the diet.



Have atleast 10-15 minutes of sunlight exposure daily to get vitamin D for your body.



Have liver/mutton/beef 3 times a week to maintain iron status. vegetarians should eat lots of green leafy vegetables, bajra, til etc. with lemon and citrus fruits. Excess of tea/coffee should be avoided.



Consume atleast 500-750ml of low fat milk and milk products everyday to avoid calcium deficiency in the body. Calcium helps in making your bones and muscles strong.



Your plate should be full of various foods of different natural colors of rainbow to ensure a healthy and protective diet.

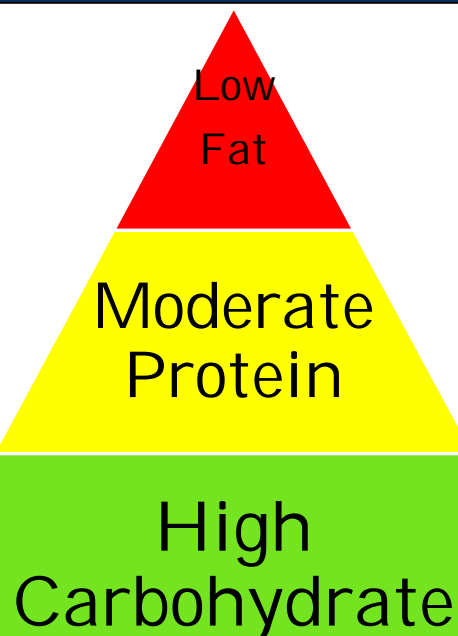


Do not consume protein rich food in excess amount. Protein alone can not serve all the purpose. Other food like cereals, fruits, vegetables are also important for your growth and improving performance.

WHAT YOU SHOULD EAT BEFORE OR AFTER COMPETITION?

3-4 Hours Before competition or within 30 minutes after competition

- Bread with a thick layer of jam with milk
- Rice with boiled dal/chicken
- Chapati with boiled dal/ chicken and curd
- Vegetable sandwich with milk shake
- Cornflakes/oats with Milk+ Banana
- Fruit Salad with Sweet Lassi



1-2 Hours Before Competition

- Milk Shake or Fruit Smoothie,
- Sports Bar,
- Cornflakes with Milk,
- Cereal Bars,
- Fresh Fruits.



Less than 1 hour Before Competition

- Sports Drink,
- Carbohydrate Jelly




FOODS TO AVOID BEFORE & DURING COMPETITION



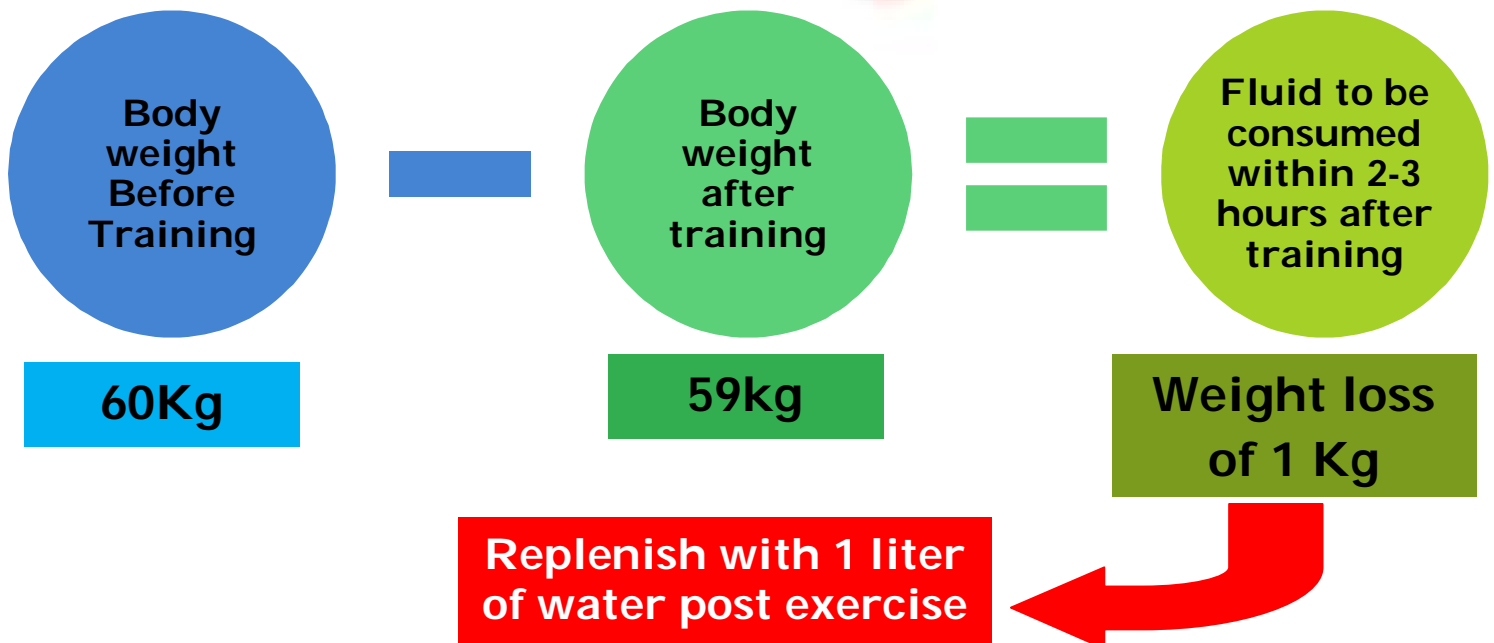
Chocolate, Carbonated drink (cold drink), Gulab-jamun, Laddu, Poori, Mutton, Pastry, Paties etc.



FLUID REPLACEMENT GUIDELINES BEFORE AND DURING TRAINING

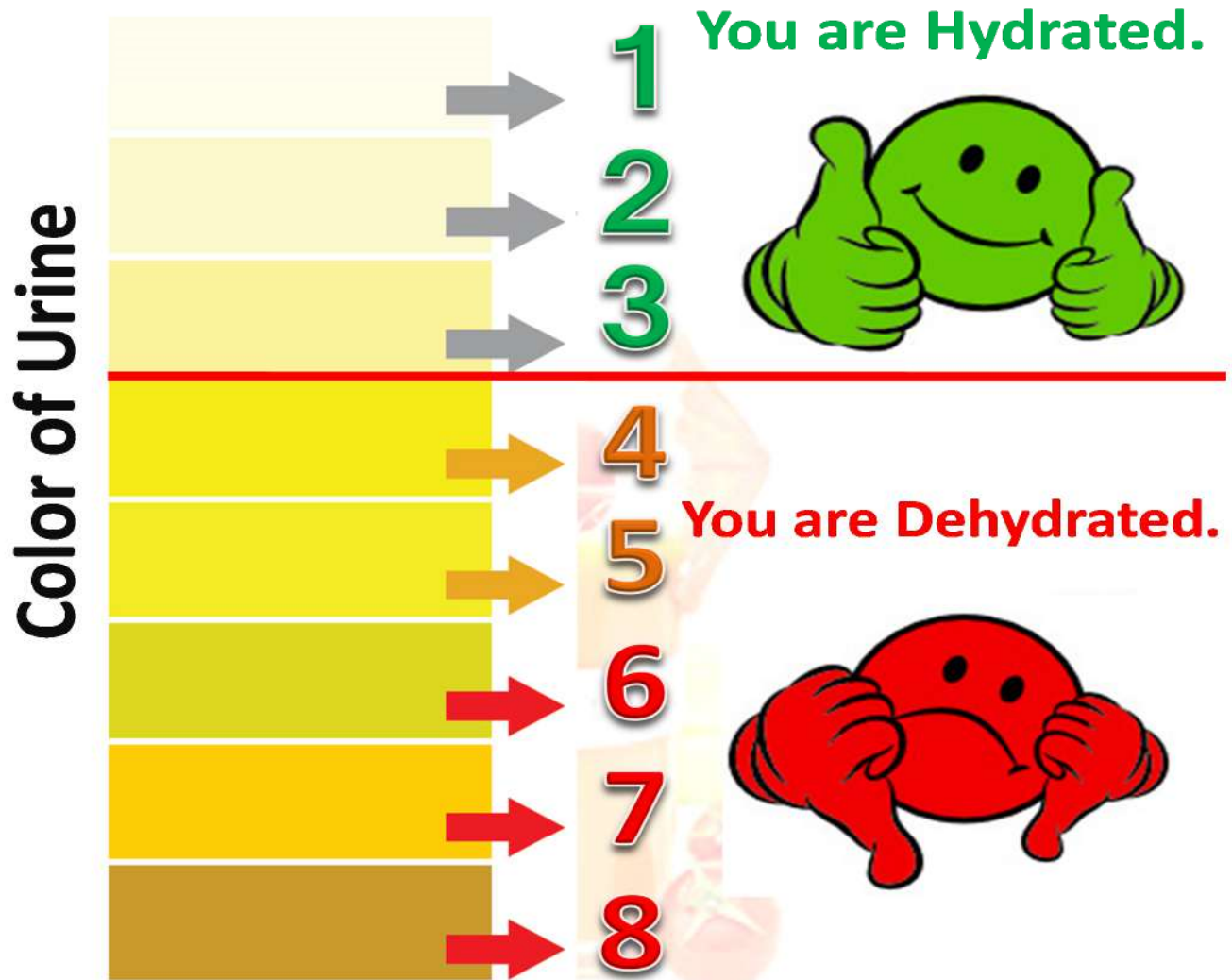
Timing	Amount	Type of Beverage	Points to Remember
Before Activity			<p>Warmer fluids are appropriate in cool to cold environment.</p> <p>Diluted fruit juice and electrolyte glucose drinks helps in enhancing performance in training lasting longer than 90 minutes.</p>
1-2 hours	500 ml	Plain cold water 	
10-15 minute	Upto 600 ml	Plain cold water, Diluted fruit juice, Glucose-electrolyte drink 	
During Activity			
Every 10-15 minutes	150-250 ml	Plain cold water, Glucose electrolyte drink, Diluted fruit juice 	

FLUID INTAKE AFTER ACTIVITY



ASSESSING HYDRATION THROUGH URINE TEST

Are you Hydrated?



Note: Vitamin supplements may change the urine color for few hours.

HOW TO MAKE SPORTS DRINK AT HOME?



NUTRITIONAL SUPPLEMENTS

Nutritional supplements are certain nutrients or purified food components which are generally required when an athlete is not consuming a balance diet as described earlier and requires support from these supplements. There are various nutritional supplements available in the market however very few of them are effective and safe to consume.

LIST OF SUPPLEMENTS* WHICH MAY BE EFFECTIVE AND SAFE TO CONSUME

Sports Food

- Sports drink
- Sports gel
- Sports confectionery
- Liquid meal
- Whey protein
- Sports bar
- Electrolyte replacement (Electrol)



Performance Supplements

- Caffeine
- B-alanine
- Bicarbonate
- Beetroot juice
- Creatine



Medical Supplements

- Iron supplement
- Calcium supplement
- Multivitamin/mineral
- Vitamin D₃
- Probiotics (gut/immune)



Polyphenols & Others

- Quercetin
- Curcumin (Turmeric)
- Anti-oxidants C and E
- Carnitine
- HMB
- Glutamine
- Fish oils
- Glucosamine

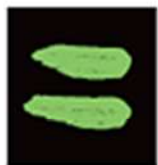
*Based on Australian Institute of Sports classification

Consumption of supplements not listed here will definitely not enhance the performance and may be harmful for the health.

POINTS TO REMEMBER WHILE SELECTING NUTRITIONAL SUPPLEMENTS

Always consult with a doctor/ nutritionist regarding the type of supplement, amount timing and frequency of the supplement to be consumed.

- Natural foods are best sources of nutrients and other beneficial components of food. Therefore adopting healthy food habits should be on priority.
- No food component/ nutrient and herbal product have been proven to be safe and effective as supplement other than the list provided along with.
- Always read the labels of the nutritional supplement to know what the ingredients present in that supplement are.
- There is always risk of contamination of prohibited substances in the nutritional supplements which can be detected under doping test. Sometimes these substances are not mentioned on the label but are present in supplement. There is no certification till now which guarantees the purity of supplement.
- Supplements should always be purchased from authorized dealers and caution should be taken while purchasing supplements online.
- Excess intake of nutritional supplements without any consultation can have negative impact on your health and performance.



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