



## Lecture 8:

# Pre – Exercise Diet

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# Nutrition Before Exercise:

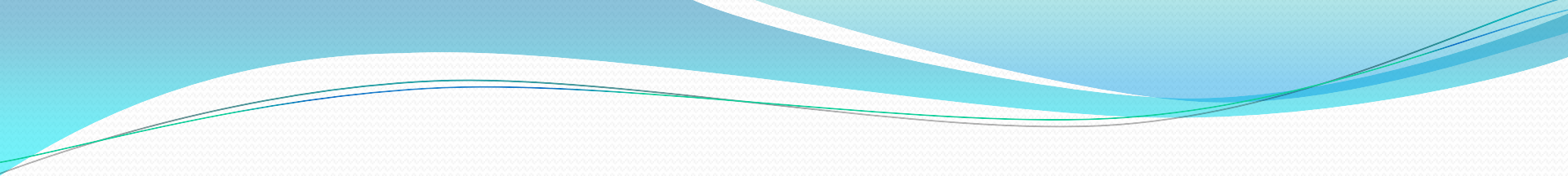
- **1) When to eat (meal timing)?**
- **2) What to eat (food selecting)?**
- **3) How much to eat (amount adjusting)?**
- **4) How much water to drink (body hydrating)?**
- **5) What not to eat (foods to avoid)?**

# When to Eat Before Exercise?

- Wrong meal timing is common.
- You should allow adequate time for foods to be digested before your training or competition. In sports nutrition, 1 to 3 hours would be enough.
- Everybody has different meal timing depending on **sports, body metabolism, fitness level, and health conditions.**

- The slower body metabolism you have, the more time you would need for digestion.
- The minimum time space between your meal and your exercise is **60 minutes**.



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- It is strongly recommended that you do not eat anything **within 60 minutes before your training or exercise**, as the foods need to be digested properly before commencing your exercise session.
  - Intense exercise would actually require allocating more time for digestion.

# Why should you never eat very close to your training or exercise sessions?

- 1) If the foods have not been digested fully and have not left your stomach, **you would feel full and heavy in your stomach**, often leading to throwing up in the middle of exercise or competition.
- 2) **Blood flow shift** from musculoskeletal system to GI system to help digestion, causing about **20% reduction** in the blood flow of the working muscles.

# **What to Eat Before Exercise or Competition?**

- **This is the second common mistake.**
- **A pre – exercise meal has a special pattern and you should follow the pattern regardless of what type of sports you are engaged in and what time of the day you exercise.**



## **A pre-exercise meal should be:**

- **High in complex carbohydrates**
  - **Moderate in protein**
  - **Low in fat and fiber.**
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- **A common mistake particularly among the Gym-goers is to take protein-rich foods before workouts!**

- From performance standpoint, **complex carbohydrates** are the primary sources of energy during any exercise or sports events, providing **90% of your energy**.



## **The pre-exercise complex carbohydrates should be:**

- Lower in glycemic index (GI), and
- Alkaline in nature.
- **Abazar's Ranking System** represents a ranking approach based upon which you are able to choose the best complex carbohydrates before your competition or regular exercise.

# Abazar`s Ranking System for Complex Carbohydrates Prior to Exercise or Competition:

<b>Rank</b>	<b>Complex Carbohydrates</b>
<b>1</b>	Sweet Potatoes, and Yams
<b>2</b>	Baking Potatoes
<b>3</b>	Quinoa, and Legumes
<b>4</b>	Pasta, Noodle, Brown Rice, Oats, Buckwheat, and Cereals
<b>5</b>	Breads, Crackers, and Semolina
<b>6</b>	Corn, and Rye
<b>7</b>	Barley, and White Rice

# How Much to Eat?

- To fuel the muscles to maximize performance, the body uses a combination of carbohydrate and fat for energy.
- Whether you exercise or not, **the primary source of energy for the body is carbohydrate followed by fat. Protein** is the last one to join the energy – providing team of the body.

- The **intensity** and **duration** of the physical activities dictate the proportion of macronutrients required in the pre – exercise diet.
- Pre – exercise meal in **endurance sports**, such as marathon, should be **high in carbohydrate and moderate in protein and fat**.
- Pre – exercise diet in **power sports**, such as weight lifting and martial arts, should be **high in carbohydrate, moderate in protein, and low in fat**.

- In pre – exercise diet:
- **Carbohydrate: 1 gr/kg**
- **Protein: 0.3 gr/kg**
- For example, if your weight is 70 kg, you would need 70 ( $70 \times 1$ ) grams of carbohydrate and 21 ( $70 \times 0.3$ ) grams of protein.
- In other words, **the ratio of carbohydrate to protein in pre – exercise diet should be 3 – 4 to 1.**



- The ideal pre – competition meal for **professional athletes** should contain **2 -3 grams** of carbohydrate per one kilogram of the body weight.
- The ratio of **carbohydrate – to – protein** for them is **7 to 1**.



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# Fruits Before Exercise:

- Fruits, of any kinds, are not good choices before exercise, as they are not complex carbohydrates and cannot provide enough energy until the end of exercise.
- They could be an option in case of not having an access to complex carbohydrates.



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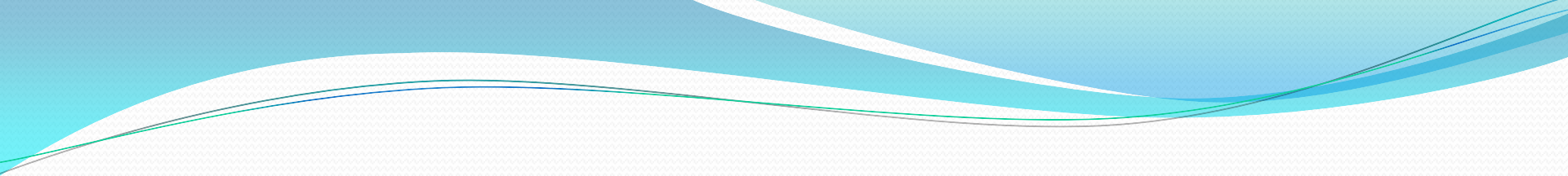
# Banned Fruits Before Exercise:

- When it comes to competing at the highest levels or any Gym workouts, minor changes in your dietary habits could certainly impede your performance.

- Fruits high in **tannins** are banned before any sports competitions and Gym workouts. They are **quince**, **persimmon** (especially unripened), **chokeberries**, and **pomegranate**. The skin of banana also contains tannins.



- The strange taste in mouth after having persimmon or quince is due to **tannins**, which usually bind to the proteins in saliva, causing them to aggregate and resulting in a dry feeling in mouth.
- After mixing with stomach acid, tannins form a sticky ball-shaped conglomeration called “**phytobezoar**”. Moreover, tannins are astringents and can bind and precipitate proteins, starch, and even minerals in your foods.

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- Therefore, we strongly recommend that you avoid having **fruits high in tannins** prior to your exercise activities especially along with your pre – exercise meals, as they cause a sticky and unabsorbable conglomeration of foods (**bezoar**) trapped in your gastrointestinal system, making you feel very heavy on your stomach and hampering your performance.

# How Much Water to Drink?

- To maintain peak athletic performance and achieve adequate recovery, it is mandatory to sustain the **optimal level of hydration** not only before exercise but also throughout the exercise.
- Dehydration causes a decline in peak athletic performance, hindering athletes to excel.



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## **A simple guideline would be as follow:**

- - **Drink at least 2 liters throughout the day.**
- - **2 hours before exercise: 2 glasses of water.**
- - **1 hour before exercise: 1 glass of water.**
- - **30 minutes before exercise: 1 glass of water.**
- - **20 minutes before exercise: 1 glass of water.**
- - **10 minutes before exercise: 1 glass of water.**

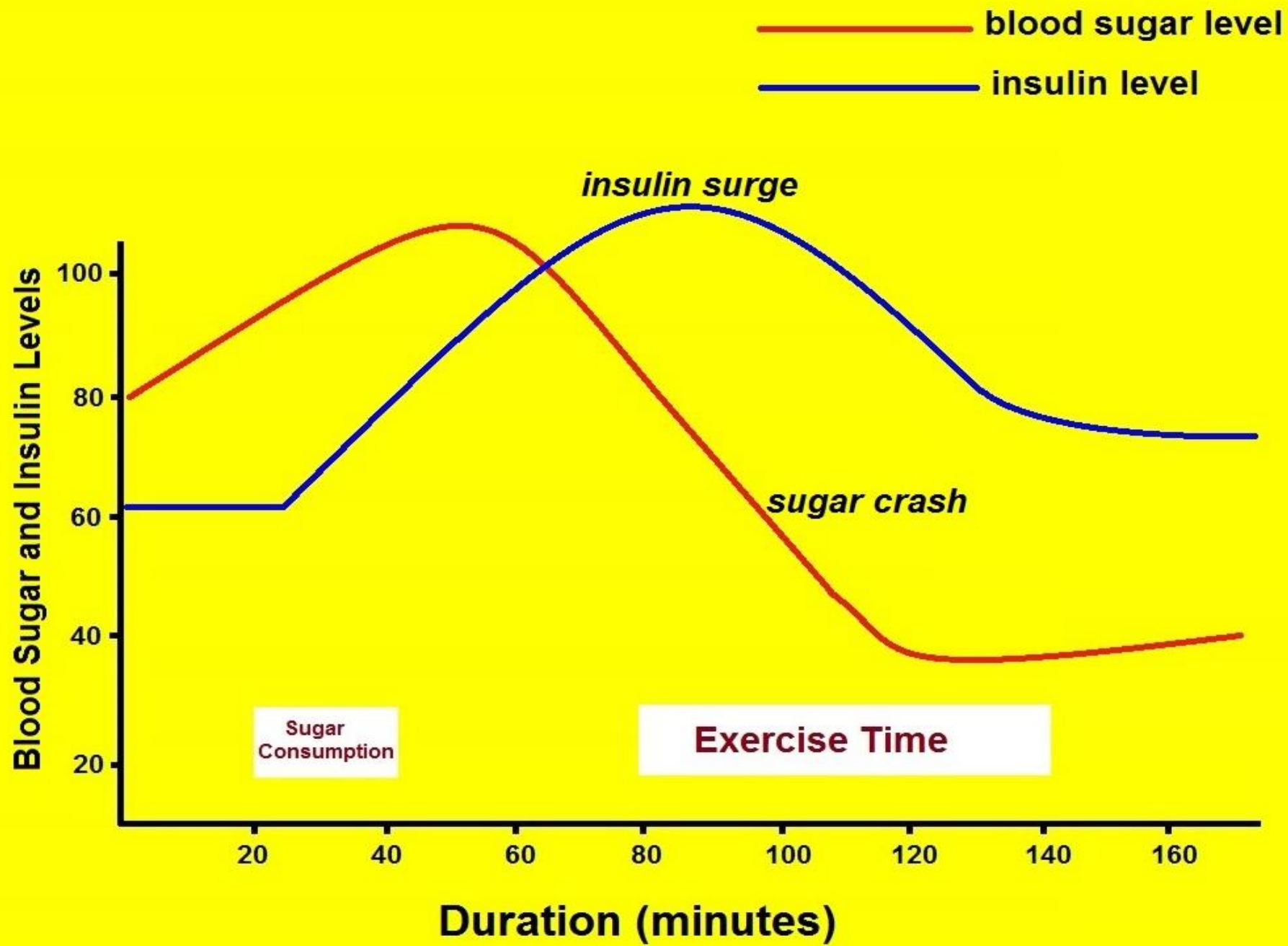
# Foods to Avoid Before Exercise:

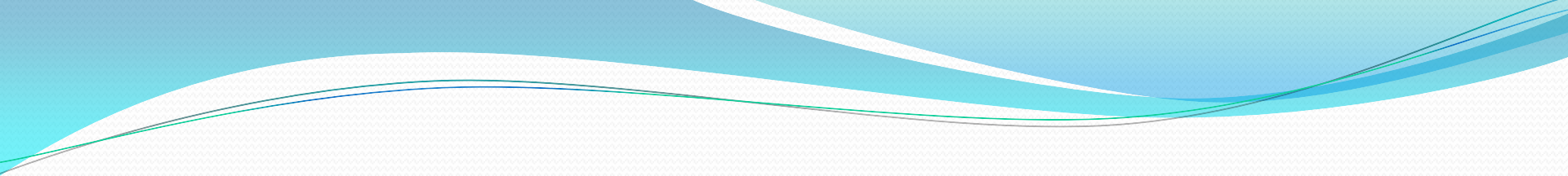
Two food – related factors that sabotage athletic performance and excellence are:

- 1) Consumption of a high – glucose food or drink (foods very high in simple carbohydrates) **within 100 to 10 minutes prior** to exercise causes peaks and valleys in the blood sugar curve. First, blood sugar rises followed by an increase in insulin level, which is called “**insulin surge**”.

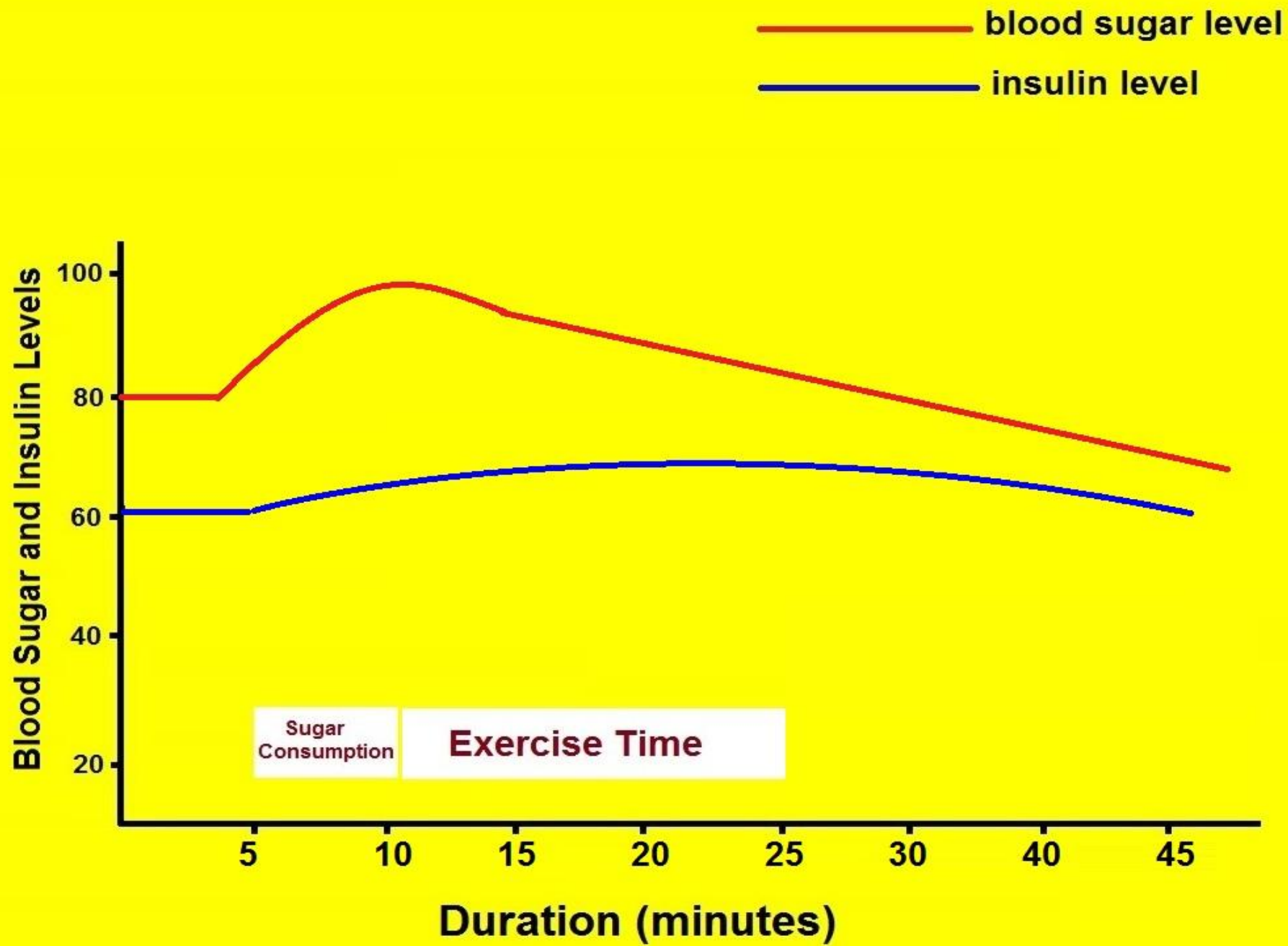


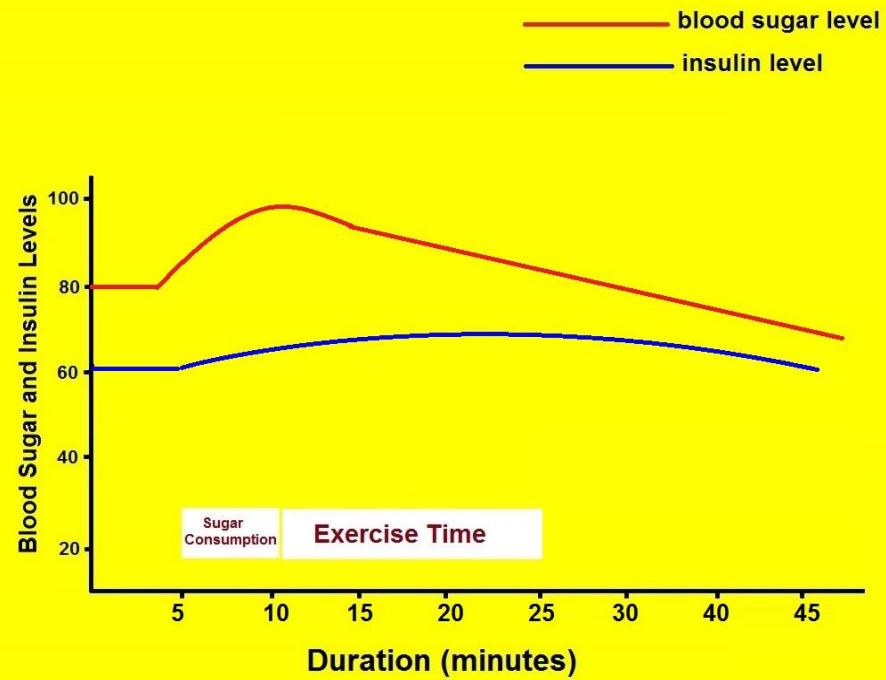
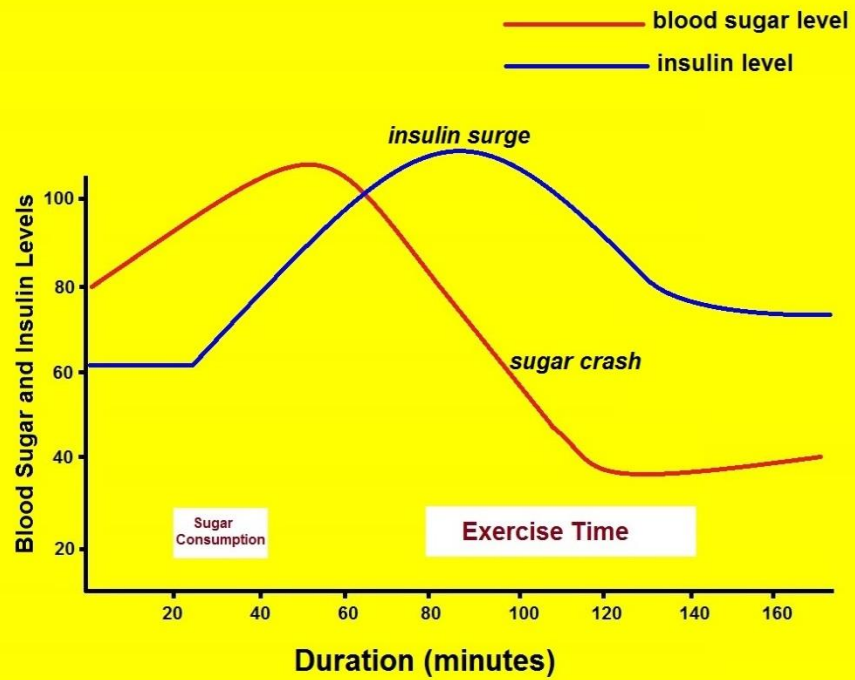
- Then the hike in insulin level enhances the uptake of glucose by the cells followed by a sudden drop in blood sugar level, which is referred to as “**sugar crash**”.
- As a rule of thumb, *sugar crash always follows insulin surge.*



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- Sugary foods (for example, glucose drink or sports beverages high in sugar) taken **within 10 minutes right before exercise** maintain the blood sugar stable, prolonging exhaustion time.
  - In other words, when you take sugary foods or foods high in glucose within 10 minutes before exercise, your blood sugar rises within 5 to 10 minutes and reaches to its peak level.

- When you start exercising **within 5 to 10 minutes** of having something very sweet and high in glucose, the blood sugar starts declining gradually and **sugar crash does not happen**, because exercise inhibits insulin release which is the culprit for sugar crash.





- 2) The second food – related factor that may interfere with peak athletic performance is “**new food**”.
- New food is the food that your body does not know or you have not tried it out for a quite long time.
- It is highly important that you always choose familiar foods before exercise and not to try out any new foods, as they may lead to body reactions, such as stomach upset, abdominal cramps, diarrhea, heart burns, and feeling bloated.

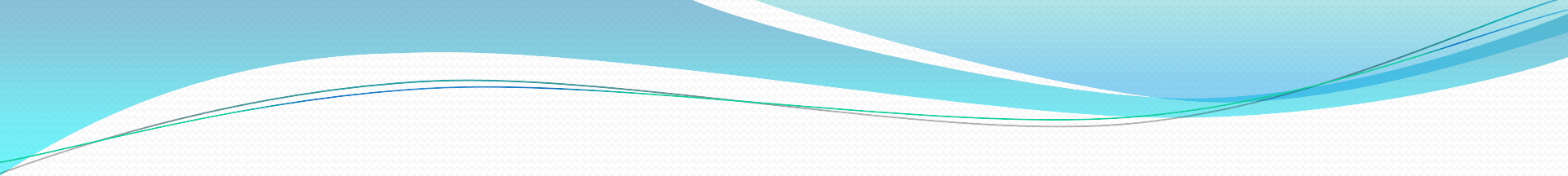
# Why Professional Athletes Avoid Eating New Foods?

- 1) **Body reactions** that might prevent them from performing better
- 2) **Fear of being para – doped**. Para – doping is intentionally to drug someone through foods to decrease her or his performance.



# Magic or Lucky Foods in Sports:

- If you have a “**lucky food**”, you should have it on hand prior to your competition or workout session.
- **Lucky food** is the food that a person believes that improves his or her performance whether that food has the right pre – exercise eating pattern or not. Basically, lucky food helps the person mentally through its placebo effect.

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- An example of lucky food is “**turtle`s blood**”!
  - Some athletes believe that a nasty magic potion from that reptile could make them champion.
  - Sports nutritionists and biochemists have failed to find any special ingredients in turtle`s blood to justify its fame in sports especially among endurance athletes.

# Carbohydrate Loading Prior to Competition:

- **Some athletes require loading their bodies with carbohydrates prior to their competition.**

# Homework:

- 1) Describe “Insulin surge” and “sugar crash”.
- 2) List the carbohydrates in all seven levels of Abazar`s ranking system for pre – competition diet.



