Tehran University of Medical Sciences
Department of Sports and Exercise Medicine

SPORT NUTRITION PRINCIPLES

DR. FAEZEH MALEKLOU

SPORTS AND EXERCISE MEDICINE, TUMS

TITLES:

- Importance of nutrition in exercise and recovery
- Nutritional needs for physical activity
- Macronutrient requirements (Carbo, Protein)
- Micronutrient requirements (Vitamins and minerals)

IMPORTANCE OF NUTRITION IN EXERCISE AND RECOVERY

- Train more effectively
- Reducing the risk of injury and illness
- Improving exercise performance

Nutritional needs for physical activity

Today key point:

A well-balanced diet

Nutritional needs for physical activity

Negative

or

Positive

energy balance

Insufficient energy intake =  **muscle mass;**

In addition: injury, illness, increased prevalence of overtraining syndrome and ultimately decreased exercise performance.

Recommendation: 4-6 meals per day (nutrition dense foods)

How do you calculate your basal energy need?

Harris - Benedict equation:

BEE kcal/day(Female):

655 + 9.6 x W(kg) + 1.8 x H(cm) - 4.7 x A(yr)

BEE kcal/day(Male):

66 + 13.7 x W(kg) + 5 x H(cm) - 6.8 x A(yr)

SIMPLE GUIDE

Physical activity level	kcal/kg/day	kcal/day
General physical activity 30-40 minutes/day, 3 times a week	Normal diet, 25-35	1 800-2 400[a]
Moderate levels of intense training 2-3 hours/day, 5-6 times a week[b]	50-80	2 500-8 000[c]
High-volume intense training 3-6 hours/day, 1-2 sessions/day, 5-6 times a week[b]	50-80	2 500-8 000[c]
Elite athletes[d]	150-200	Up to 12 000[e]
Large athletes[d]	60-80	6 000-12 000[f]

MACRONUTRIENT REQUIREMENTS

- CARBOHYDRATE REQUIREMENTS:

DAILY CARBOHYDRATE REQUIREMENTS

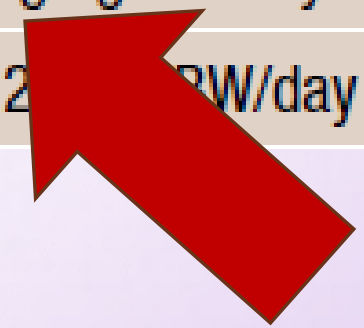
Corn stone of the diet in athletes:

High in carb, example?

What is the meaning of glycemic index?, example?

What kind of options are suitable (High or low?)

Strength-trained athletes	4-7 g/kg BW/day
Extreme commitment, moderate to high intensity, > 4-5 hours/day	8-12 [illegible]W/day



CARBOHYDRATES BEFORE, DURING AND AFTER EXERCISE

Keystone, Before:

Last meal: 200-300 gr, 1 h pre-event:50-100gr,

Keystone, During:

Time of the training is important,

Suitable sport drink

Keystone, After:

Sessions of training are important

❖ PROTEIN REQUIREMENTS:

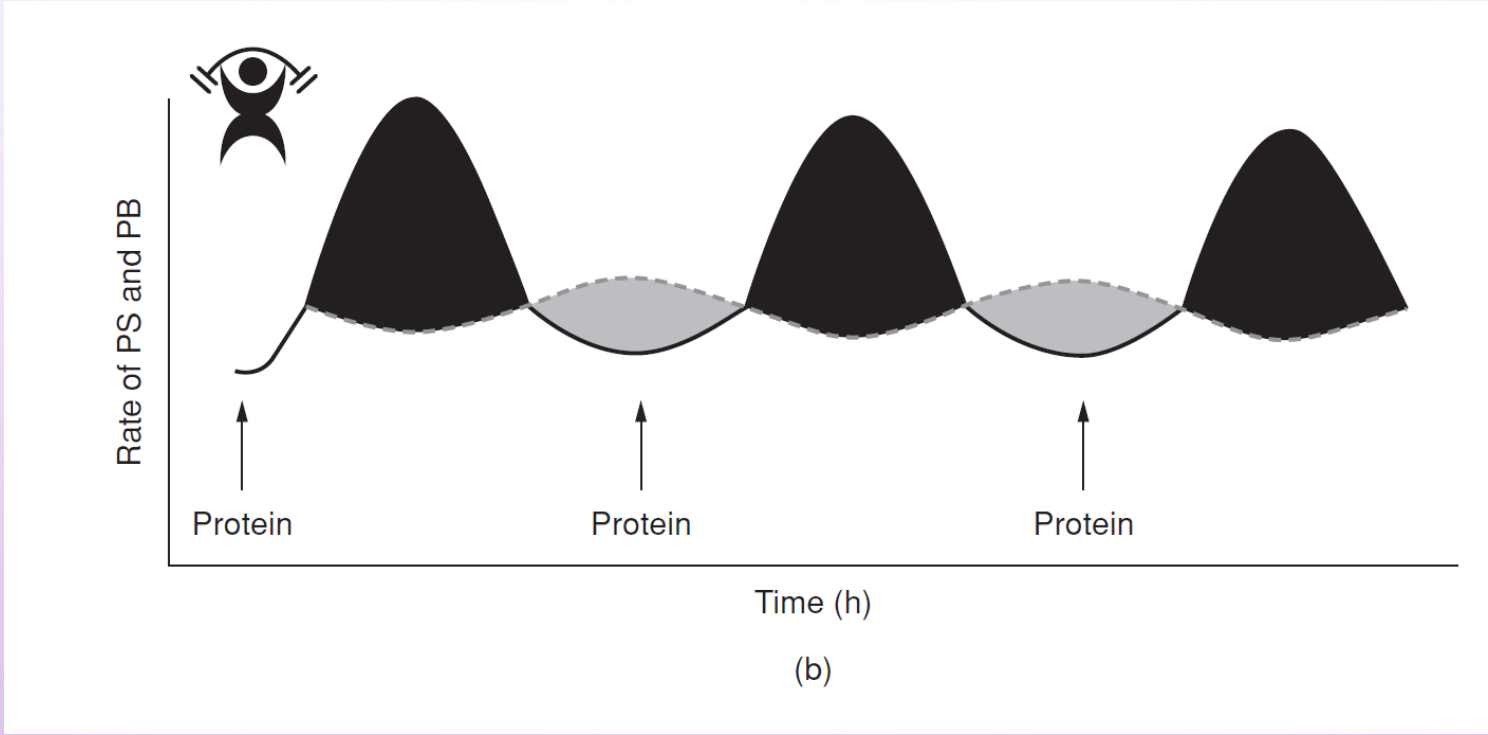
- Energy intake,
- Exercise intensity
- Duration,
- Ambient temperature,
- Gender,
- Age

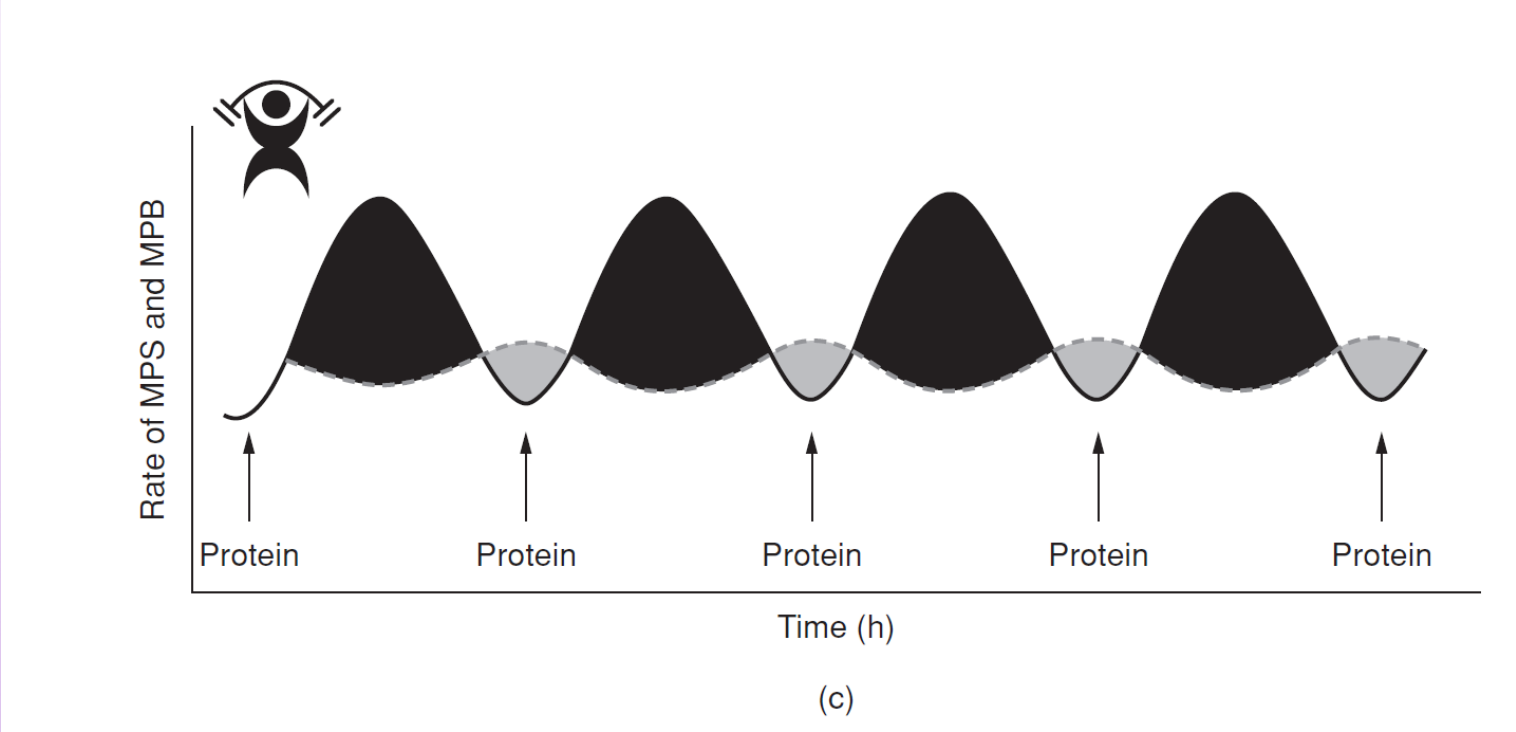
DAILY PROTEIN REQUIREMENTS

Sedentary :0.8 g/kg bw/day

General fitness: 1.0 g/kg body weight/day

Daily or habitual protein requirements		
Physical activity level	**g/kg BW/day**	**Comments**
ISSN		
General fitness	0.8-1.0 g/kg BW	Focus on protein quality. Amino-acid content. Whole foods. Safe, convenient supplements where needed.
Older individuals	1.0-1.2 g/kg BW	
Moderate amount of intense training	1.0-1.5 g/kg BW	
High volume of intense training	1.5-2.0 g/kg BW	


Rate of PS and PB
Protein
Protein
Protein
Time (h)
(b)


Rate of MPS and MPB
Protein
Protein
Protein
Protein
Protein
Time (h)

(c)

Dietary protein intake should consist of high quality protein. Protein quality can be measured by the protein digestibility-corrected amino acid score (PDCAAS), where a score of close or equal to 1 indicates protein of high quality.

- milk (casein and whey),
- Egg,
- Meat,
- isolated soy protein.

❖ FAT REQUIREMENTS

❖ FLUID AND ELECTROLYTE REQUIREMENTS

MICRONUTRIENT REQUIREMENTS

- Vitamins
- Minerals

THANK YOU FOR YOUR ATTENTION !

ANY QUESTIONS?