

Role of Dietetics in Modern Science

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Role of Dietitian

There are many different roles of dietitian such as

- Administrative dietitian
- Clinical dietitian
- Academic dietitian
- Community dietitian
- Consultant dietitian
- Research dietitian

Administrative dietitian

Health professionals responsible for quality and quantity of food for patients and to manage all matters regarding diet department and patient’s diet. They work as a supervisor or head of the department.

Clinical dietitian

Working with clinical dietitian includes

- Assessment
- Calculations according to needs
- Diet planning
- Counseling
- Evaluation and follow up

Academic dietitian

- Provides and teaches the skills of nutrition and dietetics to the students, doctors and nurses.
- Office management is also a part of the job of a dietitian
- Obesity is not treated by medical therapy. It is treated by cosmetic therapy

Community dietitian

Community dietitian work with the wellness programs, public health agencies, home care agencies and health maintenance organizations. These dietitians apply and disturb knowledge about food and nutrition to the individuals and groups of specific categories, lifestyles and geographic areas in order to promote health.

They also focus on:

- Needs of elderly, children and other individuals with special needs
- Some conduct home visits to patients who are too physically ill to consult in health facilities
- Provide care and instruction on grocery shopping and food preparation

Consultant dietitian

Dietitians who are in private practice or practice on contractual basis with healthcare facilities or corporations, such as used in Australia, Canada and the United States.

Consultant’s dietitians contract independently to provide:

- Nutrition or health-related consultation
- Educational programs for individuals and healthcare facilities as well as sports teams, fitness clubs and other health-related businesses and corporations

Research dietitians

Research dietitians may focus on social sciences or health services research, for example- investigate the impact of health policies or behavior change, or evaluate program effectiveness. They may survey food service systems management in order to guide quality improvement.

Nutrition assessment

Anthropometry

Calculations of Calorie Requirements

Total Calorie Requirements = BEE× Activity Factor× Injury Factor
Basal Energy Expenditure (BEE) Or Harris-Benedict Equation

BEE for Male

$$66.5 + (13.7 \times \text{wt in kg}) + (5 \times \text{height in cm}) - (6.8 \times \text{age})$$

BEE for Female

$$655.1 + (9.6 \times \text{wt in kg}) + (1.85 \times \text{height in cm}) - (4.7 \times \text{age})$$

Wt. =kg, ht=cm, age=years

Activity factor

- No Activity 1.0-1.1
- Slightly Active 1.1-1.3
- Moderate Active 1.3-1.5
- Athlete’s Activity 1.5-1.7

Injury factor

Surgery

- Minor 1.0-1.1
- Major 1.3-1.9

Infection

- Mild 1.0-1.2
- Moderate 1.2-1.5
- Severe 1.4-1.8

Calculation of ideal body weight

- IBW FOR MEN: 106 lb. for first 5feet and 6 lb. for each additional inches
- IBW FOR FEMALE: 100 lb. for first 5 feet and 5 lb. for each additional inches

Calculation of Body Mass Index

BMI= WEIGHT (kg)/HEIGHT (m²)

Standard BMI	Women	Men
Underweight	<18.5	<18.5
Desirable weight	18.5-24	20-25
Over weight	25-30	25-30
Obese grade 1	30-35	30-35
Obese grade 2	35-40	35-40
Obese grade 3	40-45	45-50

Table 1

Wrist Circumference

r = height (cm)/Wrist Circumference (cm)

Male	Female	Frame
r> 10.4	r>11.0	Small
r 9.6-10.4	r10.1-11	Medium
R < 9.6	R<10.1	Large

Table 2

Benefits of seeds and nuts

Seeds

Anise seeds

It is used for upset stomach, intestinal gas and as an expectorant to increase productive cough. It is also used as diuretic to increase urine flow and as appetite stimulant.

Basil seeds

It is used for weight loss, used for healthy skin, acidity, diabetes treatment and reduce constipation. It acts as an anti-inflammatory cooling effect in summer time.

Cantaloupe (musk melon seeds)

Used for healthy growth of hair and nail. Contain fat soluble vitamins A and E which enhances antioxidant activity. Good source of K, Mg and P.

Caraway seeds

Used for heartburn, bloating, loss of appetite, and mild spasms of stomach and intestine.

Cardamom

Used to make medicines, also used for digestive issues, heart-burn, intestinal spasm, irritated bowl syndrome, intestinal gas, constipation, liver and gallbladder.

Thymol seeds

Keep stomach strong, rich in fiber, minerals and antioxidants. Used in acidity indigestion. To treat common cold, cleaning wounds and eases pain due to arthritis.

Coriander seeds

Lower the blood sugar level and blood pressure. Improve cholesterol, support healthy menstrual function and eases digestive discomfort.

Cumin seeds

Boost immune system and treat respiratory disorders. Treat insomnia and prevent diabetes. High source of iron.

Fennel seeds

Used for constipation irritable bowel syndrome and Bloating.

Mustard seeds

Used for cold painful joints, muscles and arthritis. Used for vomiting and edema by increasing urine production and increase appetite.

Flax seeds

Reduce risk of heart diseases, cancer, stroke and diabetes. It contains omega-3 lignin and fibers.

Nigella

Having ant carcinogenic property. It keeps a check on diabetes, memory and elevation of asthma, headache, and weight loss, eases joint pain and protect kidney.

Pepper corn seeds

Prevent cancer, lower blood pressure, helps in weight loss, cough and cold, increase brain health and treat diabetes. It contains antioxidants.

Pomegranate seeds

Reduce arthritis and joint pain, fight with cancer, lower blood pressure, improves heart health and rich in fiber.

Pumpkin seeds

Anti-diabetic and improves liver and heart health. It acts as an anti-inflammatory and immune support.

Fenugreek seeds

Improves digestive problems and cholesterol level. Reduce inflammation inside the body. Promotes milk flow in breastfeeding.

Dill seeds

Helps to reduce depression, lower cholesterol. May treat epilepsy, protect against free radicals. Aids in digestion through beneficial fatty acids.

Sesame seeds

High source of lowering cholesterol. Protect heart health. Improve blood pressure. Fight cancer. Help burn fat. Balance the hormones.

Sunflower seeds

Reduce risk of heart diseases. Help to prevent cancers. Support thyroid functions. Improves skin health and wards off diabetes.

Nuts

Almonds

It helps to lower the cholesterol level and prevent cancer. It can prevent heart diseases and heart attacks. It supports healthy functions

Brazil nuts

They are anti-inflammatory. It improves hormonal functions. Brazil nuts are beneficial to treat acne and weight loss program. Boost immune system.

Cashews nuts

Improves bone mineral density. It also relieves digestive issues and prevent diabetes. It also improves immune system and lower blood pressure.

Coconut

It has anti-viral, anti-bacterial, anti-fungal and anti-parasitic property. It improves digestion and absorption of nutrients and it helps to store and support thyroid function.

Hazel nuts

They promote heart health, lowers LDL cholesterol. It also helps to manage diabetes. Boost the brain health. It also relieves inflammation and in anemia treatment.

Peanuts

It fight against stomach cancer, heart diseases, nervous diseases, Alzheimer and infection. It also protect skin and have antioxidant property.

Pistachio

It increases absorption of iron and prevents anemia. It improves heart health. It is beneficial for weight management and also improves digestion.

Soy nuts

It lowers the blood pressure and maintain heart health. It is rich in protein. It is a great food to snack on. It also helps to manage weight and maintain heart health.

Walnuts

They boost bone health. Improves metabolism, regulate sleep and prevent cancer. It also works as mood booster. It is beneficial for skin and control diabetes.

Tiger nuts

It is healthy substitute for lactose intolerance. It helps against cardiovascular diseases

Diseases and diet plans

General Considerations for Diet Plan

1. Order of food groups Fruits Bread and cereals Meat and meat products Vegetables Milk and milk products Fat
2. Food must be given 30mins before meal No canned fruits Seasonal fruits only
3. Bread and cereals should be whole not processed
4. 1 serving of egg in breakfast is must. Lean meat is preferred. No preserved or processed meat
5. Raw form of vegetables in one of the major meal is must. No canned and starchy vegetables
6. Natural milk is preferred No milk pack 1 serving of Milk at bed time is must
7. Olive oil, Desi ghee. No saturated fat

Exchange list

Food list	Carbs	Fat	Protein	Calories
Carbohydrates	15	0-1	0-3	80kcal
Starch, bread, cereals, grains, starchy vegetables, snacks, beans, peas				
Fruits	15	-	-	60kcal
Milk				
Fat free, low fat	,	0-3	8	100kcal
Reduced fat	12	5	8	120kcal
Whole	12	8	8	160kcal
Sweets and deserts	15	Varies	Varies	Varies
Meat and meat substitutes				
Lean	-	0-3	7	45kcal
Medium fat	-	4-7	7	75kcal
High fat	-	8	7	100kcal
Plant based proteins	Varies	Varies	7	Varies
Fats	-	5	-	45kcal
Alcohol	Varies	-	-	100kcal
Vegetables	5	-	2	25kcal

Table 3

BMI and Health

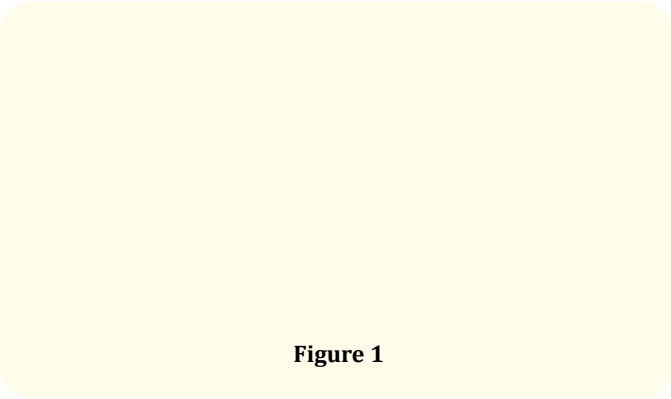


Figure 1

Causes

Fat cell development Set point theory Genetics and epigenetics Environment Overeating Physical inactivity Sleep and stress Taste, satiety and portion sizes.

Health risk and complications

Coronary heart disease Dyslipidemia. Liver and gall bladder disease Osteoarthritis Cancer Diabetes. Sleep apnea Social and psychological consequences PCO’s and pregnancy problems.

Weight loss strategies and MNT

- Set reasonable goals, be realistic about energy intake, Emphasize nutritional adequacy
- Eat small portions, eat slowly, Lower energy density, Remember water, Focus on fiber
- Choose fats and CHO carefully, Watch for other empty calories

Choose CHO wisely

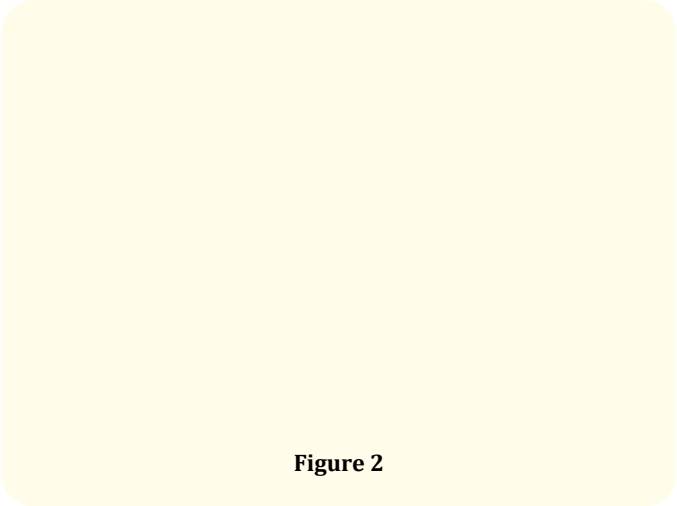


Figure 2

- Include at least 2-3 nuts or seeds in diet. Include fiber in your diet via fruits and vegetables
- They are loaded with fiber, vitamins and minerals. Consume at least 2-3 servings of vegetables and 3-4 servings of fruits. Drink at least 10- 12 glasses of water per day

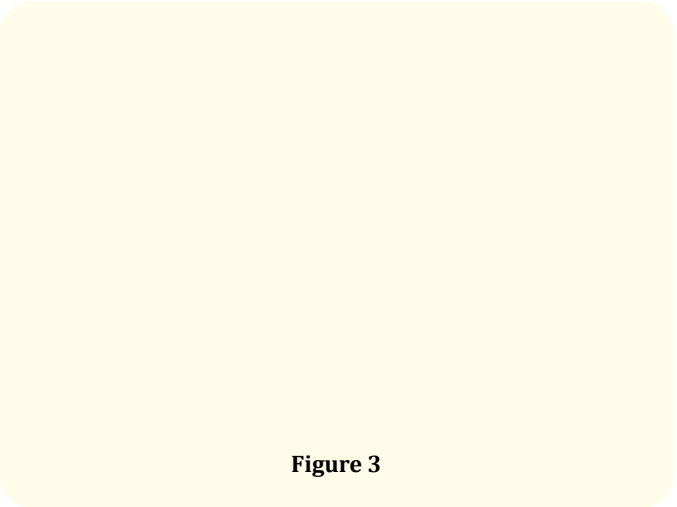


Figure 3

Gestational diabetes

Gestational diabetes only happens during pregnancy. It means you have high blood sugar levels, but those levels were normal before you were pregnant. After your baby is born, gestational diabetes usually goes away. Gestational diabetes makes you more likely to develop type 2 diabetes, but it won’t definitely happen.

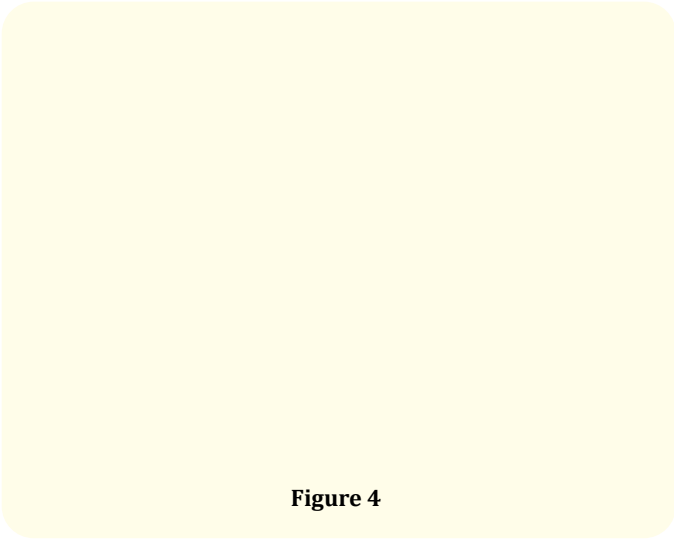


Figure 4

Causes

During pregnancy, the placenta makes hormones that can lead to a buildup of glucose in your blood. Usually, your pancreas can make enough insulin to handle that. If not, your blood sugar levels will rise and can cause gestational diabetes. It may be due to: Family history Physical stress If mother is alcoholic or smoker High BP.

Diagnosis

Gestational diabetes usually happens in the second half of pregnancy. Your doctor will check to see if you have gestational diabetes between weeks 24 and 28 of your pregnancy. You doctor may test sooner if you're at high risk. To test for gestational diabetes, you will quickly drink a sugary drink. This will raise your blood sugar levels. An hour later, you'll take a blood test to see how your body handled all that sugar. If the results show that your blood sugar is higher than a certain cutoff (anywhere from 130 milligrams per deciliter [mg/dL] or higher), you will need more tests. This means testing your blood sugar while fasting and a longer glucose test that will be done over a 3-hour period. If your results are normal but you have a high risk of getting gestational diabetes, you may need a follow-up test later in your pregnancy to make sure you still don't have it.

Symptoms

Gestational diabetes doesn't usually cause any symptoms. Most cases are only picked up when your blood sugar level is tested during screening for gestational diabetes. Some women may develop symptoms if their blood sugar level gets too high (hyperglycemia), such as: Increased thirst needing to pee more often than usual. A dry mouth. Tiredness. Itches frequently infections slow healing in cuts

Diet

- Choose foods high in fiber and low in fat and calories. Focus on fruits, vegetables and whole grains. Don't skip the

meals, eat a good breakfast. Limit your intake of foods and beverages that contain simple sugars such as soda, fruit juice, flavored teas and flavored waters, and most desserts – or avoid them altogether

- Eat more protein. Protein rich foods such as fish, chicken, and turkey. Eggs, beans, nuts, seeds, legumes.

Foods to avoid

Fast food

- Alcoholic beverages, which you should avoid anyway if you're pregnant
- Baked goods, such as muffins, donuts, or cakes

Fried food

- Sugary drinks, such as soda, juice, and sweetened beverages

Candy

- Very starchy foods, such as white potatoes and white rice

Diet plan for calories 1600-1800

Timings	Food items	Servings	Kcal
Pre breakfast	Almonds	1	45
Breakfast	Cooked oats	2	160
	Medium sized plum	1	60
	1 boiled egg	1	75
	1 cup greek yogurt	1	120
Snack 1	¾ cup blue berries	1	60
Lunch	1 chapatti	2	160
	Chicken gravy	2	150
	Vegetable salad	1	25
	1 medium apple	1	60
	Seasoned with olive oil	1	45
Snack 2	Guava	1	60
	1 cup chicken soup	2	150
	Vegetables added	1	25
Dinner	1 chapatti whole grain	2	160
	Fish	2	150
	Strawberries	1	60
	Vegetable salad	1	25
Snack 3	1 cup skimmed milk	1	120
Total			1710

Table 4

Case study for Hypertension

Name: Abid Nazir

Height: 4.10"

Weight: 60 kg

Male

BMI (BODY MASS INDEX)

Weight = 60 kg

Height= 4.10" = 2.1m²

BMI = weight (kg)/ height (m²)
= 60/2.1
= 28.5 kg/m²- OVERWEIGHT

Ideal body weight

106 for first 5 inches of male and 6 l bsfor each additional inch.
Height = 4.10"
=106 - 2×6
= 88/2.2
= 40 kg

BMR (Basal Metabolic Rate)

66.5 + (13.7×wt in kg) + (5 × ht in cm) – (6.8 × age)
66.5 + (13.7 ×60) + 5 (147) – 6.8 ×52
66.5 + 822 + 735 – 354
1270 kcal
Range - 1200- 1400

Fluid needs

1500 ml for first 20 kg and 25 ml for each additional kg
Weight = 60 kg
=1500 + 40 (25)
= 10 glasses/day
Range 10 – 12 glasses/day

No of servings

STARCH = 7
VEGETABLES = 4
FRUITS = 5
MILK = 2
MEAT = 2
FATS = 2
Carbohydrates = 224 g
Proteins = 59 g
Fats = 24 g
Calories = 1340 (1200- 1400)

Distribution of calories

Food groups	Total servings	Pre breakfast	Breakfast	Snack 1	Lunch	Snack 2	Dinner	Snack 3
Starch	7		2	1	2	-	2	-
Vegetables	4		-	-	2	-	2	-
Fruits	5		1	-	2	1	1	-
Milk	2		1	-	-	-	-	1
Meat	2		1	-	-	-	1	-
Fats	2	1	-	-	-	-	1	-

Table 5

Diet plan

Timings	Food groups	Carbs	Proteins	Fats	Calories
Pre breakfast	Warm water + 1 fist of hazel nuts (1 ser)			5g	45
Breakfast	Bread (2 ser)	30g	6g	2g	160
	Boiled egg 1 ser			4g	75
	Peach juice 1 ser	15g	7g		60
	Yogurt fat free 1 ser	12g	8g	1g	100
Snack 1	Black grams 1 ser	15g	3g	1g	80
Lunch	Chapatti 2 ser	30g	6g	2g	160
	Cooked vegetables 2 ser	10g	4g		50
	Banana 2 ser	30g			120
Snack 2	Blackberries 1 ser	15g			60
Dinner	Apple juice 1 ser	15g			60
	Chapatti 2 ser	30g	6g	2g	160
	Kabab 1 ser		7g	1g	45
	Vegetable soup 2 ser	10g	4g	5g	50
	Olive oil 1 ser				45
Snack 3	Milk 1 ser	12g	8g	1g	100

Table 6

Conclusion

This internship I have been a very good experience for me in the way that it has given me the chance to understand the real outside the world and also have learnt lot of my interpersonal skills and self-confidence have improved significantly. Working here is this hospital with the great experience. The environment at the hospital was safe and conducive to learning. Whole staff of the Hospital was cooperative. There was also the moment when we were sad as to see different patients in pain and listening their harmful stories. There were also the moments that were quite satisfying as to see the patients recovering from their illness and it was pleasing to see them leave the hospital healthy again. During my this internship a learnt a lot gain too much practical knowledge, to work in professional manners, establish a professional relationship and interact with patients, improve clinical knowledge, deal with patient effectively and appropriate, how to react with patients family members, how to behave in hospital, to make diet plan and MNT suggestions and find out through nutritional assessment that which patient required early nutritional intervention.

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