



**Daffodil**  
*International*  
**University**

## **Internship Report on Training In CND (Clinical Nutrition and Dietetics)**

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**Date of Submission: 19-12-2019**

## Letter of transmittal

12-12-2019

Prof. Dr. Md. Bellal Hossain

Head

Department of Nutrition and Food Engineering

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**Subject: Submission of Internship report on training in CND (clinical Nutrition and Dietetics)**

Dear Sir,

I am here by submitting I may internship report, which is part of the NFE program curriculum. And it is a great achievement to work under your active supervision.

This report is based on about clinical nutrition and dietetics of different types of diseases of Bangladesh. I have got the opportunity to work a trainer on training in clinical Nutrition and dietetics in BIRDEM Hospital for 10 days, Under the Supervision of Prof. Dr. Md. Bellal Hossain.

This training has given me both academic & practical exposure. First of all. I learned about the management of diabetes, Pregnancy, Obesity, Arthritis & Bone health, Infant feeding and breast feeding, CKD, Liver disease, Enteral and Parenteral Nutrition with their Nutrition & diet. Secondly, it gave me to build up my researching & interpersonal skills.

I shall be highly obliged if you are kind enough to receive this report & provide your valuable Judgment.

Sincerely yours

Sumi Noor Taj

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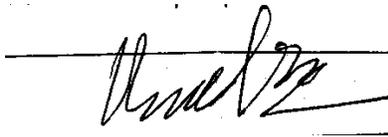
## Letter of Approval

12-12-2019

**Subject: An announcement regarding the approval of the Internship Report.**

This is my truthful declaration that the “Internship Report” the said student has prepared is not copy of any Internship Report previously made by any the students.

Sumi noor taj bearing ID 161-34-487 is a regular and dedicated student as well as hard working.



Professor, Dr. Md. Bellal Hossain  
Head, Department of NFE  
Daffodil International University.

## **ACKNOWLEDGEMENT**

Firstly, wish to express my all praises and gratitude to the almighty Allah for giving me the power of strength and ability to perform everything soundly and enables me to complete in this training.

I would like to my deep gratitude and sincere thanks to the honorable Dean, Faculty of Allied Health Science, Prof. Dr. Md. Al Mustafa for this kind cooperation and encouragement to accept this degree.

I would like to deeply indebted and very grateful to my supervisor Prof. Dr. Md Bellal Hossain, Head of the department of Nutrition and Food Engineering Daffodil International University for his whole hearted attachment period.

I am very grateful to my Internship supervisor, Qumrun Nahar, Principal Research Officer, BIRDEM for helping me with her valuable suggestions regarding internship. My gratitude goes to the entire of Nutrition and Food Engineering department, Under faculty of Allied Health Science, Daffodil International University

## **Summary**

In BIRDEM (1980) where treated many patient with proper nutrition which called clinical nutrition and dietetics. The primary role of a clinical dietetics where nutrition program is design to improve the patient health. A proper healthy diet that can to prevent and control many diseases like as obesity, diabetes, heart disease, certain risk factors like cancer, kidney problem etc. Dietetics is a science where how food and nutrition affect in human health. And clinical dietetics that provide the medical nutrition therapy for the patients.

# Content

<b>Title</b>	<b>Page number</b>
Letter of transmittal.....	ii
Letter of approval.....	iii
Acknowledgement.....	iv
Summary.....	v
<b>Chapter-1</b>	
1.1 Introduction.....	1
1.2 Origin of the Report.....	1
1.3 Objective of report.....	2
<b>Chapter-2</b>	
2.1 Overview of BIRDEM.....	2
2.2 Vision and Mission of BIRDEM.....	3
<b>Chapter-3</b>	
3.1 class study.....	3
3.2 Diabetes.....	4-6
3.3 Enteral and Parenteral Nutrition.....	6-7
3.4 Chronic Kidney Disease (CKD).....	7-9
3.5 Infant Feeding and Breast Feeding.....	9-10
3.6 Pregnancy.....	10-13
3.7 Obesity.....	13-15
3.8 Liver Disease and Nutrition.....	15-18
3.9 Arthritis and Bone Health.....	18-19
<b>Chapter-4</b>	
4.1 conclusion.....	19

# Chapter-1

## 1.1 Introduction

Clinical nutrition is nutrition that plays an important role in the prevention and the treatment of many diseases caused by the deficiencies or the alteration in nutrient metabolism. And in dietaries, there hospital facilities and other health care facilities to provide nutrition or nutrition therapy to patient with a variety of the health conditions, and also provide dietary conditions to the patents and their families.

There are many types of diseases in our world which is generally caused by eating unhealthy foods, irregular diet or do not know dally diet planning and how to maintain it. That's why people suffer many disease as like diabetes, obesity, kidney disease. Liver disease etcetera. So, this type of diseases to be preventable if we should aware about nutrition, healthy diet menu.

My internship was very short and for a limited time selected. The objective of my internship from BIRDEM Hospital is to represent the clinical Nutrition and dietetics in Bangladesh.

## 1.2 Origin of the report

Internship program is an under –graduation requirement for the department of NFE Students of Daffodil International University. The main purpose of the internship program is not preparing a student to get the job in career and to expose to the job world. The Internship program and the study have following purpose:

Details knowledge to know about job responsibility.

Experience the Nutrition and food sector.

Fulfill of the NFE Requirement

### **1.3 Objective of report**

This Internship is to create practical knowledge about the different diseases management along with diet planning which provide proper nutrition and healthy food to the patient. And also fulfill to the requirement of BSC in nutrition and Food Engineering.

## **Chapter-2**

### **2.1 Overview of BIRDEM**

**BIRDEM- Bangladesh Institute of Research and Rehabilitation for diabetes endocrine and metabolic Disorders.**

Founder of BIRDEM Professor Dr. Mohammad Ibrahim (1911-1989), Bangladesh Institute of Research and Rehabilitation for diabetes endocrine metabolic Disorders (BIRDEM) are established in 1980.

But back in 1956, when people understanding that diabetes is a disease of the affluent and hardly anyone anticipated that diabetes would be an epidemic even in developing countries professor Dr. Mohammad Ibrahim (1911-1980) led a team of dedicated colleagues to establish the diabetic Association of Pakistan which neutrally became diabetic Association of Bangladesh (In Bangladesh Diabetic Somiti Acronym BADAS) and BIRDEM-2 was established in 2012.

The BIRDEM academy was established in 1986. The Academy conducts diploma and degree courses like M.Phil., MD and PhD, DEM in Endocrine medicine and besides the post-graduation courses are also conducted on subjects like general surgery, medicine, gyne and obs, etc.

## **2.2 Vision and mission of BIRDEM**

### **✓ Vision**

In Bangladesh no diabetic should be die by untreated, unemployed or unfed.

All types of people shall be provided with affordable health care service.

### **✓ Mission**

To provide total health care including the rehabilitation for all diabetics irrespective of gender, economic and social stats through the different institutions of Diabetic Association of Bangladesh.

Create specialized quality manpower (research, scientist, physician, nutritionist, technicians and other related personal) of high ethical standard and expand these service to provide affordable BADAS Health care for all Bangladesh.

To develop the leadership in health care through the dedicated and the transparent management system and quality medicines and health care products.

## **Chapter-3**

### **3.1 Class study**

In the Internship have total class of 10 and we have learned the following:

- **Diabetes**
- **Enteral and Parenteral Nutrition**
- **Chronic Kidney Disease (CKD)**
- **Infant Feeding and Breast Feeding**
- **Pregnancy**
- **Obesity**
- **Liver Disease and Nutrition**
- **Arthritis and Bone Health**

## **3.2 Diabetes**

Diabetes is a disease that occurs when our blood glucose level also called blood sugar, is too high. Blood sugar or glucose is our main source of energy and comes from the food we eat. Insulin, a hormone made by the pancreas helps glucose from food get into our cells to be used for energy. Sometimes our body doesn't make enough or doesn't use insulin well. Glucose then stays in our blood and doesn't reach our cells.

There are different types of diabetes:

- ✓ Type - I Diabetes
- ✓ Type- II Diabetes &
- ✓ Gestational Diabetes.

### **Type - I Diabetes**

Human does not make insulin because of our immune system attacks & destroys the cells in our pancreas that make insulin. Type- I diabetes is usually diagnosed in children and young adults, although it can appear at any age, people with type- I diabetes need to take insulin every day to stay alive.

### **Type - II diabetes**

Human body does not make or use insulin well. Type- II diabetes develops at any age, even during childhood. But this type of diabetes occurs most often in middle aged and older people and this diabetes is the most common type of diabetes.

### **Gestational diabetes**

This type of diabetes develops in some women when they are pregnant. Most of the time this type of diabetes goes away after the baby is born. But, if a woman has had gestational diabetes, she has a greater chance of developing type- II diabetes later in life. Sometimes diabetes diagnosed during pregnancy is actually type- II diabetes.

### **Blood Sugar for Diabetes ( Test):**

#### ➤ **FBS (Fasting Blood Glucose)**

8-14 hours with empty stomach for diabetes test. But water drinks normally. And also 150g CHO to eat for this test, minimum 3-4 days before testing.

If the result is  $>7.0$ , it's diabetes and  $<6.1$ , no diabetes but 6.8, it's imperial fasting.

#### ➤ **OGTT (FBS + 2hr GT)**

250ml of water with 75 gm of glucose and drink it and then blood tested after 2 hours.

If the result is,  $> 11.1$ , it's diabetes but if the result is  $< 7.8$ , it's normal.

#### ➤ **HbA1c**

If the result is,  $> 6.5$ , it's diabetes

#### ➤ **Random**

If the result is,  $> 11.1$ , it's diabetes, but if the result is,  $< 6.1$ , no diabetes

If the two middle number, the diabetes would be or not would be.

So, for a diabetic patient, **firstly** checking different types of reports.

This reports are-

- Blood sugar
- HbA1C
- Lipid profile
- Blood pressure
- Kidney disease
- Creatinine test.
- Electrolytes (Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>+</sup>, etc.)
- Height & weight
- Typhon

**Secondly**, checking food habit which foods to eat or not to eat. Such as-

- Avoid simple CHO, sugar and free sugar, honey
- Horlicks, coke or soft drinks

- Added complex CHO, dietary fiber & unsaturated fatty acid
- Added nuts, fish oil % olive oil.

**Thirdly**, checking timing of food such as-

- Eating food time to time manually and timing gap will be 2 hours to eating food.

**Fourthly**, checking amount of food and also food exchange like as-

- 30g of chapati = ½ cup of rice

But for child diabetics patients, morning to night, CHO, proteins & fat to keep into the balance diet and if the child has any deficiency like calcium, iron, SO, give them supplement like iron tablet.

For the gestational diabetics patients, in a pregnancy period (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> trimester) added 350 Kcal with her per day Kcal. But 2<sup>nd</sup> trimester, decreasing CHO and increasing protein and 3<sup>rd</sup> trimester, increasing protein with 100g. If woman have suffered obesity, so, after 2<sup>nd</sup> trimester 350 Kcal not to increase into the 3<sup>rd</sup> trimester.

### **3.3 Enteral and parenteral Nutrition support**

Enteral and parenteral both are artificial nutritional support. This two type method of feeding are used for malnutrition's patients or which person cannot or should not receive feeding or fluids by mouth.

#### **Enteral Nutrition**

Enteral feeding- delivery of nutrients into the gastrointestinal tract by-oral supplements (Sip feeding) and tube feeding techniques-

- I. Nasogastric Tube
- II. Nasojejunal Tube

III. Gastrostomy Tube &

IV. Jejunostomy Tube

### **Parenteral Nutrition**

Total parenteral Nutrition (TPN)- this method uses without the used of the gastrointestinal tract and TPN suppliers a mixture of fluid, sugars, electrolytes, amino acids, vitamins, lipids & minerals into a vein.

And PPN (Peripheral parenteral Nutrition) is a supplement and its used when patients has another source of nutrition. But the most important think that for enteral nutrition which type foods are feeding to a patients or enteral feeding process, where food amount would be accurate.

So, enteral feeding that means a liquid diet for a patient.

For a liquid died, there are three methods-

- (1) Natural liquid- green coconut water, milk, water, fruit juice
- (2) Blenderized food- According a normal diet but all foods are blenderized
- (3) Commercially food- Formula food

Also careful that, there are some rules for feeding-

- ❖ Diet chart must be accurate for patient's situation and disease.
- ❖ Feeding time on: after every 2 hours
- ❖ Give food before check the patient's electrolyte and that type of foods are providing which foods going by the pipe easily.
- ❖ If patients are non diabetic, so add sugar & oil and if patient is diabetic, then add just oil (this procedure just use of nasogastric tube)

### **3.4 Chronic kidney disease (CKD)**

Chronic kidney disease (CKD) means human kidney are damaged and can't fitter blood the way they should.

The main factors for developing kidney disease are-

- Diabetics
- High Blood Pressure
- Heart Disease
- Family history of kidney failure.

CKD or chronic kidney disease usually gets worse slowly and the symptoms may not appear until the kidneys are badly damaged.

There are one or more of the following symptoms when kidneys are beginning to fail:

- Muscle cramps
- Itching
- Vomiting and nausea
- Not to enough urine or too much urine.
- Swelling n feet and the ankles
- Trouble catching to breath
- Sleeping trouble
- Not to feel hungry
- If kidney stop working suddenly, may notice one or more of the following symptoms:
  - Back Pain
  - Fever
  - Vomiting
  - Rash
  - Abdominal pain (Belly)
  - Nosebleed
- Diabetes and blood pressure are the most common causes for CKD or chronic kidney disease. So, control both of them by controlling and avoiding unhealthy foods and drinks. It living a healthy lifestyle to prevent diabetes, high blood pressure and kidney disease or must be help keep them under control.

For CKD patients-

- Protein must be restricted.

- If patients under dialysis, then protein must be high.
- Exchange protein with carbohydrate and oil and if patient have heart problem to avoid cholesterol related any food.
- Calcium & Iron included vegetable foods are allowed but not included Protein foods are allowed
- To maintain electrolytes and do not smoke tobacco & alcohol.
- And regular check-ups with doctor and following doctor's instructions every time.

### **3.5 Infant feeding and breast feeding**

Breast feeding is a feeding of infant, babies or young children with milk from a woman's breast. There is variation for breast feeding-

#### **Exclusive Breast feeding-**

Exclusive Breast feeding that means, infant feeding only breast milk from a woman breast up to 0-6 months. But after birth, breast feeding the newborn baby within 1 hour of birth. After birth within 1 hour breast feeding because of this milk have colostrum which produced by the mammary glands of mammals and colostrum contains the antibodies to protect the newborn baby against many disease and that's why breast feeding begin with first hour of a newborn baby's life.

#### **Complementary feeding-**

Complementary feeding that means the process of starting breast milk feeding alone is no longer sufficient to meet the nutritional requirements of baby or infant, during the period, children are at high risk of undernutrition and therefore often nutrient foods and liquids are needed along with breast milk complementary feeding starting when baby or infant's age around 6 months. So, baby needs to eating foods and drinking liquid along with breast milk at around 6 months of age.

Breast feeding has a number of benefits to both baby and mother. Benefits for the mother better for uterus shrinkage and decreased postpartum depression.

#### **Important of breastfeeding-**

- Decreases the risk of respiratory tract infections by breast feeding.

- Lower risk of asthma, type-1 diabetes and food allergies by breastfeeding.
- Also improved cognitive development and decrease the risk of obesity in adulthood by breast feeding.
- Decrease the diarrhea developing.

### 3.6 Pregnancy

Pregnancy is divided into three trimesters-

- (i) 1<sup>st</sup> trimester
- (ii) 2<sup>nd</sup> trimester &
- (iii) 3<sup>rd</sup> trimester

Every trimester lasting for approximately 9 months.

Childbirth typically occurs around the 40 weeks from start of the last menstrual period and is just over the nine months and where each every month's averages 30 or 31 days.

#### **Symptoms of pregnancy:**

- Tender the breasts
- Missed the periods
- Vomiting and nausea
- Time by time hunger
- Frequent urination

#### **Complications of pregnancy:**

- High blood pressure of the pregnancy.
- Miscarriage
- Gestational diabetes
- Iron deficiency anemia
- Vomiting and severe nausea

For torch infection (Virus) occurring the abortion during pregnancy.

There are some changes of a woman when she is pregnant. Like that-

- Breast change:- increasing the breast size and occurring the fat accumulation in breast.
- Areola and nipple change. Areola can deep.
- Increase vascularity.
- Women skin are looking black color of pregnancy.
- Black spots on the forehead.
- Some spots around the eyes.
- Changing weight and belly size

### **Pregnancy weight gain**

In the 1<sup>st</sup> trimester, do not increase body weight normally or can be lose weight. But letter, every monthly increasing weight casually 1kg.

For a health woman (Single pregnancy) weight gain 1kg in the 1<sup>st</sup> trimester, 5kg weight gain in the 2<sup>nd</sup> trimester and 5kg weight gain in the 3<sup>rd</sup> trimester. So, total (1+5+5) kg or 11 kg weight gain for a single pregnancy pf mother or woman.

### **Reproductive (Organ) weight gain**

- ✓ Fetus-3.3 kg
- ✓ Placenta- .6kg
- ✓ Uterus-.9kg
- ✓ Fat accumulation – 3.5kg
- ✓ Breast -.4kg

Net maternal weight gain:

- ✓ Blood volume- 1.2kg
- ✓ External fluid-1.3kg

Monthly check-up regularly weight gain.

- ✓ If, every week weight gain increasing 0.5 kg and monthly increasing 2kg, that called rapid weight gain.
- ✓ The most thing that, to know about BMI of pre-pregnancy, pregnancy and after pregnancy.

- ✓ If, BMI is 30, the weight gain would be 7kg and not it's more.
- ✓ And if, BMI is <19, so the weight gain would be 18 kg.

During pregnancy increasing total plasma protein but decreasing albumin. Increasing cardiac output and blood pressure increasing of the mid pregnancy. So, trying to keep BP in normal. Insulin secretion is increased and  $\beta$ -Cell being increased.

Increasing progesterone, prolactin and estrogen hormones.

### **Calcium metabolism:**

Calcium requirement, 28g or more needed in everyday with the trimester. So, per day 1-1.5g needed. Can be occurring hypertension, totally avoid these type of food. Like salt. Sodium included foods to be avoided. If protein would be lose, eating protein more. Eating folic acid per day (1mg). If folic acid decreased, then the baby's brain do not develop properly. Do not eat Iron & Calcium at the same time So, time difference would be 2 hours, that mean eat iron at 08:00 am and eat calcium at 10:00 am. Total 4 tablets will be eat in the 24 hours and 2 tablets (Iron, & Calcium) eating gap is 12 hours. Eating more and more nutrient foods and amount of water.

**PCOS:** polycystic ovarian syndrome is a condition during pregnancy that affects between 6-15% of woman childbearing age. If woman diagnosis with the PCOS, it may be difficult to become pregnant. If woman able to become pregnant, she is at risk for more complications during the pregnancy, labor delivery. SO, polycystic ovarian syndrome where multiple cyst are being in ovary.

Follicle stimulating hormone (FSH) and luteinizing hormone (LH) ration changing for PCOS and testosterone hormone is increased. To develop insulin resistance. So, do not control diet, them being GDM if insulin resistance If GDM is occurring, then will take insulin and decreasing the carbohydrate related foods. To test blood sugar in every 3 months. After 20 weeks during pregnancy blood pressure will be increased.

Vital complication: Pre-mature birth. If albumin goes to urine with it then there is no think about to worry but, albumin goes to urine 2+ then there is think about to worry.

Diet of PCOS-

- Avoid process sugary food.
- In the 1<sup>st</sup> trimester do not need extra calorie.
- In the 2<sup>nd</sup> trimester increased 300 Kcal per day.
- In the 3<sup>rd</sup> trimester increased 500 Kcal per day.
- To eat Omega-3 fatty acid related foods.
- Which animals are eating vegetables, this animals protein good for eat.
- Good source fat and lipids like nuts, milk, egg, meat to eat more.
- Avoid refined CHO and allow low GI CHO
- Eating Vitamin D with calcium.
- If to see iron deficiency, then eating iron.

### 3.7 Obesity

Obesity define as medical conditions that occurs when a person carries excess body fat or excess weight that might affect to their health. If a person does have obesity or excess weight, then this can be increase the risk of developing a number of health conditions, including arthritis, some types of cancer, metabolic syndrome etc. So, metabolic syndrome involves with the high blood pressure, type-2 diabetes and the cardiovascular disease.

Common cause of obesity over hydration. Because of drinking over amount of water, that's why decreased the blood pressure and also decreased the electrolytes and for that occurs dizziness, weakness and for this eat more foods and eating more foods which cause the sickness So, drink plenty of water daily. Drink 1.5 to 3.5 liter (6-14 glasses) clean and pure drinking water. Also drink fresh fruit juice and green coconut water.

Main and common identified causes for obesity are-

- Intake of food is more than output.
- Highly intake of calorie rich foods.
- Highly intake of fat rich and oily food.
- Family history
- Sudden stop of exercise, jogging, dance and outdoor games.

- Highly intake or uncontrolled affinity for fast food or deep oil fried food.
- Post-surgical management.
- With the side effect of drug induced obesity.
- Long time sleeping, relax life, continued sitting job, taking no physical movement.

There are two obesity hormone-

- (i) Leptin hormone:
  - Leptin secretes from fat cell in Adipose tissue
  - Regulation of energy balance in long term safety hormone and results in low food intake,
- (ii) Ghrelin hormone:
  - Secreted from living of stomach.
  - Increase of hunger
  - To fast eating hormone.

**Table-1: Obesity classification with BMI**

Classification	BMI Kg/m <sup>2</sup>
Under weight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obesity Class-I	30.0-34.9
Obesity Class-II	35.0-39.9
Extreme Obesity Class-III	>40.0

**Diet for obesity:**

For CHO-

- ★ Obese persons should take low GI food.
- ★ Low GI food included CHO, fruits and vegetables.
- ★ Also take o GI food such as fish, meat, oil, green leafy vegetables, dal and milk etc.

- ★ Should be avoid sugar, refined CHO, flower and rice.
- ★ Should be take whole grain bread, complex CHO, brown rice, high fiber food, fruits, potato.

For Protein-

- ★ Should be taken low fat milk or skimmed milk, low fat yogurt, egg white, fish, white meat, soybeans and soymilk (Soymilk just for adults)
- ★ Should be avoid full fat milk and yogurt, cheese, organ meat, marbled and fatty meat, hot dogs, canned meat sausages.

For fat-

- ★ should be taken healthy fats and should not be taken unhealthy fats.
- ★ Should be taken olive oil, soybean oil, sunflower oil and margarine.
- ★ Should not be taken ghee, butter and mayonnaise.
- ★ Should be taken essential fatty acid such as omega-3 fatty acids and nuts like walnuts, peanut and almond.

Other-

- ★ Also should take calcium, iron and zinc included foods and drinks.

### **3.8 Liver disease and nutrition**

Liver plays an important role in many bodily function from production of protein and blood clotting to cholesterol, glucose and iron metabolism.

Cause of liver-

Many diseases and condition that can affect the liver, for example, certain drugs like excessive amounts of acetaminophen or acetaminophen combination medications such as Norco or Vicodin, as well as alcohol, statins abuse, hepatitis A,B,C,D and E, non-alcohol fatty liver disease and iron overloaded.

### Symptoms-

- Weight loss
- Vomiting and nausea
- Weakness
- Fatigue
- Yellow discoloration of the skin

Nutrition management with liver disease patients with advanced cirrhosis are after malnourished. It is vitally important that liver diseases patients maintain a balance diet, where ensure adequate intake of carbohydrates, fats and proteins.

A healthy diet will reduce the risk of malnutrition and help can prevent muscle loss.

### Diabetes in liver disease-

- Insulin therapy
- To management involves of diabetic education without restriction of energy intake.

### End stage liver disease of nutritional management-

- To avoid unnecessary fat restriction.
- To maintain high protein intake.
- To encourage frequent snacking.
- To maintain high energy intake.
- In the presence of asities or edema to restrict dietary sodium intake.
- To consider supplementation of branched chain amino acid

### Herbal Remedies-

- Be aware if the possible harmful effects of herbs.
- Some of herbs are hepatotoxic and liver disease patient should avoid using them.

#### Hepatic encephalopathy-

- To give 40g of protein which are easy digestible proteins.
- Lactulose is also used to reduce the amount of ammonia in the blood of patients with liver disease.
- It helps or works by drawing ammonia from the blood into the colon where it is removed from the body.

#### Liver or hepatic cirrhosis:

- Do not drink alcohol patient with liver.
- Cirrhosis
- Maintain healthy weight and eating a healthy diet.
- No added salted foods like salty biscuits, pickles, any types of salty food.
- When access problem don't suggest protein. But to give beneficial protein.

#### Acute hepatitis management-

- Should be taken carbohydrate rich diet food which food have no problem to eat but do not give which foods that occurs vomiting.
- Protein and fat restricted.

#### Ascetics and edema-

- Liver protein albumin
- which are produced in liver. Hypo-albumin produced in liver that's mean curdle water in the liver with 10-12L water.
- Edema is fluid built up in the tissues, usually the legs, feet or back
- Sodium intake is often restricted for patients who develop cirrhosis and ascites
- Salt free lemon juice
- Most fresh foods which are low in sodium.

#### Fatty liver-

- Alcohol, starvation, obesity, some drinks and other factors that cause for fatty liver.

- And its not cause by eating fat
- It should be treated with a well-balanced diet and avoiding responsible chemical substances on drugs.

### **3.9 Arthritis and Bone health**

Arthritics is the inflammation of the joint and it can affect one joint or multiple joint.

There are almost or more than 100 different types of arthritic but most common two types of arthritics.

- I. Osteoarthritis (OA) &
- II. Rheumatoid arthritis (RA) Arthritis is mostly common for adults
- III. But it can also develop in children, younger, teens. But overweight men and women suffering arthritis.

For arthritis joint pain:- Supplements and herbs-

- Use supplements to any to help joint pain from arthritis and this supplements are glucosamine, chondroitin, omega-3 and green tea.
- Vitamin D and calcium are most important for joint pain.

### **Bone Health**

Bones are support to human to move and protect brain, heart and the other organs from the injury. Bones are also store with minerals such as calcium and phosphorus which keep bone strong and release them into the body when need them for other uses. For bone health also need vitamin D and Vitamin D most important part of the bones.

Investigation of Bone health:

- Vitamin D
- PTH para thyroid hormone
- Serum phosphate
- Alp-Alkaline Phosphate

- Calcium

If vitamin D is decreased, then occurs Osteomalacia, If PTH is decreased, then Vitamin D decreased. So, 800 mg Vitamin D every day to eat if Vitamin is increased. Also eat vitamin, calcium, phosphate related food every day with a healthy diet

## **Chapter-4**

### **4.1 Conclusion**

From the internship of BIRDEM, I have learned about the different disease with their management and nutrition facts. The diseases are diabetes. Enteral and parenteral nutrition, CKD, Infant feeding and breast feeding, pregnancy, obesity, liver disease and nutrition arthritics and bone health. Food habits plays in important role in the prevention and control of these diseases medication. For this reason, people must maintain some food habitory regulations besides their medicine to prevent and control these diseases. And this does not mean that people have to eat some boring food every day. People can bring variation in their food habit by choosing an alternation food item from their regulation healthy food.