

A PROJECT WORK REPORT

on

Determination of nutrient intake profile of Type 2 diabetes
patients.

Submitted To

Prof. Dr. Bellal Hossain

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Date of Submission: 18 December 2018



LETTER OF TRANSMITTAL

Prof. Dr. Bellal Hossain

Head

Department of Nutrition & Food Engineering

Faculty of Allied Health Sciences

Daffodil International University

Subject: Submission of Project report

Dear Sir,

I would like to take this opportunity to thank you for the guidance and support you have provided me during the course of this report. Without your help, this report would have been impossible to complete. Daffodil International University has many more respective persons, for providing me all most supervision during my thesis in the organization.

To prepare the report I collected what I believe to be most relevant information to make my report as analytical and reliable as possible. I have concentrated my best effort to achieve the objectives of the report and hope that my endeavor will serve the purpose. The practical knowledge and experience gathered during report preparation will immeasurably help in my future professional life. I request you to excuse me for any mistake that may occur in the report despite of my best effort.

I would really appreciate it you enlighten me with your thoughts and views regarding the report. Also, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Thank you again for your support and patience.

Yours Sincerely,

Jannatul Ferdous

ID: 143-34-332

Dept of Nutrition and Food Engineering

Daffodil International University



LETTER OF AUTHORIZATION

Prof. Dr. Bellal Hossain

Head

Department of Nutrition & Food Engineering

Faculty of Allied Health Sciences

Daffodil International University

Subject: Declaration regarding the validity of the Project Report.

Dear

Sir,

This is my truthful declaration that the “Project Report”. I have prepared is not a copy any Thesis Report previously made any other students.

I also express my honestly confirmation in support to the fact that the said thesis report has neither been used before to fulfill my other course related not it will be submitted to any other person an authority in future.

Yours Sincerely,

Jannatul Ferdous

ID:143-34-332

Department of Nutrition and Food Engineering

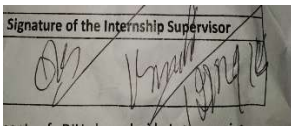
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CERTIFICATE OF APPROVAL

I am pleased to certify that the project report on “Nonalcoholic fatty liver disease, conducted by Jannatul Ferdous ID No: 143-34-332 of the department of Nutrition and Food Engineering has been approved for presentation and defense/viva-voice.

I am pleased to hereby certify that the data and finding presented in the report are the authentic work of Jannatul Ferdous. I strongly recommended the report presented by Jannatul Ferdous for further academic recommendations and defense/viva-voice. Jannatul Ferdous bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with him. I wish him all success in life.

Signature of the Internship Supervisor


Prof. Dr. Bellal Hossain

Head

Department of Nutrition & Food Engineering

Faculty of Allied Health Sciences

Daffodil International University



ACKNOWLEDGEMENTS

At first I would like to express my gratefulness to the Almighty Allah, the Creator giving opportunity and ability to pursue my education in B.Sc in Nutrition and Food Engineering at the Daffodil International University, Dhaka and to complete the research work . I express my gratitude and profound indebtedness to my honorable teacher and research my Co Supervisor Tasmia Tasmia Lecturer department of Nutrition and Food Engineering at the Daffodil International University, Dhaka, for her scholastic and constructive guidance, affectionate feelings, worthy inspiration and generous help in carrying out of the research work and writing up of the thesis. For her valuable suggestions and helpful comments that showed me the right path during the course of the work and writing the thesis.

I would like to extend my deep gratitude to my honorable teacher Prof. Dr. Ahmad Ismail Mustafa, Dean, Faculty of Allied Health Sciences of Daffodil International University And my Supervisor Prof. Dr. Md. Belal Hossain, Daffodil International University. The author humbly desires to acknowledge his heartfelt appreciation and profound thanks to all of her all classmates for their helps throughout the study period.



CHAPTER 1

Introduction

Birdem General Hospital, the main specific doctor's facility for the treatment of multitudinous Diabetic patients of the nation was formally settled in 1989 because of an altogether private enterprise. This additional conventional healing facility is situated toward the East of Bangabondhu Sheik Mujib Medical University (BSMMU), toward the West of the acclaimed Dhaka Club and exactly at the East-North corner of Shahbag circle; it remains close by toward the South of the National Broadcasting Authority building.

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His doctor's facility has inward and external patients' treatment frameworks. For essential discovery of Diabetes, first, patients need to gather tickets at a settled cost from the accessible counters arranged on the South side of the center building; all the while they need to gather test tubes and boxes and top them off

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A patient can get conceded into the healing center in the wake of thinking about the circumstance of his/her infection dependent on the concerned specialist's recommendation. Moreover, this clinic has a wide notoriety as an entirely solid community for the medications of patients who have Diabetes, coronary illness or eye ailment.

here are assemblies of Specialist specialists for 11 ailments in this doctor's facility. These chambers are arranged on the principal floor of the South side building.

There are various drug shops inside the healing center which stay open for 24 hours.

- 300 prepared medical caretakers and 45 specialists work in this healing facility. There are 103 lodges
- Entire grains
- Natural products



- Non-fat dairy items
 - Beans
 - Lean meats, poultry, and fish

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CHAPTER 2

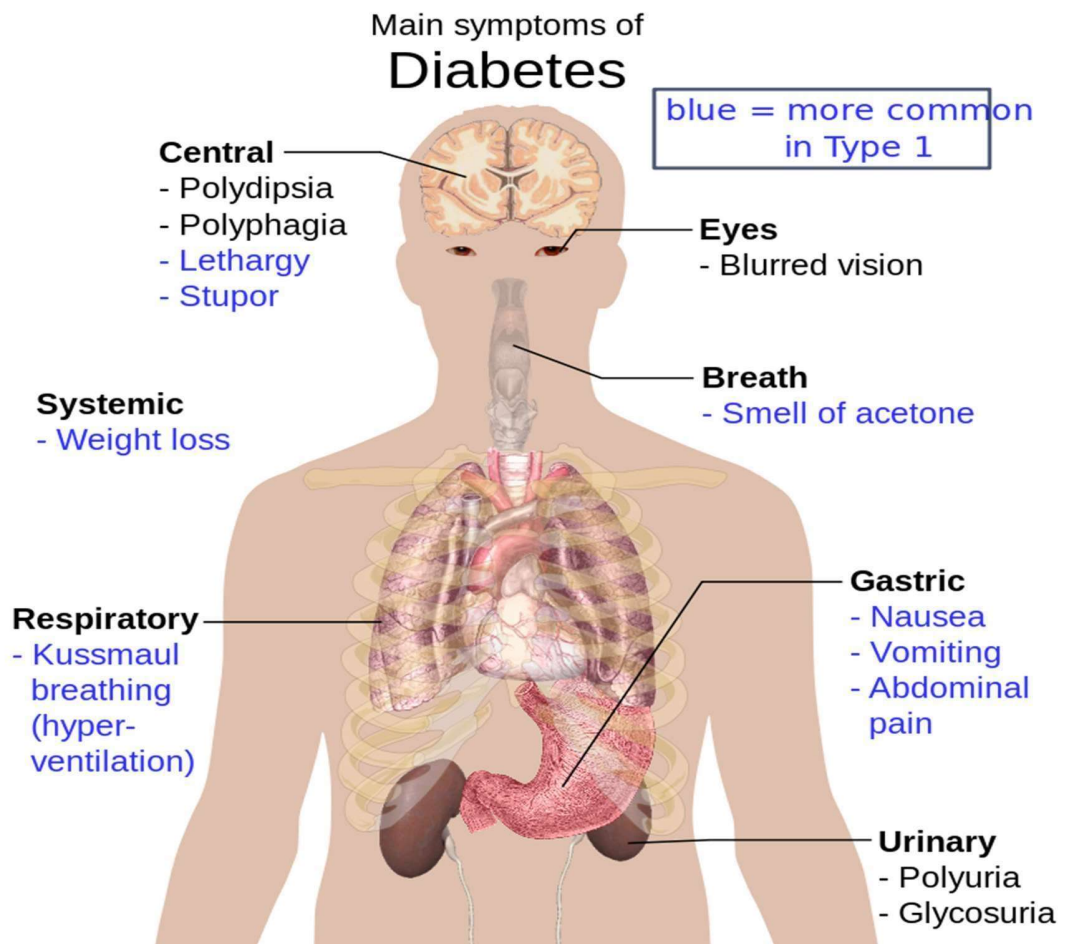
Types of Diabetes

Type 2 diabetes

Diabetes is an issue with our body that causes blood glucose levels to ascend higher than typical. This is additionally called hyperglycemia.

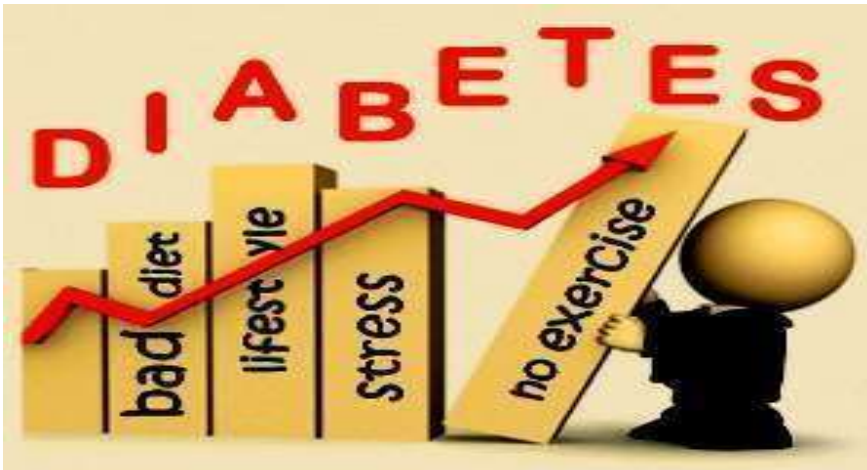
Type 2 diabetes is the most common form of diabetes.

If you have type 2 diabetes our body doesn't use insulin properly. This is called insulin resistance. At first, our pancreas makes extra insulin to make up for it. But, over time it is not able to keep up and cannot make well insulin to keep our blood glucose at normal levels.



Type 2 Diabetes Causes:





Type 2 diabetes has several causes:

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Risk factors

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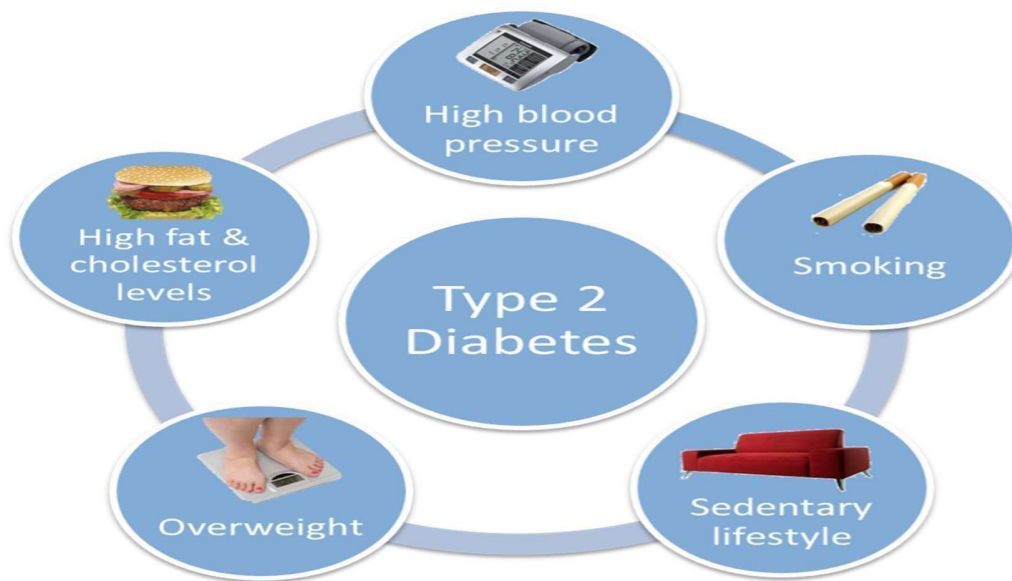


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Polycystic ovarian syndrome: For ladies, having polycystic ovarian disorder — a typical condition portrayed by unpredictable menstrual periods, abundance hair development and weight — builds the danger of diabetes.[4]



Other risk factors for the development of type 2 diabetes include:

- being 40 years of age or older
- being of Indigenous, Hispanic, South Asian, Asian, or African descent
- blood vessel disease (e.g., damage to blood vessels in eyes, kidneys, nerves, heart, brain, or arms and legs)
- high blood pressure



- high cholesterol
- a history of gestational diabetes
- a history of prediabetes or impaired fasting glucose
- giving birth to a large baby
- certain medical conditions (e.g., HIV infection)
- mental health disorders (e.g., bipolar disorder, depression, schizophrenia)
- acanthosis nigricans (a condition causing darkened patches of skin)
- polycystic ovary syndrome
- obstructive sleep apnea
- use of certain medications (e.g., corticosteroids such as prednisone, certain antipsychotic medications, certain antiviral medications for HIV)

Epidemiology

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Oceania and the Pacific

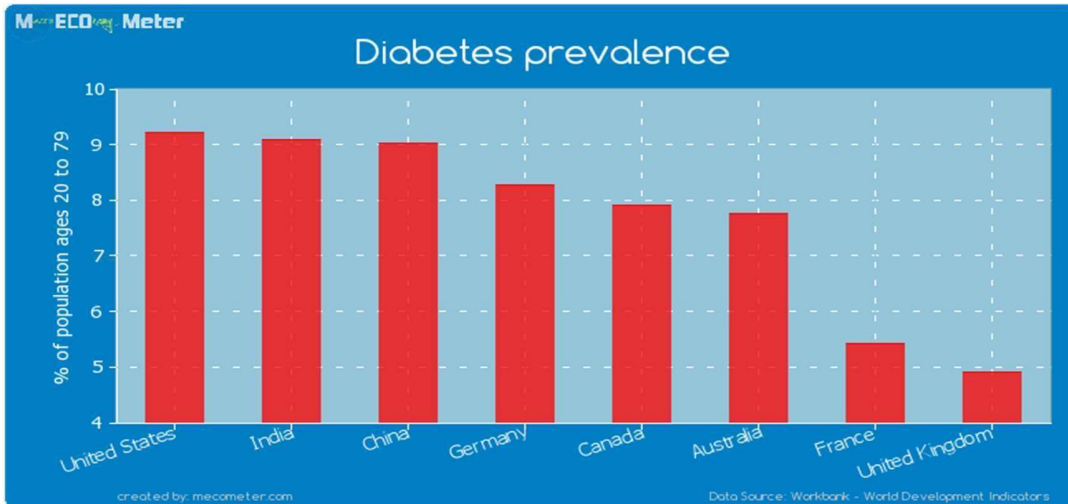
Australia

An expected 700,000 Australians have diabetes. Indigenous populaces in created nations for the most part have higher pervasiveness and rate of diabetes than their relating nonindigenous populaces. In Australia, the age-institutionalized pervasiveness of self-revealed diabetes in Indigenous Australians is right around multiple times that of nonindigenous Australians. Reasons incorporate higher rates of stoutness, physical dormancy, and living in poor lodging and conditions among Indigenous people groups. Precaution people group wellbeing programs are demonstrating some achievement in handling this issue. [6]

Africa

Worldwide Diabetes Federation (IDF) assesses that 14.2 million are living with diabetes in Africa. The district of Africa has the most astounding level of undiscovered diabetes cases achieving 66.7%, most noteworthy extent of diabetes mellitus related mortality and the least wellbeing use spent on diabetes. [6]





The different types of diabetes:

Type 1 diabetes

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Pathophysiology of type 2 diabetes mellitus

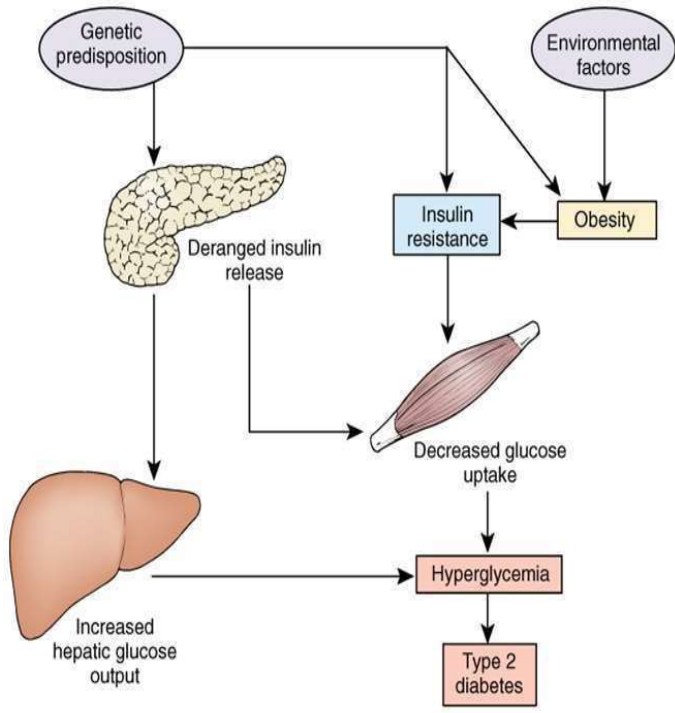
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CHAPTER 3

Role of Nutrient

The Role of Micronutrients

MINERALS

Chromium

Birdem General Hospital, the main specific doctor's facility for the treatment of multitudinous Diabetic patients of the nation was formally settled in 1989 because of an altogether private enterprise. This additional conventional healing facility is situated toward the East of Bangabondhu Sheik Mujib Medical University (BSMMU), toward the West of the acclaimed Dhaka Club and exactly at the East-North corner of Shahbag circle; it remains close by toward the South of the National Broadcasting Authority building.

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VITAMINSS

I. Vitamin A, Carotenoids, and Retinoids

Nutrient An is basic for ordinary vision and for a compelling working of the resistant framework. As a result of its job in cell separation, it might have a job in the development and engendering of neoplastic illness. Various carotenoids, particularly beta-carotenoids, are viewed as expert nutrients as a result of their capacity to change over to nutrient An in the liver. Retinoids get from characteristic nutrient An items and have a few properties like carotenoids.

There is no proof that individuals with diabetes are in danger of nutrient An insufficiency, and along these lines there is no motivation to suggest nutrient An in sums past the Rescinded, abundance nutrient An utilization may effectsly affect wellbeing. These antagonistic impacts incorporate expanded danger of liver fibrosis, expanded occurrence of lung disease (particularly in smokers and in those presented to asbestos), expanded danger of osteoporosis, and expanded frequency of birth surrenders when nutrient A more than 10,000 IU every day is taken before the seventh seven day stretch of incubation. An ongoing metaexamination of the trial information recommended that beta-carotene in mix with nutrient An and nutrient E altogether expanded mortality. Expanded yellowing of the skin and burping were nonserious antagonistic impacts of abundance beta-carotene.

Nutrient C (Ascorbic Acid) Ascorbic ruinous has strong harmful development abhorrence administrator improvement. In any case, under certain primer conditions, it can in addition be a specialist oxidant. Disregarding how the proof isn't unequivocal, individuals with diabetes may have exhausted tissue stores of enhancement C. The tissue take-up of dehydroascorbate can be anticipated by high including blood glucose levels.



The diversion for use of enhancement C in the diabetic masses depends upon its potential consequences for reducing at heavenly individual sclerotic plaque course of action, checking microangiopathy, enhancing vascular reliability, and supporting in wound recouping. Notwithstanding, supplementation with enhancement C in interventional preliminaries has not reduced the danger of risky improvement or cardiovascular malady. In the Women's Antioxidant Cardiovascular Study, supplementation with enhancement C (500 mg of ascorbic dangerous well ordered), supplement E (600 IU of alpha-tocopherol each other day), or beta-carotene (50 mg each other day) offered no positive conditions in the major adjusting movement of aggregate peril repeat of contamination mortality.

Utilization of enhancement C in wholes ≥ 1 g/day can cause some stomach swelling and osmotic separation of the guts. There is no motivation to suggest supplement C allow in abundance of the DRIs. Smokers must eat up more prominent extents of ascorbic damaging to achieve in every practical sense unclear plasma estimations of nonsmokers, doubtlessly in light of an all-encompassing turnover. Individuals with diabetes can accomplish alluring affirmation of enhancement C through utilization of five reliably servings of sustenances created from the earliest starting point. In people who are unequipped for getting acceptable wholes from dietary sources, supplementation of ascorbic damaging is sensible. Nutrient E (Tocopherols)

Supplement E is in like manner an amazing cell support. In preliminary ponders, supplement E supplementation in excess of DRIs was fit for lessening LDL oxidation and offset platelet layers. Observational examinations have suggested that supplement E upgrades may display cardioprotective effects. Regardless, interventional fundamentals including those that have chosen a broad number of people with diabetes have not reinforced the use of supplement E to lessen cardiovascular danger. A progressing meta-examination of the preliminary data has recommended that supplement E improvements may truly assemble mortality.

People with diabetes generally don't have supplement E deficiency. No ifs ands or buts, the plasma and platelet substance of supplement E may be extended in diabetes. Regardless of the way that usage in the extent of 1,000 IU of supplement E is seen as commonly protected, there has been some stress related with this preparation. Development of retinitis pigmentosa and extended recurrence of hemorrhagic strokes have been associated with over the best usage of supplement E. Use in excess of DRIs isn't proposed. In case an individual uses supplements, the bit should be confined to < 400 IU/day. [3]



The Role of Macronutrient

Birdem General Hospital, the main specific doctor's facility for the treatment of multitudinous Diabetic patients of the nation was formally settled in 1989 because of an altogether private enterprise. This additional conventional healing facility is situated toward the East of Bangabondhu Sheik Mujib Medical University (BSMMU), toward the West of the acclaimed Dhaka Club and exactly at the East-North corner of Shahbag circle; it remains close by toward the South of the National Broadcasting Authority building.

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4. **Fat:** Epidemiological examinations have related fats with the threat of making weight and cardiovascular risk. As in the straggling leftovers of snappy models there is no perfect fat degree and, if all else fails, the proposition for the comprehensive network (between 20%-35%) are associated for a diabetic patient, giving cautious thought if the patient is overweight, the rate should be at beyond what



many would consider possible. Despite these proposals, diabetic patients as often as possible take more fat than the recommended.

We can perceive drenched and unsaturated fats (monounsaturated and polyunsaturated). In addition, must be resolved that trans unsaturated fats may be a kind of unsaturated fat yet with dangerous ramifications for the body for its various structure. Perceive these sorts is indispensable in light of the fact that it has been appeared quality could really compare to the proportion of fat ate up.

There are couple of examinations in diabetic patients about usage of drenched unsaturated fats or cholesterol; in such way the proposals for patients with diabetes are identical to for the comprehensive network: A dedication of doused fat < 10%, with a base confirmation of trans-unsaturated fats and with a responsibility of cholesterol < 300 mg/dL in a perfect world picking monounsaturated and polyunsaturated unsaturated fats (checking omega-3 unsaturated fats). A couple of examinations, that have mulled over the Mediterranean dietary precedent, have appeared monounsaturated unsaturated fats can improve cardiovascular danger factors and glycaemic control, especially in case they are displaced with doused unsaturated fats.

Omega-3 unsaturated fats: Although there are not normal for results, all in all we can't state that omega3 supplements have appeared cardiovascular advantage. In any case, utilization of items high in omega3 can be certain in anticipating cardiovascular sickness.

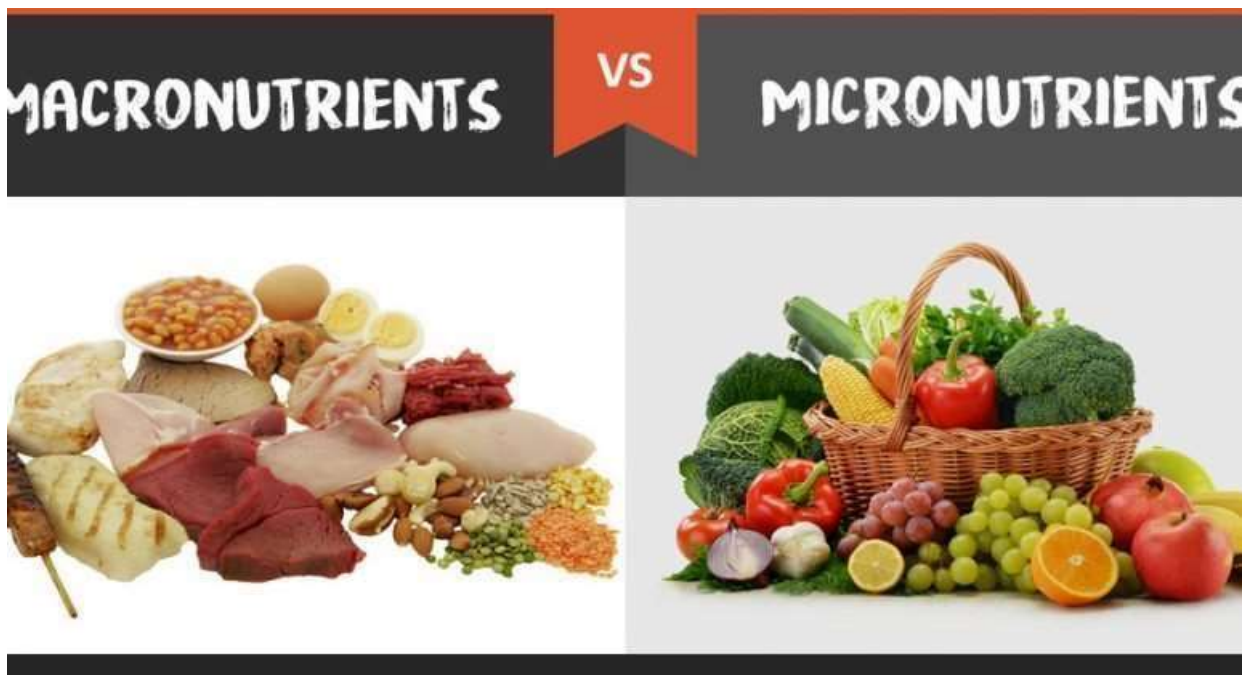
1. Alcohol: Liquor should be flushed with some restriction and it should not outperform one serving for every day for women, or two servings for consistently by virtue of men. To avoid an excess of essentialness when they are eaten up, this responsibility must be exchanged for various things. This moderate usage does not hurt the glycemic control yet rather in a couple of examinations has been found the inverse, with parity can upgrade glycemic control and decrease cardiovascular events.

Disregarding the above realities, it is fundamental to observe that blended beverages may add to the nearness for the most part hypoglycemia especially in patients in treatment with hypoglycemic drugs, so we should alert the patient to concentrate on any symptoms of hypo glycemia.

2. Sodium: The suggestion for the all inclusive community to lessen sodium admission to under 2300 mg/d will likewise apply to patients with diabetes mellitus. At the point when these additionally have hypertension, which is exceptionally normal, decreased sodium admission ought to be individualized.



3. Specific enhancements: The potential advantages of dietary enhancements for diabetic patients with different explicit supplements have been exposed to preliminaries. In spite of this, solid information has not been seen to affirm benefits in glycemic control enhancing on account of enhancement the eating regimen with cancer prevention agents as nutrient and carotenes, micronutrients, for example, chromium or different herbs. The suggestions of nutrients and minerals are not quite the same as the overall public, they are given by a changed eating regimen. [2]



CHAPTER 4

Nutritional Management

LIFESTYLE CHANGES

Birdem General Hospital, the main specific doctor's facility for the treatment of multitudinous Diabetic patients of the nation was formally settled in 1989 because of an altogether private enterprise. This additional conventional healing facility is situated toward the East of Bangabondhu Sheik Mujib Medical University (BSMMU), toward the West of the acclaimed Dhaka Club and exactly at the East-North corner of Shahbag circle; it remains close by toward the South of the National Broadcasting Authority building.

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His doctor's facility has inward and external patients' treatment frameworks. For essential discovery of Diabetes, first, patients need to gather tickets at a settled cost from the accessible counters arranged on the South side of the center building; all the while they need to gather test tubes and boxes and top them off

with the example of their stool and pee going inside any of the toilets remaining in succession; at that point they need to present these examples to a specific room and get the reports on the due date; the following system is to gather 'History book' and 'ID card' from the healing center expert and make the following strides for legitimate treatment appropriately.



A patient can get conceded into the healing center in the wake of thinking about the circumstance of his/her infection dependent on the concerned specialist's recommendation. Moreover, this clinic has a wide notoriety as an entirely solid community for the medications of patients who have Diabetes, coronary illness or eye ailment.

here are assemblies of Specialist specialists for 11 ailments in this doctor's facility. These chambers are arranged on the principal floor of the South side building.

There are various drug shops inside the healing center which stay open for 24 hours.

300 prepared medical caretakers and 45 specialists work in this healing facility. There are 103 lodges

What Kinds of Exercise to Do?

There are three fundamental sorts of activity—oxygen consuming, quality preparing, and adaptability work. You should expect to have a decent equalization of every one of the three.

Vigorous Exercises:

- Jogging/Running, Tennis, Basketball, Swimming, Biking

You should intend to get something like 30 minutes of oxygen consuming activity most days of the week. In the event that you feel that you can't discover 30 minutes, you can separate the activity into pieces—10 minutes all over. Develop to 30 minutes slowly. [1]



CHAPTER 6

Result

Methods

- Study design: cross-sectional •

Patients (n=134)

- aged 34-70 (mean age 59.4)
- 38% males and 62% females
- mean duration of T2D 7.2±6

- Data collection

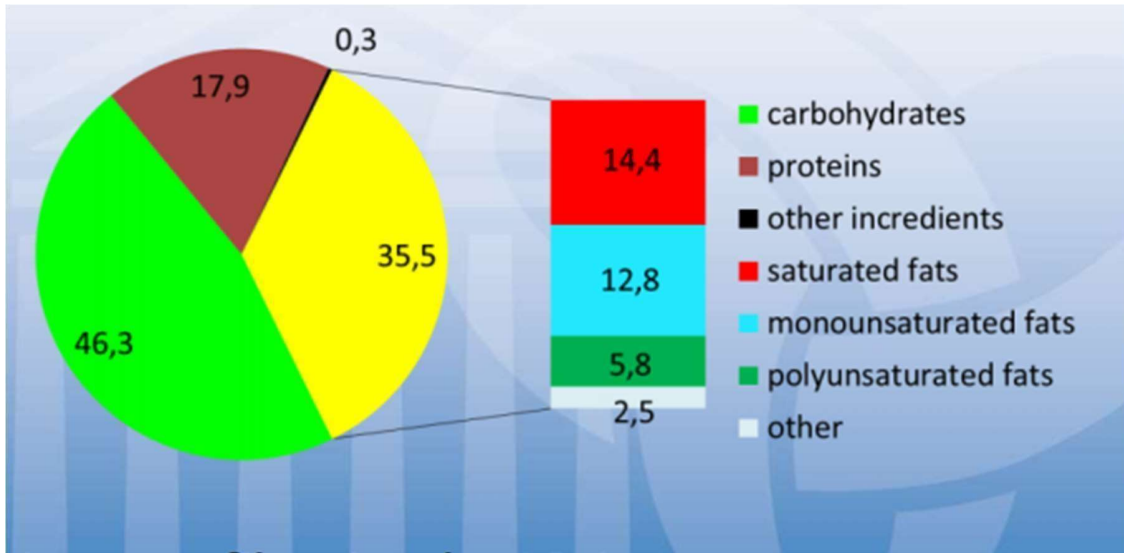
- 24-hours dietary recall

- blood samples (HbA1c, HDL- and LDL-cholesterol, triglycerides, and vitamin D)

Results

- Average daily energy intake 1381 kcal, of which (in %)





- Average fibre intake 18.1 g

Limitation

- The reported daily energy intake was rather low, thus, the possible underreporting of the food intake could be eligible.



CHAPTER 7

Conclusion

Type 2 diabetes is where our blood glucose is excessively high because of absence of insulin or insulin obstruction. It is essential to have great blood glucose control to lessen the danger of inconveniences.

On the off chance that overweight, getting more fit is the most vital thing we can do. Working with a dietitian will enable we to recognize the adjustments in way of life, diet and physical action we can accomplish as well as appreciate and stick to in the long group.

Way of life adjustments with weight reduction and moderate exercise can diminish the frequency of diabetes by >50% in patients with weakened glucose resilience (IGT).

The utilization of metformin, acarbose and different specialists have been appeared randomized forthcoming preliminaries to avoid type 2 diabetes in high-hazard subjects with IGT. Other pharmacological intercessions are at present being inspected in substantial planned investigations. Almost certainly, one or a mix of these methodologies could make diabetes avoidance a reality sooner rather than later.



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