




Presented by David M. Visos & Rebecca L. Roberts

DIABETES AND OCCUPATIONAL THERAPY IMPLICATIONS


PRESENTER INFORMATION

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 - + 2008 Graduate from Louisiana State University in Baton Rouge with a Bachelor of Science in Kinesiology
 - + 2012 Graduate from Louisiana State University Health Sciences Center – Shreveport with a Master of Occupational Therapy
 - + Fieldwork experiences in inpatient rehab with TBI, outpatient rehab with orthopedics, and industrial occupational therapy
 - + Practicing occupational therapy in an industrial rehabilitation setting at the Center for Work Rehabilitation Inc.




PRESENTER INFORMATION

- × Rebecca Roberts
 - + 2009 Graduate the University of Central Arkansas with a Bachelor of Science in Occupational Therapy
 - + 2012 Graduate from the University of Central Arkansas with a Master of Science in Occupational Therapy
 - + Fieldwork experiences in inpatient rehab, inpatient mental health, pediatrics in outpatient and school settings and industrial occupational therapy
 - + Practicing occupational therapy in an industrial rehabilitation setting at the Center for Work Rehabilitation Inc.




OBJECTIVES

- × Be able to understand OT's role in diabetes education
- × Understand parameters of diabetes, what is high and low blood glucose
- × How does exercise affect diabetes
- × Be able to know what to do in a diabetic emergency
- × Understand the 7 self-care behaviors of diabetic self-management

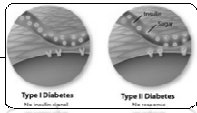


WHAT IS DIABETES

- × Diabetes mellitus is characterize by high blood glucose
- × High blood sugar occurs due to body's decreased ability to store glucose into cells
 - + Pancreas does not produce enough insulin
 - + Cells do not respond to insulin produced
- × 3 main types of Diabetes
 - + Type-1 DM
 - + Type-2 DM
 - + Gestational Diabetes



TYPES



- × Type 1
 - + Beta cells in pancreas no longer produce insulin
 - + The body does not produce insulin
 - + Requires insulin shots
- × Type 2
 - + Fat, liver, and muscle cells not using insulin properly
 - + More insulin produced to compensate
 - + Pancreas loss ability to secrete insulin overtime
- × Gestational
 - + High blood glucose that develops during pregnancy

BLOOD GLUCOSE CONCENTRATION

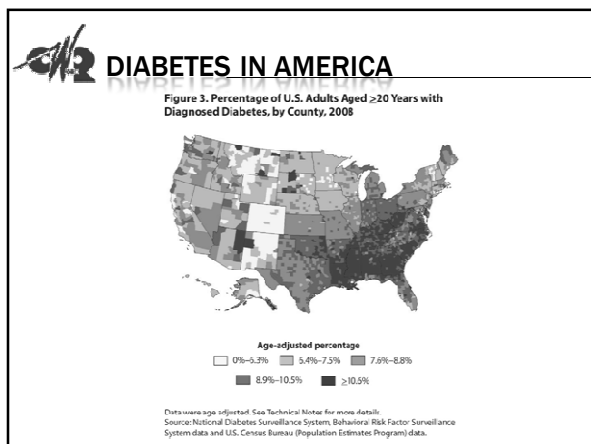
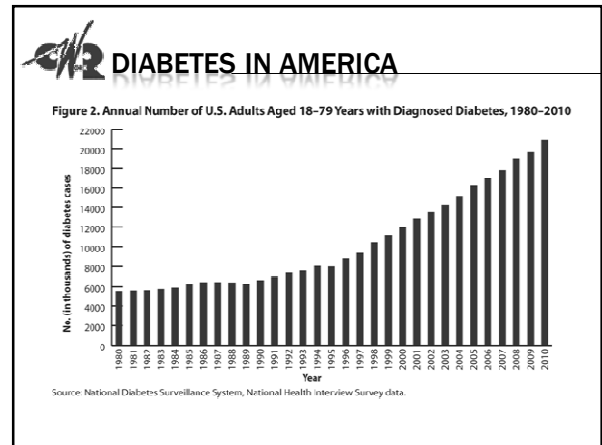
- ✘ Why is it important to maintain a constant blood glucose concentration?
 - + DM Type-1:
 - ✘ Utilization of fats increases cholesterol
 - ✘ Utilization of proteins decreases protein storage and results in rapid weight loss
 - + DM Type 2:
 - ✘ Metabolic Syndrome
 - ✘ Increased risk for cardiovascular disease

DIABETES IN AMERICA

- ✘ 25.8 million children and adults (8.3%)
 - + Diagnosed: 18.8 million people
 - + Undiagnosed: 7 million people
- ✘ About 215,000 people < 20 years had diabetes type 1 or type 2 in the U.S.
- ✘ About 1.9 million people aged ≥ 20 years were newly diagnosed
- ✘ Among U.S. residents aged 65 years or older, 10.9 million were diagnosed in 2010
- ✘ DM Type - 1 accounts for 5%
- ✘ DM Type - 2 accounts for 95%


DIABETES IN AMERICA

- ✘ Diabetes is the leading cause of:
 - + Kidney failure
 - + Non-traumatic lower limb amputations
 - + News cases of blindness in U.S.
- ✘ Diabetes is a major cause of heart disease and stroke
- ✘ Diabetes is the 7th leading cause of death in the U.S.
- ✘ Women who have had gestational diabetes have a 35% - 60% chance of developing diabetes type 2 in the next 10 - 20 years.



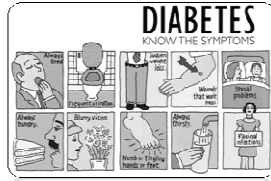
RISK FACTORS

- ✘ DM Type 1:
 - + Autoimmune disorder
 - + Parent or sibling with type 1
 - + Low vitamin D consumption
- ✘ DM Type 2:
 - + Weight
 - + Inactivity
 - + Family history
 - + Gestational diabetes
 - + High levels of triglycerides
 - + Low high density lipoprotein (HDL)
- ✘ Gestational Diabetes
 - + Females 25 years of age or older
 - + Family history
 - + Overweight prior to pregnancy



SIGNS AND SYMPTOMS

- × High blood glucose
 - + Blurry vision
 - + Excess thirst
 - + Fatigue
 - + Hunger
 - + Urinating often
 - + Weight loss
 - + Sensory changes in the hands or feet
 - + Very dry skin
 - + Slow healing wounds
 - + Increased rate of infections



NORMAL BLOOD GLUCOSE

- × The normal blood glucose range
 - + Before meals: 70 – 130 mg/dL
 - + 2 hours after meal: as high as 180 mg/d
- × Glycated Hemoglobin (HbA1C)
 - + Measures glucose from past 2 – 3 months
 - + Normal 7%
 - + Check twice a year at minimum

OCCUPATIONAL THERAPY'S ROLE

- × Educate persons at risk and those who have diabetes in lifestyle modifications to minimize the progression of the disease
- × Develop self management goals and techniques for self-care behaviors
- × Perform evaluations relevant to the diagnosis
- × Analyze everyday functional activities and occupational requirements.

WHAT CAN OT'S DO TO HELP?

- × Develop strategies for and provide education regarding:
 - + Healthy eating
 - + Being active
 - + Monitoring blood glucose levels
 - + Taking medications
 - + Problem solving
 - + Healthy coping
 - + Reducing risks

HEALTHY EATING HABITS AND EXERCISE

- × Educate on healthy food choices and food substitutions
- × Educate the client on the importance of exercise as well as precautions and how exercise affects diabetes.
- × Educate both the client and the family the importance of healthy food choices and exercise.

ACTIVE LIFESTYLE

- × Improve blood glucose management
- × Lower blood pressure
- × Improve blood fats which will increase good cholesterol (HDL)
- × Activity can lower blood glucose and weight
- × Reduce risk for heart attack or stroke
- × Increase energy
- × Sleep better
- × Reduce stress
- × Build stronger bones and muscles
- × Increase flexibility



BLOOD GLUCOSE REACTION & EXERCISE

- ✘ Important to understand your blood glucose response to exercise
 - + Above 300 mg/dL before exercise physical activity can increase it for those with type 1 diabetes
 - + Fasting blood glucose above 250mg/dL best to avoid physical activity
- ✘ Low blood glucose can occur during and long after physical activity (4 - 10 hours)
 - + Hypoglycemia must be treated immediately
- ✘ Low blood glucose interfering with exercise:
 - + Eat snack
 - + 15 minute break
 - + Re-check blood glucose (above 100 mg/dL)

BEING ACTIVE

- ✘ Type 1 Diabetes
 - + Minimum of 3 days per week for at least 30 minutes
- ✘ Type 2 Diabetes
 - + Structured exercise program of more than 150 minutes per week
 - + Must be combined with dietary modifications
- ✘ Occupational therapist can help client's learn how to modify activities to their disability
 - + Keep track of physical activity
 - + Realistic and specific goals
 - + Preventive measures
 - + Make these new habits apart of your daily routine because it may take months to before it becomes away of life

OVERCOMING BARRIERS

- ✘ Barrier: I don't have time to exercise for 30 minutes per day
 - + Solution: start 10 minutes a day and add little by little until you achieve your goal
 - + Solution: make it apart of your day - walk or bike to work or to the store, family outings, take the stairs
- ✘ Barrier: I've never been active
 - + Solution: its more than going to the gym, what about housekeeping, mowing the lawn

OVERCOMING BARRIERS

- ✘ Barrier: It's too hot outside
 - + Solution: walk inside, indoor track, treadmill, elliptical, shopping center, dancing, yoga...etc. Something else is always available regardless of weather.
- ✘ Barrier: Walking hurts my knees
 - + Solution: chair exercises, swimming, biking, elliptical or other low impact activities

HEALTHY EATING WITH DIABETES

- ✘ No optimal diet can be prescribed
- ✘ Goals for prevention
 - + Primary - identify at risk population
 - ✘ BMI greater than 25, obesity
 - + Secondary - utilization of nutrition as therapeutic modality
 - + Tertiary - nutrition as a tool to manage diabetic complications

HEALTHY EATING WITH DIABETES

- ✘ Low carbohydrate and low fat diets
 - + Good for initial weight loss (short-term)
 - + Approximately 1 year
 - + Monitor lipid profile and renal function
 - + Can decrease fasting glucose values by 21 - 28 mg/dL
- ✘ Mediterranean diet
 - + Randomized trial with a 2 year follow up had more favorable fasting plasma glucose and insulin levels as compared to low-fat diets

MEDICATION AND MONITORING

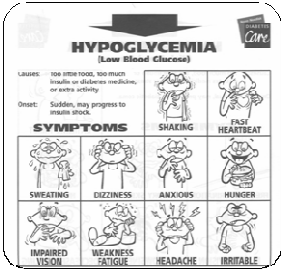
- ✘ Develop strategies for patients to organize their medication to prevent missed dosages.
- ✘ Educate on the importance of glucose tracking as well as laws regarding reporting diabetic episodes when appropriate.

PREVENTING DIABETIC EMERGENCIES

- ✘ Educate patients at risk of developing diabetes on healthy lifestyle changes
- ✘ Identify behaviors or activities that could potentially lead to a diabetic incident.
- ✘ Educate patients on ways to prevent hypo or hyper glycemc events
- ✘ Educate patients on the difference between Hypoglycemia or Hyperglycemic crisis as well as how to treat either event.

SYMPTOMS OF HYPOGLYCEMIA

- ✘ Dizziness
- ✘ Weakness
- ✘ Tachycardia
- ✘ Pallar
- ✘ Vagueness
- ✘ Diaphoresis
- ✘ Seizures
- ✘ Coma



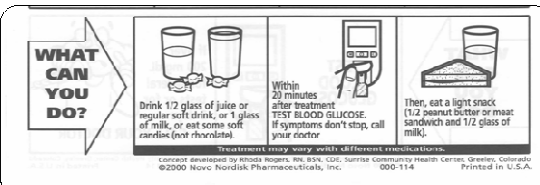
HYPOGLYCEMIA (Low Blood Glucose)

Causes: too little food, too much insulin or diabetes medicine, or extra activity.

Onset: Sudden, may progress to insulin shock.

SYMPTOMS: SHAKING, HEARTBEAT, SWEATING, DIZZINESS, ANXIETY, HUNGER, IMPAIRED VISION, WEAKNESS/FATIGUE, HEADACHE, IRRITABLE.

TREATMENT OF HYPOGLYCEMIA



WHAT CAN YOU DO?

Drink 1/2 glass of juice or regular soft drink, or 1 glass of milk, or eat some soft candies (not chocolate).

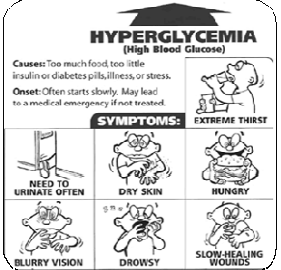
Within 20 minutes after treatment TEST BLOOD GLUCOSE. If symptoms don't stop, call your doctor.

Then, eat a light snack (1/2 peanut butter or meat sandwich and 1/2 glass of milk).

Treatment may vary with different medications. Concept developed by Rhonda Rogers, RN, BSN, LDE, Sunrise Community Health Center, Greeley, Colorado ©2000 Novo Nordisk Pharmaceuticals, Inc. 000-114 Printed in U.S.A.

SYMPTOMS OF HYPERGLYCEMIA

- ✘ Dehydration
- ✘ Weak pulse
- ✘ Acetone breath
- ✘ Stupor
- ✘ Thirst
- ✘ Polyuria
- ✘ Coma



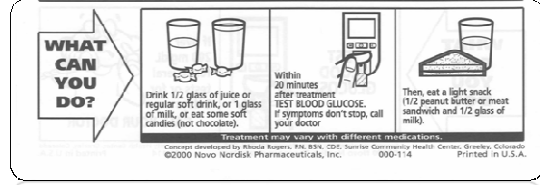
HYPERGLYCEMIA (High Blood Glucose)

Causes: Too much food, too little insulin or diabetes pills, illness, or stress.

Onset: Often starts slowly. May lead to a medical emergency if not treated.

SYMPTOMS: EXTREME THIRST, NEED TO URINATE OFTEN, DRY SKIN, HUNGRY, BLURRY VISION, DROWSY, SLOW-HEALING WOUNDS.

TREATMENT FOR HYPERGLYCEMIA



WHAT CAN YOU DO?

Drink 1/2 glass of juice or regular soft drink, or 1 glass of milk, or eat some soft candies (not chocolate).

Within 20 minutes after treatment TEST BLOOD GLUCOSE. If symptoms don't stop, call your doctor.

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PROBLEM SOLVING

- ✘ Develop adaptive techniques for administering or storing medications
- ✘ Assisting with modification of self care activities
- ✘ Develop strategies to compensate for diabetic neuropathy or low vision
- ✘ Adapt or teach compensatory strategies for participation in meaningful occupations

PERIPHERAL NEUROPATHY

- ✘ Damage to a single nerve or nerve group which frequently occurs as a result of chronically elevated blood glucose levels and causes a variety of symptoms:
 - + loss of sensation, pain or burning in the affected extremities, as well as muscle or organ dysfunction.
- ✘ Develop routine checks of extremities to detect wounds
- ✘ Educate on the importance of early attention to wound management to prevent amputations
- ✘ Teach pain management strategies

DIABETIC EYE DISEASE

- ✘ A group of eye problems caused by complications with diabetes.
 - + Diabetic neuropathy -damage to the blood vessels in the retina
 - + Cataracts- clouding of the eye's lens. Cataracts develop at an earlier age in people with diabetes
 - + Glaucoma- increase in fluid pressure inside the eye that leads to optic nerve damage and loss of vision. A person with diabetes is nearly twice as likely to get glaucoma as other adults.
- ✘ Educate on the use of adaptive devices for low vision
- ✘ Develop safety strategies to prevent falls and injuries

READJUSTMENT TO LIFESTYLE

- ✘ Teach healthy coping strategies
 - + Psychological and emotional support
 - + Physical adaptation
 - + Safety assessments
- ✘ Improve safety awareness associated with loss of vision or sensation
 - + Fall prevention
 - + Skin protection

DIABETES IN THE WORKPLACE

- ✘ Any person with diabetes should be eligible for any employment for which he / she is otherwise qualified
 - + Questions arise about the safety and effectiveness of individuals with diabetes
 - + Individual assessments may be indicated to determine their ability to perform certain duties
 - + Accommodations may be necessary to allow for management of diabetes

Diabetes and employment

EVALUATION

- ✘ Employment decisions should not be based on generalizations or stereotypes.
- ✘ Proper and lawful evaluation should occur.
 - + Health care professionals familiar with diabetes.
 - + Individualized assessment
 - + Independent medical examination may be necessary
- ✘ Individuals who can safely and effectively perform should be employable regardless of medical diagnoses.

Diabetes and employment

POST OFFER ASSESSMENTS

- ✘ Employers may not ask about health status until a job offer has been made.
- ✘ Medical examinations following a job offer may be required.
 - + conditional job offers pending medical evaluation
 - + Medical evaluation following a problem which arises on the job
 - ✘ Only the individual's current capacity to perform the job should be collected.
 - ✘ Information about diabetes management, job duties, and work environment are relevant.

Diabetes and employment

SAFETY RISKS

- ✘ Does an individual's diagnosis of diabetes put themselves, coworkers, or the public at risk for injury?
- ✘ Disorientation or incapacitation due to a sudden change in blood glucose levels.
 - + A single episode of hypoglycemia should not disqualify a person from employment however reoccurring episodes may indicate the client cannot safely perform the job.
 - + Chronic hyperglycemic may adversely affect the individual in the workplace

Diabetes and employment

ACCOMMODATIONS

- ✘ Federal and State laws require employers to make "reasonable accommodations" to help an employee perform the essential functions of the job.
 - + Breaks for testing blood glucose or administering insulin
 - + Access to food and drink
 - + Leave to attend to medical needs
 - + Modified work schedules

Diabetes and employment

US DEPARTMENT OF TRANSPORTATION

- ✘ Safety and Medical screening
 - + Individuals newly diagnosed with Type 1 diabetes must provide evidence of insulin use and control of DM for a minimum of 60 days
 - + Individuals with Type 2 diabetes who are converting to insulin use must provide evidence of insulin use and control of diabetes for a minimum 30 days.
 - + No recurrent (2 or more) hypoglycemic reactions requiring the assistance of another person, resulting in a loss of consciousness, cognitive impairment, or seizures in the past 5 years.
 - + Submit signed statements from examining optometrist or ophthalmologist stating that no significant vision loss or retinopathy.
 - + Submit evidence of continuation of care provided by a board certified endocrinologist.

THE IMPACT ON EMPLOYMENT

- ✘ Estimated productivity in the loss: \$40 Billion
- ✘ Estimated associated medical cost : \$90 Billion
- ✘ Probability of working: 4.4% less for women with diabetes and 7.1% less for men with diabetes than those with out diabetes.
- ✘ Work-loss days per year: 2 more days
- ✘ Work limitations: women with diabetes 5.4%, men with diabetes 6%.

US DEPARTMENT OF TRANSPORTATION

- ✘ Monitoring and Accountability
 - + Daily test glucose levels with a device with device equipped with a memory.
 - + A current measure of A1C
 - + Daily record of drive time and blood glucose levels measured every 2-4 hours.
 - + Stop driving if blood glucose is not within the 100 to 400 mg/dl level.
 - + Report all severe complications, hypoglycemic episodes, or inability to manage diabetes.
 - + Report any involvement in an accident whether related to hypoglycemia or not.



SUMMARY

- ✦ Diabetes is something we all deal with as occupational therapist
- ✦ Challenge yourself to learn more about diabetes and the resulting complications



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QUESTIONS?