

IT ALL ADDS UP!

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and is intended to be used as a companion to the
IT ALL ADDS UP:
DIABETES PREVENTION & MANAGEMENT
video series produced by the
Angelina County & Cities Health District (ACCHD).

If you have any questions, please contact ACCHD at
(936) 632-1139
or visit their office at
503 Hill Street, Lufkin, Texas, 75904.

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MODULE II: HOW DIABETES AFFECT THE BODY — COMPLICATIONS FROM DIABETES

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MODULE II: HOW DIABETES AFFECT THE BODY — COMPLICATIONS FROM DIABETES

SECTION I

HOW DIABETES CAN AFFECT YOUR NERVES AND FEET

Objectives

1. To increase understanding of diabetes complications
2. To raise awareness of how diabetes affect the feet.

At the end of this section, you should be able to:

1. Say what a diabetes complication is
2. List at least five complications of diabetes
3. Say how diabetes can affect your feet
4. List some of the things that you can do to protect your feet from the effects of diabetes

I. Complications from Diabetes (a short summary)

Damage caused to your organs and tissues because of long term exposure to high blood glucose is called a complication of diabetes¹². The symptoms of diabetes are the result of the effect it has on different parts of the body. Diabetes can cause damage to your brain and nerves, eyes, feet, kidneys, bladder and genitalia, heart and blood vessels, skin, gums, and immune system which makes it harder for your body to fight infections and increase your risk for certain types of cancer. Diabetes can damage the nerves in the body^{1,3}. Nerve damage caused by diabetes is called diabetic neuropathy. Neuropathy can cause pain and numbness in your feet, and it can also affect your internal organs, like your kidneys and heart³.

II. How diabetes can cause damage to the feet¹

Peripheral neuropathy is nerve damage that usually affects the feet and legs. It may also affect the arms and hands. It can cause people who have diabetes to lose feeling in their feet³. The inability to feel may result in injuries (cuts, bruises, burns, blisters) to the feet. Diabetes can reduce circulation of blood to the feet. This causes slow healing of wounds (ulcers) on the legs and feet in some diabetics. These wounds can become infected and do not heal. Sometime these infections can be severe and can lead to gangrene. An amputation (of part or all of the leg or foot) may be done by a surgeon to prevent the spread of an infection and to save the patient's life. To reduce the risk of amputation, people who have diabetes have to take care of their feet¹.

III. Foot care, for people who have diabetes.

People who have diabetes should create a self-care plan, (that is, a plan that you create with your health care team on how you will manage your diabetes) that includes foot care plan. The NIDDK recommends that these steps be included in your foot care plan¹:

1. Check your feet every day
2. Wash your feet every day
3. Smooth corns and callouses gently
4. Trim toenails straight across
5. Wear shoes and socks at all times
6. Protect your feet from hot and cold
7. Keep the blood flowing to your feet
8. Get a foot check at every health care visit.

To learn more about caring for your feet if you have diabetes please click on the link below.

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/foot-problems#check>

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SECTION II

HOW DIABETES CAN AFFECT YOUR EYES

Objectives

1. To raise awareness about how diabetes affects the eyes
2. To provide information on resources available locally for people who do not have access to vision insurance

At the end of this section, you should be able to:

1. Explain why it's important for someone who has diabetes to have an eye exam at least once per year
2. Recognize eye problems (temporary and permanent) that result from high blood glucose
3. List eye diseases that are caused by diabetes
4. Say some of the things that you can do to protect your eyes from the effects of diabetes
5. Find a local resource which provides information on how to access affordable eye care

I. How diabetes can affect your eyes².

Temporary blurry vision

You may experience blurry vision when your blood glucose is high. High blood glucose can cause swelling in the tissues in your eyes causing your vision to become blurry. This may last a few hours, days or even weeks depending on what is causing you to be experiencing high blood sugar at the time².

Permanent damage to your eyes

Diabetes can cause damage to the blood vessels in your eyes resulting in permanent damage to your eyes leading to vision loss. Diabetic eye disease results from permanent damage caused by high blood glucose levels over time. Your risk for developing diabetic eye disease increases if you do not manage your blood glucose by following your treatment plan, that probably will include medication, diet and exercise². Four eye diseases that can result from uncontrolled high blood sugars and can cause blindness are diabetic retinopathy, diabetic macular edema, glaucoma, and cataracts².

II. Things that you can do to limit the damage to your eyes resulting from diabetes²

1. Follow your diabetes treatment plan.
2. Manage your blood pressure if you have high blood pressure.
3. Keep your cholesterol within normal range.
4. Have an eye exam that includes dilation of your eyes at least once per year.

To learn more about diabetic eye disease you can click on the following link.

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/diabetic-eye-disease>

Where can you get a diabetic eye exam if you do not have vision insurance

If you are a patient of the Angelina County and Cities Health District you can get a diabetic eye exam once every two years at no cost to you at:

Angelina Eye Center
2801 S. John Reddit Dr.
Lufkin, TX 75904
(936) 637- 2020

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SECTION III

HOW DIABETES CAN AFFECT YOUR BLADDER AND SEXUAL FUNCTION

Objectives

1. To raise awareness about how diabetes affects bladder function
2. To raise awareness about how diabetes affect people's ability to function sexually

At the end of this section, you should be able to:

1. List some of the sexual problems that diabetes may cause in men and women
2. List some of the bladder problems that diabetes can cause
3. Say how you can manage your diabetes to prevent bladder problems and sexual problems

I. How diabetes can affect your ability to function sexually

Diabetes increases your risk for sexual problems⁴. Poorly managed diabetes may result in:

1. Low libido.
2. Erectile dysfunction
3. Vaginal dryness
4. Inability to achieve orgasms
5. Fertility problems⁵
6. Painful sex⁵
7. Yeast infections⁵
8. Penile curvature (Peyronie's disease)

Because sexual dysfunction may have many causes it is important to discuss your symptoms with your care provider so that they can establish a cause.

To learn more about how diabetes can cause sexual problems you may click on the following links:

<https://diabetes.org/health-wellness/sexual-health/sex-diabetes>

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/sexual-bladder-problems>

II. How diabetes can affect your bladder⁵

Nerve damage in the urinary tract caused by high blood glucose can lead to bladder problems. People who have diabetes may experience:⁵

1. Frequent or urgent urination
2. Trouble urinating
3. Urinary incontinence
4. Bladder infections

III. How can people who have diabetes prevent or manage sexual or bladder problems⁵?

1. By following your diabetes treatment plan
2. By treating your high blood pressure
3. By reaching and maintaining a healthy weight
4. By quitting smoking if you smoke
5. By becoming physically active
6. By addressing any underlying emotional or psychological issues

More information on how diabetes affect sexual health can be found at

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/sexual-bladder-problems>

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SECTION IV

HOW DIABETES CAN AFFECT ORAL HEALTH

Objectives

1. To raise awareness about how diabetes affects oral health
2. To provide information on resources available locally for people who do not have access to dental insurance

At the end of this section, you should be able to:

1. List some of the mouth issues that people who have diabetes are at risk of having.
2. List at least 5 of the mouth problems that poor management of diabetes can cause
3. Say some of the things you should do if you are having mouth problems
4. List things you can do to keep your mouth healthy.

DIABETES AND MOUTH HEALTH

I. How diabetes can affect oral health (teeth, gums, and tongue).

People who have diabetes have an increased risk of⁶:

1. Developing gum disease
2. Developing cavities
3. Periodontitis
4. Dry mouth
5. Thrush
6. Burning mouth syndrome
7. Experiencing changes in the way food tastes
8. Tooth loss

II. Mouth problems that people who have diabetes should be aware of⁶:

1. Loose teeth
2. Spaces between your teeth can get wider
3. Dry mouth
4. Persistent bad breath that does not improve with brushing your teeth
5. Gums that are red, swollen, bleeding, receding or pulling away from your teeth

III. What should you do if you have mouth problems resulting from diabetes⁶?

1. See a dentist as soon as possible.
2. Provide the dentist with the following information:
 - How you have had diabetes
 - Medications that you take
 - Your blood glucose readings (if you keep a record of them)
3. Have a schedule for regular checkups with your dentist.
4. Follow your dentist's advice on treatment options.

IV. Things you can do to keep your mouth healthy⁶

1. Keep your blood sugar levels in target range.
2. Eat healthy and follow your meal plan.
3. Have regular dental appointments (every 6 months)
4. Practice good dental hygiene at home.
5. Quit smoking if you do.

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Where can you find affordable dental care if you do not have dental insurance?

East Texas Community Health Clinic
1717 Sayers St, Lufkin, TX75904
Phone (936) 899-5368

For more information on how diabetes affects oral health please click on the link below:

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/gum-disease-dental-problems>

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SECTION V

HOW DIABETES CAN AFFECT THE KIDNEYS

Objectives

At the end of this section, you should be able to:

1. Say how diabetes damages the kidneys.
2. List some of the things you can do to limit damage to your kidneys.

I. The effect diabetes can have on your kidneys

Diabetes can damage your kidneys resulting in diabetic kidney disease (DKD). It is also called chronic kidney disease (CKD) and diabetic nephropathy. The main function of your kidneys is to filter water and waste from your blood (to make urine). Damage to your kidneys makes it harder for it to filter your blood, causing waste to build up in your body. Because kidney damage caused by diabetes takes many years (happen slowly) patients can do a lot to prevent or delay it⁷.

High blood glucose can damage the blood vessels in your kidneys, making it harder for them to function properly. Having high blood pressure and diabetes increases your risk of kidney damage. Not following your diabetes treatment plan, smoking, consuming foods high in salt, being inactive, being overweight, having heart disease and a family history of kidney failure in addition to having diabetes increases your risk of having CKD⁷.

II. Things you can do to limit kidney damage that can be caused by diabetes^{7,8}

Managing your blood glucose and blood pressure can slow or prevent kidney damage. Maintaining an HA1C within your goal range (below 7 percent is best), keeping your blood pressure below 140/90 and having a healthy lifestyle will help to protect your kidneys from damage^{7,8}. A healthy lifestyle means:

- Including physical activity as part of weekly routine – 150 minutes of physical activity per week.
- Following your diabetes treatment plan (take your medications as directed, check blood sugar regularly, eat a healthy diet), limiting sodium intake, limiting fat from animal sources, and keeping your cholesterol within goal range.
- Keeping a healthy weight.
- Resting (getting 7 to 8 hours sleep each night).

For more information on diabetes and how it affects your kidneys please click on the following links:

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/diabetic-kidney-disease>
<https://www.cdc.gov/diabetes/managing/diabetes-kidney-disease.html>

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SECTION VI

HOW DIABETES CAN AFFECT YOUR BRAIN

Objectives

At the end of this section, you should be able to:

1. Say how diabetes affects the brain
2. List some of the problems that result from the effects of diabetes on the brain.
3. List some of the things that you can do to keep your brain healthy.

I. How diabetes can affect your brain⁹

Diabetes can affect your brain by causing damage to your nerves and blood vessels⁹. This damage can result in:

- Memory problems
- Mood shifts
- Weight gain
- Hormonal changes
- Increased risk for Alzheimer's disease
- Strokes

When blood vessels in the brain are damaged, blood flow to brain cells is reduced. Brain cells can die if they do not get enough blood resulting in brain atrophy, which can affect thinking and memory and may lead to vascular dementia⁹.

The brain can be affected by both high blood glucose (hyperglycemia) and low blood sugar (hypoglycemia). Exposure to high blood glucose levels overtime can result in damage to the blood vessels in the brain⁹.

II. Things you can do to minimize the effect of diabetes on your brain⁹

- Include physical activity as part of weekly routine – 150 minutes of physical activity per week, 30 minutes per day.
- Follow your diabetes treatment plan (take your medications as directed, check blood sugar regularly, eat a healthy diet).
- Reach and keep a healthy weight.
- Resting (getting 7 to 8 hours sleep each night).
- Limit consumption of alcohol or do not drink at all.
- Quit smoking.
- Manage stress.

For more information on how diabetes affects your heart please click on the following links

<https://www.cdc.gov/diabetes/diabetes-complications/effects-of-diabetes-brain.html>

MODULE II: HOW DIABETES AFFECT THE BODY — COMPLICATIONS FROM DIABETES

SECTION VII

HOW DIABETES CAN AFFECT YOUR HEART¹⁰

Objectives

At the end of this section, you should be able to:

1. Say how diabetes affects your heart.
2. List some things you can do to keep your heart healthy.

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I. How diabetes can affect your heart¹⁰

Blood vessels and nerves in your heart can be damaged by high blood glucose from diabetes. This can result in heart disease. People that have diabetes are at increased risk for heart disease. If you have diabetes, you are more likely to develop heart disease than someone that does not have diabetes¹⁰. The longer you have diabetes, the greater your risk of developing heart disease¹¹.

II. Things you can keep your heart healthy if you have diabetes¹⁰

1. Think ABCs (A1C, blood pressure, cholesterol and stop smoking).
 - Keep your A1C within your goal range.
 - Keep your blood pressure within your goal range.
 - Take prescribed medications if your cholesterol is outside of the normal range.
 - Stop smoking.
2. Eat healthy.
3. Try to lose weight if you are overweight or obese.
4. Start being active.
5. Reduce stress.

For more information on how diabetes affects your heart please click on the following links

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/heart-disease-stroke>

<https://www.cdc.gov/diabetes/library/features/diabetes-and-heart.html>

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