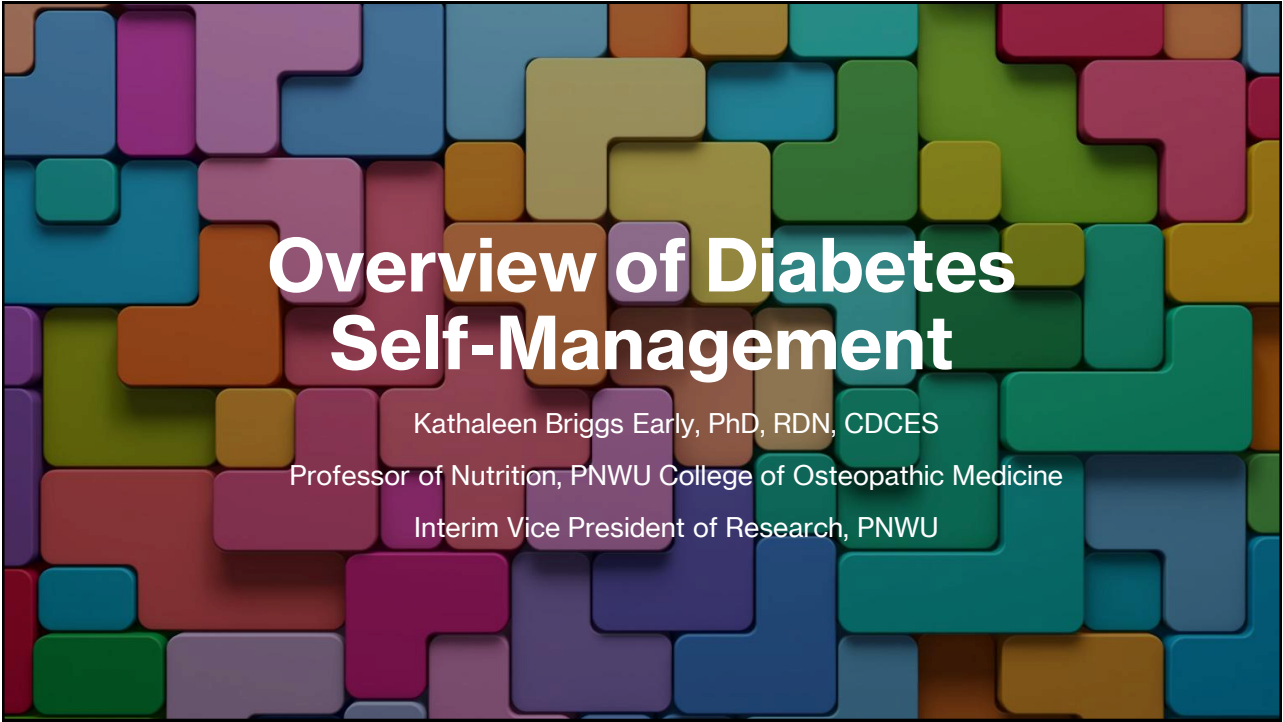




Overview of Diabetes Self-Management

Kathaleen Briggs Early, PhD, RDN, CDCES

Professor of Nutrition, PNWU College of Osteopathic Medicine

Interim Vice President of Research, PNWU

1

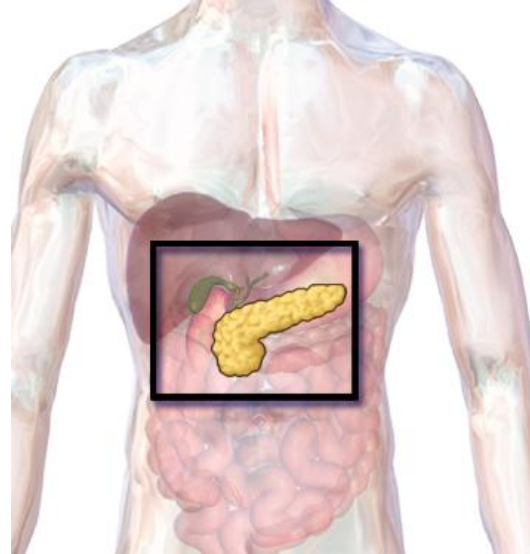
Learning Objectives

1. Describe the common types of diabetes and how they are typically treated.
2. List the 7 areas of diabetes self-management.
3. List what can increase and decrease blood sugar.
4. Describe how to use food as a part of diabetes management.
5. Describe why diabetes medications can help us.
6. Describe common barriers to diabetes management.
7. Find out where your local diabetes educators and education programs can be found.

2

What is diabetes?

- A chronic condition impacting how the body uses glucose for energy
- Blood glucose
 - Our brain and most tissues run on glucose
- Pancreas
 - Organ near the stomach



Blausen.com staff (2014). "Medical gallery of Blausen Medical 2014". WikiJournal of Medicine 1 (2). DOI:10.15347/wjm/2014.010. ISSN 2002-4436.

3

- Pancreas
 - Organ near the stomach
 - Produces *insulin*, mostly in response to carbohydrate and stress
 - Produces *glucagon*, mostly in response to lack of food (and stress)

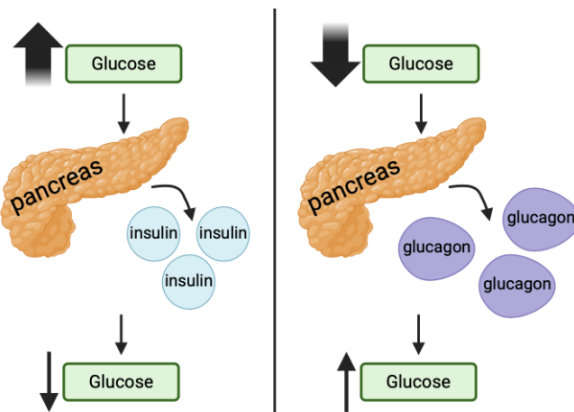


Figure 1. When blood sugar (glucose) is high, the pancreas produces insulin, which helps to remove sugar from the bloodstream, resulting in decreased blood sugar. When blood sugar is low, the pancreas produces glucagon, which helps to raise blood sugar. Figure made by author in BioRender.

<https://ncdnadayblog.org/2024/03/01/diabetes/>

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Type 1 Diabetes

- An autoimmune condition, pancreas stops producing insulin
- Requires insulin
- Average age of diagnosis is 10-14 years in kids, or 24 years in adults

Type 2 Diabetes

- Insulin resistance, progressing to loss of insulin production
- Most common form of diabetes
- May or may not require medication/insulin
- Average age of diagnosis is around 50 years, but can develop in kids

In people without diabetes, insulin is released from the pancreas, then taken up by receptors at skeletal muscle, which helps glucose get into the cells.

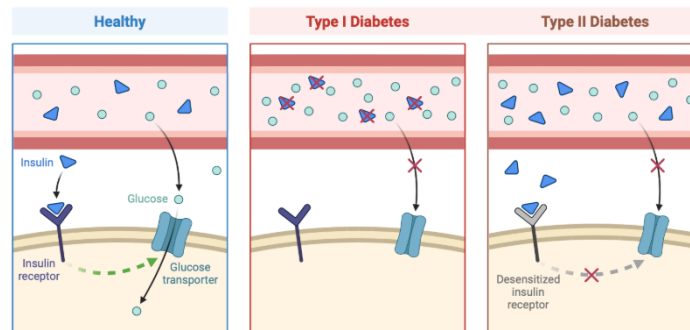


Figure 2. People with type 1 diabetes don't make insulin, while people with type 2 diabetes can make insulin, but don't respond to it. Figure made by author in BioRender.

<https://ncdnadayblog.org/2024/03/01/diabetes/>

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The Diabetes Atlas highlights the growing impact of diabetes across the world and the proven and effective actions that governments and policy-makers must urgently take to tackle it.

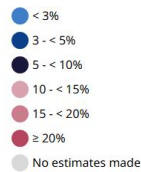
<https://diabetesatlas.org/>

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Prevalence of gestational diabetes mellitus (GDM), % by Country/Territory

• Gestational Diabetes

- Develops during pregnancy
- Increases risk of type 2 diabetes in the future



<https://diabetesatlas.org/data-by-indicator/hyperglycaemia-in-pregnancy-hip-20-49-y/prevalence-of-gestational-diabetes-mellitus-gdm/>

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All Types of Diabetes

Require self-management

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Association of Diabetes Care and Education Specialists (ADCES) 7 Self-Care Behaviors

1. Healthy coping
2. Healthy eating
3. Being active
4. Taking medication
5. Monitoring
6. Reducing risks
7. Problem solving



<https://www.adces.org/diabetes-education-dsmes/adces7-self-care-behaviors>

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1. HEALTHY COPING

“a positive attitude toward diabetes and self-management, positive relationships with others, and quality of life”

Critical for mastery of the other 6 self-care behaviors.

Higher levels of positive emotions, attitudes, and increased social support are associated with improved self-care in diabetes and cardiovascular disease

2. HEALTHY EATING

“a pattern of eating a wide variety of high quality, nutritionally-dense foods in quantities that promote optimal health and wellness.”

Eating behavior is complex!

Develop and use a personalized meal plan – RDNs can help you with this!

Monitor intake

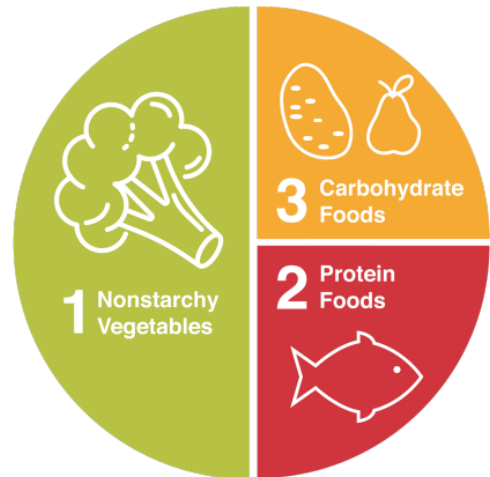
Use the Nutrition Facts Panel

ADCES. Kolb L. An Effective Model of Diabetes Care and Education: The ADCES7 Self-Care Behaviors™. *Sci Diabetes Self Manag Care*. 2021 Feb;47(1):30-53. DOI: [10.1177/0145721720978154](https://doi.org/10.1177/0145721720978154)

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Healthy Plates

- An eating pattern containing a variety of colorful vegetables, fruits, whole grains, low-fat dairy (or fortified alternatives), a lean protein sources, and oils
- An eating pattern that minimizes sodium, added sugars, saturated fat, and trans fat



Learn more at diabetes.org | 1-800-DIABETES (800-342-2383)

https://professional.diabetes.org/sites/dpro/files/2023-12/plan_your_plate.pdf

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Nutrition Facts

Approx. 14 servings per container

Serving size 1 slice (48g)

Amount per serving

Calories 100

% Daily Value*

Total Fat 0.5g **1%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 115mg **5%**

Total Carbohydrate 21g **7%**

Dietary Fiber 4g **15%**

Total Sugar 1g

Includes 1g Added **2%**

Sugars

Protein 4g

Vitamin D 0mcg **0%**

Calcium 25mg **0%**

Iron .7mg **4%**

Potassium 60mg **0%**

* The % Daily Value (DV) tells you how much a nutrient

in a serving of food contributes to a daily diet. 2,000

calories a day is used for general nutrition advice.

Percent Daily Value:

Daily Value (%DV) is based on the amount of the nutrient you should eat in a whole day. An easy rule of thumb:

- 5% DV or less per serving means you are getting a low source of that nutrient. For nutrients you want to get less of, such as sodium and saturated fat, look for less than 5% DV.
- 20% DV per serving or higher is considered a high source of the nutrient. For nutrients you want to get more of, such as fiber, vitamin D, calcium, and iron, look for 20% DV or more.

Total Carbs: This number includes all carbs: sugar (natural and added), starch, and fiber. The carbs you eat affect blood glucose (also called blood sugar) levels, so use the total carbohydrate number if counting carbs. When eating carbs, choose carbs from vegetables, whole grains, legumes, and fruits instead of from refined grains and added sugar.

https://professional.diabetes.org/sites/dpro/files/2023-12/food_label_know_how.pdf

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3. BEING ACTIVE

Includes all types, durations, and intensities of daily physical movement – both structured or “planned” exercise and unplanned/unstructured activities.

Mostly the same for people with or without diabetes – about 20-30 minutes per day, 5 days per week.



ADCES. Kolb L. An Effective Model of Diabetes Care and Education: The ADCES7 Self-Care Behaviors™. *Sci Diabetes Self Manag Care*. 2021 Feb;47(1):30-53. DOI: [10.1177/0145721720978154](https://doi.org/10.1177/0145721720978154)

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4. Taking medication

- Medications are often an essential tool for diabetes management
- Taking medications as directed is important, but can be challenging
- Keep a current list of medications, including how much and when you take them
- Take medicines at the correct time and dose
- Talk to your diabetes care team if you are having difficulty getting or paying for your medications!



ADCES. Kolb L. An Effective Model of Diabetes Care and Education: The ADCES7 Self-Care Behaviors™. *Sci Diabetes Self Manag Care*. 2021 Feb;47(1):30-53. DOI: [10.1177/0145721720978154](https://doi.org/10.1177/0145721720978154)

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Why do diabetes medicines and insulin help my glucose go down?

- Some help your **pancreas produce more insulin** (e.g., glipizide, the “tides” – semaglutide *Ozempic*, etc)
- Some help your **tissues increase their sensitivity to the insulin** you are making (or taking) (e.g., metformin)
- Some **REDUCE GLUCAGON RELEASE** from liver (e.g., metformin, the “tides”, etc)
- Some help your **kidneys remove extra glucose from the urine** (e.g., the “flozins” – empagliflozin *Jardiance*)
- Some help **glucose get into your cells** (e.g., insulin, metformin)
- Some help with **weight loss**, which improves insulin sensitivity (e.g., the “tides”)
- Some make you feel full, reducing hunger (e.g., the “tides”)

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5. monitoring

- Food intake
- Physical activity (e.g., minutes, intensity, steps, etc)
- Sleep quality and duration
- Stress
- Glucose (e.g., finger-stick, A1c, continuous glucose monitor)
- Blood pressure
- Lipids (e.g., cholesterol)
- Kidney and liver function tests
- Body weight or other body measurements
- Feet/skin
- Eyes/vision
- Oral health



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6. Reducing risks

- Identify risks
- Adopt behaviors to minimize and/or prevent complications, which can include:
 - hypoglycemia, hyperglycemia, cardiovascular complications, etc
- Act early – **awareness saves lives**
- Participate in Diabetes Prevention Program (DPP) or Diabetes Self-Management Education and Support (DSMES)

ADCES. Kolb L. An Effective Model of Diabetes Care and Education: The ADCES7 Self-Care Behaviors™. *Sci Diabetes Self Manag Care*. 2021 Feb;47(1):30-53. DOI: [10.1177/0145721720978154](https://doi.org/10.1177/0145721720978154)

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Diabetes Prevention Program (DPP)

MultiCare Yakima Memorial Hospital DPP
(509) 746-3631

Spanish: <https://www.youtube.com/watch?v=b1-4TMHmGOc>



English:
https://youtu.be/_4v7vo8blr4?si=MKK3kdKO-Ea1_uMq



Prediabetes?

DPP is for you!

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7. Problem solving

“A learned behavior that includes creating a set of potential strategies, selecting the most appropriate strategy, applying the strategy, and evaluating the effectiveness of the strategy.”

Facilitates goal setting, goal achievement, and skill attainment

- (1) Identify the problem,
- (2) develop alternative solutions, and
- (3) select, implement, and evaluate the solutions.



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What makes blood glucose go up or go down?

BLOOD GLUCOSE **INCREASES** WHEN WE...

- eat carbohydrate foods
- drink sugar-sweetened beverages (soda, 100% fruit juice, juice drinks, energy drinks, etc)
- experience stress – both physical and mental
- drink mixed alcohol beverages, beer, or wine
- don't take or cannot take diabetes medications/insulin
- are sick
- experience hormone changes (e.g., puberty, pregnancy, menstrual cycle, menopause, etc)
- eat meals/snacks too frequently
- are too sedentary

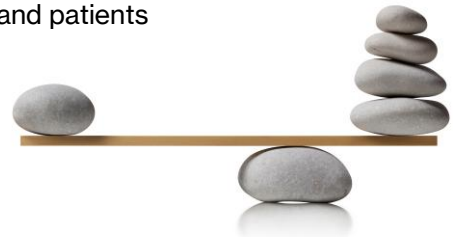
BLOOD GLUCOSE **DECREASES** WHEN WE...

- avoid or limit carbohydrate foods
- take too much medication/insulin
- drink alcohol on an empty stomach
- drink alcohol and use insulin
- exercise
- reduce stress – both physical and mental
- breathe with intention
- experience hormone changes (e.g., breastfeeding, etc)

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Identifying and overcoming barriers to DSMES

- Access – transportation, scheduling, wait times
- Cost/socioeconomic barriers – insurance coverage and lack of
 - <https://diabetes.org/diabetes-financial-impact/manage-diabetes-care-costs>
- Health literacy
- Health system limitations
- Communication challenges between health care teams and patients
- Mistrust
- Lack of social support



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Where can I find diabetes educators and programs?

- <https://www.cbdce.org/locate> - 22 individuals listed in Yakima
- <https://diabetes.org/tools-resources/diabetes-education-programs> - only program listed near Yakima is KVH in Ellensburg
- <https://www.adces.org/program-finder> - 6 programs in Yakima

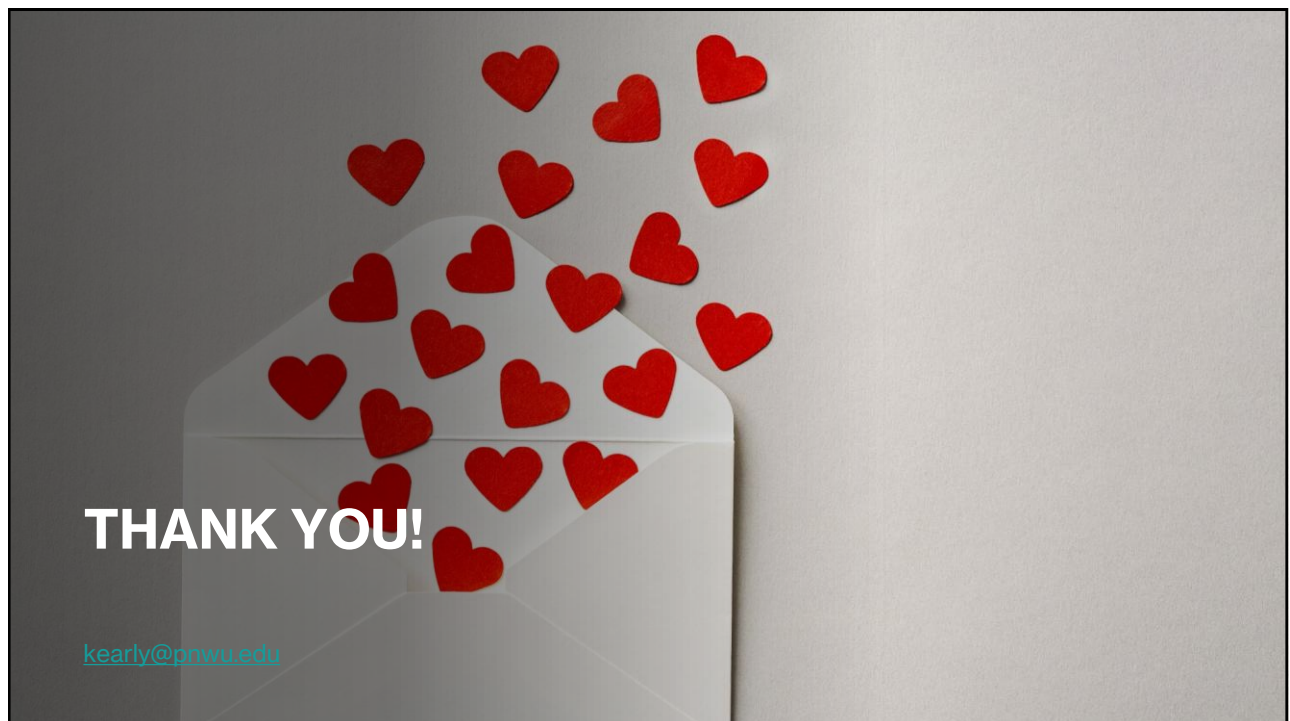


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Where can I find reliable, helpful, and trustworthy information about diabetes?

- <https://diabetes.org/about-diabetes> General evidence-based diabetes information.
- <https://beyondtype1.org/> (also includes Beyond Type 2)
- <https://www.breakthrough1d.org/t1d-community/> Focuses on type 1 diabetes, Spanish and English available.
- <https://diabetessisters.org/> Offers support for diabetes through virtual support group meetups, webinars, workshops, and a wealth of resources tailored for women.
- <https://thediabeteslink.org/> Provides peer support, resources, and leadership opportunities designed specifically for young adults with diabetes
- <https://diatribe.org/> Helping people with diabetes and prediabetes.
- <https://professional.diabetes.org/journals-resources/infographics>

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