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Coaches Training: A Guide to Diabetes Management in Special Olympics Athletes

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Diabetes

What is Diabetes?

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- Diabetes is a long-lasting disease that affects your body's ability to turn food into energy.
- Approximately 37 million US adults have diabetes
- Diabetes is thought to come about due to genetic or environmental factors and sometimes due to both.
- When people refer to diabetes, it is important to clarify because there are 2 types

Types of Diabetes

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Type 1

- Thought to be caused by the body attacking itself on accident.
- The attack on the body in turn causes the body to stop making insulin
- Currently there is no cure

Type 2

- Caused by the body's inability to successfully use insulin to keep blood sugar levels in a normal range.
- Type 2 can be prevented and managed with healthy lifestyle changes
  - For example: losing weight, eating healthy foods, and being active

Prevalence of Diabetes in ID Population

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- As of 2020, the CDC reported that 1 in 6 individuals (16.2%) with ID had been diagnosed with diabetes as compared to 1 in 14 (7.5%) without ID
- More severe complications were observed among individuals with ID
- Individuals with ID are at risk for diagnostic and treatment delays

Check Your Knowledge

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- True or False: Diabetes is thought to be caused by genetic or environmental factors, sometimes both.
- True
- As of 2020, the CDC reported 1 in how many individuals with ID were diagnosed Diabetic?
- 6

Check Your Knowledge

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- What is the difference between Type 1 and Type 2 Diabetes?
- Type 1 Diabetes is when the body attacks itself and in turn stops producing insulin.
- Type 2 Diabetes is the body's inability to effectively use insulin

Typical Diabetes Supplies

Glucometer Kit

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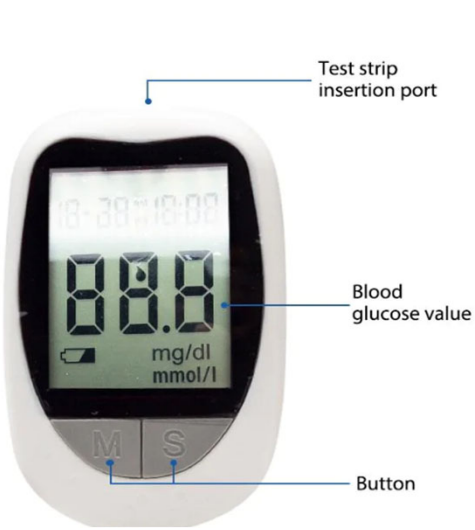
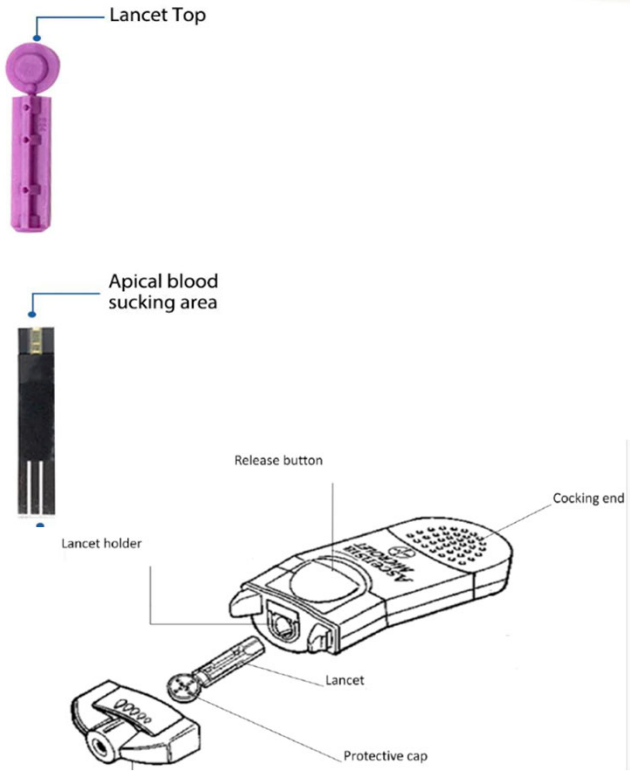
- A kit includes:
  - Glucometer
  - Poker or lancing device
  - Lancet
  - Test strips
- This kit is what allows an individual to perform a blood sugar check.





Insulin

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- Insulin pump:
  - Delivers insulin through a small plastic tube that is placed semi-permanently into the fatty layer under your skin.
  - Typical placement is in the stomach or back of the arm
- Insulin syringe:
  - Consists of a vial and syringe
- Insulin pen:
  - Pre-filled cartridges that are either inserted into a pen or are disposable and discarded once the insulin has been used
  - Dial the dose on the pen and inject into fatty part of the skin through a small needle
    - Dial dosage
    - Pinch small amount of skin
    - Inject insulin
    - Count to 10 then release skin and pull needle out

Insulin pump

Insulin pen

Insulin Management

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- The FDA recommends that unopened insulin be stored in a refrigerated environment which is approximately 36°F to 46°F in order to maintain effectiveness
- Insulin vials and cartridges open can be left unrefrigerated at temperatures between 59°F and 86 °F
- Insulin loses effectiveness when exposed to extreme temperatures, the longer the exposure the less effective insulin becomes.
- **Always** try to keep insulin as cool as possible!

Medication

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Medication for Type 2 Diabetes is generally prescribed if diet and exercise alone have not gotten blood sugar levels under control

- There are several kind of medications on the market
- Most common: Metformin
  - It will lower blood sugar levels by working with the body to manage insulin better
  - Taken by mouth 1-2x daily
- Jardiance
  - Used to lower blood sugar levels in conjunction with diet and exercise
  - Taken by mouth 1x a day
- Ozempic (Insulin)
  - Stimulate insulin production
  - Injection taken once a week
- Trulicity (Non-Insulin)
  - Assists the body in producing the insulin it is already making
  - Injection once a week

Check Your Knowledge

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- What are the components of the glucometer kit?
- Glucometer, poker, lancet, test strip

Check Your Knowledge

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- Unrefrigerated insulin should be kept at what temperature?
- 59°F and 86 °F
- True or False: Insulin does not lose effectiveness when exposed to extreme temperatures
- False! It is important to keep insulin as cool as possible

Administering a Blood Sugar Check

Steps to a Blood Sugar Check

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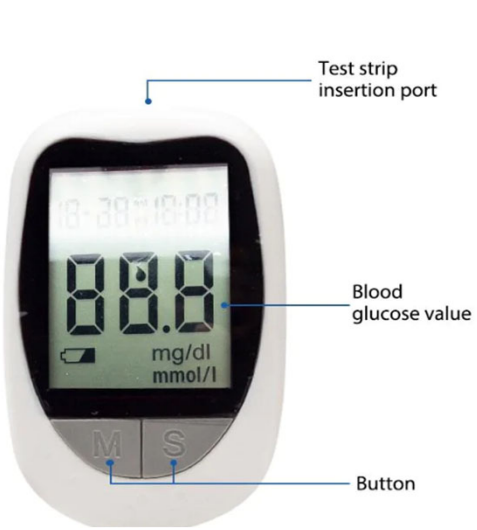
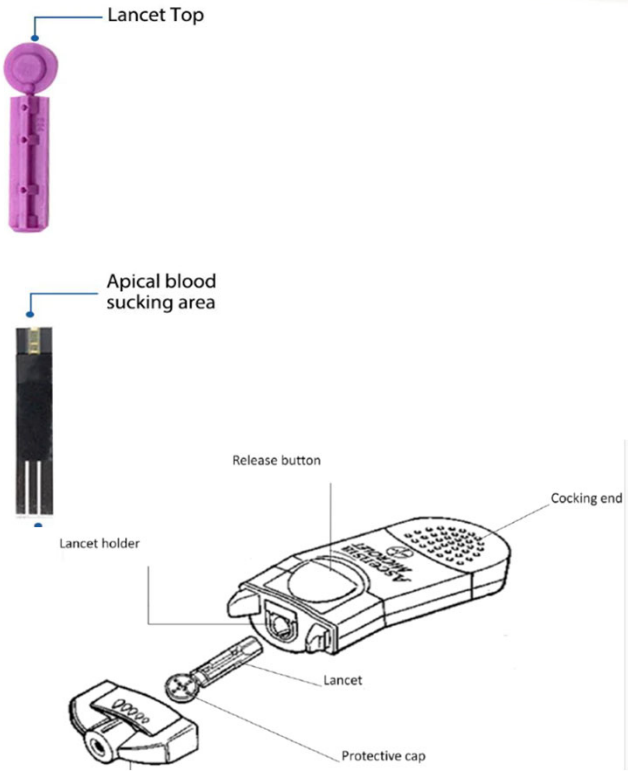
1. Ideally start with clean hands
2. Insert the test strip in the glucometer
   - The strip will either be inserted at the top or the bottom
3. Using the poker with the lancet inserted, poke the pad of a finger and lightly apply pressure until you see a drop of blood
4. Using the glucometer with the test strip inserted, lightly touch the tip of the test strip to the blood on the finger
5. Once the blood sample is collected hold a cotton ball with light pressure on the finger.
6. Wait 3-5 seconds to receive a blood sugar reading





When to Administer a Blood Sugar Check

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- A fasting blood sugar is when you first wake up and before you eat or drink anything
- Before you eat
- 2 hours after eating
- Before bed
- Before and after performing physical activity

Blood Sugar Targets

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- A blood sugar target is a range typically established by an individual's doctor on where their numbers should be
- Before you eat: 80-130 mg/dL
- Two hours after a meal below 180 mg/dL
- These are typical numbers determined by the CDC. Your athletes' targets may vary depending on their age and additional health problems that may be contributing factors to their blood sugar numbers.

Check Your Knowledge

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- When should you perform a blood sugar check?
- A fasting blood sugar, Before you eat, 2 hours after eating, Before bed, Before and after performing physical activity

How to Manage Low Blood Sugar

Low Blood Sugar

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- The CDC defines a low blood sugar as anything below 70 mg/dL
- Remember not every athlete will experience the same signs and symptoms, so it is important to understand and recognize when your athlete may be experiencing a low.
- Low blood sugar can be caused by
  - Not eating enough
  - Taking too much insulin
  - Increased exercise
- Signs
  - Shaking
  - Sweating
  - Irritability
  - Confusion
  - Dizziness
  - Increased hunger

Treating Low Blood Sugar

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- If you suspect your athlete is displaying signs of low blood sugar, follow these steps:

1. Take a blood sugar check with the athlete's glucometer
2. Determine if the blood sugar falls within your athletes designated low range
3. Once the blood sugar is determined to be low, immediately consume one of the following:
   - 4 glucose tablets
   - 4 ounces of orange juice
   - 4 ounces of **regular** soda
   - A determined amount of hard candy (skittles)
4. Wait 15 minutes and then re-check the blood sugar
5. Continue to follow step 3 until the blood sugar has returned to the "normal" range
6. It is important to follow up a low blood sugar with a meal or protein to ensure the athlete's blood sugar stays maintained.

Check Your Knowledge

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- Name 2 signs of a low blood sugar
- Shaking, Sweating, Irritability, Confusion, Dizziness, Increased hunger
- Name 2 ways to treat a low blood sugar
- 4 glucose tabs, 4 ounces of orange juice/regular soda, or 4 hard candies

How to Manage High Blood Sugar

High Blood Sugar

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- The CDC defines a high blood sugar as anything above 180 mg/dL
- High blood sugar can be caused by a variety of things:
  - Sickness
  - Stress
  - Eating too much
  - Not taking enough insulin
  - Not taking blood sugar medication
- Signs of high blood sugar:
  - Feeling very tired
  - Increased thirst
  - Blurry vision
  - Urinating frequently

Treating High Blood Sugar

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- If you suspect your athlete is displaying signs of high blood sugar, follow these steps:

1. Perform a blood sugar check
2. Increase exercise. Regular exercise can help keep blood sugar levels in an appropriate target range.
3. Take medication and insulin as instructed.
4. Ensure your athlete is checking their blood sugar routinely

Check Your Knowledge

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- List 2 symptoms of high blood sugar
- Feeling very tired, Increased thirst, Blurry vision, Urinating frequently

Occupational Therapy’s Role in Diabetes Management

OT's role in Diabetes Management

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- Occupational therapy practitioners are experts at examining performance skills and patterns needed for people to engage in their everyday activities or as we like to call them occupations.
- Occupational therapy practitioners have the skills to educate and train individuals who are at risk or who currently have diabetes to make changes to their habits and routines to develop new skills which in turn promote a healthier lifestyle and minimize disease progression.

OT's role in Diabetes Management

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- The American Association of Diabetes Education has established 7 self-care behaviors that occupational therapy practitioners can assist with. Those 7 behaviors include:
  - Healthy eating
  - Being active
  - Monitoring which include blood glucose levels as well as blood pressure, weight, foot health, and physical activity
  - Taking medications
  - Problem solving
  - Healthy coping
  - Reducing risks, which can include regularly scheduled eye exams, dental exams, etc.

OT's role in Diabetes Management

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- The AADE includes occupational therapy practitioners as part of the diabetes self-care team because of their knowledge on the impact medical conditions can have on an individual's day-to-day life and long-term functioning
- Occupational therapy practitioners utilize a holistic lens to address physical, cognitive, psychosocial, and sensory aspects essential for everyday life

OT's role in Diabetes Management

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- Occupational therapy practitioners collaborate with individuals with diabetes to create an individualized plan that prioritizes the client's needs to manage the disease effectively.
- It is up to the occupational therapy practitioner to adjust or adapt a task to ensure success and meeting of the individual's goals in managing their diabetes.

Occupational Therapy’s Role in Supporting Individuals with ID

OT's role with Individuals with ID

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- A main pillar of occupational therapy is to enable an individual's participation in society.
- Occupational therapists are educated and trained to understand the ever-changing relationship between an individual and their environment, which allows us to work within community integration programs among the intellectually disabled population.

Importance of Coach and Volunteer Education

Why is Education Important?

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- Management of diabetes is critical for any individual, but it essential in keeping our athletes healthy and able to perform to the best of their ability.
- It is necessary that all coaches are equipped with the proper tools, training, and education to assist our athletes in the management of their diabetes.
- A coach who is well educated on diabetes management can bring a sense of positivity and support to the athletes and in turn allow them the power to self-manage their disease.
- Through a coach's commitment and enthusiasm, the athlete can gain a sense of confidence within themselves.

Importance of Diabetes Education

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- Research shows that people who have received diabetes education are more likely to:
  - Use primary care and preventative services
  - Take medications as prescribed
  - Control their blood glucose levels

Let’s Practice!

Scenario 1

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- You have an athlete (Sam) that is a type 1 diabetic on your basketball team. During warmups for your first game, you notice that Sam is shaky and extra irritable. The game is about to start, and Sam is in the starting line up. What should you do?
- Very first thing when Sam arrives to the gym, you should make sure he has his glucometer and insulin.
- Next, based on his signs and symptoms and he is about to perform physical activity, suggest a blood sugar check
- Sam checks his blood sugar and reports he is 70 mg/dL…What do you do?
- Sam needs to eat some form of sugar…you decide to give him 4 skittles and take him out of the starting line up.
- Sam then rechecks his blood sugar 15 minutes later and is now 120 mg/dL…Do you let him play?

Scenario 2

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- Grace is a track athlete on your team that you know takes insulin to control her diabetes. You have a track meet in June. The temperature at 8 am is already 80°F. Grace finishes the 100-meter dash at 11 am and is about to eat lunch. She checks her blood sugar, and it is 150 mg/dL, you remind her she needs to take insulin before she eats. Grace tells you her insulin is in the car. What is the first question you should ask Grace?
- Is your insulin in a cooler?
- Her response is no…what education do you give Grace?
- Your insulin will not work correctly if it gets too hot. It is important on a hot day that you store it in a cooler.
- Having taken this diabetes training, what might you have considered doing at the beginning of the day when you saw Grace?
- Ask her if her insulin is in a cooler and if her response was no, the coach could offer to store it in the team's cooler.

Resources

Resources

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Athletes with diabetes will have one of two ways to administer a blood sugar check.

1. Glucometer
   - Uses a finger prick from the tip of any finger to measure the amount of sugar in a small sample of blood

2. A continuous glucose monitor (CGM)
   - Utilizes a sensor inserted under the skin to measure your blood sugar levels roughly every 5 minutes

When to Take a Blood Sugar
- A fasting blood sugar which typically occurs when you first wake up before you eat or drink anything.
- Before you eat
- 2 hours after you eat
- Before bed
- Before and after you perform physical activity

Blood Sugar Targets
- Before you eat: 80 to 130 mg/ dL
- Two hours after a meal: 180 mg/ dL

These are typical numbers determined by the CDC. Your athletes' targets may vary depending on their age and additional health problems that may be contributing factors to their blood sugar numbers

STEPS TO TREATING HIGH BLOOD SUGAR

It is important to always make sure your athlete has their diabetes supplies at practice and at competitions.

If you suspect your athlete is displaying signs of a high blood sugar it is necessary to follow these steps:

1. Increase exercise. Regular exercise can help keep blood sugar levels in an appropriate target range.

2. Take medication and insulin as instructed.

3. Follow an appropriate meal plan

4. Ensure that your athlete is checking their blood sugar routinely.

5. If you are concerned your athletes blood sugar could be too high, it is always a good idea to have them use their supplies to check their blood sugar.

QUICK GUIDE TO BLOOD SUGAR MANAGEMENT

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Health Intern
Special Olympics Kansas

Low Blood Sugar Management

What is a low blood sugar?

The CDC defines a low blood sugar as anything below 70 mg/dL

This can be caused from a variety of things

- Not eating enough
- Taking too much insulin
- Increased exercise

Signs of a low blood sugar:

- Shaking
- Sweating
- Irritability
- Confusion
- Dizziness
- Increased hunger

It is important to remember that not every athlete or individual will experience the same signs and symptoms. It is key to understand and recognize when an athlete may be experiencing a low blood sugar

High Blood Sugar Management

What is a high blood sugar?

A high blood sugar is defined by anything over 180 mg/dL. However, it is important to remember that every athlete can have a different range therefore a "high blood sugar" is unique to each individual.

High blood sugar can be caused by a variety of things:

- Sickness
- Stress
- Eating too much
- Not taking enough insulin
- Not taking blood sugar medication

STEPS TO TREATING LOW BLOOD SUGAR:

It is important to always make sure your athlete has their diabetes supplies at practice and at competitions.

If you suspect your athlete is displaying signs of a low blood sugar it is necessary to follow these steps:

1. Take a blood sugar using the athlete's glucometer

2. Determine if the athletes blood sugar is low. Typically, anything below 70mg/dL unless otherwise stated by the athlete or caregiver.

3. Once the blood sugar is determined to be low, immediately consume one of the following:
   a. Four glucose tablets
   b. Four ounces of orange juice
   c. Four ounces of regular soda
   d. A determined amount of hard candy (skittles)

4. Wait 15 minutes and then re-check the athletes blood sugar

5. Continue to follow step 3 until the blood sugar is above 70 mg/dL

6. It is important to follow up a low blood sugar with protein to ensure the athlete's blood sugar stays maintained.

Resources

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DIABETES PREVENTION RESOURCES

Type 2 diabetes is a serious, chronic health condition that can lead to other serious health issues such as heart disease, stroke, blindness, and kidney failure.

KDHE & CDC

The KDHE has partnered with the CDC to offer a diabetes prevention program as well as other resources to help in the prevention of diabetes.

http://bit.ly/3EJZpwt

American Diabetes Association

The American Diabetes Association offers prevention programs on lifestyle changes that could help decrease your risk for Type 2 Diabetes; such as, losing weight, tips for quitting smoking, high blood pressure risks, etc.

http://bit.ly/41w1nKT

YMCA

The YMCA offers a diabetes prevention program that encourages individuals to increase physical activity and lose weight.

http://bit.ly/3KGBBh1

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DIABETES RESOURCE LINKS

American Diabetes Association:
This is a link to a test that tells you how at risk you are for developing type 2 diabetes.
http://bit.ly/3KSqIJb

CDC:
This is a direct link to the Diabetes Self-Management Education and Support Toolkit (DSMES)
http://bit.ly/3J1J74Q
This is a direct link to the National Diabetes Prevention Program
https://bit.ly/3EJZpwt

KDHE:
This website provides information on diabetes prevention programs that the state offers as well as a self-management program through the CDC called DSMES. The KDHE provides information on partnering organizations that are external to the KDHE. This link will take you to the KDHE website where you can find more information on what resources that state offers as well as link to the partnering organizations.
http://bit.ly/3J0whDP
This allows you the ability to find healthcare providers in your area and find a self-management program
http://bit.ly/3kDtHKB

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DIABETES MANAGEMENT APPS

MySugar

- iPhone and Android
- Type 1 and 2
- Generates reports
- Integrated for both Apple Health and Google Fit
- Gives reminders
- Auto-logs
- Blood sugar level graphs
- Log meals
- Log insulin/medication
- Compatible with Accu-check meter

Social Diabetes

- iPhone and Android
- Type 1 and 2
- Healthcare teams can follow remotely
- Generates reports
- Connects with certain glucometers

Diabetes Connect

- iPhone and Android
- Type 1 and 2
- Track meals and carbs
- Syncs over multiple devices
- Generates reports for providers
- Log insulin/medication

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Wrap Up

If you have any questions about the educational module/training, please do not hesitate to reach out!

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THANK YOU!

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