

A group of young people are walking along a rocky beach. In the foreground, a young man in a green t-shirt and dark shorts is walking towards the right, smiling. Behind him, a young woman in a red top and a beige cardigan is walking, followed by several other young people. The background shows a large body of water and a forested shoreline under a clear sky.

JDRF typeone nation

TYPE 1 DIABETES & NUTRITION: IT'S MORE THAN CARBS

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Disclosure

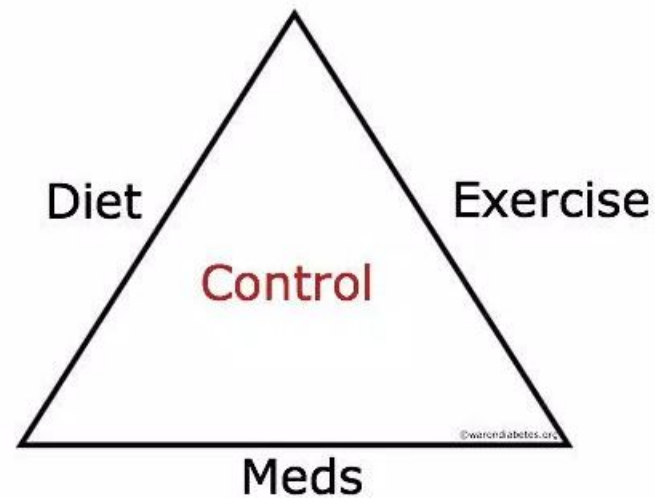
- Sarah Thelen is employed by Insulet, the maker of the OmniPod insulin pump, for the purposes of this presentation there are no financial relationships that require disclosure other than the matter of Sarah's employment.
- *Any reference made about insulin pump therapy will be made in a general reference.*

Objectives

- Attendees will be able to comfortably read, interpret, and adjust the information presented on food labels to what they are consuming, and/or purchasing
- Attendees will be able to recognize which foods are significant (and non-significant) sources of carbohydrates
- Attendees will have a more robust understanding of how other nutrients indirectly impact their blood glucose levels
- Attendees will be empowered to make more nutritious choices when away from the home
- Attendees will be able to identify hidden sources of gluten

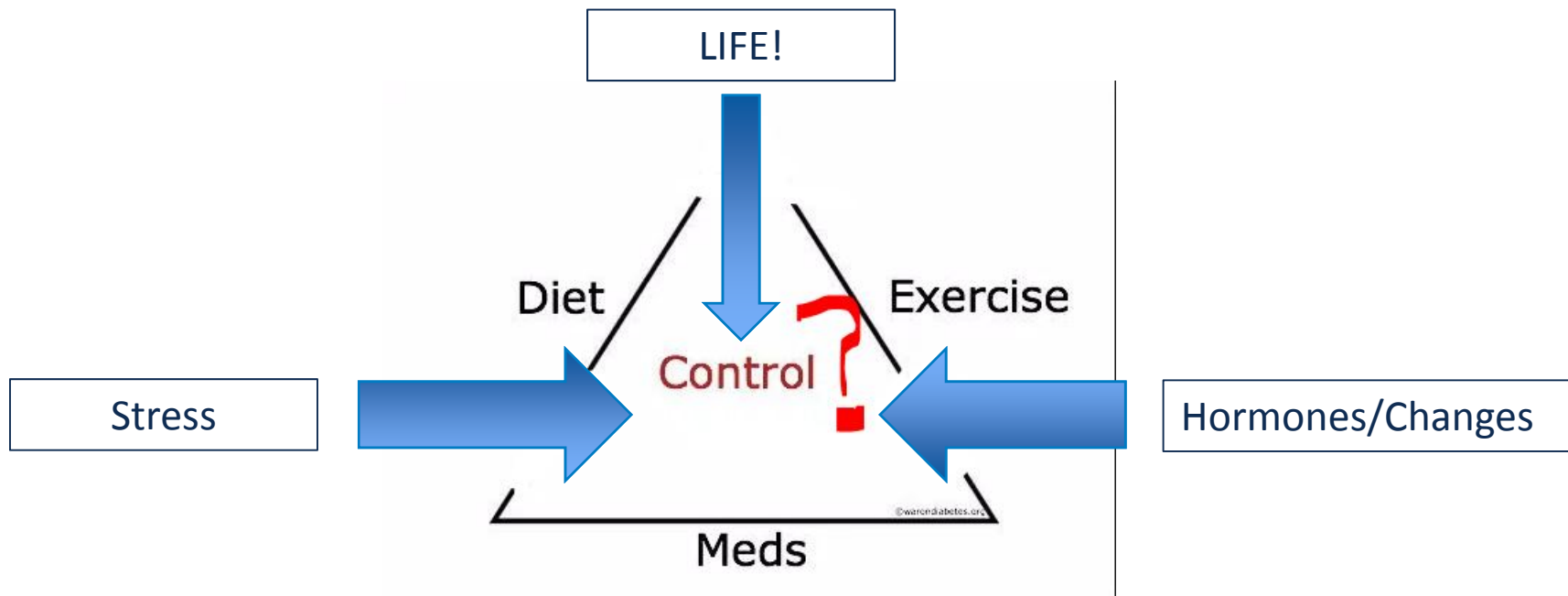
Cornerstones of Type 1 Management

- The “Diabetes Triangle/Triad”
- If management were this easy....?



Cornerstones of Type 1 Management

- We all know with certainty “control” is not as simple as these three pillars
- Achieving control may look more like this?



What is a _____ Diet?

- Good, balanced, ideal ...
- Let's shift the focus to: *“What is a nourishing diet?”*
 - Finding ways to eat foods that provide nutritional value, flavor, and enjoyment
 - Finding ways to eat the above, and balance treatment, and meet treatment goals
 - Finding ways to incorporate foods with less nutritional value (but are still really fun to eat!!!)
 - Remember foods are meant to be enjoyed, it's a way to connect with family and friends, there are social, & sensory considerations regarding our food & diet
- It really can be done!!

What is a(n) (nutritionally) adequate diet?

Key Recommendations



Consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.

A healthy eating pattern includes:^[2]

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
- Fruits, especially whole fruits
- Grains, at least half of which are whole grains
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products
- Oils

A healthy eating pattern limits:

- Saturated fats and *trans* fats, added sugars, and sodium

Guidelines to Goals

- **3 + Cups Vegetables per day**
 - Aim for a wide variety of colors, & textures
 - High nutrition value, low in caloric value
- **2-2 ½ cups Fruits per day****
 - Aim for a wide variety of colors & textures
- **7 oz whole grains per day****
 - 1 oz = 1 slice Whole grain bread
 - 1 oz = ½ cup cooked whole grains or hot cereal
- **3 cups dairy**
- **6 ½ - 7 oz protein****
 - 1 oz = 1 egg, meat, poultry, fish, game, ¼ cup cooked beans, or peas
- **Sodium intake: ~2300 mg or less**
- **Saturated fat aim for 24 g**
 - This does allot for butter lovers, & coconut oil lovers
 - 1 tsp butter = 1 serving fat
 - 1 tsp butter = ~3 – 4 g saturated fat
- **Added sugar: 55 g or less**

*** May fluctuate depending on activity level*

Macronutrient Review

- Carbohydrates
 - Main source of glucose
 - 4 calories per gram
- Protein
 - Not a source of glucose
 - Longer digestion time
 - 4 calories per gram
- Fat
 - Not a source of glucose
 - Longer digestion time
 - 9 calories/gram



Macronutrient Review: Carbohydrates

- Carbohydrates → Main energy source
 - Complex (digest slowly, absorption/glucose elevation later)
 - Green vegetables & whole plant foods, whole grains {oats/oatmeal, barley, whole grain pastas & breads}, beans, lentils, peas, sweet potatoes
 - Simple (digest quickly, absorption/glucose elevation faster)
 - Simple nutritious
 - Fruits
 - Yogurt, milk,
 - Simple “less nutritious”
 - Sugar, sugar containing products (sugar sweetened drinks, candy, refined grains/grain products)
 - Table sugar, molasses, honey, brown sugar, corn syrup, maple syrup

Macro Review: Proteins

- Animal Proteins

- Fish & Shellfish
- Chicken, turkey & other poultry
- Beef, pork, bison, lamb, venison etc

- Plant Proteins

- Beans, & lentils (combination foods)

- Protein rich foods are a wonderful way to balance out carbohydrate sources, and promote satiety in between meals
- Protein in and of itself is needed for growth, repair, plays an important role in immune function, is needed in the production of certain hormones & enzymes
- Protein is also a secondary fuel source when carbohydrates are not available



Macro Review: Fats

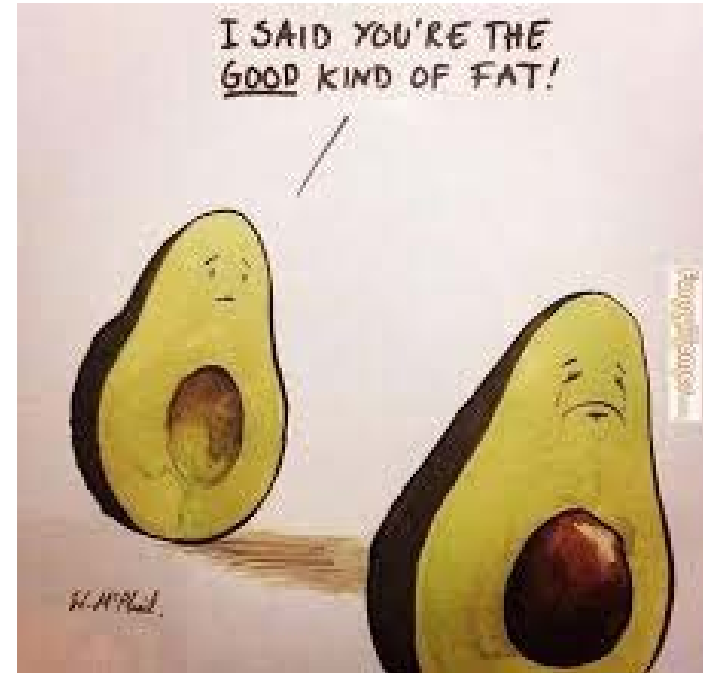
■ Animal Based Fats

- Butter, Lard, Tallow
- Fats in cheeses, meats, dairy

■ Plant Based Fats

- Olive oil
- Nut oils (almond, walnut, etc)
- Avocado oil
- Coconut oil (*saturated fat)
- Canola & Grapeseed oil

- Fats are needed for growth & development, essential for absorbing fat soluble vitamins (A, D, E, K), providing cushioning for organs, maintaining cell membranes



Other Nutrition Considerations



- Fiber
 - Do I subtract?
 - Carbs are carbs, high fiber snacks and meals still need to be covered with insulin

- “Non-Starchy Vegetables”
 - For every serving you’re taking in 5 g of carbs
 - 1 serving = 1 cup cooked vegetables (5 g carb, 25 calories)
 - 1 serving = ½ cup raw vegetables (5 g carb, 25 calories)
 - Veggies should be encouraged, consumed, and enjoyed
 - They should also be remember as a source of carbohydrate

Other Nutrition Considerations: Sweeteners

- Food Additives
 - Defined by FD&C Act (*establishes standards for premarket approval, safety, & data review, additives and new uses for additives are not just realized to market*)
 - Aspartame
 - Sucralose
 - Saccharin
- GRAS (Generally Recognized as Safe)
 - *Safety standard for GRAS foods is same as food additives, experts able to conclude on validity of evidence, which allows an exemption to the FDA pre-market review and approval.*
 - Stevia
 - Monk fruit derived sweetener (SGFE)

“What’s in a name....”

Other Terms for “Sweeteners”

- Natural sweetener
- Synthesized sweetener
- Alternative sweetener
- Sugar replacer
- Sugar substitute
- Low calorie sweetener
- Reduced calorie sweetener
- Sugar alcohol
- Polyol
- High intensity sweetener
- Intense sweetener
- No calorie sweetener
- Non-nutritive sweetener

Terms for Added Sugars

- Anhydrous dextrose
- Brown sugar
- Confectioner’s Sugar
- Corn Syrup, High Fructose Corn Syrup, Corn syrup solids
- Dextrose
- Fructose
- Honey
- Invert Sugar
- Lactose
- Malt Syrup
- Maltose
- Maple Syrup
- Molasses
- Nectar
- Raw Sugar/Coconut sugar/organic sugar
- White Sugar

Other Nutrition Considerations: Sweeteners

- A variety of sweeteners can be enjoyed in moderation
- Adding caloric sweeteners to foods (i.e. honey) is ADDING SUGAR
- Caloric sweeteners are also considered concentrated carbohydrate sources – {but can also be balanced out with insulin}



The Bottom Line: Sweeteners

- Our estimated daily intake (EDI) should not exceed acceptable daily intake (ADI)

How Much Sweetener Can You Use?

Sweetener	ADI mg/kg BW	Tabletop mg/packet	Beverages mg/ounce	150 lb (68 kg) person/day		
				Total mg	packets	ounces
Acesulfame K	15	50	4	1020	20	240
Aspartame	50	34	16	3400	100	213
Neotame	18	Not available	Not available	1224	Not available	Not available
Saccharin	5	23	3	340	15	113
Stevia (steviol glycosides)	GRAS or 4 ¹	27	3	272	10	91
Sucralose	5	11	5	340	31	68
Monk Fruit Extract	GRAS	Not available	Not available	Not available	Not available	Not available

¹ Determined by Joint Expert Committee on Food Additives of the Food and Agriculture Organization and World Health Organization

“A 150-pound adult can safely consume 2.4 cans of 12-ounce soda or 8.6 packets of sweetener containing saccharin daily. Similarly, that same adult can safely consume 17 cans of 12-ounce soda or 97.4 packets of artificial sweetener containing aspartame daily and not be adversely affected. Meanwhile, the ADI for saccharin for a 50-pound child is .8 of a 12-ounce can of soda daily and 2.8 packets of sweetener, or 5.6 cans of soda and 32.4 packets of artificial sweetener containing aspartame.”

Other Nutrition Considerations: Alcohol

- Contains 7 calories per gram, unlike macronutrients- provide no nutritional value for calories
- *“One alcoholic drink-equivalent is described as containing 14 g (0.6 fl oz) of pure alcohol”*
- The CDC Recommends 1 standard drink per day for women, and up to 2 for men (which also align with current Dietary Guidelines)
- Standard drink:
 - 1 oz spirit
 - 5 oz wine
 - 12 oz light beer



Alcohol consumption & blood glucose management

- Alcohol metabolized in liver, stopping & slowing other “responsibilities” of the liver (i.e. glucose release from liver) – a process that can already be imperfect in those with T1DM
- Accounting for the “temporary vacation” of liver releasing glucose (→ hypoglycemia), and accounting for any carbs in beverages (→ hyperglycemia) is not easy
 - For every 1 standard drink estimate liver will be “out of commission” of 1 hour per drink (i.e. 12 drinks, expect to go 12 hours without your liver not breaking down any glucose if blood sugars dip)
 - This is MUCH more difficult to account for with MDI!!!!
 - Utilizing advanced pump features can make this a less daunting task (temp basals, manual bolus, extended bolus if eating while drinking)
- Avoiding hypoglycemia {especially while consuming alcohol} is paramount!
- Remember: symptoms of alcohol consumption & hypoglycemia can be similar!

Other “Nutrition-Related” Factors

- Amounts, Timing, & Frequency
 - Three factors, often overlooked when assessing overall picture of a diet
 - How often do you enjoy something that has lower nutritional value
 - Eating 3 girl scout cookies every day or every other day does not a bad diet make
 - Eating 3 boxes of girl scout cookies in 10 days – that could raise some flags
 - Some subscribe to “90/10” or “80/20”
 - Can do what works for you
 - Portion distortion is a common saboteur, and often overlooked
 - Use measuring cups to occasionally reign in portions
 - Timing as it specifically pertains to insulin is also important



Decoding Food Claims

- “No sugar added”
 - No sugar, or no sugar containing ingredient or equivalent was added into a product in the processing
- “Sugar free”
 - Less than ½ gram sugar per serving
- “Low cholesterol”
 - 20 mg or less of cholesterol
 - Cholesterol is found in animal products
 - This labeling on plant based foods = gimmick!!!
- “Fat free”
 - Less than ½ gram of fat per serving



Label Reading

Nutrition Facts	
Serving Size 1 container (150g)	
Amount Per Serving	
Calories 100	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 60mg	2%
Total Carbohydrate 11g	4%
Dietary Fiber 0g	0%
Sugars 9g	
Protein 14g	
Vitamin A 0% • Vitamin C 4%	
Calcium 17% • Iron 0%	

*Percent Daily Values are based on a 2,000 calorie diet.

INGREDIENTS:

Skim Milk, Agave Nectar, Peaches, Live Active Cultures, Vegetable Rennet

LIVE CULTURES:

B. Lactis, L. Acidophilus,
L. Delbrueckiae Subsp. Bulgaricus,
L. Delbrueckiae Subsp. Lactis,
S. Thermophilus

Nutrition Facts	
Serving Size 1/2 cup (84g)	
Servings Per Container 4	
Amount Per Serving	
Calories 140	Calories from Fat 25
% Daily Value*	
Total Fat 2.5g	4%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 25mg	8%
Sodium 85mg	4%
Potassium 160mg	5%
Total Carbohydrate 22g	7%
Dietary Fiber 0g	0%
Sugars 21g	
Protein 6g	12%
Vitamin A 2% • Vitamin C 0%	
Calcium 20% • Iron 0%	

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories: 2,000	2,500
Total Fat	Less than 65g	80g
Sat Fat	Less than 20g	25g
Cholesterol	Less than 300mg	300mg
Sodium	Less than 2,400mg	2,400mg
Potassium	3,500mg	3,500mg
Total Carbohydrate	300g	375g
Dietary Fiber	25g	30g
Protein	50g	65g

INGREDIENTS: Skim Milk, Milk, Sugar, Milk Protein Concentrate, Cream, Sweetened Condensed Milk (Milk, Sugar), Honey, Dextrose, Contains less than 1% of Egg Yolks, Natural Flavor, Carob Bean Gum, Carrageenan, Pectin, Salt, Cultures.
CONTAINS MILK AND EGGS.
CONTAINS THE FOLLOWING CULTURES: Lactobacillus Delbrueckii Ssp Bulgaricus, Streptococcus Thermophilus, Lactobacillus Paracasei, Lactobacillus Acidophilus, Bifidobacterium.

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Label Reading Exercise

Nutrition Facts		Amount/Serving	%DV*	Amount/Serving	%DV*	Amount/Serving	%DV*
Serving Size: 1 Bar (59g)		Total Fat 13g	20%	Sodium 10mg	0%	Protein 5g	9%
Calories 250		Sat. Fat. 1.5g	6%	Total Carb. 33g	11%	Vitamin A	0%
Calories from Fat 120		Trans Fat 0g		Dietary Fiber 5g	18%	Vitamin C	2%
		Choles. 0mg	0%	Sugars 13g		Calcium	4%
						Iron	6%

*Percent Daily Values (DV) are based on a 2,000 calorie diet.



Apples + Walnuts

UPC: 18194500011 6

INGREDIENTS: Organic Brown Rice Syrup, Organic Apples (Organic Apples, Organic Apple Fiber), Organic Almond Butter, Organic Walnuts, Organic Gluten Free Rolled Oats, Organic Dates, Organic Protein Blend (Organic Brown Rice Protein, Organic Pea Protein), Organic Cinnamon. **Manufactured in a facility that processes peanuts and other nuts. May contain pit or nutshell fragments.**

Nutrition Facts	
Serving Size 1 bar (40g)	
Servings Per Container 5	
Amount Per Serving	
Calories 140	Calories from Fat 35
% Daily Value*	
Total Fat 4g	8%
Saturated Fat 2g	9%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 90mg	4%
Total Carbohydrate 29g	10%
Dietary Fiber 9g	35%
Sugars 10g	
Protein 2g	
Calcium 10%	• Iron 6%
Not a significant source of vitamin A and vitamin C.	
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g



“Fad” Diets: *Food should never promise to be anything other than tasty!*

- Paleo/High Fat High Protein
 - Growing body of evidence indicating this is not successful for sustained loss
 - Room for RAPID weight regain 2/2 glycogen binding with water
- Gluten free (not a fad for everyone)
 - A gluten free brownie is still a brownie
 - But some people NEED a GF brownie when they want a brownie
- Juicing
 - “Attractive marketing”
 - BG spikes, bottoming out
 - Fancy way to starve
- “Cleanses” or “Detoxes”
 - We have livers and kidneys for this
 - Attractive marketing



Gluten Free Guidelines: Avoid Unless Expressly Labeled “Gluten Free”

- Beer
- Breads
- Breakfast foods (waffles, pancakes – and their mixes, cereals, toast, biscuits, crepes)
- Cakes, cookies, cheesecakes (crust and filling), pies, candies, granola bars, fruit & cheese fillings
- Cereals
- Communion wafers
- Croutons
- French fries
- Gravies
- Imitation meats
- Matzo
- Pastas, noodles, grains
- Processed lunch meats
- Salad dressings
- Sauces (i.e. soy sauce)
- Fried foods
- Seasoning mixes
- Seasoned snack foods
- Pre seasoned meats
- Soups and soup bases

Hidden Gluten

- OTC drugs/meds: including MVI's and other supplements
- Shampoo, conditioner, soap, sunscreen
- Hydrolyzed vegetable protein
- Lotion & Makeup
- Pet foods (handling)
- Bleu Cheese
- Soy sauce, imitation pepper, malt
- Candies (licorice)
- Play Dough
- Hydrolyzed plant protein
- Hot chocolate
- Graham, bulgur, farina, spelt
- Hot dogs
- Ales, lagers, beers, malted beverages
- Frozen Vegetables in a sauce
- Toothpaste
- Pickles

MyPlate in the Real World



MyPlate in the Real World

- When ordering foods (formal or fast casual) focus on:
 - Ensuring you are getting your veggies
 - Turn burritos into salads
 - Order vegetable sides versus rice, pastas, potatoes
- Limit caloric beverages when dining out (or in general)
- Focus on incorporation of proteins and vegetables – carbs both nutritious and “non” will always be readily available
- Do a mental check list when ordering (veggies, protein, whole grain/fruit), and do not be afraid to ask for extra veggies (there’s rarely an upcharge)
- Get sauces and dressings on the side

Sarah's Favorites

- Quark
- Icelandic Skyr
- Greek Yogurt with fruit
- Macro Bars
- RX Bars
- Larabars
- Nuts & Olives
- Seasonal veggies & fruits
- Measuring cups
- Hardboiled eggs
 - All eggs
- Dark chocolate
- Sriracha/Hot Sauce
- Fresh herbs
- Weekend meal prep
- Nut butters
- Oils
- Cookbooks

Pearl's for a Nutritious Diet

- Embrace some weekend/weekly meal prep
- Utilize your freezer
- Allow yourself enjoyment of all foods
- Aim for incorporating your food groups before opting for indulgences
 - Veggies before cupcakes
- When dining out utilize the “plate method”
- When traveling try to follow the same “plate method”
- Remember that your favorite “fun” foods will always be there
- It's entirely ok not to clean your plate



Helpful Tech

- Lifestyle
 - MyFitnessPal
 - Calorie King
 - Utilizing pumps' advance features
 - Utilizing Integrative technology
 - Healthy Out {Gluten Free}
- Teaching/Reference
 - Figwee

Questions?

