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# Healthy Living, Sustainable Recovery Fact Sheets Webinar

***Part 1: What's On the Menu? How Eating Can Improve Recovery Outcomes***

Presented by: Annie Lindsay, PhD, FACSM



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# What's on the Menu?

*How eating can improve  
recovery outcomes?*

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# Picture a person who is malnourished

- *What do they look like?*
- *What are their symptoms?*
- *What does their lifestyle look like?*



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# Malnutrition is defined as \_\_\_\_\_ of essential nutrients

- Deficiencies
- Excesses
- Imbalances
- Impaired utilization



**Substance use is connected to all forms of malnutrition**



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World Health Organization. Malnutrition. (2024). Retrieved from  
[https://www.who.int/health-topics/malnutrition#tab=tab\\_1](https://www.who.int/health-topics/malnutrition#tab=tab_1)

# Malnutrition is common among people who use substances and during early recovery

Substance use impacts nutritional status however, various organs and functions will be impacted differently dependent on:

- *Type(s) of substances*
- *Frequency of substance use*
- *Duration of substance use*
- *Pre-existing or co-occurring health conditions*



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# Malnutrition is the result of various mechanisms

1. *Impaired absorption and/or metabolism of nutrients*
2. *Dysregulated hormonal signaling and impaired satiety cues*
3. *Changes in dietary preferences*
4. *Irregular or non-existent eating patterns*
5. *Food and housing insecurity*
6. *Poor oral health and tooth decay*
7. *Detoxification*



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Dekker, 2000; Egerer et al., 2005; Ross, 2011; Jeynes & Gibson, 2017

# Individuals in recovery are characterized by:

Malnutrition and electrolyte imbalances

Drug abstinent metabolic changes

Impaired absorption of micronutrients

Impaired satiety cues

Compromised GI health

Preferences for poor diet quality foods

Weight concerns and disordered eating

Sleep disorders

Low energy and fatigue; poor attention



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*Dekker, 2000; Ross, 2011; Jeynes & Gibson, 2017*

# Prevalence of Poor Diet

*(A study of 67 patients admitted to a public hospital detoxification unit)*

- Appetite and diet quality were poor overall
  - 88% requiring nutritional guidance
  - 50% were clinically deficient in minerals or vitamins (esp. vitamin A, iron, potassium, vitamin C, respectively)
- Prevalence of mild/moderate “malnutrition” was 24% ( $p < 0.05$ )



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*Ross, Wilson, Banks, Rezannah, Daghish, 2012*



# Considerations during recovery that can influence nutritional status

1. Dependent on stage of recovery (critical in detox and early stages)
2. Withdrawal symptoms may exacerbate poor nutritional status and dehydration
3. GI discomfort and distress
4. Medication-assisted therapy may impact appetite, weight status
5. Type of recovery setting
6. Opportunities vary to support nutrition within recovery



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# Prevalence of a Healthy Diet

*(A study of association between mental health and habitual diet - 1,046 women ages 20-93)*

- Similar to common chronic diseases, significant impact of diet quality extends to high-prevalence mental illnesses
- When compared to a “western” diet (processed foods, refined grains and high sugar) “traditional” dietary patterns (fruit, meat, fish and whole grains) were associated with lower odd of major depression and anxiety disorders



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*Jacka, Pasco, Mykletun, et al. 2010*

# Nutritious foods can support SUD recovery

- Provide adequate energy
- Replace essential nutrients
- Support physical healing processes
- Bolster immune system
- Restore and regulate hormonal signaling
- Stabilize mood
- Reduce and regulate cravings
- Support treatment outcomes



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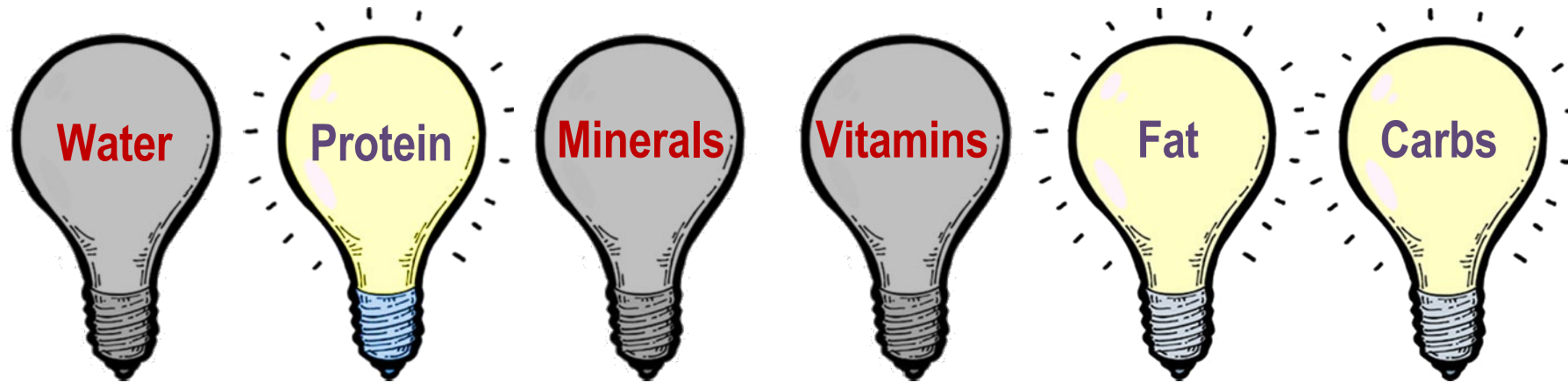
**What's on the  
menu for those in  
recovery for  
substance use?**



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# Energy Nutrients



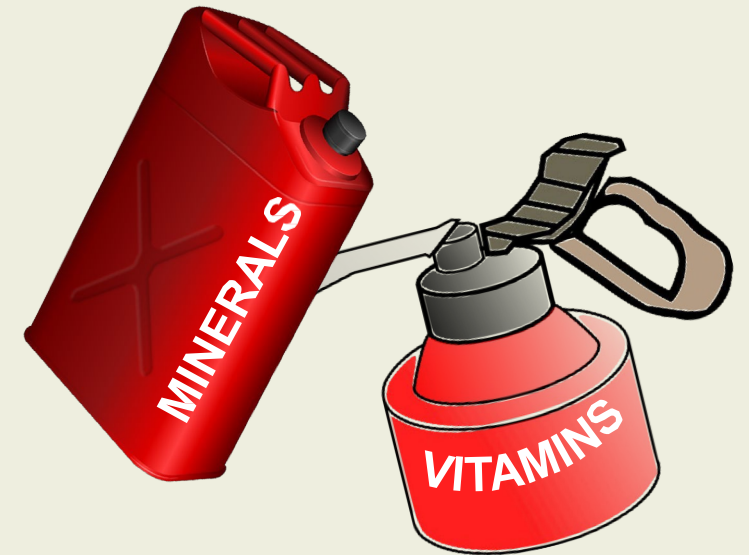
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# Nutrients



## Macronutrients



## Micronutrients



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**Protein**  
12-15% of your diet



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# Impact of Substance Use on Protein

- Protein intake is low among people who use substances (can cause protein deficiencies, especially among people who use opioids).
  - ✓ Irregular eating patterns
  - ✓ Many protein foods require cooking
  - ✓ Oral health challenges
  - ✓ Animal-based protein foods can seem more expensive
- Substance use interferes with:
  - ✓ Natural hunger, fullness, and craving signals in the body.
  - ✓ The body's ability to metabolize and use protein  
(especially among those with alcoholism or liver disease)



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- Protein-rich foods may naturally increase dopamine and serotonin during recovery.
- May reduce irritability and low mood/energy experienced during recovery
- May be linked to fewer cravings for substances and high-sugar foods and beverages.
- People eating adequate amounts of protein are more likely to have a balanced diet with a variety of nutrients, fiber, vitamins, and minerals.
  - Increased energy
  - Healing
  - Tissue repair



## Benefits of Protein during Recovery



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Mahboub et al, 2021; Kris-Etherton et al, 2021

# Considerations when adding more protein

- Encourage protein intake first thing in the morning and as a part of all meals and snacks throughout the day.
- Regular eating times that include protein are also important to help reduce cravings and restore hunger/fullness signaling in the body.
- Focus on high quality protein sources, when available.
  - A variety of plant-based source (e.g., beans, legumes)
  - Lean choices (e.g., chicken, turkey)
- Be mindful of liver function in people who have alcoholism.
- Amino acid supplementation is being explored as a therapeutic option in recovery but be cautious of the population.



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Mahboub et al, 2021; Kris-Etherton et al, 2021

# Carbohydrates

45-65% of your diet



glucose



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**Increase  
in blood  
sugar**

**Quick  
energy**


**Desire  
simple  
sugars  
(sweets,  
soda)**

**Crash - frustration,  
anxiety and cravings**

**Low blood  
sugar**

**Low blood  
sugar**





**Complex Carbs**  
**(whole grains, fiber, f/v)**



# Digestive health benefits of fiber for those in recovery

- Restores regular bowel movements for those who have specifically used opioids or opiates
- Reduces common symptoms associated with detoxification and early recovery
- Restores "good" bacteria in the gut



# Fats

25-30% of your diet



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# Types of fat

## Saturated Fats

- Mostly solid at room temperature
- Found in foods from animals and sweet foods
  - Red meat
  - Butter cheese
  - Fried foods
  - Pastries and cakes
  - Cookies and snack items
- Linked to inflammation, heart disease risk, and poor mental health



## Unsaturated Fats

- Mostly liquid at room temperature
- Higher quality type of fat
- Includes both mono- and polyunsaturated fats
- Examples include omega-6 and omega-3 fatty acids
- Found in foods from plants and fish
  - Canola, soybean, olive, and vegetable oils
  - Avocados
  - Almonds, peanuts, walnuts, pine nuts, and pecans
  - Sunflower, pumpkin, flax, and chia seeds
  - Salmon, sardines, and oily fish
- Linked to lower inflammation, reduced risk of heart disease, and improved mental health



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# Fat in the body has many functions

- Long-term energy supply
- Gives structure to every cell in the body
- Supplies essential fatty acids for signaling and structural purposes
- Absorb and transport fat-soluble vitamins
- Protect organs
- Supports temperature regulation
- Plays a role in hunger and fullness signaling
- Supports hormone signaling
- Maintains healthy skin and hair



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# Omega 3, 6 Fatty Acids support recovery and mental health

- Emphasis on increasing unsaturated fat intake during recovery AND balancing different types of unsaturated fatty acids in the diet
  - Omega 6 more common in the American diet (vegetable oils)
  - Ideal ratio of 4:1 for omega 6 and omega 3 fatty acids
  - Look for ways to increase omega 3 fatty acid intake (fish, nuts, seeds, fortified foods)
- Promising literature in people who use cocaine and alcohol and increase omega 3 intake
  - Decreased aggression, impulsivity, depressive symptoms, and anxiety
  - Decreased relapse for those who use cocaine
  - Benefits may exist for polysubstance users



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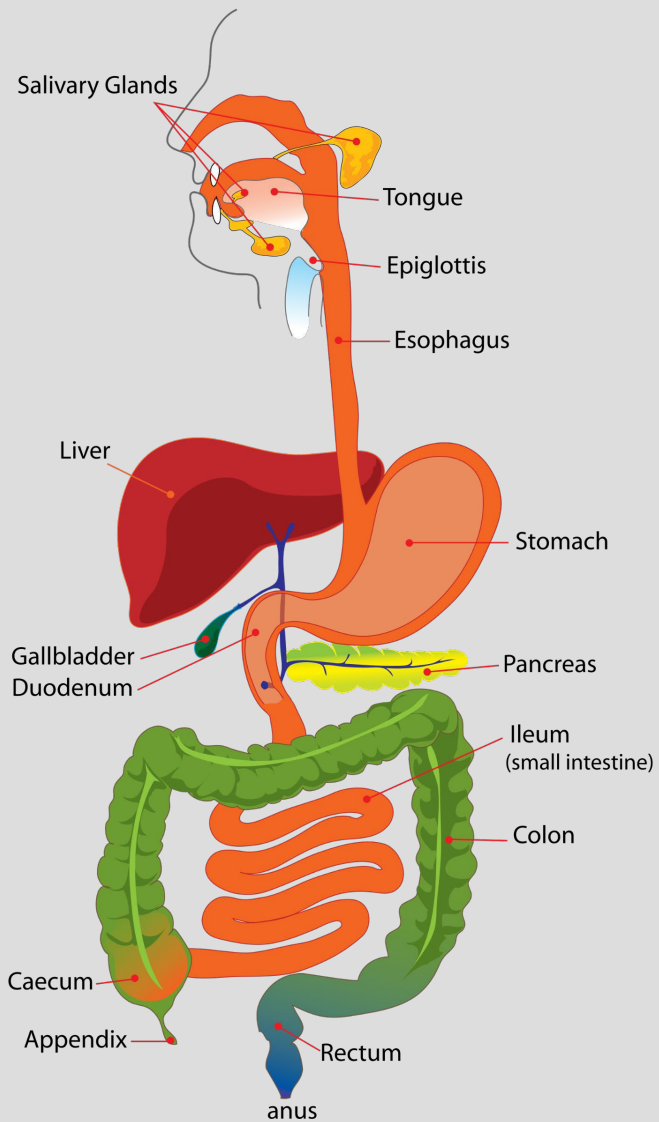
Mahboub et al, 2021; Kris-Etherton et al, 2021; Thesing et al, 2017; Ringgold, Inc, 2005

# Supporting the GUT supports the BRAIN



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Organ/ Tissue	Effects From Substance Use (depends on the substance)
Mouth	Increases risk of dental caries (cavities) due to sugary drinks and foods. Increases tooth pain, decay and loss that makes it difficult to bite, chew and swallow foods. Less saliva is produced that can't protect teeth or help breakdown food.
Stomach	Damages the lining, causing ulcers.
Small Intestine	Damages the lining and villi, preventing absorption of nutrients.
Large Intestines	Reduces amount of good gut bacteria in the large intestine, impairing vitamin absorption and nutrient processing.
Liver and Gallbladder	Alters the process of absorption and secretion of bile, damaging other systems in the body. Impairs the ability of the liver to clear toxins from the body. Increases risk of cirrhosis.

# Support for a healthy gut in recovery

**Fiber** = a type of carbohydrate that is not absorbed by the body. Examples include roughage such as the skin of potato, a strawberry seed or the stringy part of an orange. It acts as a “broom” to clean the body out as it moves through the gut.

A diet with adequate fiber can help keep blood sugar within an ideal range, lower cholesterol, provide fullness after meals, and prevent constipation and diverticulosis.

- **Soluble fiber** works by decreasing serum cholesterol and stabilizing blood glucose levels. Soluble fiber is easily absorbed by the body and includes citrus pulp, soybean hulls, oat, barley and beans.
- **Insoluble fiber** works by decreasing how much time it takes for food to move through the intestines. Insoluble fibers are not absorbed by the body but add bulk to the stool to help the body eliminate food through the gut. Sources of insoluble fiber are brown rice, carrots, celery, onions, garlic, corn hulls and many fruits, such as bananas and berries.



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**Prebiotics** plant-based fibers that diversify strains of bacteria in the gut (e.g., soldiers in the army)

- Diversifies and builds a strong immune system typically impaired or destroyed by prolonged substance use
- Produces nutrients that are crucial for brain and mental health, including biotin, vitamin B12, niacin (B3), pantothenic acid (B5), folate, vitamin D and vitamin K.
- Good sources include both soluble and insoluble fiber such as yogurt, kefir (fermented milk drink), and fermented foods such as sauerkraut and sour pickles, yogurt (live and active cultures on label).

**Probiotics** are parts of food and specific nutrients that feed the good bacteria (e.g., feed and give soldiers the support they need)

- Give the gut microbes nutrients to create short-chain fatty acids that can boost mood
- Good source include high-fiber foods, such as whole grains and fruits and vegetables, including onions, garlic, artichokes, asparagus, bananas, berries, green vegetables and tomatoes.



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# Gut health and substance use

- Gut health is complex and will be different for every person in recovery
- Substance use can interfere with enzyme production in the gut that helps break down food, causing people to have to change dietary patterns (e.g., suddenly present as lactose intolerance)
- Trauma, stress and anxiety are all associated with impaired gut function
- In efforts to reduce [weight gain](#) often experienced in recovery, people, especially women, may resort to laxatives during recovery which are associated with undesirable changes in the gut microbiota
- Digestive conditions, such as Inflammatory Bowel Disease, chronic constipation, and Crohn's Disease, affect 1:5 people who live in the U.S. There is a high likelihood that those in recovery are also experiencing a digestive condition, whether it is diagnosed or not (NIDDKD)
- Healing and restoring the gut during recovery takes time and patience. It will also change as someone moves through detoxification into long-term recovery
- Prioritizing fiber-rich foods that include both prebiotic and probiotic sources will set up an individual with the best habits to ultimately support brain and gut health



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National Institute of Diabetes and Digestive and Kidney Diseases

# Micronutrients?

- Needed in small amounts - "*micro*"
- Do not provide energy
- Essential nutrients found in food and beverages
- Support healthy development, disease prevention, optimal metabolism, and overall physical and mental wellbeing
- Includes vitamins and minerals



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# Vitamins and Minerals



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# The Role of Micronutrients during Recovery

- Physical healing, repair, mood regulation, and mental health
- Zinc and magnesium reduce the risk of anxiety
- Iron, folate, vitamins B6 and B12 may protect against:
  - Poor mental health
  - Depression
  - Fatigue
  - Poor attention
  - Difficulty sleeping
- B6, zinc, and chromium support the natural production of serotonin
- B complex vitamins support energy and metabolism



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Kris-Etherton et al, 2021; Whatnall et al, 2021;  
Du J, Zhu et al, 2016; Jeynes and Gibson, 2017

# Strategies for Adding More Micronutrients to the Diet

1. Add fruits and vegetables to the diet in a variety of ways



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# Strategies for Adding More Micronutrients to the Diet

1. Add fruits and vegetables to the diet in a variety of ways
2. Eat the rainbow



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## Helps ...

- Keep heart healthy
- Lower risk of cancer
- Keep bladder healthy
- Keep memory strong

## Try:

Apples  
Cherries  
Strawberries  
Watermelon  
Red peppers  
Raspberries

# RED

Red potatoes  
Goji berries  
Radishes  
Pomegranates  
Tomatoes  
Cranberries





## Helps ...

- Keep eyes healthy and promote good vision
- Support a strong immune system
- Keep skin healthy

## YELLOW & ORANGE

### Try:

Apricots  
Peaches  
Oranges  
Cantaloupe  
Pineapple  
Mangos

Carrots  
Squash  
Sweet  
Potatoes  
Pumpkin  
Lemons



# Helps ...

- Keep bones and teeth strong
- Lower risk of cancer
- Clot blood

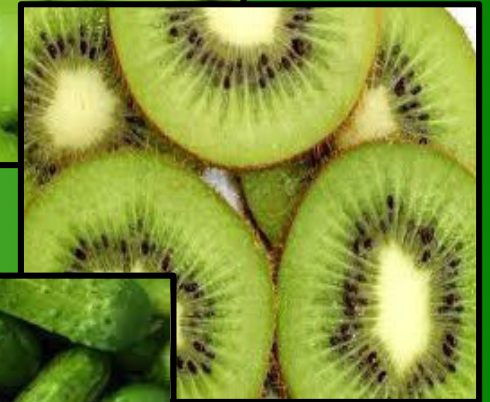
## GREEN

### Try:

Kiwi  
Green Grapes  
Broccoli  
Cucumber  
Green beans  
Honeydew  
Brussels  
Sprouts

Spinach  
Bok Choy  
Peppers  
Avocado  
Limes  
Apples  
Kale

Arugula  
Pears  
Peas  
Lettuce  
Artichokes  
Asparagus  
Wheat grass



## Helps ...

- Lower risk of cancer
- Keep bladder healthy
- Keep memory strong
- Stay healthy as you age

### Try:

Blackberries

Blueberries

Plums

Purple

grapes

Raisins

Eggplant

Boysenberries

Cabbage

Figs

## BLUE and PURPLE







## Helps your body...

- Improve blood cholesterol levels
- Lower blood pressure and prevent disease
- Lower risk of cancer

## WHITE/BROWN

### Try:

Bananas  
Potatoes  
Ginger  
Cauliflower  
Garlic

Onion  
Mushroom  
Jicama  
Plantains  
Coconut



# Strategies for Adding More Micronutrients to the Diet

1. Add fruits and vegetables to the diet in a variety of ways
2. Eat the rainbow
3. Choose foods with little nutrition less often
4. Use the nutrition facts label as a tool
5. Build cooking skills to help add nutrient rich foods to the diet
6. Talk with your healthcare providers about dietary supplements

Nutrition Facts	
3 Servings per Container	
Serving Size 2.5 oz (about 1 cup)	
Amount per serving	
<b>Calories</b>	<b>400</b>
	% Daily Value*
Total Fat 20g	28 %
Saturated Fat 5g	21%
Trans Fat 0g	
Cholesterol 7mg	2%
Sodium 402mg	17%
Total Carbohydrate 51g	39%
Dietary Fiber 2g	9%
Total Sugars	8g
Includes 0g Added Sugars	0%
Protein 11g	
Vitamin D 0µg	3%
Calcium 126mg	20%
Iron 1mg	8%
Potassium 108mg	2%
* 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.	
ENRICHED: MACARONI PRODUCT (WHEAT FLOUR, NIACIN, FERROUS SULFATE (IRON), THIAMIN MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID); CHEESE SAUCE MIX (WHEY, MILKFAT, MILK PROTEIN CONCENTRATE, SALT, SODIUM TRIPOLYPHOSPHATE, CONTAINS LESS THAN 2% OF CITRIC ACID, LACTIC ACID, SODIUM PHOSPHATE, CALCIUM PHOSPHATE, YELLOW 5, YELLOW 6, CHEESE CULTURE ENZYMES)	
CONTAINS: WHEAT, MILK	



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# Supporting Proper Nutrition

## *Building lifestyle skills and resources*

- Knowledge about nutrition may not be enough for some patients and clients in recovery
- Integrating nutrition education and culinary skill building in recovery is linked to improved outcomes during substance use recovery
- If someone has the knowledge and skills to choose and prepare nutritious foods, do they have the resources to independently complete the task at home?
  - Food access and affordability
  - Reliable kitchen access
  - Kitchen tools and utensils
- Consider local resources that support food access, affordability, and preparation



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# Water



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# Dehydration is common in people who use substances and in recovery

Dehydration = A loss of fluids from the body that may cause negative health effects and mineral and electrolyte imbalances

Lifestyle factors and choices while a person is using substances  
Symptoms of early detoxification  
Medication-assisted treatment



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# Hydration/Water

- Helps the body regulate temperature
- Lubricates joints and supports movement
- Protects important organs like the spinal cord
- Supports brain function, cognition, and concentration
- Properly removes waste from the body (e.g., urine, bowel movements)
- Helps absorption of nutrients and prescribed medications
- Moves food through the gut appropriately
- Allows fiber to function properly in the gut



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# Increase **Water** Intake

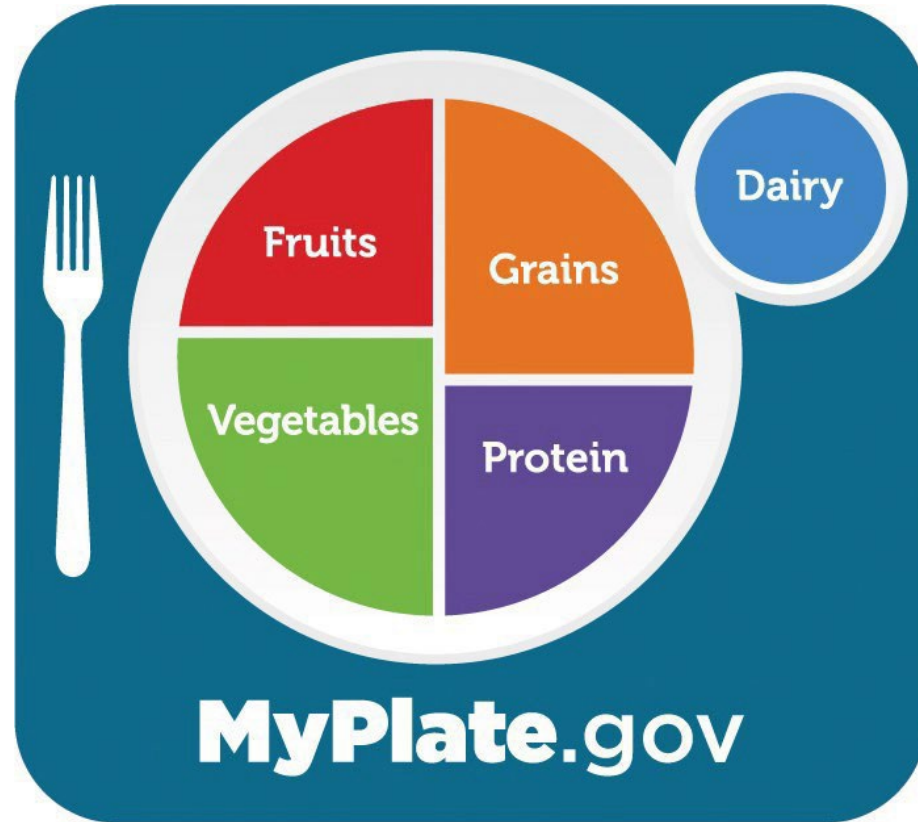
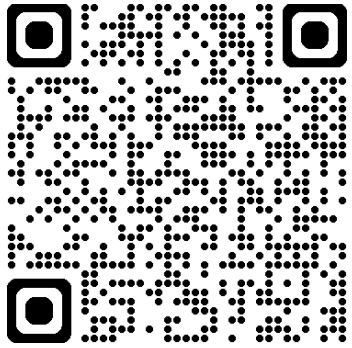
- ✓ Water, other decaffeinated beverages (w/ little to no added sugar)
- ✓ Beverages with electrolytes
- ✓ Herbal teas (no caffeine)
- ✓ Fresh fruits, vegetables and other foods with high water content
- ✓ Add extra water to juice or juice beverages
- ✓ Add fruit (fresh or frozen) to water for flavor
- ✓ Carry water bottles around all the time
- ✓ Avoid energy drinks



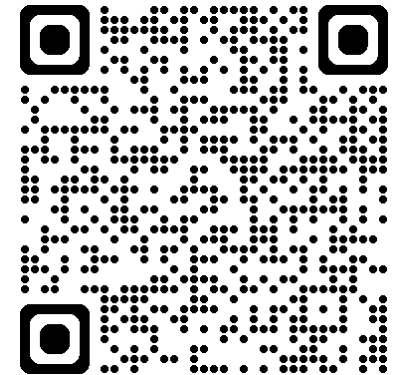
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# Vitamins & Minerals

## Carbohydrates

- Quick fuel source
- Fiber feeds microbiome, decrease constipation
- Produces serotonin (happy, stable mood)
- Affects sleep, irritability, depression (low serotonin)
- Brain needs to function
- Complex CHO critical to reduce cravings

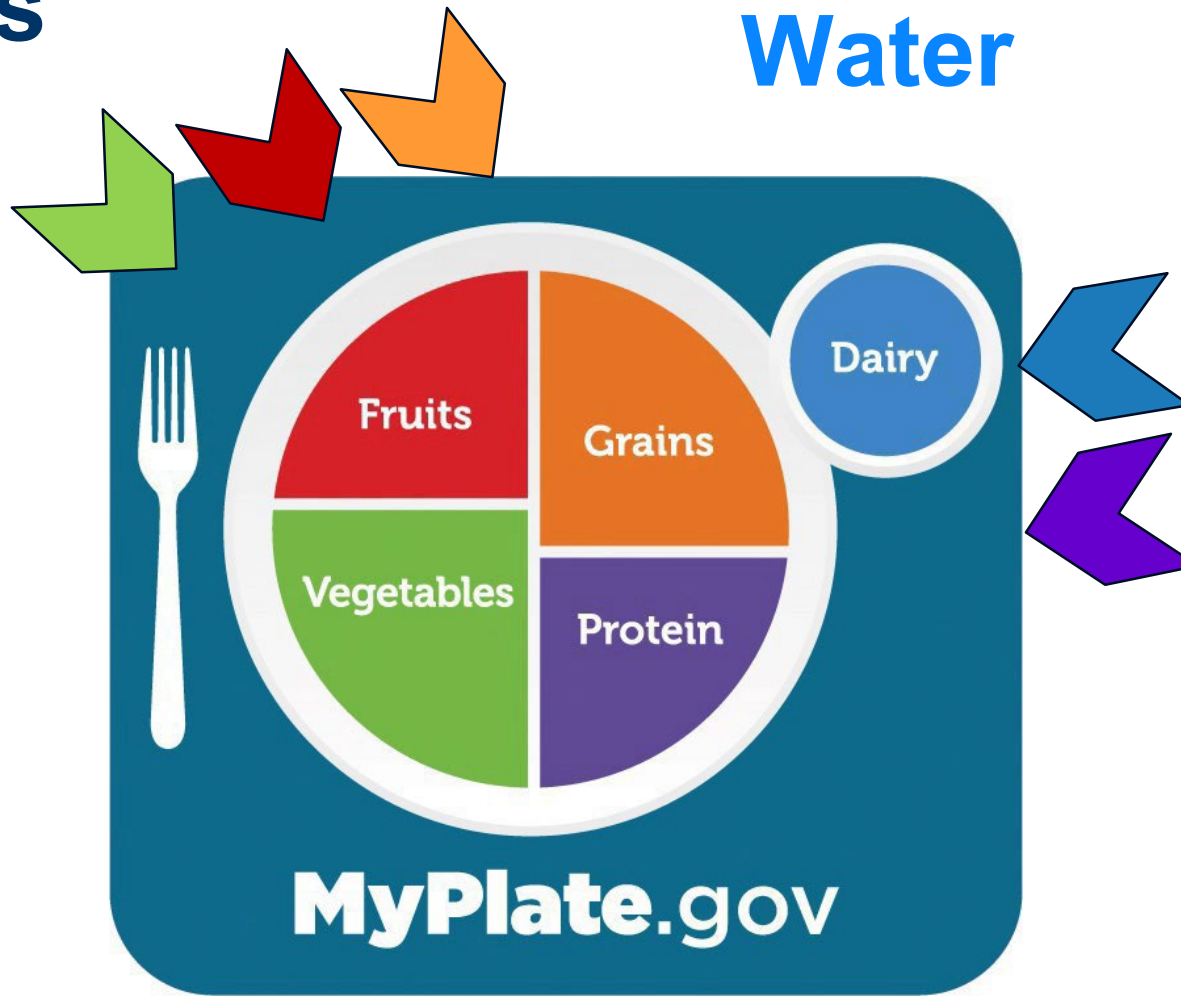
## Water

## Protein

- Chemicals in the brain are protein-based
- Helps with energy and concentration

## Fat

- Low levels neg affect mood and depressive symptoms
- Anti-inflammatory properties-decrease stress



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# Examples of 1 cup equivalents

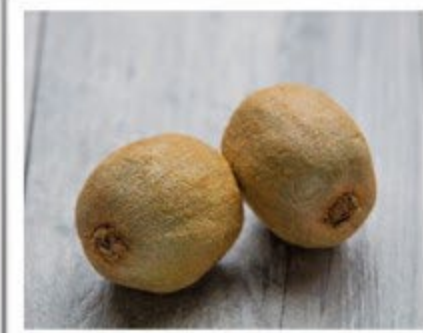
## Fruit (2 c)



1 piece of fruit the size of a baseball



1 cup of canned fruit



2 kiwi



1 medium banana



1/2 cup of dried fruit



1 cup frozen berries



1 cup of grapes



2 plums

## Are you getting enough?

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# Examples of 1 cup equivalents

# Veggies (2 1/2 c)



Vegetable the size of a lightbulb



1 cup baby carrots (about 12)



1 cup cucumber



1 baked potato (2 1/2-3 inch diameter)



2 large stalks of celery



1 cup of frozen peas



1 cup of canned corn

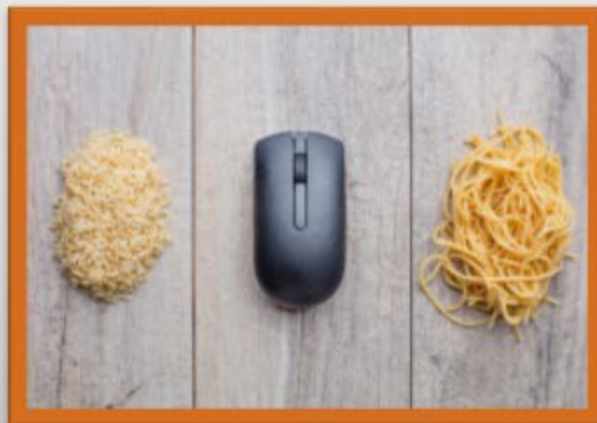


2 cups of raw spinach

## Are you eating enough?

# Examples of 1 ounce equivalents

## Grains (6 oz)



Pasta or rice the size of a computer mouse (1/2 cup)



1/2 of a hamburger bun



1 cup cereal



1/2 cup cooked oatmeal



1 pancake the size of a CD



1 slice of bread



5 whole wheat crackers



1 small tortilla (6 inch diameter)

# Examples of 3 ounce equivalents

# Protein (5 1/2 oz)



Meat the size of a deck of cards



3 ounces of canned meat



Fish the size of a smart phone

# Examples of 1 ounce equivalents

# Protein (5 1/2 oz)



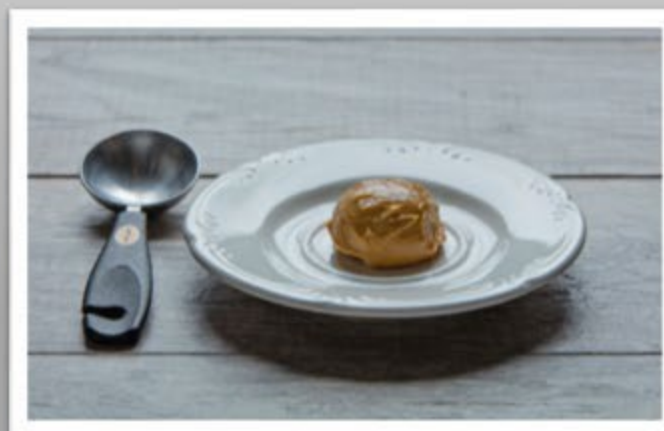
1 egg



2 TBSP of hummus



1/4 cup of beans or peas



1 TBSP of peanut butter



1/4 cup pinto beans



1/2 ounce of nuts  
(about 12 almonds)



# Examples of 1 cup equivalents

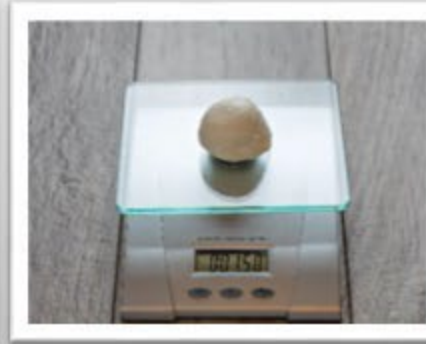
## Dairy (3 c)



Cheese the size of 2 dominoes



1 cup of milk



1.5 ounces of cheese (such as mozzarella)



1/3 cup of shredded cheese



1 cup of yogurt



1 1/2 cheese sticks



1 slice of cheese



2 cups of cottage cheese

# Group Nutrition Education Classes Are Effective

Nutrition education, particularly with a substance use treatment focus, provided within a group setting is associated with positive substance use treatment outcomes and should be included as a component of substance use treatment.



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*Grant et al., 2004*



# Thank you!

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