

# The Impact of Nutrition on Side Effect Management

## Co-Presenters

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# Objectives

- Address nutrition goals during treatment
- Review frequent side effects of myeloma treatment
- Discuss management of side effects through medications and nutrition
- What to eat when feeling well

# Myeloma Signs/Symptoms

- Bone pain or fractures
- Frequent infections
- Elevated blood calcium
- Fatigue (anemia)
- Bone abnormalities (called lesions)

# Myeloma Treatments

- Single or combination drug therapy
- Supportive care
  - Bone health
- High-dose chemotherapy followed by a stem cell transplant
- Radiation therapy
  - To single mass of myeloma cells (a plasmacytoma)
- Immunotherapy
- Clinical trials

# Myeloma Treatment Side Effects

- Infections
  - Antibiotic prophylaxis
- Anemia
  - Low red blood cell count
- Neutropenia
  - Low white blood cell count
- Thrombocytopenia
  - Low platelet count
- Neuropathy
  - Numbness or pain in arms, hands, legs, feet
- Nutrition impact symptoms

# Nutrition Impact Symptoms

- Anorexia
- Taste Changes
- Nausea/Vomiting
- Constipation
- Diarrhea
- Mouth sores
- Fatigue



# Myeloma Drugs Kill Myeloma Cells but Have Side Effects

(page 1 or 2)

	“Mides” Immunomodulatory drugs (IMiDS)			“Mibs” Proteasome Inhibitors		
	Thalomid (thalidomide)	Revlimid® (lenalidomide)	Pomalyst® pomalidomide	Velcade® (bortezomib)	Kyprolis® (carfilzomib)	Ninlaro® (ixazomib)
<b>Neuropathy (PN)</b>	✓			✓*		
<b>Thrombosis (DVT, PE)</b>	✓ more with dex	✓ more with dex	✓ more with dex		✓	
<b>Myelosuppression</b>	✓ neutropenia	✓ anemia, neutropenia, thrombocytopenia	✓ neutropenia	✓ thrombocytopenia	✓ neutropenia, thrombocytopenia	✓ thrombocytopenia
<b>Cardiopulmonary</b>	✓ slow heart rate		✓ shortness of breath	✓ hypotension	✓ shortness of breath, other	
<b>Fatigue, weakness</b>	✓	✓	✓	✓	✓	✓
<b>Sedation</b>	✓					✓
<b>Rash</b>	✓	✓	✓			
<b>GI disturbance</b>	✓ constipation	✓ diarrhea, constipation	✓ diarrhea, constipation	✓ nausea, vomiting, diarrhea	✓ nausea, vomiting, diarrhea, constipation	

PN = peripheral neuropathy; DVT = deep vein thrombosis; PE = pulmonary embolism; dex = dexamethasone; Neutropenia (low white blood cell) count; thrombocytopenia (low platelets); GI = gastrointestinal

# Myeloma Drugs Kill Myeloma Cells but Have Side Effects

(page 2 of 2)

	"Mabs" Monoclonal Antibodies		HDAC inhibitor
	Empliciti® elotuzumab	Darzalex® daratumumab	Farydak® panobinostat
Peripheral Neuropathy (PN)			
Infusion reaction	✓	✓	
Myelosuppression		✓ neutropenia, thrombocytopenia	✓ neutropenia, thrombocytopenia
Cardiopulmonary			✓ arrhythmias, ischemia
Fatigue, weakness	✓	✓	✓
Rash			
GI disturbance	✓ diarrhea, nausea	✓ diarrhea	✓ diarrhea, nausea, vomiting

Neutropenia (low white blood cell count); PN = peripheral neuropathy; Thrombocytopenia (low platelets); GI = gastrointestinal



# Nutrition During Treatment

## GOALS:

- Prevent significant weight loss or weight gain
- Combat treatment side effects that impact your ability to eat well
- Achieve optimal bone health
- Minimize risk of infection





# Nutrition Goals

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Prevent significant weight loss:

- A weight loss of 6% of one's body weight during treatment:
  - Ex: 9 lbs lost in 150 lb. person
  - Associated with decreased ability to tolerate treatment side effects
  - Can lead to malnutrition
    - Treatment delays
    - Decrease immune function
    - Increased fall risk

# How Can I Eat When I Feel So Bad?



DEALING WITH THE SIDE EFFECTS

# Poor Appetite



Anorexia: decreased or lack of appetite

- Possible causes:
  - Treatment side effect
  - Constipation
  - Nausea
  - Other unmanaged side effect:
    - Taste changes, oral thrush, diarrhea

Tips:

- Address underlying cause
- Eat every 2-3 hours
- Soft, moist foods
- High calorie, high protein beverages
  - Shakes, smoothies, supplements
- Appetite stimulants

# Taste Changes

## Good Oral Hygiene:

- ✓ Brush teeth & tongue
- ✓ Alcohol-free mouthwash
- ✓ Xylitol-containing gums

## Pre-meal baking soda rinse:

- ✓ 1 Tablespoon per 32 oz. water

## Could you have thrush???

- Fungus
- Creamy white plaques resembling milk curds; found on tongue and cheeks
- Treatment with Antifungals and good oral hygiene





# Taste Changes

## “Everything Tastes...”

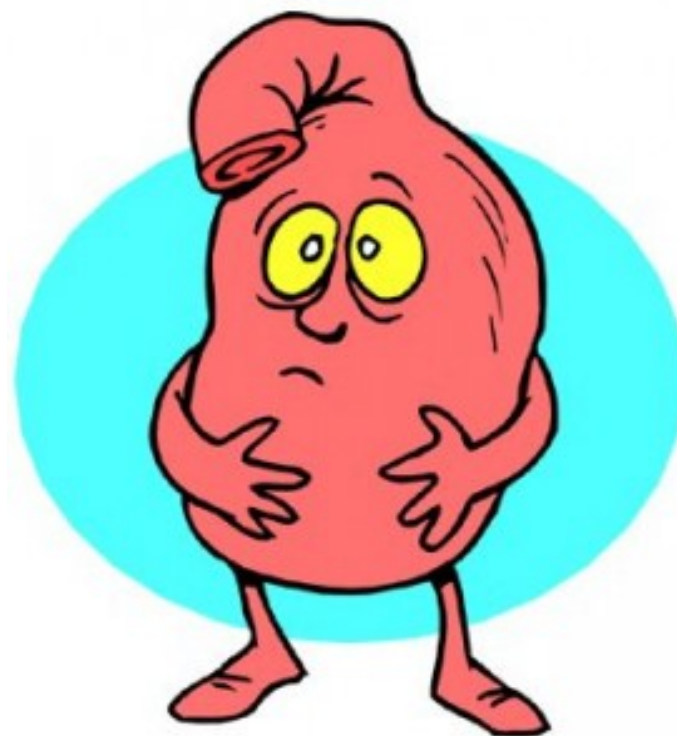
- **Metallic:** try plastic utensils, fresh/frozen foods vs. canned foods
- **Too Sweet:** Add vinegar, salt, lemon, lime or other tart/tangy/acidic flavors or coffee/mint to shakes that taste too sweet
- **Salty/Bitter:** Add fruits, jams, syrups (maple, agave), honey

## For all “off” tastes try:

- Marinades, spices, sauces
- Moist foods
- Tart/tangy flavors
- Chilled or room temperature foods
- Consider possible Zinc deficiency

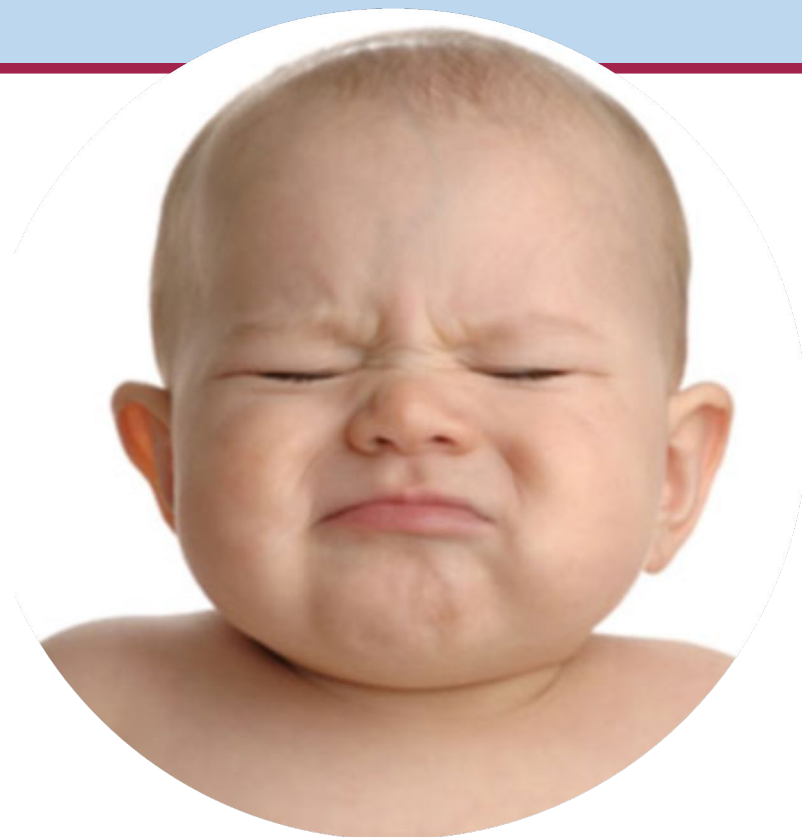
# Nausea

- Small, frequent meals and snack
- Choose “cold” foods for low odor
- Avoid greasy, fatty foods
- Drink AFTER eating
- Ginger (chews, tea, ginger ale)
- Essential oils (ginger, peppermint, lemon)
- “Sea bands”
- Take your medications!
- Manage/Prevent constipation



# Constipation

- ❑ Increase fluids > 8-10 cups/day
- ❑ Warm fluids in the morning
- ❑ Gradually increase fiber
  - ❖ Fruits, vegetables, beans, whole grains
- ❑ Prunes & prune juice
- ❑ Bowels don't move if you don't move! Get moving!
- ❑ Talk to your team about a daily "bowel regimen"
  - ❖ Stool softeners and/or laxatives



Smith LC, et al. *CJON*.2008;12(3)suppl:37-52. Faiman B. *CJON*. 2016;20(4):E100-E105.  
Oncology Nutrition for Clinical Practice, 2013

Elliott L, Levin R, McIver J. Complete Resource Kit for Oncology Nutrition. AND Publications; 2012.



# Diarrhea

- ❑ Small, frequent meals/snacks
- ❑ Dilute Juices, Sports Drinks (Gatorade, Powerade, Pedialyte)
  - ❖ Homemade electrolyte replacements
    - ❖ Ex: 1/2 cup orange, 1/4 cup lemon, 2 cup water, 2 tbsp raw honey, 1/8 tsp Himalayan salt
  - ❖ Use antidiarrheal medications as prescribed
    - May need to use preventatively

## Decrease:

- ❑ Insoluble fiber: < 2gm fiber per serving
- ❑ Oils, fats/Greasy, fatty foods
- ❑ Sorbitol (sugar-free candies, sugar alcohols)
- ❑ Alcohol & caffeine
- ❑ **High-lactose foods**
  - ❖ examples: light ice cream, milk, cream soups, rice pudding

Smith LC, et al. *CJON*.2008;12(3)suppl:37-52. Faiman B. *CJON*. 2016;20(4)  
Oncology Nutrition for Clinical Practice, 2013

# Diarrhea

Increase:

- Starches, lean proteins
- Soluble fiber: oatmeal, barley, rice, potatoes, etc.
- Probiotics
- Bulking agents: psyllium, pectin
- Non-caffeinated fluids (1 cup fluid per 1 loose stool)
- Sodium and Potassium
- Other suggested foods:
  - ❖ Noodles, bread, cereal, bananas, apples/applesauce, pears, lukewarm broths, broth-based soups, lean proteins (egg/egg whites, fish, poultry), etc.
  - ❖ **As tolerated**, include **low-fat, low-lactose** foods: yogurts, aged cheese, cream cheese, cottage cheese, lactose-free milk and other milk products



Resource: Ask Dr. Durie – “How Should Patients Eradicate or Reduce Diarrhea”

<https://www.myeloma.org/videos/how-should-myeloma-patients-eradicate-or-reduce-diarrhea-may-result-revlimid-lenalidomide>

Smith LC, et al. *CJON*.2008;12(3)suppl:37-52. Faiman B. *CJON*. 2016;20(4):E100-E105.

Oncology Nutrition for Clinical Practice, 2

Elliott L, Levin R, McIver J. Complete Resource Kit for Oncology Nutrition. AND Publications; 2012.

# Dehydration

- Symptoms: tiredness, dizziness, thirst, headache, confusion, dark urine, decreased urine output
- Critical: 60% of body weight is water
- Rule of thumb: 8 (8 oz.) cups of *fluid* daily + 8 oz. per every loose stool + extra if food intakes are low
  - Ask your team for your exact goal
- Fluids: Water is best! But, may do well with a goal of “½ water, ½ other fluids”
  - Oral Rehydration Solutions (Drip Drop, Nuun, etc.), Water enhancers (Mio), Crystal Light
- Other fluids: **decaffeinated** sodas, tea/coffee; broth, sports drinks, juices, V8 juice, coconut water, Jell-O, Pickle pops, etc.



# Mouth Sores

- Try ice chips or popsicles prior to eating
- Soft, moist foods
- Add sauces, gravies, dressings, or broths to food
- Avoid dry, crunchy foods
- Avoid potential irritants: alcohol, citrus, caffeine, tomatoes, vinegar & hot peppers
- Drink high-calorie, high-protein beverages as needed
- Use a straw to direct fluid away from sores
- Alcohol-free mouth rinses: Biotene, OR  $\frac{3}{4}$  tsp. salt + 1 tsp. baking soda + 4c water
- If pain is severe & causing weight loss: discuss prescription mouthwashes or pain medications with your team

# Fatigue

- Nutritious meals don't need to be complicated
  - Don't be afraid of frozen meals, take-out, convenience foods if this helps you
- Accept help! And ask for it!
- Increase activity
  - Physical Therapy
- Soft, moist foods
- High-calorie and protein beverages and supplements
- Communicate with your medical team:
  - Are you losing weight?
  - Are you not sleeping well?
  - Are you anxious, depressed?



# Weight Gain

- Steroids
  - Increase appetite, promote weight gain, and fluid-retention
- May be fluid-related

## Tips:

- More fruits and vegetables!
- Consume lean protein with high-fiber carbohydrates
- Try filling up on water or other calorie-free beverages before & between meals
- Try to keep portion sizes the same as before you were on steroids.
- Decrease sodium intakes
- Stay active. Build muscle!
- Don't stress about it!





# Living on Steroids

- Take with food to reduce stomach upset
- Limit Sodium
- Calcium & Vitamin D supplements
- Minimize risk for developing diabetes
  - Healthy body weight
  - Limit refined carbohydrates
  - Decrease total carbohydrates and increase fiber
- Maintain muscle/strength
  - Adequate protein
  - Exercise
- Notify your team if impacting sleep

# Infection Prevention





# Food Safety

- Cancer & treatments can weaken your immune system
- Foodborne illness or “food poisoning”
  - Caused by disease-causing bacteria, viruses, or parasites contaminating food you eat
- To protect yourselves, follow these 5 steps:
  1. **Clean** hands and surfaces often
  2. **Separate**: Don't cross-contaminate
  3. **Cook** to safe temperatures
  4. **Chill**. Refrigerate promptly
  5. **Thaw** properly





# Food Safety

Higher risk:	Lower risk:
Soft cheese made from <i>unpasteurized</i> milk	Hard or processed cheese Soft cheese from <i>pasteurized</i> milk
Undercooked meat or poultry	Meat or poultry cooked to a safe minimum internal temperature
Refrigerated smoked seafood or raw/undercooked fish/seafood	Fully cooked fish/seafood
Cold or under-heated hot dogs	Hot dog reheated to steaming hot
Cold deli cuts or luncheon meats	Grilled/hot fresh meats or deli/luncheon meats heated to steaming hot
Soft boiled, over-easy, “runny yolk” eggs	Fully cooked eggs with firm yolk and whites
Unrinsed fresh organic or conventional produce	Well-rinsed fresh organic and conventional produce
Raw or undercooked sprouts	Well-cooked sprouts

# Food Safety

For more information:

[www.fsis.usda.gov](http://www.fsis.usda.gov)

- U.S. Department of Agriculture, Food Safety & Inspection Service

<http://www.foodsafety.gov/>

- U.S. Department of Health & Human Services
  - Sign up to receive notifications of food recalls!

<https://www.fda.gov/downloads/Food/FoodborneIllnessContaminants/UCM312761.pdf>

- Or can request FREE booklet by calling: USDA Meat and Poultry Hotline @ 1-888-MPHotline





# Diet & Lifestyle

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- ✓ Maintain healthy body weight
  - Diet, exercise/physical activity, and behavioral strategies
- ✓ Eat variety of foods, high in vegetables, fruits, whole grains, and lean protein
- ✓ Eat 2.5 cups of vegetables and fruits per day
- ✓ Choose whole grains and high-fiber foods, cereals, and breads

# Diet & Lifestyle

- ✓ Choose lean proteins: fish, poultry, & tofu
  - Limit red meats & processed meats
  - Eat fatty fish at least 2 times per week
  - Choose low-fat and non-fat dairy
  - Avoid cooking at high temperatures
- ✓ Limit foods & beverages high in fat and added sugars
- ✓ Incorporate sources of healthy fats: walnuts, canola oil, flaxseed
  - Calorie-dense





# Diet & Lifestyle

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- ✓ Moderate alcohol consumption
  - If consumed at all, limit to 2 drinks for men and 1 drink for women per day
- ✓ Engage in regular physical activity
- ✓ Discuss supplements with your team

# IMF Resources

## **Ask Dr. Durie videos**

<https://www.myeloma.org/understanding/imf-tv/askdrdurie>

## **IMF Blog posts**

<https://www.myeloma.org/blogs>

## **Living Well with Myeloma: Complementary and Alternative Medicine**

<https://www.myeloma.org/videos/living-well-myeloma-complementary-alternative-medicine>

## **Living Well with Myeloma: Nutrition**

<https://www.myeloma.org/videos/living-well-myeloma-nutrition>

# References & Resources

## **AICR**

<http://www.aicr.org/>

## **American Cancer Society**

[www.cancer.org](http://www.cancer.org)

## **Academy of Nutrition and Dietetics**

[www.eatright.org](http://www.eatright.org)

## **Oncology Nutrition**

[www.oncologynutrition.org](http://www.oncologynutrition.org)

## **USDA My Plate**

[www.choosemyplate.gov](http://www.choosemyplate.gov)

## **Environmental Working Group**

[www.ewg.org](http://www.ewg.org)

## **National Cancer Institute**

[www.nci.nih.gov](http://www.nci.nih.gov)



# References & Resources

## **Memorial Sloan Kettering Cancer Center – herbs & supplements**

<https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs/search>

## **U.S. Department of Agriculture, Food Safety & Inspection Service**

[www.fsis.usda.gov](http://www.fsis.usda.gov)

## **U.S. Department of Health & Human Services**

<http://www.foodsafety.gov/>

## **Office of Dietary Supplements**

<https://ods.od.nih.gov>

## **Labdoor (supplements)**

<https://labdoor.com/rankings>

# THANK YOU!

Will take questions now

