

# Nutrition Recommendations for MPN Patients

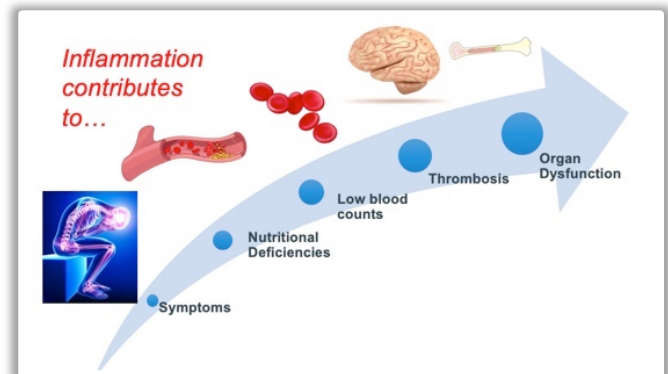
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## MPN-Specific Concerns

Myeloproliferative neoplasms (MPNs) have some unique concerns that are worth mentioning when considering dietary/nutrition recommendations, including:

- ◆ Risk of low or high blood counts
  - Certain vitamins/minerals such as Vitamin B12, folate, and iron can important for reducing risk of anemia in those that are deficient
- ◆ Elevated inflammation
  - Inflammation can contribute to many aspects of the MPN disease course, including symptoms, nutrition issues, blood counts, blood clots and organ issues such as bone marrow fibrosis or enlarged spleen.
- ◆ Weight gain due to specific medications
- ◆ Early satiety/fullness due to enlarged spleen or liver
  - Strategic approaches to nutrition timing and frequency of meals can help address this
- ◆ Excessive weight loss
  - Either due to inflammation or an enlarged spleen, some patients will experience losing weight



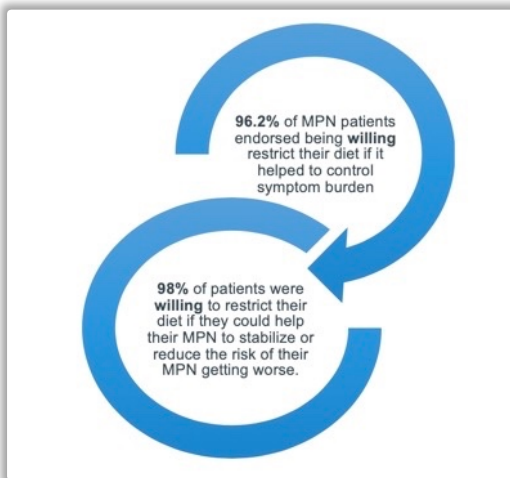
## Diets for MPN Patients?

So far there has been very little research done investigating the effects of different dietary interventions or the intake of specific nutrients/foods on MPN symptoms and health outcomes. This leaves MPN researchers, physicians, and cancer-specific dietitians opting for more general dietary recommendations that may help address some of the above MPN-specific concerns at this time. However, researchers within the MPN Quality of Life Study Group are beginning to study the effects of different dietary interventions on MPN patients.

## The NUTRIENT Survey

Based on the lack of information, a large survey of over 1300 MPN patients looked at food habits, preferences and associations. Many MPN patients already changed their eating habits to try to help their MPN symptoms. Intake of specific foods, including sugared sodas, refined/processed foods, fried foods were significantly associated with worsened symptom burden, suggesting that symptoms food intake may be an important factor in feeling well. Based on these efforts, two clinical trials are in development. See the image to the right for associations found in this study between food/diet and symptom burden among MPN patients. Foods/diets associated with worsened symptom burden score are in red, and foods associated with improved symptom burden score are in green.

Correlative	Mean symptom burden (MPN-10)		P-value
Diet	Not Following Diet	Following Diet	Pr > t
Diabetic diet	3.33	4.67	<0.0001
Lactose Intolerant	3.35	3.87	0.0433
Food Intake (Dichotomous)	Never	At Least Once Per Week	Pr > t
Alcohol	3.62	3.11	<0.0001
Fast Food	3.24	3.59	0.0015
Fried Foods	3.22	3.46	0.0198
Rice	3.57	3.30	0.0452
Soda	3.22	3.72	<0.0001
Food Intake (Continuous)		Pearson Correlation	P-value
Alcohol	-	-0.139	<0.0001
Baked Goods	-	-0.070	0.0212
Dairy other than Cheese (milk, cream)	-	-0.069	0.0240
Fast Food	-	0.104	0.0007
Fried Foods	-	0.086	0.0051
Pasta	-	-0.072	0.0183
Pre-made Snack Foods	-	0.067	0.0296
Soda	-	0.121	<0.0001
Refined Sugars	-	0.075	0.0139
Tacos	-	0.068	0.0277



## The NUTRIENT Trial

Researchers and physicians from UC Irvine and the Mays Cancer Center at UT Health San Antonio are investigating the feasibility and preliminary effects of an anti-inflammatory diet (Mediterranean diet) for MPN patients. To learn more about some of the preliminary findings (patient willingness to change their diet can be seen to the left) from this work, more information on the specifics of this study as well as the publicly available findings (when posted) can be found at the following government-maintained website: <https://clinicaltrials.gov/ct2/show/NCT03907436>

## Nutritional Ketosis & Fasting Trial

Researchers from the Mays Cancer Center at UT Health San Antonio are studying the effects of a nutritional ketosis and intermittent fasting intervention on MPN outcomes. This is a small study in ~30 MPN patients, but is the beginning of research delving into specific dietary protocols on MPN patient outcomes. There has been a growing body of evidence supporting fasting and nutritional ketosis for other chronic conditions, and it will be interesting to see this research progress in MPNs.

## Recommendations for MPNs

First, before making any changes to your diet, we strongly recommend you consult with your treating physician so that you can both discuss what would be best regarding dietary changes. The following are some general nutrition recommendations that we can provide to MPN patients, however, keep in mind that these recommendations will evolve as research in this area progresses:

- ◆ Avoid over-consuming processed and refined foods such as fast foods, boxed sweets, and sugared soda.
- ◆ Consume foods that support healthy blood (Vitamins A, C, D, E, & B12, and folate, iron, copper)
- ◆ Eat small meals frequently throughout the day to combat early satiety and avoid weight loss
- ◆ Consider including healthy foods that may also have anti-inflammatory properties such as fruits, vegetables, whole grains, nuts, oils, fish, etc. (see image to the right for some examples of anti-inflammatory foods)

