Kynurenine (KYN)

Why Kynurenine is important:
Kynurenine (KYN), a tryptophan metabolite, is used in the production of niacin (vitamin B3) and plays a critical role in inflammatory mechanisms, immune response, and neurological function. Gut bacteria influence tryptophan’s conversion into kynurenine.

Kynurenine is involved in calculating scores for:
- Immuno Fitness
- Cognitive Acuity
- Energetic Efficiency
- Emotional Balance

When Kynurenine is ABOVE optimal levels:
- It usually means that the client is experiencing chronic inflammation. The inflammation can be related to chronic infection, immune response, recent concussion, or immune system activation related to illness or autoimmune response. Elevated kynurenine can also be related to high protein or tryptophan intake, or vitamin B6 deficiency.
- The client could be experiencing general inflammation, decreased mental clarity, fatigue, or slowed recovery from exercise.
- Review the B vitamin recommendation in the nutrition section of the report and the mindfulness resources in the mindfulness library. Consider supporting your client in including a variety of vitamin B-rich foods or taking a vitamin B complex supplement like Ixcela Power.
- SMART Goal example:
  - I will prepare 10 cups of roasted carrots and sweet potatoes for dinner on Monday night and include 1 cup with lunch or dinner every day this week.

When Kynurenine is BELOW optimal levels:
- It usually means that the client’s protein intake is inadequate. This could be related to a dietary preference that limits intake of animal-based proteins (meat, poultry, dairy).
- Below-optimal kynurenine can also be linked to gut dysbiosis or B vitamin deficiencies.
- The client could be experiencing reduced energy or chronic fatigue.
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When Kynurenine is BELOW optimal levels (continued):

- Review the recommendations in the nutrition section about including tryptophan-rich foods and vitamin B-rich foods. If the client’s diet limits animal-based protein, discuss the nutritional benefits of including some animal-based foods. If they would like to continue following a plant-based diet, support them in diversifying their protein intake from plant foods.
- **SMART Goal examples:**
  - I will include ⅛ cup of pumpkin seeds on my lunch salad every day this week.
  - I will include 1 serving of tuna with lunch on Tuesday and Thursday this week.

More about Kynurenine:

- Kynurenine is a tryptophan metabolite, meaning that it is created from the amino acid tryptophan. When Kynurenine is below optimal levels, it is included in *Ixcela’s Nutrient Group*. 
- Because kynurenine is a tryptophan metabolite, including protein-rich foods in the diet is important to ensure optimal levels. Review the Personalized Daily Meal Plan for protein recommendations.
- Elevated levels of kynurenine put the body at an increased risk of inflammation. When kynurenine is above optimal levels, it is included in *Ixcela’s Stress Group*.
- Kynurenine at optimal levels can be neuroprotective, but when chronically elevated it can be neurotoxic.
- **Dairy products**, including kefir, cultured yogurt, Greek yogurt, milk, and cheeses, are sources of tryptophan and kynurenine. If dairy is excluded from the diet due to preference or allergy, focus on including other tryptophan-rich foods. Kynurenine is a tryptophan metabolite, meaning it can be synthesized from tryptophan.
- **B vitamins** influence kynurenine metabolism and vitamin B deficiencies may affect kynurenine metabolism, leading to kynurenine shifting above or below optimal levels. Review the client’s supplement recommendations for *Ixcela Power*.
- Antioxidants and **vitamin C are important for the production of downstream metabolites.** Review client’s supplement recommendations for *Ixcela Protect* when kynurenine is above optimal levels.