

31 March 2025

Dear Doctor,

**Re: Referral for Laura Cole DOB 22 August 1986**

I am writing regarding our mutual patient, Laura Cole, whom I have recently assessed at my naturopathic practice. I would appreciate your consideration of further investigations to support her comprehensive care plan.

Laura is a 38-year-old female who recently consulted me regarding several health concerns:

- Diagnosed ADHD in adulthood (30s)
- Post-natal anxiety following childbirth approximately 2.5 years ago
- Worsening premenstrual symptoms since pregnancy
- Mild OCD tendencies that have intensified post-pregnancy
- Current amenorrhea (potentially related to intensive training regimen)
- Previous iron deficiency with digestive sensitivity to supplementation
- Regular physical activity (running, swimming, cycling, weights - approximately 1 hour daily)
- Symptoms of potential histamine sensitivity (digestive discomfort and neurological symptoms following some fermented foods, red wine and onions)
- Recent bloodwork (October 2024) showing mild neutropenia and isolated elevated AST with normal other liver markers.
- Pescatarian diet (consumes fish but no other animal protein).

Based on my comprehensive assessment, I believe several overlapping mechanisms may be contributing to her current presentation, with particular concern for Relative Energy Deficiency in Sport (RED-S) given her training intensity, amenorrhea, and recent bloodwork findings. Her pescatarian diet may also be contributing to her iron status and neutropenia. To better support her holistic care, I would greatly appreciate your assistance with the following investigations:

1. Complete Blood Count with Differential
  - To further characterise the neutropenia and monitor for patterns
  - Rationale: Neutropenia alongside amenorrhea and elevated AST may indicate systemic stress from relative energy deficiency
2. Comprehensive Liver Panel
  - Full liver enzyme panel (AST, ALT, ALP, GGT, bilirubin)
  - Albumin and total protein
  - Rationale: To establish a baseline and monitor the isolated AST elevation, which may reflect muscle breakdown rather than primary liver pathology
3. Comprehensive Hormone Panel
  - Including oestradiol, progesterone, testosterone, DHEA-S, FSH, LH
    - i. Timing recommendation: If possible, collect samples at two points in her perceived cycle:
      1. Mid-cycle (approximately day 14, based on her awareness of cyclical symptoms) to assess ovulatory patterns
      2. Luteal phase (approximately 7 days before expected period would occur) to evaluate progesterone production

- Rationale: Even without visible menstruation, hormonal fluctuations may still be occurring. Timed testing can reveal whether ovulation is occurring and if luteal phase deficiency might be present. This provides crucial information about the specific nature of her amenorrhea and hormonal influences on mood fluctuations.
4. HPA Axis Assessment
    - Cortisol rhythm testing (morning, noon, evening, night)
    - Rationale: To evaluate stress response patterns affecting neurotransmitter balance, energy regulation, and hormonal cycles
  5. Enhanced Iron Studies
    - Complete iron panel including ferritin, transferrin, iron saturation, TIBC
    - To determine specific parameters of her iron deficiency which may contribute to neutropenia, and guide appropriate supplementation that respects her sensitive digestion. Particularly important given her pescatarian diet which limits heme iron sources to fish only.
  6. Thyroid Function Testing
    - TSH, free T3, free T4, reverse T3, thyroid antibodies
    - Rationale: Thyroid function significantly impacts neurotransmitter activity, menstrual regulation, and energy balance - particularly relevant with her physical training load
  7. Comprehensive Nutrient Status
    - Active B12
    - Red cell folate
    - Serum magnesium and RBC magnesium
    - Zinc and copper (with ratio assessment)
    - Omega-3 index
    - Vitamin D (25-hydroxy)
    - Homocysteine levels
    - Rationale: These nutrients are critical cofactors for neurotransmitter synthesis, energy production, immune cell production, and stress resilience. Elevated homocysteine can indicate impaired methylation capacity affecting neurotransmitter metabolism, inflammation, and cardiovascular health, while also providing insight into functional B vitamin status. Given her pescatarian diet, B12, zinc, and iron status are of particular concern.
  8. Genetic Factors
    - MTHFR buccal swab
    - Histamine metabolism assessment
    - Rationale: May provide insights into methylation capacity and histamine processing that influence both her neurological symptoms and digestive sensitivities
  9. Inflammatory Markers
    - hs-CRP, ESR
    - Rationale: To assess potential systemic inflammation contributing to mood disturbances, neutropenia, and histamine-related symptoms
  10. DEXA Scan for Bone Mineral Density
    - Comprehensive bone mineral density assessment
    - Rationale: To evaluate potential bone health implications related to her amenorrhea and intensive training regimen. Reduced oestrogen levels from hypothalamic amenorrhea can significantly impact bone mineralisation,

particularly in active individuals. Early detection allows for proactive intervention strategies to support long-term skeletal health.

#### 11. Fasting Glucose and Insulin

- Assessment of metabolic health markers
- Rationale: To evaluate energy metabolism and potential metabolic stress that may be contributing to her overall clinical picture

While awaiting these results, I have implemented a supportive protocol focusing on:

- Anti-inflammatory, low-histamine nutritional approach with adequate protein
- Enhanced recovery nutrition to support training demands
- Energy adequacy strategies to address potential RED-S
- Targeted supplementation (including NAC, fish oil, saffron and chaste tree)
- Stress regulation techniques (breathwork, grounding practices)
- Activity balance recommendations to support hormonal health alongside athletic goals
- Optimisation of her pescatarian diet to ensure adequate intake of protein, iron, B12, and other nutrients that can be limited in plant-based diets

I value our complementary approaches in supporting Laura's wellbeing. Your clinical insights alongside these investigations will enable us to provide her with truly comprehensive care that addresses both her immediate symptoms and underlying physiological imbalances.

I have encouraged Laura to maintain regular contact with your practice, and with her permission, I would be grateful to receive copies of her test results to integrate into our ongoing care plan.

Please don't hesitate to contact me if you require any further information or wish to discuss her care.

With warm professional regards,

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