

Clinical psycho-neuro-immunology practice

Understanding the metabolic burden behind persistent fatigue

This case reflects a situation that many practitioners will recognise: a client who is already familiar with lifestyle advice, has tried to apply it, and yet remains unable to create lasting change. The barrier is not knowledge, but a lack of confidence that change will make a meaningful difference.



The case concerns a 45-year-old woman with non-alcoholic fatty liver disease (NAFLD) and persistent fatigue. What shifted the trajectory was not a new intervention, but a clearer understanding of what was happening physiologically.



Background and Presentation

The client was referred by her GP following a diagnosis of NAFLD. Liver enzymes were elevated, and ultrasound confirmed increased liver fat. She had already received standard advice - reduce alcohol intake, improve diet, and increase physical activity.

Her main concern, however, was fatigue. She described waking unrefreshed, getting through work with effort, and needing evenings to recover. This had developed gradually over several years, without a clear starting point.



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She had previously attempted dietary changes and exercise programs, but these were short-lived. The common pattern was initial motivation followed by early dropout, largely because she did not feel any noticeable improvement. She described herself as “stuck” - not resistant to change, but unsure why her efforts had not led to results.



Clinical Perspective

From a Clinical Psycho-Neuro-Immunology perspective, the presentation was consistent with a broader metabolic picture. NAFLD rarely occurs in isolation and is typically associated with low-grade inflammation, altered stress physiology, and increased glycation.

Her fatigue was not separate from her liver condition - it was part of the same underlying process. The difficulty lay in making this understandable in a way that felt relevant to her day-to-day experience. Standard lab values, while informative, had not provided that connection.



Introducing AGE measurement



- ✓ Scan metabolic health and biological aging
- ✓ Immediate result on the device
- ✓ Repeat for tracking progress

To make this more tangible, Advanced Glycation End products (AGEs) were used as a functional marker.

AGEs are formed when proteins and fats are exposed to sugars, particularly in the context of metabolic stress, inflammation, and poor dietary patterns. They accumulate over time in tissues and are associated with a range of chronic conditions, including metabolic and liver disorders.

The AGE Scanner estimates this accumulation through skin autofluorescence. It is not a diagnostic tool, but it provides an indication of longer-term metabolic load. Importantly, it can be tracked over time.



Initial measurement and its effect

The client's initial AGE score was clearly elevated for her age group.

When this was explained, specifically that the measurement reflected years of accumulated physiological stress rather than recent behavior - her response shifted. She paused for a moment and then said, **"So there is actually something going on."**

That moment was important. Up to that point, her experience had been somewhat vague and difficult to validate. The measurement did not change the clinical picture, but it gave it a form she could recognize.

Intervention approach

The intervention itself was not unusual. It focused on several key areas, each addressing part of the broader metabolic load.



Stress and recovery

Attention was given to regulating her stress response. This included slow breathing exercises and adjusting her daily pacing. She had a long-standing habit of pushing through fatigue, and part of the work involved recognizing and changing that pattern.



Movement

Instead of high-intensity exercise, which she had struggled to maintain in the past, the focus shifted to steady, moderate activity (Zone 2). This felt more manageable and was easier to sustain.



Nutrition

Rather than a strict or restrictive plan, the focus was on increasing the intake of whole, plant-based foods, particularly those rich in polyphenols. Cooking methods were also discussed, with a reduction in high-temperature dry-heat preparation where possible.



Daily structure

Sleep and routine were addressed in a practical way - consistent bedtimes, light exposure, and clearer boundaries around work in the evenings.



Follow-up

AGE measurements were repeated at six, twelve, and eighteen months.

6 months: AGE levels had stabilized.

Previously, they had likely been increasing, so this was considered a positive step. She reported improved energy and more consistent sleep.

12 months: A small but clear reduction in AGE levels was seen.

Liver enzymes had improved, and she had maintained regular physical activity for several months.

18 months: The downward trend continued.

Levels were still above the reference range, but moving in the right direction. A follow-up ultrasound showed reduced liver fat. She described feeling more in control of her health.

Reflections

The outcome was gradual, which is typical in cases involving long-standing metabolic dysfunction. What stood out was not the speed of change, but the consistency. The AGE measurement did not replace clinical work,

but it influenced how the client engaged with it. Having a visible, trackable marker seemed to make the process more concrete. It also provided a way to recognize progress that might otherwise have felt too subtle.

By eighteen months, the numbers were not "normal," but they were clearly moving. That progression - slow, steady, and sustained - was ultimately what mattered.

Conclusion

This case highlights the value of helping clients understand their physiological state in a way that feels real and relevant. When that connection is made, engagement tends to improve.

The interventions themselves were straightforward. The difference lay in how they were understood and followed through over time.

