case reports
THE CARE GUIDELINES

CASE REPORT

To encourage other practitioners to consider submitting a case report for the E – News, we have restructured the format in line with recommendations from July 2014 and have left in the key guides – should you be interested just e mail info@nutri-linkltd.co. We will send you the word doc.

Case reports are profesional narratives that outline the diagnosis, treatment, and outcomes of the medical problems of one or more patients. Information from case reports can be shared for medical, scientific, or educational purposes. They provide a framework for early signals of effectiveness adverse events, and cost. Case reports and the systematically collected data from which they are written also provide feedback on clinical practice guidelines.

Case Report of a 40 year old mother whose physical & mental fatigue, poor memory & digestive symptoms resolve in time with Nutritional Therapy.

Abstract. *Summarise the following information if relevant: (1) Rationale for this case report, (2) Presenting concerns (eg, chief complaints or symptoms, diagnoses), (3) Interventions (eg, diagnostic, preventive, prognostic, therapeutic exchange), (3) Outcomes, and (4) Main lesson(s) from this case report.*

This case explores a nutritional focused approach to the resolution of an over-reaching tiredness in both body and mind in a previously very bright, very energetic woman, Mrs K.N., ran her own business before she had children. This now 40 year old woman stated she was operating at less than 25% of her previous state of being, with lack of motivation, inability to keep hold of thoughts, very poor memory and digestive problems of constipation and diarrhoea and bloating in particular.

Research that involves randomized controlled trials almost always focuses on one variable in health and how that is impacted on by one intervention. Therefore, there is inevitably a paucity of accessible, published research on a collection of symptoms such as those experienced by this woman. However, chronic fatigue syndrome (CFS) is one diagnosis that fits her and there has been research on this condition. The Centre for Disease Control in Atlanta acknowledges that it is a devastating and complex disorder.

The CDC still uses the 1994 case definition, which requires meeting three criteria:

The individual has had severe chronic fatigue for 6 or more consecutive months and the fatigue is not due to ongoing exertion or other medical conditions associated with fatigue (these other conditions need to be ruled out by a doctor after diagnostic tests have been conducted).

The fatigue significantly interferes with daily activities and work.

The individual concurrently has 4 or more of the following 8 symptoms:
- post-exertion malaise lasting more than 24 hours
- unrefreshing sleep
- significant impairment of short-term memory or concentration
- muscle pain
- pain in the joints without swelling or redness
- headaches of a new type, pattern, or severity

- tender lymph nodes in the neck or armpit
- a sore throat that is frequent or recurring

Researchers have not yet identified what causes CFS, and there are no tests to diagnose CFS. Since so many illnesses have fatigue as a symptom, doctors need to take care to rule out other conditions.

It is likely that there are multiple causes rather than a single one, and the CDC identify that infections, stress, immune dysfunction and nutritional deficiencies are possible causes. They identify that the viruses of EBV & HHV-6 & enteroviruses & even candida can be involved.

Mrs K.N. certainly had fatigue that interfered with her daily activities and work, and she had needed to delay a return to her own business which she had left for maternity leave with the intention of returning after having her two children. She could not exercise and if she did she felt awful afterwards. She had a shocking short term memory and poor concentration. She did not have muscle pain nor joint pain of any kind and nor did he have any headaches. She also slept well, in fact she had a very high need for sleep, but this was not refreshing. She was, however, very prone to digestive upsets which resulted in diarrhoea, followed by constipation.

There is no clear treatment of CFS but rather a management programme for sufferers to abide by. An individualised approach is endorsed rather than a standard approach. Mrs. K.N.'s case serves as an example of one woman's focused journey back to better health.

Key Words. *Provide 3 to 8 key words that will help potential readers search for and find this case report.*

Fatigue, CFS, lack of vitality, poor memory, reduced cognitive function, bloating, constipation, diarrhoea, candida, yeast, cravings, EBV, HHV-6.

Introduction. *Briefly summarise the background and context of this case report.*

Mrs. K.N. had been a very bright, ambitious and successful business woman. She established her own business and then left managers in charge as she took a back seat whilst she had her two children, now aged 4 and 2. Since the birth of her second son, K.N. had experienced a relatively swift onset of fatigue accompanied by a complete lack of motivation, so that she was both physically and mentally unable to get up and be motivated to achieve even simple tasks, let alone return to her work.

She had sought medical advice and 6 months later, was diagnosed with CFS and IBS but not recommended anything that might help her condition. The digestive symptoms emerged about 6 months into the fatigue state, and now varied from week to week, but daily she was troubled by gut discomfort and bloating. She was told to learn to live with it, she told me.

She met me 20 months into her fatigue. Not only could she not look after her two boys as she wished, she could felt do anything at all was beyond her capacity. In fact, she had been meaning to seek complementary health support for months before she came in to see me.

Her husband was supportive, but could not really understand what had happened to her. He needed to work which left her at home and with the kids where she functioned in a kind of dream world, she described. She could think about doing something, get the household chores done, and then it would be the end of the day and the resolution to go for a walk or look something up on-line had disappeared.

The onset had occurred when her youngest boy was about 4 months old, and she had been breast-feeding. The fatigue she experienced had forced her to stop breast-feeding and she had never felt the same since. She had slipped into a valley of slow-motion living and frustration and deep fatigue. She had tried doing some exercise in spite of the fatigue and had then needed to be in bed for a few days afterwards, so she was not inclined to engage in that again.

Presenting Concerns. *Describe the patient characteristics (eg, relevant demographics—age, gender, ethnicity, occupation) and their presenting concern(s) with relevant details of related past interventions.*

Mrs. K.N. had taken a week to complete the health questionnaires, with the help of her husband, and she had written out her health history information as well because she knew that she would be unable to tell me verbally when we met.

She was tired all the time but without any muscle or joint discomfort, could 'sleep for Britain', had a woolly head in which thoughts could emerge and then get lost rapidly. She had incredible apathy which so contrasted with her whole life until that time. For the past year or so, she had also regularly experienced tummy upsets with diarrhoea that were then followed by constipation, but either way, she had daily bloating.

Her health goals were as follows:

- To have energy & vitality
- To have focus and motivation
- To have clarity
- To get my memory back
- To be free of digestive symptoms
- To identify the underlying causes, if any

K.N. was 40 years old when we met. She was born in England of Australian parents who had lived in London shortly before she and her brother and sister were born. Originally, her great-grandparents had moved to Australia from England.

K.N. was frustrated that she had been largely unable to engage in anything meaningful in terms of addressing her poor health, but had declined anti-depressants. Unlike many patients seen in my clinic with CFS, this was her first visit to a non-medical therapist.

Clinical Findings. *Describe: (1) the medical, family, and psychosocial history including lifestyle and genetic information; (2) pertinent co-morbidities and relevant interventions (eg, self-care, other therapies); and (3) the physical examination (PE) focused on the pertinent findings including results from testing.*

No one in K.N.'s family had ever had CFS. Her father had suffered from ulcerative colitis which was managed by medications, and she put this down to very poor diet and too much alcohol. Her mother had high blood pressure, again under management of medications, and K.N. put this down to very poor diet and lack of exercise. Her brother and sister was fundamentally well with no evident health issues.

K.N. had worked very hard most of her life which was her default setting, and had engaged in all activities and events and sports at school and university and it was no surprise when she set up her own business. She was successful in terms of creativity and productivity and financially too. She acknowledged that she had no doubt worked too many hours for too many years.

Physically, K.N. was 5' 9" and had broad shoulders and looked as if she could be an athlete or swimmer. She weighed 10 stone 4 lbs (64 kg). It was quite clear though, from meeting with her that any lean muscle had disappeared and she was in fact lacking any type of physical fitness which matched her enforced very sedentary life.

When questioned, she did not recall being ill at all before the onset of fatigue, and no recollection of viral infections nor glandular fever when she had been breast-feeding.

She had seen the doctor after two weeks of feeling so extremely tired, but blood tests then and 6 months later had not identified any imbalances at all. I did not have sight of those tests but from the description it appeared as if the blood testing was haematology and biochemistry.

K.N. did look tired, with dark rings under her eyes, and a somewhat haggard appearance, it must be said.

The one test I recommended was a viral burden screening blood test, the results of which are detailed below in the Diagnostic Focus & Assessment section of this case report.

Timeline. *Create a timeline that includes specific dates and times (table, figure, or graphic).*

K.N. was born in London in 1974. She had been well as a child, very active, and had not stopped since childhood, always being on the go.

She had done well as her school and university exams, more through hard work than innate gift of intelligence, she told me. She had graduated with a 2.1 in Business Studies in 1995, and had set about establishing her own business shortly after that. She was very determined and highly motivated.

She had met her husband-to-be in the last year of university in 1994, and then they were out of contact, but after two years they met again and been together since 1996. He was more laid back, and quite different to her. K.N. had wanted to establish her business before starting a family.

In 2009, their first son was born, and all was well. K.N. was able to contribute to her company's work whilst looking after her infant.

Then in 2011 their second boy had been born. After 4 months of breast-feeding her fatigue hit home, and she had been stopped, effectively, from doing anything. She could barely keep the house functioning and needed her husband to cook her an evening meal. She had maintained a pretty good diet in spite of things, and she told me that she had always made a decision to eat well. She had resorted to some pre-prepared food but of the freshest and best quality she could buy.

She did consume wheat every day, but she used alternatives to cow's milk and did not eat dairy products, except live yogurt from time to time. She used to drink alcohol but had stopped since she was pregnant. She did have a cup of coffee in the morning, which she found helped her in a marginal way. She steered clear of refined sugar although she did feel better energy temporarily if she did eat any.

At the beginning of 2015 she had come to see me for the first time. We met on a total of eight occasions over 2015, the last of which was December 2015. Her health had almost completely returned to the way it had been

before she had had kids and she was back at work, thriving. The information below describes her determined journey with individualized nutritional therapy to reach good health again.

Diagnostic Focus and Assessment. *Provide an assessment of the (1) diagnostic methods (eg, PE, laboratory testing, imaging, questionnaires, referral); (2) diagnostic challenges (eg, financial, patient availability, cultural); (3) diagnostic reasoning including other diagnoses considered, and (4) prognostic characteristics (eg, staging) where applicable*.

The completed questionnaires were replete with underlining's and ticks and crosses and highlighted markings, reflecting the severity of K.N.'s fatigue. In the questionnaire that is divided into body systems, the digestive sections, the signs and symptoms that reflect a need for vitamins and minerals, and the adrenal section scored highly.

The blood tests that she had had done twice a few years before showed no imbalances, and no other tests had been conducted since. I recommended a viral burden blood test which assessed for antibodies and or immune reactivity to five viruses in total, being EBV, HSV-1, HSV-2, CMV & HHV-6. The results were back in 2 weeks after we met and they showed a positive above-the-range antibody count for IgG for four of the viruses (not the HSV-2) and a raised Elispot LTT (Lymphocyte Transformation Test) to EBV and CMV. The level of IgG response to HHV-6 was in the upper end of that which I had seen in over 50 patients who have undertaken this test for my clinical care.

As reported above, K.N. was unaware of any specific illness or infection that she had had, and therefore we discussed that these viral infections may well have been within her body for some time before the manifestation of the fatigue syndrome. She had also not suffered with infections or colds during her fatigue state and this may be why she had not explored an infectious link to her condition until this time.

I have encountered raised antibodies to HHV-6 in many individuals, mostly in patients with auto-immune conditions so I am more familiar with its presence than I had been a few years ago. I have read much research about it, and recognise that it is implicated in a wide range of conditions including CFS, just as the CDC acknowledge on their website.

Therapeutic Focus and Assessment. *Describe: (1) the type(s) of intervention (eg, preventive, pharmacologic, surgical, lifestyle, self-care) and (2) the administration and intensity of the intervention (eg, dosage, strength, duration, frequency).*

Based on K.N.'s history and the evidence of the blood test revealing a positive response to a number of herpetic viruses, and considering a need to support her gut lining and digestive health a therapeutic supplement programme was prepared that helped to support these aspects of her health. I also included a green powdered drink which included phospholipids that support mitochondrial ATP output which are referred to as 'NT Factor' (ProGreens Vitality with NT Factor). The recommendations were made to K.N. when we met for the second time, in February 2015.

The ButyrEn, providing the gut nourishing short chain fatty acid of butyric acid, was chosen because of my clinical experience with witnessing its benefits in so many cases where there are multiple requirements including the direct healing of the gut. The reduction in gut ammonia that ButryEn can support, can lead to a reduced brain fog and this is another reason for its choice for K.N. It also supports the gut flora and helps with gut motility.

In addition to the supplement programme I also recommended that K.N. have a trial away from all gluten including the wholemeal bread she was used to eating every day. I also emphasised the need for more vegetables which would also include a wider array of colourful phytonutrients. She was to continue with her regular protein intake. I recommended she consume more water – such as hot water with lemon since she found room temperature water not to her liking.

We met for the second time in February 2015 which is when I went through the results with her. K.N. brought me up to date with how she had been feeling in the 3 weeks since we had first met. It was typed out in advance due to her lack of confidence in being able to recall it in a conversation. There had been some curious ups and downs, starting with a down. After a week or so of meeting me, she felt that she had a mini-crash, if she could go any lower in her energy. She felt like her blood must've been turned to treacle, she told me, as she could only move really slowly and function even less well than usual. This had lasted for about 3-4 days and then the returned to her usual state of fatigue. The only notable change she had made was to stop gluten, which she had done within 3-4 days of that first consultation. She had drunk more water, eaten more veggies where she could – in soups mostly. She had yet to take any of the supplements of course.

It could well have been that she had suffered some kind of either withdrawal from gluten or detoxification of gluten-protein-immune complexes. If this was the case, then this helps to confirm that gluten was having a negative impact on her health. In this short time, it is also perhaps not surprising that she should feel any better.

I wrote out the supplements for her at that time and we agreed to meet in 4 weeks' time after that.

First Supplement Programme	
Humic Acid Cell Membrane Active (ARG)	1 caps with each meal
ProGreens Vitality (ARG)	1 scoop a.m.
Free Form Aminos (ARG)	4 with each meal
ButyrEn (ARG)	3 with lunch & 3 with dinner

March 2015 saw us meet for the third time. As usual, K.N. had typed out all relevant information. She had not experienced much change, except for one day she had a clear head which she had not had for years (although this may have been an overstatement on her part). Then it disappeared as quickly as it had emerged. It was like a thick veil being lifted and she could think clearly again and her brain was actually working. Naturally, her hopes had been raised but they were brought down to earth with a bump the very next day.

K.N. did get a sense that there was a certain shifting in her energy but this only meant that the deepest troughs were no longer present. Her husband told her that he thought she looked a bit better, facially, so she took heart from that.

Her digestive symptoms had improved, however, but these were always secondary to K.N. which is why it appeared in the conversation that nothing had improved whereas they had. She was less likely to have variable bowels, and she had less bloating. It is possible that the gluten free approach had removed a burden from within her gut, and the butyric acid and multiple green powders and probiotic substances in the ProGreens had some benefit too.

I prepared a revised supplement programme for K.N. in which I changed the Free Aminos with an NAC glutathione support as well as a digestive enzyme supplement. This specific enzyme is the most effective one I have used in my clinical experience and this may be due to the fact that it has the broadest spectrum of

enzymes that break the end and the internal chains of proteins, as well as providing effective amylases for a variety of carbohydrate foods. We agreed to meet 5 weeks later.

Second Supplement Programme	
Humic Acid Cell Membrane Active (ARG)	1 caps with breakfast & dinner
ProGreens Vitality (ARG)	1 scoop a.m. & p.m.
ButyrEn (ARG)	2 with lunch & 2 with dinner
NAC Enhanced Antiox Formula (ARG)	1 with breakfast & dinner
Full Spectrum Digest (ARG)	1 with each meal

Our fourth appointment was in April 2014. K.N. handed me the typed review of her health and she had divided it into two sections – the good news and the bad news. As I read through it, I realised that the good news really was good news in terms of her energy improving and an increase in her cognitive capacities and some further glimpses of clarity. This was very positive. The bad news was not a worsening of symptoms but rather a plateau of her symptoms and K.N. called it 'bad news' because she had not improved.

We started talking about her digestive health and it had much improved. It was fortuitous in a way that she had stopped the gluten in advance of taking any supplements and then only later taken the digestive enzyme. In this way, the step improvements could be attributable to the variables. After a week or so of taking the digestive enzyme (Full Spectrum Digest) she had felt the difference in her gut, and had experienced no diarrhoea, no constipation and again much less bloating, so that now, she had a flat tummy most of the time.

Next, we talked about the physical and mental fatigue. She was definitely finding more moments of improved mental clarity and this was in comparison to physical energy which was more of a flat-line experience. It was her cognitive function that had ups and in those "up" moments she was able to make plans and to allow her creative brain to flow again. The irony was, though, she was not able to execute those plans without the physical energy, but she drew confidence from the improvement. She had less of the dull, blurred brain feeling and this was in fact largely gone now. There was a long way to go but she felt like she was on track.

I rotated the hepatic phase II support supplement from a glutathione support to a glucuronidation support which I have often found is the most effective way to proceed rather than focus on just glutathione or a single conjugation pathway unless there is a very specific reason for it.

We agreed to meet in 8 weeks after that.

Third Supplement Programme	
Humic Acid Cell Membrane Active (ARG)	1 caps with breakfast & dinner
ProGreens Vitality (ARG)	1 scoop a.m.
ButyrEn (ARG)	3 with dinner
Ca-D-Glucarate (BRC)	1 with breakfast & dinner
Full Spectrum Digest (ARG)	1 with each meal

In June 2014, we met for the fifth time. K.N. had produced some notes for me, and from the way she walked into the room I could tell that her physical state had improved.

We started to talk about the food she had been eating, and what she had not been eating, which is the usual starting conversation in follow up appointments. K.N. had avoided gluten, and was often reminded of how bad she felt shortly after avoiding it, and this was powerful enough to have her avoid gluten 100%. By reducing the

inflammation from this source, it was surely reducing the overall burden of inflammation within her body. Whether this was having an impact on its own, though was questionable.

K.N.'s digestive symptoms were non-existent and she was very pleased about this, but the real focus was on her brain and body energy. She had experienced some really crystal clear thinking days, and now her body seemed to be responding. She had the opportunity of going for a walk and had felt fine both during and after this. She had not exerted herself or begun a graduated training programme about which she had read. She was on her feet more during the day, needed an hour less sleep than two months before. She was experiencing the real benefits after some months on a focused programme.

As per the last visit, I maintained the supplement programme largely as is was, but I swapped the calcium-d-glucarate for a sustained release lipoic acid, which supports the glutathione pathway more. Both antioxidants may support the NO / ONOO cycle. Due to the length of time she had taken ButyrEn I stopped this and replaced it with a formula that helped to bind to toxins in the gut (Whole GI Wellness) to support the ongoing elimination of endogenous toxins and bound viral debris (to the humic acid).

We planned to meet at the very beginning of September.

Fourth Supplement Programme	
Humic Acid Cell Membrane Active (ARG)	1 caps with breakfast & dinner
ProGreens Vitality (ARG)	1 scoop a.m.
ALA Release (ARG)	1 with each meal
Full Spectrum Digest (ARG)	1 with each meal
Whole GI Wellness (ARG)	2 with each meal

About 10 weeks after the previous appointment, we met for the sixth time. K.N. reported that her mental clarity, focus, concentration and memory were all noticeably better, and were slightly ahead of her physical strength and endurance. She was considerably more able to engage in physical demands with her boys, and she could walk to the nursery and carry her youngest son now which she had not been able to do for so many months.

She had very few bad days and mostly she was on the up. Sometimes she felt like she hit the ceiling of energy and had a bit of a bump and had learned to pace herself. She was a very determined woman, and I wondered at how someone else with less experience of determined perseverance would have handled this type of CFS.

K.N.'s digestive symptoms were now a memory only, it was very pleasing to hear.

She estimated that overall she was probably 60-70% better overall, and this was evident from conversations with her husband. She was frustrated with the time it was taking and had duly read all of the information I could pass on to her about the NO / ONOO cycle which she confessed she could hardly understand but she got the gist. That she understood the imbalance was a feed forward cycle (i.e. a vicious cycle) really helped in her ability NOT to push it too much, and helped her to accept the pace of improvement.

I maintained the dose of Humic acid and the digestive enzyme and I reverted back to the NAC supplement and added a glutathione with vitamin C support, which helps to support GI levels of glutathione – whereas the NAC more helps the hepatic levels of glutathione. I decided to stop the ProGreens Vitality powder here to see what difference may occur without this multi green extract supplement just in case the NT Factor lipids were contributing to some mitochondrial mitophagy which could contribute to a triggering of the inflammasome.

Although not a direct replacement, I did then introduce a formula called Whole GI Wellness which includes modified citrus pectin and chlorophyll which help to bind to toxins in the gut.

Fifth Supplement Programme	
Humic Acid Cell Membrane Active (ARG)	1 caps with breakfast & dinner
Full Spectrum Digest (ARG)	1 with each meal
Whole GI Wellness (ARG)	2 with each meal
NAC Enhanced Antiox (ARG)	1 with each meal
Gluta-Ascorbs (ARG)	1 caps 20 mins after each meal

K.N. wanted to make as much progress as possible so we met in 4 weeks after that in October, being the seventh time. Thanks to her diligence in keeping to the programme and not over-doing it she had continued to make steady progress. Some days, she told me, her brain was right on track and operating as it used to. Still, this was not the case with her body strength and endurance, however. She had climbed some stairs whilst holding her youngest and for the first time she really felt the impact of that physical endeavor the next day and the day after. This showed us both how fragile, potentially, her energy balance was.

I amended the programme with a special formula to support her brain function and nervous system (incl acetyl-l-carnitine) and re-introduced the Free Aminos which also offer glucogenic amino acids for energy and endurance too. I have found that athletes can stretch their endurance times considerably (i.e. by as much as 30-60 mins in addition to the 3-4 hours of training) more whilst taking the Free Aminos and I believed this could be useful for K.N. She told me she would monitor her exercise tolerance, by stepping up her walks and the speed at which she walked.

Sixth Supplement Programme	
Humic Acid Cell Membrane Active (ARG)	1 caps with breakfast & dinner
Full Spectrum Digest (ARG)	1 with lunch & dinner
Whole GI Wellness (ARG)	2 with lunch & dinner
Free Aminos (ARG)	4 with breakfast & dinner
Cognitive Enhancer (BRC)	1 caps 20 mins before each meal

We met in November for the eighth time in early December 2015. K.N. told me that she had walked up the stairs to the 4th floor practice in which I work for the first time. It is quite a climb. She was puffing a bit, but then everyone does.

She gave me an outline of her diet and what she and had not been eating and drinking, and confirmed that she had, as usual, taken the supplements as prescribed.

I asked K.N. about her physical energy and exercise tolerance. “It’s definitely much better, and in spite of doing a speed walk a day for 20 mins I am still feeling fine”. She had not raised her heart rate above the anaerobic threshold as far as she was aware and did not want to. She wanted to get back to healthy normal living and get to use her brain for more than washing the clothes, preparing packed lunches, and tidying the house.

She was at least 85-90% better on a physical level and probably over 90% better on a cognitive / mental level. She was overall delighted, but this was always tinged with frustration and upset that she had become ill in the first place. I discussed this with her and highlighted that these very thoughts and feelings may themselves contribute to a negative effect in her body, which she understood, and so we agreed that she would explore some means of helping to let these things go, and the start was on-going meditation.

I asked her to give me an update after Christmas. As a kind of reward for all of her hard work, her husband was taking the family to Mauritius for a much needed holiday over Christmas and the New Year, and the sunshine was bound to be of help.

I changed the supplement programme by adding in the active B vitamin formula Bio-3B-G (BRC) which supports energy and the nervous system and discontinued the Free Aminos. I felt that the Humic Acid could be stopped and that the viral burden had successfully been inhibited. In my experience, the

Seventh Supplement Programme	
Full Spectrum Digest (ARG)	1 with lunch & dinner
Whole GI Wellness (ARG)	2 with lunch & dinner
Free Aminos (ARG)	4 with breakfast & dinner
Cognitive Enhancer (BRC)	1 caps 20 mins before each meal
Bio-3B-G (BRC)	3 with each meal

In January 2016, I spoke with K.N. after the phone so I could not tell how well she looked from the sunshine from the Indian Ocean. She sounded very well and told me that she was a completely different person from a year ago, when we had first met.

She had achieved all of her goals, with the one caveat that she had deliberately controlled her energy and exercise output so as not to push beyond the 'invisible threshold' that may lead to her post-exercise malaise.

She had her energy & vitality back, and she had the focus and motivation to make up for lost time, she had mental clarity and it was honed with the additional sense of how things can be lost and then found again. She was free of all digestive symptoms. She and I were confident that we had compressed/managed the viral burden which was evidently involved, but not proven, to be the cause or trigger of her fatigue condition.

K.N. spent a year on an extensive supplement programme, and continues to do so to maintain her improved health, plus eight appointment fees and considerable discipline in order to recoup her health. For her it has been well worth it, and this is rather obvious in hindsight. Given that it was the only lifeline she had and the first type of intervention therapy, there is no frame of reference, either. For some with CFS this is exactly what it takes to be well, and it may require ongoing supportive nutritional support combined with a paced exercise programme to maintain it. Lastly, for each individual there may be a different programme required, making this an extremely complex condition.

Supplement Information

Humic Acid (ARG) - 2 capsules contain 750 mg of humic acid. Humic acids are the organic components of soil, peats, brown coals, shales, and lake sediments, formed from decomposed plant material. Humic acid can bind to cell surfaces with no adverse effects on the cell itself or on cell growth, and can support normal, healthy resistance and immune response. In clinical terms, humic acid can bind to viruses and inhibit their replication, which results in enhancing the body's anti-viral activity. In this case, the Humic Acid may have helped inhibit the replication of EBV, CMV, HSV-1 & HHV-6 therby decreasing the overall viral load.

Do view these articles on the Clinical Education website: 'Great Moments in Humic History' & 'Earth's Gift: Ancient Soil Deposits Yield Potent Antiviral Potential'.

ProGreens Vitality with NT Factor (ARG) (this is the original formula) – this is an updated formula which is certified gluten free and omits wheat grass and include the NT Factor Phospholipids. The addition of the NT Factor disposes this product to a potentially more effective support for detoxification pathways. Here is some information on the NT Factor itself: ATP Lipids Powder (ARG).

Free Aminos (ARG) - provides dairy free, free form amino acids that require no digestion. This product has been found to help support gut lining integrity, as well as supply the essential amino acids to the body. It can also act in synergy with an anti-viral programme due to its balance of lysine & arginine.

ButryEn (ARG) is an enteric-coated, extended shelf-life formulation of the calcium and magnesium salts of butyric acid, designed specifically for delayed release in the gastrointestinal tract. Butyric acid (BA) is a short-chain fatty acid (SCFA) produced by certain commensal bacteria and their metabolic breakdown of fibre, and appears to support mucosal integrity as the epithelial cells utilise it. Butyric acid may support the integrity of the colonic mucosa by acting as a primary fuel for the colonic epithelium (colonocytes). Butyric acid ("butyrate" when in salt form) is an important SCFA for this reason. BA also supports the maintenance of bifidobacterium species in the large intestine.

Although more indicated for the large intestine, I find this product is a useful supplement for helping to heal the small intestines and correct altered intestinal permeability. It also helps to reduce ammonia, support commensal bacterial growth and encourages bile flow, and has in my practice been a contributory factor to reducing 'brain fog' caused by GI issues.

NAC Enhanced Antiox Formula (ARG)
Contains NAC with TMG, RNA and Lipoic Acid. This is part of Prof. Marty Pall's CFS antioxidant protocol.

Full Spectrum Digest (ARG)
Full spectrum, vegan, clinical strength digestive enzyme with the ability to degrade casein, whey, soy, gluten and gliadin. Provides, per capsule, Glutalytic® (endo & exopeptidase) 189 mg, Protease 75,000 HUT, Aspergillopepsin 500 SAPU, Protease DPP IV 125 DPP IV, Amylase 15,000 DU 125 mg, Lactase 4500 ALU 60 mg, Lipase 2500 FIP 11 mg, Alpha-Galactosidase 150 GalU 6 mg. The Glutalytic® provides a special Exo & Endopeptidase blend – the Exo digests terminal peptide bonds to release amino acids and the Endo digests internal peptide bonds. Only to be taken with food.

Ca-D-Glucarate (BRC) - Provides the substrate for glucuronidation, which is one of the major Phase II hepatic detoxification pathways, which is involved in the elimination of hormones from the body including oestrogens.

ALA-Release (ARG) **-** Advanced sustained-release formula, with stabilised R-lipoic acid and biotin. ALA has important antioxidant functions. It also helps restore or recycle other antioxidants to their active states, including vitamins C and E, Coenzyme Q10, and glutathione.

Whole GI Wellness (ARG) (formerly Colon Cleanze) - Provides Perilla seed extract which is proven to reduce symptoms of IBS, and supports optimal motility, and is combined with synergistic ingredients that support gut health and a healthy elimination of potentially inflammatory substances from the gut. For these latter functions modified citrus pectin and chlorophyll have been included.

Gluta-Ascorbs (ARG) - A combination of reduced glutathione and vitamin C. Despite the paucity of evidence to support oral glutathione supplementation on raising blood levels of glutathione, this product consistently helps to support those patients with liver detoxification support and or a need for increased levels of glutathione

within the GI tract. Glutathione supports detoxification processes within the gut which are as abundant in the GI tract as the liver itself. By supporting the glutathione pathway, it helps to reduce inappropriate inflammation and the burden on the other pathways such as glucuronidation, methylation and sulphation.

Cognitive Enhancer (BRC)
Supplies acetyl-l-carnitine, GPC-Choline (glycerophosphorylcholine), Ginkgo Biloba extract & Huperzine-A for support of acetylcholine levels for cognitive function and brain support.

Bio-3B-G (BRC)
A low dose B vitamin formula with 3 active B vits, which supports energy, neurotransmitter levels and functions and nervous system resilience.

Discussion. *Please describe (1) the strengths and limitations of this case report including case management, (2) the literature relevant to this case report (the scientific and clinical context), (3) the rationale for your conclusions (eg, potential causal links and generalizability), and (4) the main findings of this case report: What are the take-away messages?*

Strengths and limitations of this case report including case management
The clinical experience was vital, in both a base knowledge of the NO / ONOO cycle imbalance as well as the potential viral triggers or causes of the condition. This led to the test which led to the evidence of viral presence which led to the programme which led to the positive health outcome. There may have been a number of other imbalances including adrenal and thyroid hormone imbalances, an imbalance in antioxidants within the body, or altered mitochondrial function but there may have been little point in directly addressing these without addressing the viral burden. However, by focusing on the viral burden in this instance, the net positive outcome has been achieved.

The character of K.N. is of importance, since she was prepared to dedicate herself to the process. It took 12 months to feel better and perhaps some might not have persevered like she did.

The literature relevant to this case report
There is increasing awareness of the possible triggers for CFS, although I am not aware of a specific body of research work that has studied the herpes family viruses in CFS patients and then inhibited them and described the outcome. It is more from clinical experience that I am aware of the potential benefits from such a course of action. If one relied on the usual sources of information, such as PubMed and so on, I am not sure that one would have the evidence to proceed very far with such a case.

The rationale for your conclusions
Being taught by individuals about the NO / ONOO imbalance followed by clinical experience and then applying this to the case in front of me led to the conclusion that K.N. should be tested to rule out a viral burden. Once there were positive results, again it was clinical experience as opposed to research literature that has shown me how to address a chronic, hidden viral burden.

The main findings of this case report: What are the take-away messages?
Firstly, it can take some time to resolve a chronic condition, particularly CFS, and a year maybe a very short time compared to others who still suffer from this debilitating condition.

Secondly, it requires a well targeted programme in order to obtain any results.

Thirdly, the knowledge of the viral burden is crucial for some patients with CFS, and it may be true that it is not possible to make much difference in a CFS patient's health without addressing this viral burden.

Fourthly, knowledge of how to address the viral burden and how to best support elimination and detoxification pathways in the body were of utmost importance in this case.

Patient Perspective. The patient should share his or her experience or perspective of the care in a narrative that accompanies the case report whenever appropriate.

N.K. sincerely acknowledges and delights in the improvements in her health. However, as has been intimated above, this is tempered with a deep frustration and lack of understanding as to why she should be so unlucky as to have her health affected in this way. At the same time, she appreciates her good health now, and her ability to function well more than she ever did.

Informed Consent. *Did the patient give the author of this case report informed consent? Provide if requested.*

The patient is not aware her case history is being used, and all identifiable data has been removed. N.K. are not her real initials.

Case Report Submission Requirements for Authors

1. Competing interests. *Are there any competing interests?*

None Known

2. Ethics Approval. *Did an ethics committee or Institutional Review Board give approval? If yes, please provide if requested.*

This case was not presented to an ethics committee.

3. De-Identification. *Has all patient related data been de-identified?*

All patient data has been re-identified.

4. Author. *Name of Author and practice*

Antony Haynes is a Registered Nutritional Therapist, practicing in London W1.