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 63 year old lady with Sjögren's, raised liver enzymes & fatigue who dedicated herself to NT and finally, after 3 ½ years she has recovered her vital energy

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 fatigue, in particular, in a 63 year old woman, Mrs G.K., who had Sjögren's along with the dry eyes and dry mouth typical of the condition, and raised liver enzymes for reasons unknown. This case report describes the long journey that Mrs G.K. took to recover her energy level, which was the most important of her three primary issues. Her energy deficit directly affected her mood, which was variable but usually on the low side, reflecting her overall lack of vitality.

Mrs. G.K. had been diagnosed with osteoporosis in 1980 when she was in her early thirties, and after taking exercise and engaging in a very sound diet and taking supplemental vitamin D, she had been reclassified on the scale of bone density to osteopenia.

Sjögren's is a chronic autoimmune disease in which a person's white blood cells attack their moisture-producing glands. Sjögren's syndrome is the third most common rheumatic autoimmune disorder, behind only rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE). It is estimated that there are half a million in the UK with the condition and 4 million Americans.

Sjögren's most commonly affects women aged 40 to 60. Mrs G.K. was diagnosed with the condition in 2002, when she was aged 54.

The most common symptoms of Sjögren's syndrome are dry eyes and/or mouth and feeling tired and achy, and Mrs G.K. had been suffering from all of these. Many people don't have any other symptoms, but the range and severity of symptoms can vary a great deal from person to person.

Medically, there is no cure for Sjögren's syndrome, but the most common symptoms can usually be treated with a combination of specific medications and self-help measures. Lubricating eye drops and artificial saliva can be used if need be. If one is able to produce some saliva, one can take a drug called pilocarpine as a tablet. This works by stimulating glandular tissue. For joint pain, NSAIDs are the typical treatment. However, Mrs. G.K. took none of these by choice.

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

Sjögren's, dry mouth, irritable eyes, aching muscles, pain, joints, fatigue, vitality, mood, osteoporosis.

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

Mrs. G.K. was first diagnosed with Sjögren's in 2002, and experienced the classic symptoms of dry eyes and dry mouth since that time. Since about 2009, and this was the reason she sought help from me, she had also been experiencing fatigue, muscle aches, intolerance to exercise and low moods.

In 2006 Mrs. G.K. was identified in a regular blood test to have raised liver enzymes of serum AST and GGT after a bout of jaundice following a holiday in Greece and these had been high on and off since that time. It was not clear what the cause of this was, and she had a viral screen test which was negative. However, it is not known which viruses were tested for.

In 2009, G.K. had suffered from viral meningitis with very bad headaches which had resolved. From this time, her energy had been lower. Then, post-surgery for pelvic repair she had suffered from a viral infection, had an ear infection and conjunctivitis and was prescribed antibiotics. She had felt awful and she had marked fatigue.

Since that time G.K. had experienced what she called 'wipe out days' where she would be so fatigued she could do nothing but rest.

Mrs G.K. had been living with the diagnosis of osteoporosis since 1980, after the birth of her second daughter, and had taken care of her bone health in the best way she could with diet, exercise and vitamin D, and the repeat assessments now put her in the classification of osteopenia. She was not concerned about this condition, given that she was well aware of the issue and had taken steps to address it for decades.

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.*

When we first met Mrs. G.K. was 63 years old. She is a white European with some Greek heritage, and lives in the home counties, not far from London. She is slim and weighed 52 kg (8 stone 5 lbs) and stood 164 cms tall (5 foot 4 ½ inches). Mrs. G.K. is an artist, but has also studied Nutritional Therapy and was a qualified NT.

A useful way to describe the specific concerns that G.K. had is to recount her health goals that we established at the outset of the first consultation.

To be free of fatigue and have great energy consistently.
To return liver enzymes to normal.
To be free of dry eyes and dry mouth.
To reduce inflammation.
To exercise and be well afterwards.

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.*

There was no known history of auto-immune conditions in her family. Her parents lived long lives, her mother was 92 and her father was 83 when they passed away. Her father may have had an auto-immune condition because he was almost always tired. He had a stroke when he was 71 and later developed prostate cancer which spread and this ultimately was the cause of his death. He had smoked until he was 40. G.K.'s mother had suffered some old-age-related health problems including high blood pressure, elevated cholesterol and poor short term memory in her last few years.

G.K. had a history of osteoporosis since 1980 but had addressed this over time and succeeded in improving her bone density, relative to the reference ranges. She had always maintained a keen interest in nutrition and health.

G.K. appeared to be very well, but experienced a variety of symptoms associated with Sjögren's which are reflected by the health goals listed above. However, it was not possible discern the discomfort that G.K. experienced on meeting her.

G.K. reported that blood tests conducted in 2006 had revealed elevated liver enzymes, and this was not associated with alcohol intake; she only occasionally had a glass of wine or champagne. It was assumed that there was some sort of inflammation that was causing the elevated liver enzymes, which are detailed in the case history section below.

She had certainly been through a rough time, health-wise, in 2009 when she'd had viral meningitis. Then, after surgery in 2011 she had marked fatigue and also needed to have a course of antibiotics. Her energy had not been the same since then.

She told me that if she could just get her energy back then life would be considerably better.

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

In 1980, after the birth of her second daughter, G.K. had experienced a crush fracture, and was diagnosed after testing with osteoporosis. This had been monitored ever since and was now stable.

In 1996 G.K. had a polyp removed whilst being treated surgically for endometriosis.

In 1998 G.K. had needed an emergency appendectomy.

In 2002, G.K. had suffered with primary Sjögren's which had affected her hips in the form of bursitis and trigeminal neuropathy. She had begun to study Nutritional Therapy at this time.

In 2006, G.K. had ophthalmic herpes zoster and corneal ulcers. This occurs when the varicella-zoster virus is reactivated in the ophthalmic division of the trigeminal nerve. She recovered and it has been monitored since then.

In 2006, G.K. suffered from jaundice and acute hepatitis which was deemed to be a post-viral situation. This was when the elevated liver enzymes were first identified, and she was given a rating for fibrosis of the liver of 2 out of 6. However, no viruses were identified in tests carried out at that time, although historical EBV was confirmed.

In 2009, G.K. felt more noticeable fatigue, and then came down with viral meningitis which proved to be self-limiting.

In 2011, there was a need for pelvic surgery for anterior repair (which aims to tighten the support tissues of the bladder and remove any bulge in the vagina). Post surgery, G.K. suffered with a viral attack and felt awful, with deep fatigue. She had also needed antibiotics to address a concomitant ear infection and conjunctivitis.

Since this time, G.K. would suffer from 'wipe out days' of deep fatigue. She had also had unexplained rashes.

Tests had shown low levels of SIgA (secretory immunoglobulin A) and low DHEA.

In 2012, not long before we met, G.K. had engaged in a gluten free diet and noticed a definite improvement, and had felt generally better, and specifically had a clearer head – the fuzziness went away – and she no longer felt as drained. It was mooted that the inflammatory response to the gluten may have contributed to the raised liver enzymes.

G.K. ate a mainly organic diet free from gluten, free from cow's products, with no caffeine and very little alcohol.

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 strategy was for G.K. to engage in a therapeutic nutritional intervention process, one that involved maintaining her very sound diet, which excluded gluten and dairy as she had identified this had a positive outcome on how she felt, and then to support specific aspects of her health in sequence.

In the first phase, the therapeutic part of the nutrition programme was focused on supporting her digestion, supporting her gut lining integrity, and maintaining key nutrients for bone health.

The emphasis changed as time passed, which is described below in the **Therapeutic Focus and Assessment** section. G.K. diligently stuck to the task of recapturing her elusive energy, without which the quality of her life was diminished. Yet she always managed a smile.

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).*

G.K.'s wholesome diet with its exclusions was not making a sufficient difference for her and therapeutic intervention was desired and required.

Below are described the twelve different therapeutic supplement programmes based on the feedback provided by G.K. in our meetings over a three and a half year period of time that commenced in February 2012 until recently in November 2015.

The focus of the very first supplement programme was to support G.K.'s digestive system, her bile flow to support a normalising of her raised liver enzymes, to provide anti-inflammatory support and to support her

energy production with CoQ10. All the while. G.K. continued with her bone supportive nutrients of Vitamin D & K. She also found benefit from taking magnesium at night-time.

First Supplement Programme Feb 2012	
Gluten-Gest (ARG)	2 with breakfast, 3 with lunch & 3 with dinner
Immuno-gG (BRC)	2 with breakfast, 1 with lunch, 2 at bedtime
Beta-TCP (BRC)	1 with breakfast, 2 with lunch & 2 with dinner
Vitamin D3 1,000 iu	1 with dinner
Vitamin K 250 iu	1 with dinner
Ubiquinol	1 with breakfast & 1 with lunch
Mag Asorb (magnesium)	3 at night-time

Shortly after the first appointment, G.K. suffered from a urinary tract infection followed by a sinus issue for which she took antibiotics which masked any improvements that may have occurred. However, shortly after that, G.K. managed to return to her normal state.

She noticed that the soreness and redness in her eyes were no longer present, and her tongue returned to a normal size and looked clearer.

G.K. still had muscle soreness and stiffness which was painful when lying at night.

We met for the second time six weeks after the first appointment, and G.K. recounted how she had been during that time, which included the information above about her UTI and sinus discomfort. G.K. described one week when she had almost felt normal again, and she described how she could not remember the last time she had felt this way, but it was easily 9 to 12 months' ago.

Generally, G.K. had more clarity of thinking, improved mood and her eyes had not been so dry and red. She told me that her optimism was up when her energy was up, but then dropped when energy levels dropped.

G.K. was very compliant with the supplement programme.

She was due to have repeat blood testing via her doctor shortly after this second meeting, and we would discuss those results at the third appointment which was two months later.

Due to the possible viral connection, a natural anti-viral product that provided olive leaf extract was recommended.

Second Supplement Programme Mid March 2012	
Gluten-Gest (ARG)	2 with breakfast, 4 with lunch & 3 with dinner
Immuno-gG (BRC)	2 with breakfast, 1 with lunch, 2 at bedtime
Vitamin D3 1,000 iu	1 with dinner
Vitamin K 250 iu	1 with dinner
Ubiquinol	1 with breakfast & 1 with lunch
ProLive (ARG)	Start with 1 at breakfast, then increase to 1 with two meals after 3 days, and then increase to 1 with each meal after a further 3 days
Mag Asorb (magnesium)	3 at night

In May 2012, we met for the third time and G.K. showed me the hospital letter and the liver function test results. Only the results that were not normal are shown here. G.K. was also able to advise the levels of the liver enzymes in January 2012 which are shown in the first table. Not all of these liver enzymes were included in the LFT panel in future tests, for reasons unknown.

Analyte – January 2012	Result & Reference Range
ALT (Alanine aminotransferase)	62 iu/L (10-40) HIGH
GGT (Gamma glutamyl transferase)	108 iu/L (15-40) HIGH
AST (aspartate aminotransferase)	44 iu/L (14-42) HIGH

Analyte – March 2012	Result & Reference Range
ALT (Alanine aminotransferase)	53 iu/L (10-40) HIGH
GGT (Gamma glutamyl transferase)	90 iu/L (15-40) HIGH
AST (aspartate aminotransferase)	38 iu/L (14-42) NORMAL
Hepatitis A	Not detected
Hepatitis B	Not detected
Hepatitis C	Not detected
CMV (Cytomegalovirus) – IgM antibodies	Not detected
EBNA IgG	Detected IgG levels, not consistent with recent EBV infection.
ANA (Anti-Nuclear Antibodies) Ro (SS-A)	Positive (no 'score') – can be associated with Sjögren's or Lupus

These results reflected about a 15% reduction compared to January.

G.K. had followed my nutritional recommendations to the letter and remained entirely free from gluten and dairy foods, as well as taking the supplements everyday.

G.K. had still felt pain under her right rib cage, and the doctor who examined her reported that "the results suggested mild ongoing cholestasis, the cause for which is unclear but may relate to the previous antibiotics. Her history of autoimmune disease may be of relevance".

However, in spite of the still-elevated liver enzymes, G.K. told me that she had had a good month in terms of her energy, but this had ended for no particular reason 10 days before our appointment. She had had back ache too. She did say that lots of minor symptoms had cleared up, however. We wondered if the recent bad 10 days was due to a viral detoxification or inflammasome activation.

The supplement programme was amended to provide antioxidant supplements that have been highlighted by Dr Marty Pall PhD for helping those with chronic fatigue, and in whom there exists an imbalance in their NO / ONOO (nitric oxide / peroxynitrite) cycle. It was agreed that there may be some degree of post-viral fatigue that was contributing to how G.K. felt. A 7 strain probiotic was also recommended which confers anti-inflammatory effects.

Third Supplement Programme end May 2012	
Gluten-Gest (ARG)	2 with each meal
Immuno-gG (BRC)	2 with breakfast, 1 with lunch, 2 at bedtime

NAC Enhanced Antiox (ARG)	1 with each meal
CoQ Gamma E (ARG)	1 with breakfast & 1 with dinner
BioDoph-7 Plus (BRC)	2 with breakfast & 2 with dinner
Mag Absorb (magnesium)	3 at night

In August G.K. had a repeat blood test and it showed that only the GGT was elevated, but it was down 30 points from March. The ALT and AST were now within the normal range.

Analyte – August 2012	**Result & Reference Range**
ALT (Alanine aminotransferase)	31 iu/L (10-40) Normal
GGT (Gamma glutamyl transferase)	60 iu/L (15-40) HIGH
AST (aspartate aminotransferase)	34 iu/L (14-42) Normal

We met in September 2012 and G.K. reported that she had experienced a good run of energy, relatively speaking. She described her energy as hopeless before and now it was better than that.

Of her own accord, she restarted the olive leaf extract supplement, ProLive (ARG), but had soon felt worse so she had stopped it. However, two or three days after that she had felt like a new woman in terms of her energy, and only in terms of energy.

Over the intervening time between appointments, however, G.K. had found that she had a clear head and no longer felt the aches and pains, associated with the Sjögren's.

On a negative note, she did tell me that she felt that she could see accelerated aging on her face, neck and chest.

The supplement programme was amended to include antioxidants to support a balanced NO/ONOO cycle, natural anti-inflammatory agents, connective tissue & skin support.

Fourth Supplement Programme mid Sept 2012	
Gluten-Gest (ARG)	1 with breakfast, 2 with lunch & dinner
CoQ Gamma E (ARG)	1 with breakfast & 1 with dinner
KappArest (BRC)	2 with each meal
Stabilium (ARG)	4 with breakfast for a month only
Bio-Cyanidins (BRC)	1 with each meal
Arthred Collagen Powder (ARG)	1 scoop before 2 meals a day

We met in December, about three months after the previous appointment. Overall, G.K. reported that she had been well. However, her concerns remained focused on improving her energy and mental acuity and skin health; she told me that her skin was visibly older than months before. She also wanted to ensure that she was doing everything she could for her bone health.

Based on these concerns, the programme of supplements was changed to include skin-supportive hyaluronic acid (HA) along with the collagen powder and antioxidants with affinity for the skin including pine bark extract.

Fifth Supplement Programme mid Dec 2012	
Gluten-Gest (ARG)	1 with breakfast, 2 with lunch & dinner

KappArest (BRC)	2 with each meal
Stabilium (ARG)	2 with breakfast
Bio-Cyanidins (BRC)	1 with each meal
Arthred Collagen Powder (ARG)	1 scoop before 2 meals a day
Full Spectrum K (ARG)	1 with breakfast
Bio-D-Mulsion (BRC) (400 iu)	3 drops with dinner
Synovoderma (ARG)	3 with breakfast & 3 with dinner

G.K. followed the extensive programme for some months. We were not to meet, however, until the beginning of July, over six months after the previous appointment.

G.K. described her energy as a roller coaster, and that she had been hit by viral attacks. Her liver enzyme results were normal although these blood test results did not really match with how she felt.

She still had dry & irritating eyes, a dry mouth, and some achiness too. She still felt that her skin had aged too rapidly for her liking.

She had continued to eat very well, avoiding gluten and dairy products.

She was now officially a pensioner !

We discussed exercise, and Qi Gong (or Chi Gung) was recommended.

The supplement programme was a much reduced one this time and focused on reducing inflammation, supporting the skin with ongoing use of HA and the resilience formula Stabilium, that has also been shown to reduce anxiety and improve sleep.

Sixth Supplement Programme July 2013	
KappArest (BRC)	2 with each meal
Stabilium (ARG)	3 with breakfast
Synovoderma (ARG)	3 with breakfast & 3 with dinner

When we met in December 2013, G.K. reported that she felt stronger, that she had slept better and her energy was better, although not at its natural flowing optimal state that she used to have.

G.K. had experienced itching on her trunk, and she told me that this was liver related.

Her dry and irritable eyes came and went.

She had experienced intermittent pain in her limbs which she wondered might be related to poor circulation.

The HA supplement did not appear to be working for her skin, as there was no visible change.

In terms of cognitive function, G.K. was also losing words in her mind or in mid-conversation, meaning that mental acuity was still an issue.

It was very frustrating for G.K. to be doing so much and yet not making any progress.

It appeared as if there was still low grade inflammation, and this prompted the recommendation of two liver-targeted supplements. One of these is tocotrienols and the other is a glutathione-supportive supplement that provides NAC, lipoic acid, selenium and vitamin B2. At the same time, these nutrients can also help balance the NO / ONOO cycle.

Seventh Supplement Programme Dec 2013	
Tocomin SupraBio Tocotrienols (ARG)	1 with breakfast & 1 with dinner
Thiodox (ARG)	1 with breakfast & 1 with dinner

G.K. continued with her sound nutritional intake over the next months, and we met in October 2014. She continued to exclude all grains and dairy products. She discovered that she felt better sometimes if she ate two meals a day, at 11am and 7pm.

In the Summer of 2014, G.K. did experience some cold sores. G.K. told me that her energy was pretty good and had been and that her brain was also in quite good form. However, this was still not ideal and not what it has used to be.

The supplements in her revised programme were focused on liver support for detoxification and glutathione as well as introducing a different anti-viral to the olive leaf, in the form of humic acid. Support for her bone health came in the form of a product that provides all four of the fat soluble vitamins.

Eighth Supplement Programme Oct 2014	
Free Aminos (ARG)	4 with breakfast & 4 with dinner
Humic Acid (ARG)	1 with breakfast & 1 with dinner
ALA Release (ARG)	1 with breakfast & 1 with dinner
Vitamin D3 Complete (ARG)	1 with dinner

G.K. revisited me in March 2015 and showed me the recent test results from mid February, which showed that the GGT was still high.

Analyte – February 2015	Result & Reference Range
ALT (Alanine aminotransferase)	27 iu/L (10-40) Normal
GGT (Gamma glutamyl transferase)	65 iu/L (15-40) HIGH
AST (aspartate aminotransferase)	- iu/L (14-42) Not tested

We reviewed her diet, and re-emphasised the need to be free from gluten, oats and other grains as well as dairy products and that included goat's cheese. Coffee did not suit G.K. and it was agreed to exclude this too.

The supplement programme was geared to address an unknown virus that may have been a contributor to the elevated GGT, and support for her liver in the form of a sustained release lipoic acid, and a GI formula that provides nutrients that help to bind to toxins within the gut preventing their potential entero-hepatic recycling.

Ninth Supplement Programme Mar 2015	
Humic Acid (ARG)	1 with breakfast & 1 with dinner
ALA Release (ARG)	1 with breakfast & 1 with dinner
Whole GI Wellness (ARG)	2 with each meal
Super Vitamin B Complex (ARG)	1 with breakfast & 1 with lunch

Mag Absorb	3 at night

We spoke in April 2015 after G.K. had spent some time in Greece, where she had a wonderful time and felt rejuvenated. However, she had needed steroids for a week in order to ameliorate a mini-flare up of Sjögren's symptoms. She had felt poorly whilst taking the steroids. She did recover quite swiftly from that episode, however.

In that telephone appointment we discussed how G.K. could recapture her previous good energy, which had not been the same since 2009. She so wanted to have consistent good energy, and feel the natural get-up-and-go that she had had for the majority of her life. I recommended that G.K. take an active B vitamin formula, called Bio-3B-G (BRC) (which is shown in the June 2015 supplement programme).

We agreed to meet at the end of June to review matters.

When we met again then G.K. naturally expressed her frustration at the fluctuating energy which was not ideal even when it was relatively good. She was fed up, and told me that the tired spells outweighed the better spells of energy.

She'd had a cold sore and felt wiped out by that.

Her dry eyes were worse than before, in terms of dryness and the irritation factor.

She had been able to attend yoga classes three times a week which helped her to feel great, although she was prone to feeling a bit shaky and nauseous afterwards, which suggested to me a liver-oriented imbalance.

We discussed the options of a variety of lab tests that might help to steer the programme so that G.K. could have more reliable energy and some get-up-and-go, that she so missed.

The supplement programme contained the anti-viral humic acid and glutathione supportive sustained release lipoic acid as well as the active form B vitamin formula. However, I added a specific adrenal support supplement to support that aspect of her health.

Tenth Supplement Programme end June 2015	
Humic Acid (ARG)	1 with dinner
ALA Release (ARG)	1 with breakfast & 1 with dinner
Bio-3B-G (BRC)	3 with each meal
Intenzyme Forte (BRC)	1 with breakfast, 2 with lunch & 2 with dinner
Adrenal Rebuilder (Dr W)	2 with breakfast & 1 with lunch
Mag Absorb	3 at night

In July 2015, G.K.'s blood was analysed again and here are the relevant analytes and their values.

Analyte – July 2015	**Result & Reference Range**
ALT (Alanine aminotransferase / transaminase)	41 iu/L (1-34) HIGH
GGT (Gamma glutamyl transferase)	- iu/L (15-40) Not tested
AST (aspartate aminotransferase)	- iu/L (14-42) Not tested

We met again in September 2015 and G.K. reported that she felt like she was living a half life, with her energy being so poor. Yes, things did vary and she had better days, but there was always the return to days of fatigue.

We discussed the possibility of persistent, chronic viruses especially when G.K. took L-lysine, olive leaf extract and humic acid she felt hit by fatigue.

G.K. now needed eye drops for her dry eyes.

The supplement programme shifted in its focus to include a potent antioxidant from a brown seaweed, called Ecklonia Cava which provides the antioxidant Seanol®, and is something that Marty Pall PhD and I have discussed as being useful for balancing the NO/ONOO cycle. Also included was a 30+ ingredient superfood green drink which also contains phospholipids known as NT Factor, and also referred to as Lipid Replacement Therapy (LRT) which replaces damaged cell and mitochondrial lipids with healthy lipids. This has been shown in human studies to reduce fatigue and improve mitochondrial ATP. In addition to this, I included a glandular formula with more emphasis on the thyroid gland than the adrenals.

Eleventh Supplement Programme Sept 2015	
ALA Release (ARG)	2 with breakfast & 2 with dinner
Beta Plus (BRC)	2 with lunch & 2 with dinner
FibroBoost (ARG)	2 caps 30 mins before breakfast & 30 mins before lunch
ProGreens Vitality (ARG)	1 scoop with breakfast & dinner
TG100 (ARG)	2 with breakfast & 2 with lunch
Mag Absorb	3 at night

In November 2015, the blood tests were repeated at the beginning of the month before we met. Here is what they showed:

Analyte – Nov 2015	Result & Reference Range
ALT (Alanine aminotransferase / transaminase)	117 iu/L (1-34) HIGH
GGT (Gamma glutamyl transferase)	- iu/L (15-40) Not tested
AST (aspartate aminotransferase)	- iu/L (14-42) Not tested
ALP (Alkaline Phosphatase)	143 u/L (30-130) HIGH

A raised ALT potentially reflects a number of things: fatty liver, liver dysfunction, biliary issues, liver inflammation.

A raised ALP, however, is more commonly associated with bone issues. In addition to bone loss indications, it also can reflect biliary issues as well as viral infections too. The level was only marginally elevated and was to be monitored by her doctor. The previous test in February 2015 showed the level to be 83 (30-130).

When we met in November 2015, G.K. told me the good news. She was feeling much better. Although she had experienced bursts of improved energy over the past three and a half years, she was now experiencing the best sustained improved energy and had rediscovered her get-up-and-go, and the natural flow of energy that had been missing for so long. Her mood improved in tandem with her energy. She told me that over the past weeks she had consistently felt like her old self again. G.K. had also been enjoying yoga again.

Twelfth Supplement Programme Nov 2015	
ALA Release (ARG)	1 with each meal

FibroBoost (ARG)	2 caps 30 mins before breakfast & 30 mins before lunch
ProGreens Vitality (ARG)	1 scoop before noon at any time
GTA (BRC)	1 with breakfast & 1 with lunch
Beta Plus (BRC)	1 with lunch & dinner on Mon / Weds / Fri
Mag Absorb	3 at night

G.K. continues to follow this supplement programme in order to continue to support herself, specifically in regard to her liver antioxidant status which also supports the NO / ONOO cycle, with nutrients that support mitochondrial support which is also supported by sufficient antioxidants, and her thyroid hormones which is supported by the thyroid glandular.

It's been a long road for G.K. who has persisted in her application of choosing the diet that does not trigger inflammation as well as the variety of nutritional supplement programmes detailed above.

There have been a number of consistent issues in her health, but there have also been a number of variables in her health picture. G.K. is not free of the symptoms of Sjögren's and her liver enzymes are not entirely back to normal. The levels vary but without any sense of connection with how G.K. feels. She does, however, have her sense of vitality back and can exercise and feel well afterwards. She told me that she can live with the other symptoms. In this way G.K.'s quality of life is significantly improved.

It is not possible to determine precisely what imbalances have been corrected, and therefore what specific interventions have resulted in the improvement. However, in my professional opinion G.K.'s antioxidant status, mitochondrial function and probably her NO/ONOO cycle and her thyroid hormone function have been improved to the level that permits G.K. to feel that sense of vitality.

We need to maintain these benefits over time.

There will still be attention paid to the raised liver enzymes, which are being tested by her doctor, and it is hoped that this will resolve, and possibly we may learn why these enzymes have been elevated.

I am considering the recommendation of a viral burden test is being considered, although the earlier medical tests from 2012 revealed nothing of relevance. It is possible that other viruses are present and are promoting fatigue via disruption of the NO/ONOO cycle or by other means.

In the meantime, as I write this case report, G.K. is feeling considerably better and at least is in a state of health which permits her quality of life to be much higher than it was before.

Supplement Information – here is information on the many supplements taken by G.K. over the three and a half years.

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.

Adrenal Rebuilder® (Dr W)
This is Dr Wilson's glandular formula for those with adrenal fatigue. It contains high quality adrenal (cortex), hypothalamus, pituitary and gonad concentrates in the proportions that provide the greatest support for those experiencing stress and adrenal fatigue

Arthred Collagen Powder (ARG)
A patented, pre-digested collagen powder that has demonstrated in a multicentre randomised trial to reduce articular joint arthritic pains and reduce the need for pain medications. In addition, it has also been useful to heal the gut lining and support skin health.

Beta-TCP (BRC)
This is a formula containing beet concentrate, pancreatic lipase, taurine and vitamin C. It is designed for promoting bile flow.

Beta-Plus (BRC)
An ox bile with pancreatic enzymes to support the digestion of fat on the one hand, but also to encourage a healthy bile flow on the other.

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.

Bio-Cyanidins (BRC)
Provides an excellent source of proanthocyanidins, with each tablet supplying 15 mg of Pycnogenol™ Pine Bark Extract and 35 mg of Grape Seed Extract (95% OPCs).

Bio-D-Mulsion (BRC) (product info for the higher dose product)
Provides 400 iu per drop of emulsified vitamin D3. A product that has been proven to raise vitamin D levels. It is essential to ensure adequate and optimal vitamin D levels for bone health & immune function.

BioDoph-7 Plus® (BRC)
A mix of 7 strains of probiotics of the lactobacillus & bifido strains. In this case, the introduction of 10 strains of probiotics proved effective over and above the introduction of 1 strain. All of these have the potential to reduce inflammation.

CoQ Gamma E (ARG)
This is a combination product providing fat-soluble antioxidants, originally as part of Dr Marty Pall's antioxidant programme vs CFS / FM. It provides CoQ10, alongside tocotrienols, vitamins A & E, fat-soluble vitamin C, carotenoids, lycopene, lutein and ALA.

FibroBoost (ARG)
A clinically trialled natural sea-vegetable derived antioxidant that is 40% fat soluble and remains active in the body for 12 hours, some 24 times longer than most water soluble antioxidants. It has been studied and found to improve fibromyalgic pains and improve sleep and energy, (and sex function too).

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.

Full Spectrum K (ARG)
A formula that provides vitamin K1 (Phytanadione) and K2 (Menaquinone-4 & -7) together with Vitamin A, C, D3 & tocotrienols, for optimal calcium metabolism & bone support, as well as cardiovascular support too.

Gluten-Gest (ARG)
A digestive enzyme formula for broad spectrum digestive support with the added benefit of digesting gluten, should any be consumed. In addition, the supplementation of digestive enzymes helps the pancreas to make its enzymes because they are partly recycled within the body. In this way, the taking of such enzymes helps to improve the pancreas' own ability to make its own enzymes which is an energy demanding process.

GTA (BRC)
Provides a low dose thyroid supporting glandular that is hormone-free.

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.

Immuno-gG (BRC)
Colostrum can help to reduce intestinal inflammation, to heal the gut lining and promote a stronger immune system. Colostrum has both GI & systemic anti-inflammatory actions.

Intenzyme Forte (BRC)
A proteolytic enzyme formula that contains trypsin and chymotrypsin which are effective for reducing systemic inflammation & tissue damage, and improve micro-circulation.

KappArest (BRC)
Provides a blend of proven anti-inflammatory plant extracts and antioxidants with BioPerine which enhances the efficacy of these ingredients. The formula was developed to inhibit NF-kB (nuclear transcription factor kappa B) which influences an inflammatory cascade and many other pro-inflammatory cytokines.

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

ProGreens Energy 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)**.

ProLive with Antioxidants (ARG)
Olive leaf possesses a variety of properties which potentially support balanced intestinal microbiology & circulation.

Stabilium (ARG)
Contains a high concentration of small peptides similar to pituitary and hypothalamic stimulating peptides which act as hormone precursors to neurotransmitters such as GABA, encephalins and endorphins which can all support the nervous system and help to adapt to stressful conditions. It has been used clinically to support 'get up and go', and is safe & fine to take alongside anti-depressants.

Synovoderma (ARG)
Provides Hyaluronic Acid (HA) which is part of the ground substance in human cells. HA may support skin health and the protection of joints, and may enhance the maintenance of moisture levels in elastin and other tissues.

TG 100 (ARG)
This multi glandular from ARG contains these extracts:
Thyroid tissue (bovine) – 40 mg
Adrenal Tissue (bovine) – 5 mg
Pancreas Tissue (porcine) – 5 mg
Thymus Tissue (Ovine) – 5 mg
Spleen Tissue (Bovine) 5 mg
Vitamin C (ascorbic acid) – 120 mg

Thiodox (ARG)
Supports a healthy liver detoxification, primarily phase II, provides antioxidant protection, supports a healthy immune function and production of glutathione, facilitates the production of cellular energy, enhances the effectiveness of other antioxidants. Provides NAC, glutathione, lipoic acid, selenium, riboflavin, thiamin & vitamin C.

Tocomin SupraBio Tocotrienols (ARG)
This product offers enhanced absorption of the 4 tocorienols, which have been shown to have benefits in a number of different conditions from reducing risk of stroke to reducing a fatty liver, to lowering cholesterol and more. Do view this article (one of a number on the subject of tocotrienols) on our website: Tocotrienols and their Benefits: http://tinyurl.com/opqtypz

Vitamin D3 Complete (ARG)
Provides the four fat soluble vitamins of A, D, E, & K in a balance that could be disturbed if taking a higher dose of just one of these nutrients over time. The product is preservative free and chemical free and comes in fish gelatine caps. These nutrients are vital for a balanced immune response especially in the mucosal immune system, and are often required in those individuals with auto-immune conditions.

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.

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
A strength of this case has been the detailed case history notes, the appreciation of historical health events and the familiarity with the main issues that affect G.K.'s health, namely osteoporosis / osteopaenia, Sjögren's autoimmune condition, viral infections and post viral fatigue syndromes, and fatigue syndromes.

Over the time that G.K. has been a patient, I have regularly reviewed the case notes and considered alternative options both in terms of nutritional intervention and lab testing. We had the information about the raised liver enzymes but neither the doctors nor myself knew the reason why other than the suggestion of a viral infection. In this way, more comprehensive testing assessment may have been of value, and may still be of value. On the other hand, there is no current testing for the NO / ONOO cycle, which appears to be supportive of G.K.'s improvements.

The literature relevant to this case report
Dr Marty Pall's information about the NO/ONOO cycle and its involvement in chronic fatigue syndrome as well as other conditions such as fibromyalgia and multiple chemical sensitivity was appreciated in the understanding of this case.

Knowledge of Sjögren's autoimmune condition was somewhat helpful, and did support the understanding that gut lining health and avoidance of gluten (as for most if not all autoimmune conditions) was relevant to G.K.

The rationale for your conclusions
Different conclusions for intervention were made over time, depending on the state of G.K.'s health (signs and symptoms) and on the feedback about how G.K. had fared on each programme.

At the same time, the long history of osteoporosis maintained awareness for skeletal support, and the history of a viral infection after which G.K. had never been the same also informed selection of anti-viral support and antioxidant support, particularly focused on the NO/ONOO cycle.

The main findings of this case report: What are the take-away messages?
Firstly, the perseverance displayed by G.K. is something to acknowledge and appreciate. If she had not been so informed about NT herself, it is not likely that she would have continued for so long with professional nutritional support.

Secondly, the reviewing of the information and the history of the patient is of great importance. Moments in a patient's life when they tell you that they have "never been the same since" are potent clues that demand attention. Whilst G.K. may have osteopenia now, and she may have had Sjögren's since 2002, but the major impact on her health may well be a post-viral fatigue, and this appears to be ameliorated significantly after years of intervention.

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.

G.K. is extremely pleased to have her old self back in the form of her energy and natural good mood.

She has spent a long time endeavouring to recover her good health and specifically her energy, much money too on supplements, but it is really encouraging that even though she is now in her mid sixties that she can still achieve a level of energy of more youthful times.

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

The patient is not aware his case history is being used, and all identifiable data has been removed. G.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, Registered Nutritional Therapist, sees patients in his clinic in London W1.