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 28-year-old woman who finds a resolution to hair loss & thinning hair, very weak fingernails, abdominal bloating & wind, and fatigue with targeted 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 a variety of symptoms and signs in a health-conscious 28-year-old woman after she engaged in focussed Nutritional Therapy. She presented with hair loss and thinning hair, very weak fingernails, daily abdominal bloating and excess wind, and a lack of energy especially first thing in the morning.

Miss B.S. had visited her doctor and had blood tests which included a full blood count, haematology, B12 & folate levels & thyroid profile all of which came back within the normal range except for one analyte. The only imbalance was a low vitamin D level, but after taking vitamin D for some months there was no change in any of these values.

Several months after her doctor's appointment, and on referral, B.S. met with a gastroenterologist who conducted a scan and ruled out any organic digestive condition and labelled her gut symptoms as "IBS" but offered no advice.

Miss B.S. represents a good example of someone who has a variety of symptoms and signs that reflect less than ideal health and which affect her quality of life but for whom there was no obvious organic illness. Her hair loss was quite distressing on an emotional level, her very short fingernails embarrassed her, whereas the bloating, wind and fatigue reduced her physical sense of well-being and consequently impacted on her emotional state. She was significantly affected by these health issues every single day.

The only recommendation made was to take vitamin D but there was nothing else her GP advised her to do. Miss B.S. had been putting up with and suffering from the array of symptoms and hair loss for over 10 months at the time she first came to see me.

The incidence of one or more of the symptoms and signs that B.S. experienced (i.e. fatigue, bloating & wind) is extremely high in my clinical experience. In fact, a lack of energy and digestive issues such as bloating and excess wind are as common as any other. Hair loss is also relatively common, and something that is associated

with sub-clinical hypothyroidism amongst other contributory factors such as anaemia and a lack of zinc. Specifically weak fingernails (her toenails were just fine) is quite rare but may also be associated with hypothyroidism amongst other things.

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

Hair loss, hair thinning, fatigue, abdominal bloating, wind / flatulence, weak nails.

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

Miss B.S. told me that her health issues had really been getting her down. This was because she had daily bloating and excess wind in spite of a good diet (self-reported), hair loss and thinning hair which really upset her and her fingernails were so weak that she needed to file them down almost daily and apply varnish so that they would not break. Not only did B.S. have the physical experience of the symptoms and the hair loss and weak nails, but she had the emotionally upsetting issue of simply not knowing what to do about resolution. She had not received any help from her medical experts so far. This uncertainty had contributed to her feeling depressed.

For about a year, and certainly for 10 months B.S. had been experiencing the signs and symptoms described above; she had made a note in her diary and sought initial advice 10 months prior to our first meeting.

Having reached a dead end in terms of constructive advice about how to address the distressing and uncomfortable symptoms and signs, B.S. had become increasingly demoralised which in turn contributed to her declining sense of wellbeing.

However, when she did engage in the specific nutritional therapy programme, she soon experienced benefits which spurred her on and she diligently continued so that after 6 months of applying herself she had resolved all three of her health issues. Her energy was much better, her nails were stronger and her hair was thicker and her gut symptoms were gone.

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.*

Miss B.S. is a slim woman of 28 years of age, 5 foot 7 inches tall, and weighing 61 kg. She is a white Caucasian British woman. She had a degree in Textiles & Design and since graduating had been involved in various aspects of the clothes manufacturing world, both in its creation and design and the marketing of it, the latter of which is where she now spent most of her time.

The concerns that B.S. presented with were visible: hair loss and thinning hair, very weak, very short fingernails and abdominal bloating. She was also very tired first thing in the morning and never experienced the kind of energy she was used to in the past at any time of the day. She had a further energy dip mid-afternoon when she could not perform at her best, so she carefully structured her day to ensure nothing important occurred after lunch for an hour or so.

B.S. had not found any simple way or home remedies to improve her health issues, and this was part of the emotional stress of the situation; she simply did not know what she could be doing.

She was very hopeful that a functional medicine approach, which examined all the details of her case, could shed some light on what was going on and provide her with at least something that could make matters better for her.

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.*

B.S. is British and born in England, with English parents, although on her father's side, her grandparents were from Slovakia. She had never met these grandparents as they had both died when quite young and she did not know anything about their health histories.

B.S. has a brother and a sister who are in good health. Her parents are very well, and all have been brought up with a whole fresh diet and aware of the disadvantages of processed and refined foods.

She had never smoked, and only rarely ever drank alcohol. She had never taken any drugs of any kind.

No one in her family had experienced what she was going through now.

B.S. wished that there had been a list of therapies that she had implemented to help herself but alas, none were successful. She was told that "there was nothing wrong" which she did not accept, but she did not know what else to do. Her family were very conventional and although conscious of healthy eating did not have any experience in any other therapies outside of conventional medicine. She had never had cause to seek advice from a Nutritional Therapist or Acupuncturist or Herbalist, for example. In asking her friends, she came across functional medicine and my name.

When we met, B.S. had already provided me with the completed questionnaires, the time-line document and a copy of the blood tests conducted 10 months previously by her doctor. It was a comprehensive test which ruled out anaemia, showed normal thyroid markers (TSH & T4), normal B12 & folate, but did reveal a low level of vitamin D. B.S. had taken vitamin D ever since but this had not resulted in any improvements. B.S. told me that she was impressed with the amount of information required for her consultation compared to the relative lack of questions from her GP.

In addition to the main points of focus of the consultation, I was able to explore some of the other indications shown on the questionnaires. One of these questions is this: "If drinking, easily intoxicated" to which B.S. had answered in the affirmative. I asked her about this and she told me that since her very first drink at 15 years of age she had really been affected by alcohol and as a consequence she rarely had anything more than a single glass of wine and this was always with food. In the same section of one of the questionnaires she had ticked "Sensitive to tobacco smoke" and "Motion sickness" and "Sensitive to chemicals esp. perfumes". All of these are associated with, or suggest changes to her biotransformation mechanisms and I made a note of this.

B.S. ate wheat and gluten grains only rarely; a small amount every 3 or 4 days. This helped to rule out one of the most common triggers of abdominal bloating (although it is possible for infrequent consumption to still be a contributory factor in many health issues). She also only consumed cheese infrequently and no milk at all which helped to rule out a problem with lactose, which I had considered as a possibility for her GI symptoms.

B.S. slept well but invariably awoke feeling tired, almost as if drugged, she described. She said that it was as if she had drunk alcohol the night before. This has been present for at least 6 months she recalled and was all

part of the decline in her overall health. I explored this some more with B.S. and she also described that her energy at about 3 pm was notably low. This is associated with the rhythm of the liver in TCM (Traditional Chinese Medicine). We talked about how else she felt when she woke up, and she told me that she needed to move slowly because she felt 'old' (i.e. a little stiff and achy) but once she had had a hot shower that she was more able to move around freely without any awareness of her body. This suggested me to some kind of insufficient or imbalanced liver detoxification process resulting in a compromised energy and ease of physical movement first thing, after having lain down for 7+ hours. I explained this to her, and she said it made sense to her. At that stage, I did not have any idea of the direct connection between potential excess oxidative stress generated from the liver and hair loss and very weak nails, but I did begin to formulate the picture that her energy could well be related to something within her liver biotransformation pathways.

In the section of the questionnaire that focuses on stress and the adrenal response, the section was not strongly indicated, with a low score. She seemed to be able to handle stresses very well and really enjoyed her work and other than her unexplained tiredness on waking did not have a presentation consistent adrenal stress or adrenal hormone imbalances. What most stressed her was her health issues.

I also checked her thyroid section on the questionnaires, being conscious that blood tests that show a normal TSH and FT4 do not necessarily give all of the information that is relevant for thyroid hormone function in the body. I have often discovered that hair loss is due to a sub-clinical hypothyroid state in which the blood results (TSH & T4) are completely normal but when appropriate thyroid support is provided the hair loss resolves (in some cases). B.S.'s results of 1.1 (TSH) (0.3 to 4.2) and 12 for FT4 (9-23) showed that her FT4 could be higher and I was alerted to the possible need for thyroid support. Hair loss and fatigue were the two stand-out signs of a possible thyroid hormone imbalance but no other items were ticked.

We discussed the onset of the symptoms and signs and explored the period of time prior to their onset but nothing of special relevance emerged. At the end of the investigative part of the consultation, I was left with a strong suspicion that there was a liver involvement along with a possible thyroid hormone involvement. I noted that we could also explore nutrient status, such as zinc status which I have found to be associated with thinning and loss of hair and weak nails, as well as B vitamins and fatty acids. Also, I noted that there was potential for her cortisol levels to be elevated in spite of the lack of case history evidence for this, other than an understanding that cortisol levels can affect the thyroid and hair growth.

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

This timeline information reflects the line of questioning that I undertook when I was alerted to a possible liver involvement in B.S.'s health concerns.

In 1988, B.S. was born as a second child into her family, with a younger brother to follow 2 years later. Her sister was 2 years older than her. She had been quite well as a child with nothing other than the usual childhood illnesses.

In 2000, on the first day of the new century, aged 11, she remembered that she had been very well and enjoyed a long, long walk with family and friends and been very proud to have been in the first group home. She had good stamina at that age.

In 2003, when she was 13 she had her first cycle (menarche) and since that time her energy had changed somewhat and she felt that the stamina she had has a pre-pubertal child had disappeared. After that time, she was not sure when exactly, she noticed that she did not feel so well when she tried different perfumes or was

in confined space with someone who was wearing a strong perfume (such as a car or a lift). She also did not like the smell of nail varnish remover and so she did not wear nail varnish on the weekends or in the holidays like her friends and her older sister.

Until 2004, B.S. had been quite slight and of shorter height than her classmates but then she had a growth spurt and she caught up and overtook some of her friends attaining 5 foot 7 inches in height.

In 2006-7-8, when she was 18, 19 and 20, she discovered and was reminded of her poor tolerance of alcohol whenever she drank it, and the unpleasant after effects the next day. She had not thought anything of it other than making a common sense judgment about not drinking much at all.

In 2009, B.S. graduated and started to work for the first time and performed very well in whatever role she had. She enjoyed good health but rarely burnt the candle like many colleagues and friends. She told me that she was not able to maintain her fitness whilst working long hours but managed to do some exercise just once or twice a week. She did not feel particularly fit, she told me.

In 2015, after 6 years of working diligently and relatively long hours with regular evenings spent at work due to the nature of her job, this was the first time she had had a health complaint. Her hair had become thinner and it was falling out more than it ever had before.

Next, she noticed that she had more abdominal wind than usual and her abdomen became bloated after eating. Whilst it was intermittent at first, after some months the bloating and wind had become a daily phenomenon. She could not identify any rhyme or reason for why this should be happening.

She had started to take a multi vit & min that included iron, which she had read was important for hair growth. It contained a very small amount of vitamin D.

In mid-2015, she had started to take an individual vitamin D supplement in addition, based on the blood test results from her Doctor. The gastroenterologist had diagnosed her with ‘IBS’ at around that same time in 2015.

Since she only ate wheat and gluten and dairy products irregularly, she did not believe that these were problematic or involved in her bloating which occurred after eating anything. She had lost a little weight due to the discomfort that was induced by eating much of the time and as a consequence she had eaten less than usual for a while, but she was aware that she needed to eat enough to maintain her energy over the day.

Our first appointment was in early December 2015.

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*.

Based on the detailed case history and conversation with B.S. I decided to focus on her liver health as the prime target of the nutritional therapy programme. Given that there are no definitive tests to reveal liver functioning I also decided on a trial for B.S. to follow which would then inform us whether this was an effective approach. This is described below.

I was very aware of the potential for the thyroid hormones being involved, but this did not explain the digestive issues in itself. I was aware that there could be more than one major contributory factor involved, but after listening carefully to all of the information about B.S. I believed that it was possible a single rather than multiple 'causes' could explain what she was experiencing. I also noted that it could have been possible for the adrenal hormones to be involved, even without being indicated in her case history, due to the hard work that B.S. had been committed to over the past 6 years.

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).*

The clinical trial that I prepared for B.S. consisted of removing gluten from her diet entirely, being stricter with the regularity of meals, ensuring that she relaxed before eating, and chewed her food well, included protein at her first two meals (something she did not always do) and the taking of four supplements (in addition to her vitamin D), all of which have a role to play within the liver. These are described in the first table here:

First Supplement Programme	
ProGreens Vitality (ARG)	1 scoop with breakfast for 2 weeks, then increase to 1 scoop at lunch as well.
Phosphatidyl Choline (ARG)	2 with lunch and 2 with dinner
Tocomin SupraBio Tocotrienols (ARG)	1 with breakfast & dinner
ALA Release (ARG)	1 with each meal
Vitamin D	400 iu x 2 per day

B.S. was asked to contact me if there were any untoward symptoms from commencing this programme, but otherwise we would meet in 5 weeks' time.

We had no contact between appointments so we met again after the month and B.S. reported back to me. She had written out a new 3-day food diary and confirmed that she had taken all of the supplements. A number of changes had occurred. The first thing that had changed was her sense of feeling stiff and achy first thing in the morning. She felt looser and more comfortable within herself and therefore did not need the relief of a longer hot shower in the morning time, which she was able to confine this to a few minutes vs nearly 10 minutes.

Secondly, her nails seemed a little stronger, week by week. She had wondered if she was imagining things, but when we met she could say there was a definite improvement, 5 weeks on.

Thirdly, her hair was falling out less now, if only for the previous week, and it was possibly less thin that it had been. We discussed what may have helped to achieve these improvements and I explained how she had not increased her iron or zinc and nor had she directly had thyroid support which we had previously discussed as being possible contributory factors. (I had asked her to stop the multi she had been taking, but to continue with the vitamin D supplement (2 x 400 iu per day).

Fourthly, her wind had dramatically reduced but her bloating was similar to before. We wondered if this could be due to the total avoidance of gluten and cheese but this seemed unlikely. I highlighted that she had not taken an anti-microbial supplement, no probiotic other than in the ProGreens Vitality and had not taken any digestive aids (HCl acid nor enzymes). This meant there was a possibility that the liver supportive supplements may have been responsible.

Overall, she had seen changes that had motived her to continue with what she was doing, and she felt a proportionate shift in her emotional state.

For the next time period I recommended a slight change to her supplement programme; I reduced the ProGreens Vitality in order not to promote liver detox pathways too much, which I have seen in other patients. I also swapped the Tocotrienol supplement for another fat-soluble antioxidant formula (Co Q Gamma E) favoured by Dr Marty Pall PhD for CFS (Chronic Fatigue Syndrome and chemical sensitivity (MCS). I have clinical experience with both over some years. The former provides a single antioxidant nutrient whereas the latter provides a range of antioxidant nutrients.

B.S. then followed this revised schedule for 6 weeks before we met again. She maintained the complete avoidance of gluten and dairy products (i.e. cheese) so as not to change potentially important variables.

Second Supplement Programme	
ProGreens Vitality (ARG)	1 scoop with breakfast
Phosphatidyl Choline (ARG)	2 with lunch and 2 with dinner
Co Q Gamma E (ARG)	1 with breakfast & dinner
ALA Release (ARG)	1 with each meal

B.S. and I met again 6 weeks later. She again handed me a typical food diary, which certainly saved time during the follow up appointment. She recounted to me what had happened in her health over this period of time.

Firstly, she was no longer at all compromised first thing in the morning on any physical level other than having less energy than she would have liked. Having said that, she told me that it was at least 50% better than it had been.

Secondly, her once very weak nails were now longer and stronger – she showed me and invited me to press down on a few of her fingernails. Definitely stronger, was my judgment. This was a very pleasing outcome for B.S.

Thirdly, her hair was not falling in excess as it had been excepting on a few days or nights a week for no apparent reason; she would notice more hairs on the pillow or in the shower plug but now it was not every day. This was very important to B.S. and had removed the emotional distress that the condition had created within her. It was not 100% better but she was close to that. Her hair was thicker now (more plentiful in number and each individual hair felt thicker and stronger).

Fourthly, her wind was still much reduced and her bloating was about 50% less than it had been. It was like the condition was unwinding, reducing in the reverse order as it had manifested itself. We discussed when the bloating was worse and why this might be, and it may have been due to eating a higher saturated fat meal, or eating too late at night. This seemed to not only cause bloating in that moment but also an increased disposition to be bloated the next day.

We discussed the possible need for gut lining support and digestive enzymes, but I reminded her how all of the improvements thus far had been without that specific kind of intervention. I reflected back to her how much less stressed (emotionally upset) she was now, as a result of her improvements, therefore helping to remove at least one possible aggravator to the health of her gut lining.

B.S. was very willing to continue with what she had been doing, and persisted with the third similar supplement programme. I decided to rotate the CoQ Gamma E with the Tocotrienol supplement, and to slightly reduce the ALA Release (Alpha Lipoic Acid in sustained release form). The reason for this was to avoid providing too much support for any single conjugation or other liver detoxification pathway which I have found simply reduces the benefits over time. What may be required in the first phase and be shown to be effective, is not always the same that is required in the second or third phase when less is more; in my experience.

Third Supplement Programme	
ProGreens Vitality (ARG)	1 scoop with breakfast
Phosphatidyl Choline (ARG)	2 with lunch and 2 with dinner
Co Q Gamma E (ARG)	1 with breakfast & dinner on one day (alternate days) (rotated with the Tocomin Suprabio Tocotrienols)
Tocomin SupraBio Tocotrienols (ARG)	1 with breakfast & dinner on the other day (rotated with CoQ Gamma E)
ALA Release (ARG)	1 with breakfast & dinner

We agreed to meet in 3 months' time which was when we had hoped that B.S. would be free of all four of the issues with which she had presented.

When we met at the end of July 2016, B.S. had indeed achieved all of her health goals. Her hair and nails were back to their full strength and her energy in the morning was markedly better and very satisfactory, and her bloating and wind were gone.

B.S. had diligently followed the relatively few recommendations, and persisted with the elimination of gluten and cheese. She felt very well. We discussed the functions of the supplements and what each one did and how an imbalance in certain liver functions or biotransformation pathways may have led to increased oxidative stress and then impacted on various tissues within her body, and her energy and digestion. I offered an explanation of how oxidative stress increased inflammation and this could then impact on mitochondrial energy (ATP) output and their appropriate de-novo generation. I also explained how the same imbalance in biotransformation could lead to unconjugated toxins in her bile and that this could lead to an aggravation of her gut lining and lead to bloating, and possibly an imbalance in her microbiota and associated microbiome and also contribute to wind. However, I could not immediately explain how improved liver detox function or improved liver energy could have such a marked effect on her hair and nails.

I shared with B.S. that I had conducted a PubMed search to help offer an explanation as to what had been going on with her body. I had found a PubMed reference (2016) which described how sulforaphane was found to improve murine hair growth due to its acceleration of the degradation of dihydrotestosterone. This provides an in principle possibility that the multiple nutrients and plant substances that may help with Nrf2 factors (although not sulforaphane itself) may have improved the degradation of hormones or metabolic toxins and thereby support hair and possibly nail growth. B.S. ate Broccoli regularly (the main food source of sulforaphane), but no more nor less since she began the nutritional programme. Nrf2 is a powerful protein that is latent within each cell in the body, unable to move or operate until it is released by an Nrf2 activator. Once released it migrates into the cell nucleus and bonds to the DNA at the location of the Antioxidant Response Element (ARE) or also called hARE (Human Antioxidant Response Element) which is the master regulator of the total antioxidant system that is available in ALL human cells.

An earlier paper (2001) identified that steroid 5 alpha-reductases and 3 alpha-hydroxysteroid dehydrogenases play a role in androgen metabolism, and that this can affect hair growth. It is possible that the liver support provided to B.S. had an effect on these enzymes, in addition to other roles not specifically known.

I also found reference to the connection of poor nail growth in certain liver conditions (2008). However, B.S. had no diagnosed or known liver disease, although it appears that an improved liver functioning, as far as we can tell, had led to a marked improvement in her fingernail strength.

These research findings provide a possible link as to what occurred within her to explain the improvements. I did not have access to this specific information when making the original judgment call as to how to proceed in her case, but it serves as at least some scientific support albeit in retrospect to help understand why the improvements occurred.

References

- Sasaki M, Shinozaki S, Shimokado K. Sulforaphane promotes murine hair growth by accelerating the degradation of dihydrotestosterone. Biochem Biophys Res Commun. 2016 Mar 25;472(1):250-4. doi: 10.1016/j.bbrc.2016.02.099. Epub 2016 Feb 26. View Abstract
- Jin Y, Penning TM. Steroid 5alpha-reductases and 3alpha-hydroxysteroid dehydrogenases: key enzymes in androgen metabolism. Best Pract Res Clin Endocrinol Metab. 2001 Mar;15(1):79-94. View Abstract
- Ghosn SH, Kibbi AG. Cutaneous manifestations of liver diseases. Clin Dermatol. 2008 May-Jun;26(3):274-82. doi: 10.1016/j.clindermatol.2008.02.001. View Abstract

It occurred to me that B.S. may have accumulated a toxin from her environment such as a heavy metal or dioxins for example, that was reduced by the supplement programme and as such it acted as a detoxification programme. I have made a note on the file to this effect. There are a number of lab tests which can assess for a variety of toxins but even a positive test for one or more of these does not prove the link between their presence and her symptoms / signs.

Another consideration is for the role that vitamin A may have to play in hair and nail growth. However, improvements were made prior to the introduction of the Co Q Gamma E which provides vitamin A in its precursor form of beta-carotene. Given her sound diet which includes regular intake of beta-carotene rich vegetables this is not a likely explanation for the improvements. Albeit that I recognise that women and men of northern European descent have a 40% chance of 2 SNPs in digestive tract that limits conversion of beta and alpha carotene to retinol.

- Borel P, Desmarchelier C, Nowicki M, Bott R. A Combination of Single-Nucleotide Polymorphisms Is Associated with Interindividual Variability in Dietary β-Carotene Bioavailability in Healthy Men. J Nutr. 2015 Aug;145(8):1740-7. View Full Paper

I have given B.S. instructions to gradually reduce the supplements to find the lowest dose of them which provides her with the same outcome in her health markers.

Fourth & ongoing Supplement Programme	
ProGreens Vitality (ARG)	1 scoop with breakfast – reduce gradually over time to none
Phosphatidyl Choline (ARG)	2 with lunch and 2 with dinner – reduce gradually

	over time to none
Co Q Gamma E (ARG)	1 with breakfast & dinner on alternate days - reduce gradually over time to none
Tocomin SupraBio Tocotrienols (ARG)	1 with breakfast & dinner on alternate days - reduce gradually over time to none
ALA Release (ARG)	1 with breakfast & dinner - reduce gradually over time to none

At this time, it is not known whether B.S. will need to continue with any of the supplements in time. She currently enjoys freedom from the health issues which brought her into my clinic which is a very satisfactory outcome.

Supplement Information

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)**.

Phosphatidyl Choline (ARG)
This is the straightforward type of PC from ARG and not the more precise form as found in the NT Factor. PC provides specific hepatoprotective and liver function support in addition to delivering a well-delivered precursor to the brain neurotransmitter acetylcholine, and it provides overall cellular membrane integrity.

Co Q Gamma E (ARG)
This is one of the products in the Marty Pall PhD Chronic Fatigue / Fibromyalgia protocol. It provides all the fat soluble antioxidants including CoQ10, all 8 members of the Vit E family (4 x tocotrienols, 4 x tocopherols) with emphasis on the gamma tocopherol, lycopene, lutein, and alpha lipoic acid, Vitamin A & fat-soluble Vit C.

Tocomin SupraBio Tocotrienols (ARG)
This product offers enhanced absorption of the 4 tocotrienols, which offer antioxidant support. They have been shown to have benefits in a number of different conditions from helping to prevent 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 the clinical eucation website: Tocotrienols and their Benefits.

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.

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 strength of this case lies on the foundation of detailed case history taking, and the volume of information gathered and discussed with the client. The limitation is the lack of hard evidence for either the causes of the health issues presented by B.S. and the reasons why she experienced the positive outcomes.

The literature relevant to this case report
Clinical judgment based on experience combined with the weight of evidence from the case history and meetings with B.S. led to the recommendations made. Only in hindsight and when searching for links have a limited number of papers been found that offer a possible insight into the mechanisms of what may have occurred within B.S. in order for her to experience the improvements that she did.

The rationale for your conclusions
As explained in the Case Report above, it was the details of the case history information taken all together, and being alert to symptoms that reflected a possible liver-centric imbalance that led to the recommendations. It is not known if it was the focused supplement programme or the combination of this combined with a gluten and cheese free diet that led to the resolution of her symptoms / signs.

The main findings of this case report: What are the take-away messages?
As has been described before, it is the detail of the case history and the formation of patterns within the multiple data that led me to make the recommendations that I did. Naturally, if there had been no improvement after 5 weeks it would have been necessary to consider pursuing other avenues which included thyroid hormone function, possible adrenal hormone imbalances and other more tissue specific target therapy (e.g. zinc for hair and nail growth, digestive enzymes or anti-microbials to reduce the wind).

The take-away message is that I am recommending that practitioners need to go with what they believe is the right course of action for their patient, based on all the data in front of them and given that all the data has been carefully considered. On the other hand, there is no easy replacement for experience.

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.

B.S. had confidence in the process before the first appointment because of the amount of information that was required of her. Compared to her previous experience with her Doctor she was asked about one question once she had described what her troubles were.

It goes without saying that she is really delighted with the outcome of her programme, which is now ongoing. However, it is not likely that she appreciates how rare her case may be, and I remain grateful that I pursued the signs and symptoms linked to biotransformation and opened up an area of what turned out to be great relevance. (Most women with hair loss and weak nails typically need correction of anaemia of one kind or another or zinc and support for thyroid hormones imbalances, or all three of these things.)

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. B.S. 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*

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