Creating international and interdisciplinary collaboration for health

AONM Newsletter April 2024

Introduction

The theme of spring is growth and renewal, as we all so badly need. There is certainly inspiring movement afoot in some quarters. It seems M.E. is perhaps finally getting more of the attention it deserves: the title of this year's "Invest in ME" Colloquium is – for the first time – "The Infectious Aetiology of Myalgic Encephalomyelitis", and researchers from the field of Long Covid will be sharing their findings. Hopefully the huge investment granted to Covid over the last four years will at last give new life to M.E. research.

AONM is expanding, too, with two new areas of testing: Kryptopyrroluria and Parasites with excellent laboratory partners: Kiweno for KPU and ArminLabs for two parasite panels: protozoa and helminths.

The wealth of upcoming events also reflects newfound inspiration. AONM has an exciting series of webinars planned, and will be participating in many of the others, either with a speaker or a stand. We very much hope to meet many of you in person again this year!

As always, we welcome your feedback: please contact us on info@aonm.org

CONTENTS

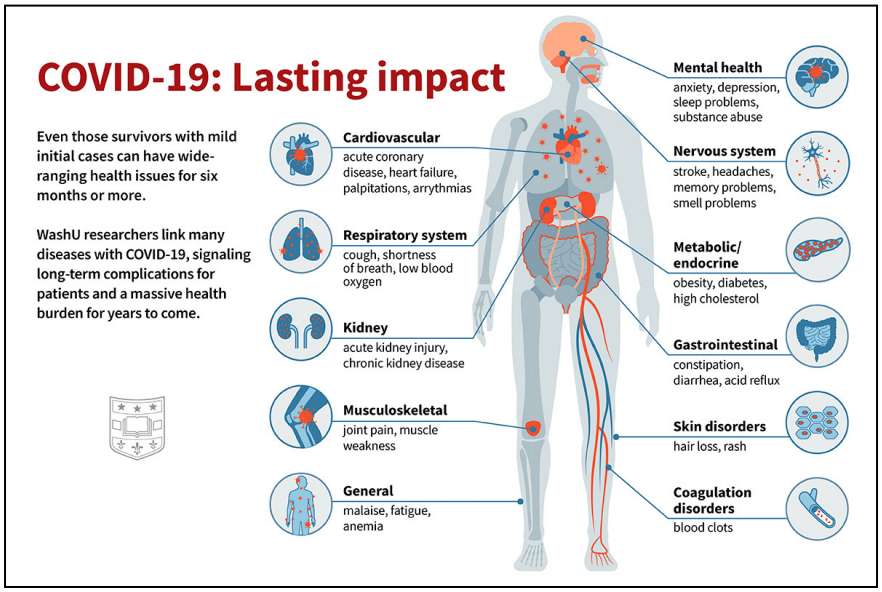
1. Inspiring Long Covid research with M.E. cross-over potential

A groundbreaking new article published in January 2024 in Nature Communications, one of the top-ranked scientific journals in the world, evidences profound physiological changes in patients suffering from post-COVID fatigue, such as severe muscle damage, mitochondrial issues and microclots.(i)

The study, *"Muscle abnormalities worsen after*

post-exertional malaise in Long COVID" was a collaboration between researchers from Amsterdam Movement Sciences and Amsterdam Institute for Infection and Immunity. The subjects had been characterised based on the criteria established by the World Health Organization: an important inclusion criterion was the presence of post-exertional malaise.(ii)

The outcome data of the study showed that the lower exercise capacity in Long COVID patients is associated with "a greater proportion of high-fatigable glycolytic fibers and lower mitochondrial function, with a possible additional limitation of a lower capillarization and the ventilatory system." It also demonstrated that the subjects' changes in skeletal muscle structure and function worsened with exercise. The severe exercise-induced myopathy may partially be due to the tissue infiltration of amyloid-containing deposits in skeletal muscles that was found. Their data also also suggested that the combination of reduced maximal mitochondrial respiration and decreased mitochondrial content are part of the pathophysiology of post-exertional malaise.



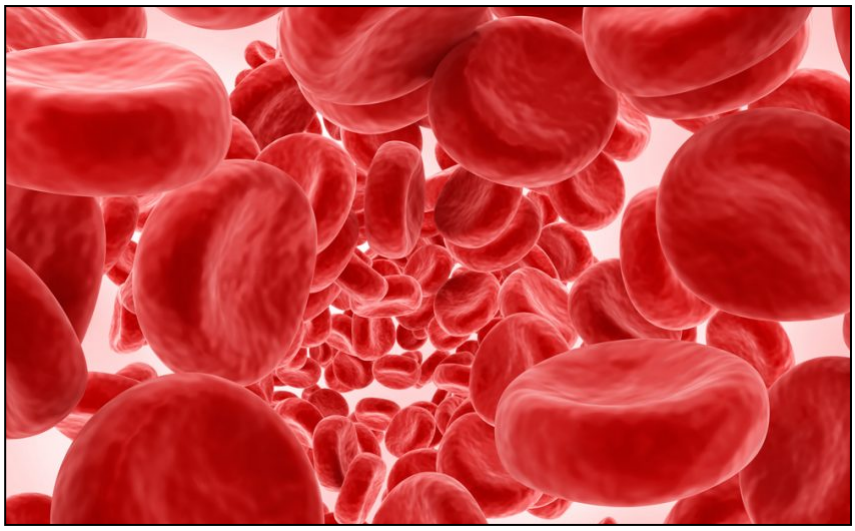
The study additionally tested for the presence of viral remnants, and found the presence of residual SARS-CoV-2 nucleocapsid protein in the extracellular matrix, and that levels were similar in both patients and healthy controls. This suggested that these viral particles in themselves do "not explain the limited exercise capacity or development of post-exertional malaise in patients with Long COVID." Assays for detection of the spike protein do not seem to have been performed. All the source data and metabolomics are available.

This is a very important article which should definitely put paid to any thoughts of coercing Long Covid patients into rehabilitation exercise programmes who are suffering from post-exertional malaise, as is now being propounded in some quarters (see e.g. New Scientist: On the use of exercise therapy for Long Covid(iii) , and the article "Rehabilitation Exercise and psycholoGical support After covid-19 InfectioN' (REGAIN).(iv)" Graded exercise therapy (GET) is now no longer included in the new NICE guidelines for M.E., finally, after a multiyear battle by dedicated warriors such as Dr. Sarah Myhill.(v) In the words of George Monbiot, author of a superb article in the Guardian (12th March 2024) called 'You don't want to get better': "the outdated treatment of ME/CFS patients is a national scandal":
Several studies concluded that GET was actively harmful , as the exercise regime it promoted could worsen patients' symptoms, causing post-exertional malaise. One paper reported that it was detrimental to the health of at least 50% of patients."(vi)

There is still further effort needed though to gain wider conventional acceptance of the infectious and mitochondrial aetiology in M.E., among other possible drivers. The conclusions of the Nature study are now very logically being extended to the M.E./CFS arena. Invest in ME, the volunteer organisation that has conducted research into M.E. and run excellent annual conferences since 2005, has invited the lead author Professor Rob Wüst to discuss the study at its International ME Conference Week in the last week of June (see Upcoming Events) and explore the cross-over opportunities. This year's colloquium is entitled "The Infectious Aetiology of Myalgic Encephalomyelitis", and promises to be very inspirational.(iv)

i. https://doi.org/10.1038/s41467-023-44432-3
ii. World Health Organization. Post COVID-19 condition (Long COVID). https://www.who.int/europe/news-room/fact-sheets/item/postcovid-19-condition. (2023)
iii.https://meassociation.org.uk/2024/02/new-scientist-on-the-use-of-exercise-therapy-for-long-covid/
iv. McGregor G et al. Rehabilitation Exercise and psycholoGical support After covid-19 InfectioN' (REGAIN): a structured summary of a study protocol for a randomised controlled trial. Trials. 2021 Jan 6;22(1):8.
v.https://www.drmyhill.co.uk/wiki/Graded_Exercise_Therapy_and_Cognitive_Behaviour_Therapy_as_treatments_for_CFS_and_ME
vi.https://www.researchgate.net/publication/216572185_Reporting_of_Harms_Associated_with_Graded_Exercise_Therapy_and_Cognitive_Behavioural_Therapy_in_Myalgic_EncephalomyelitisChronic_Fatigue_Syndrome
vii. https://www.investinme.org/brmec13.shtml

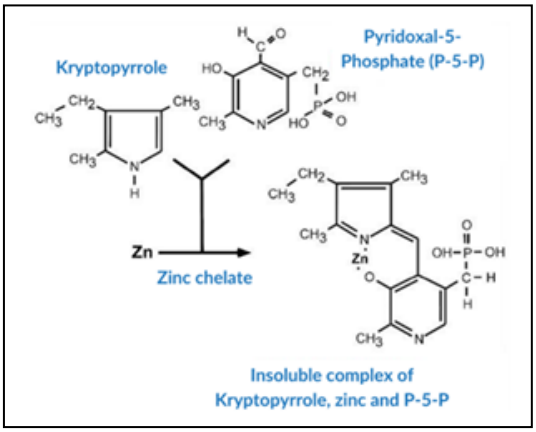
* NEW AONM TEST: KPU *
The Hidden Connection between Kryptopyrroluria and Mitochondrial Disorders



KPU is a metabolic disorder related to an abnormality in the production and breakdown of haem. This abnormality means free pyrroles are eliminated undetected via the urine. Pyrroles are building blocks of the haem group – a component of e.g. haemoglobin – and can act like a chelation agent, attaching to specific nutrients like zinc, pyridoxal-5-phosphate (the active form of B6) and manganese. These get washed out in the urine instead of being properly metabolised and utilised.

The disorder can be inherited or acquired. The production of haem has eight steps, four of which take place in the mitochondria. It therefore makes sense that KPU can occur as a result of mitochondrial dysfunction, when the mitochondrial steps are disabled, such as aminolevulinic acid synthase (ALAS), the first step in haem production. Many of the correlates that have been noted could be linked to impaired mitochondrial function. Dr. Klinghardt has for example found that it often correlates with Lyme Disease, in around 80% of patients that he sees, as well as in patients with heavy metal toxicity, and in children with autism.

It is clear that if there is a disruption to haem this will disorder the oxygen transport system, since haem is a ring-shaped molecular component of haemoglobin necessary to bind oxygen for delivery via the blood to the tissues. Disturbed oxygen transport will cause fatigue, and potentially muscular pain (due to the resulting build-up of lactic acid from the alternative energy delivery system that upregulates: glycolysis). But haem is needed in so many other physiological processes too, such as the cytochrome P450 enzymes so essential for detoxification. Myoglobin requires haem too, the oxygen-binding protein located primarily in muscles; exacerbation of the hypermobility form of Ehlers-Danlos Syndrome (hEDS) has been linked to this disorder as a result.



The possible symptoms are numerous due to the many pathways that require the nutrients B6, zinc and manganese (see box for a selection). B6 is crucial for example for the formation of niacin from tryptophan, so insufficient niacin will have a severe knock-on effect on energy production, and for the formation of picolinic acid, disrupting the uptake of minerals such as chromium, manganese and magnesium. It is also essential for the conversion of carbohydrates and protein stores into glucose, and for fat metabolism, especially the synthesis of fats for the myelin sheath.

Correlations with other markers have also been noted, such as low/low normal alkaline phosphatase, low white blood cells, high LDL/low HDL, low Omega 6 in RBC membranes, high taurine in amino acid profiles/organic acid tests, and high MCV. Some sources even link raised copper in the serum, elevated or lowered serum histamine concentrations and a deficiency of immunoglobulin A to the condition.

This disorder is still relatively unknown in the UK, despite its importance. It was discovered in the early 1960s, when Drs. Abram Hoffer, Donald Irvine and Carl C. Pfeiffer detected a compound in the urine of psychiatric patients which Hoffer termed the "Mauve factor" due to its appearance on the chromatograms used in its analysis. Dr. Pfeiffer found that around 30% of patients labelled schizophrenic were suffering from an excess of this mauve factor in their urine, also termed kryptopyrroles, and that targeted support of their broken metabolic pathways could relieve the condition – often very fast.

Its link to neuropsychiatric disorders is clear because B6 is so vital for the synthesis of the neurotransmitters serotonin, dopamine and noradrenaline. KPU is frequently found in association with PANS/PANDAS (mentioned for example recently by Dr. Nancy O'Hara in an AONM webinar https://aonm.org/view-past-webinars/).

Tackling the condition once detected is relatively straightforward: specific combinations of nutrients are readily available to address the deficiencies. It can be very useful too to check on the mitochondria to see the extent to which their dysfunction may be involved (https://aonm.org/mitochondrial-testing/).

AONM has now introduced a test for KPU. This is a urine test that can be conducted easily from your own home. It is delivered promptly to our partner laboratory in Germany, and the turnaround is swift. Our laboratory is currently validating a dryspot urine test, too, so that will also be available soon. See https://aonm.org/kryptopyrroluria-testing/ for further details, or call our Helpline on 0333 121 0305. Please refer to "The Elephant in the Room" (https://aonm.org/kryptopyrroluria-the-elephant-in-the-room/) and other linked articles for additional information and references, and we will soon be holding webinars on the topic.

SYMPTOMS OF KPU

Physical appearance: Pale, sallow skin, pale lips, pruritis either in certain areas or all over (anal pruritis is particularly prevalent in children); light intolerance, rash in sunlight, yellowish-brown pigmentation after being in the sun, slight puffiness of the face, especially around the cheeks and eyes. Dark rings around the eyes, eyes sunk deep into their sockets; soft gums; striae on the skin similar to stretch marks; white spots on the nails (leukodynia), sometimes hair loss, acne, eczema and dandruff; poor tooth enamel

Neurological issues, often labelled psychiatric: Memory and concentration difficulties, problems with short-term memory, brain fog, poor dream recall, low mood, fear, panic attacks, withdrawal from social activities, hallucinations, apparent schizophrenia/psychosis, ADHD

Impaired energy production: Fatigue, may be severe

Detoxification issues, resulting in intolerance to medications and chemicals (MCS)

Thyroid disorders: Hypothyroidism, Hashimoto's thyroiditis

Immune disorders, particularly bronchial infections, cystitis and urinary infections, sinusitis especially in children

Musculoskeletal symptoms: Hyper-mobility, pelvic instability, weak muscles. Often muscle and joint pain (due to myoglobin being affected, because it has a haem group)

Allergies, food intolerances, lactose intolerance (lactoperoxidase contains haem)

Gynaecological issues: Menstrual disorders, fertility issues, complications in pregnancy

Gastrointestinal disorders: Bloating, pain, nausea, especially in the morning. Alternating diahorrea and constipation, halitosis, aversion to meat (because the conversion of muscle protein to our own protein is B6-dependent)

Blood sugar disorders: Hypoglycaemia (because gluconeogenesis is B6-dependent); diabetes type II

Methylation issues, hyperhomocysteinae-mia

Source: Joachim Strienz, Leben mit KPU Kryptopyrrolurie (Living with KPU — Kryptopyrroluria, only available in German)

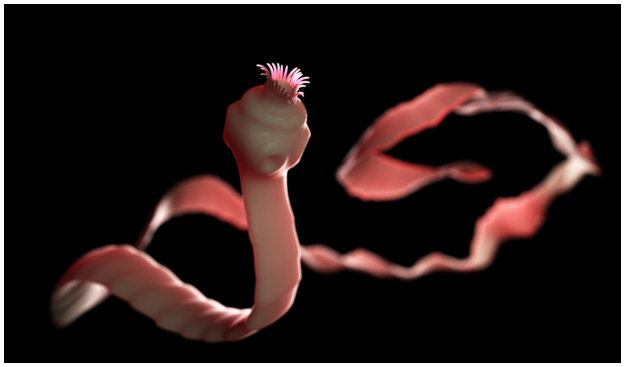
3. Parasite testing with AONM

AONM has introduced a new test of parasites in association with ArminLabs.

The symptoms of a parasite infection can vary depending on the type of parasite and its location in the body. Some common symptoms are:

- Abdominal pain
- Diarrhoea
- Nausea and vomiting
- Tiredness
- Weight loss
- Itching or irritation
- Fever

This is a stool-based parasite Multiplex PCR test for single or multiple detection of 16 of the most common species of intestinal parasites – intestinal helminths (worms) and intestinal protozoa. This test is composed of two separate panels, each of which can be ordered separately. The protozoa panel includes the species Giardia lamblia, Entamoeba histolytica, Cryptosporidium spp., Blastocytis hominis, Dientamoeba fragilis, and Cyclospora cayetanensis. The helminth (worms) panel covers Ancylostoma spp., Ascaris spp., Enterobius vermicularis, Hymenolepis spp., Enterocytozoon spp./Encephalitozoon spp., Necatoramericanus, Strongyloides spp., Taenia spp. and Trichuris trichiura.



The accuracy of this fully validated and accredited test is ≥ 99.9%, with a detection limit of 100 copies/reaction. The clinical preparation is easy, requiring only a toothpick-sized sample that can be taken at home and is sent direct to the lab, ensuring a swift turnaround.

Peer-reviewed scientific articles describe the analytical validation of a direct competitive PCR assay for the detection of intestinal parasites in human stool (see below).

Please see our webpage for further details, or call our Helpline +44(0)3331 210 305 for assistance or email https://aonm.org/parasites/

AONM also offers blood-based antibody tests of parasitosis. As parasites can affect more than just the intestine, these can also be indicated if a parasite infection is suspected. These tests cover the species Ascaris lumbricoides/ suum IgG, Taenia solium IgG, Echinococcus granulosus/ multilocularis IgG, Toxocara canis IgG, Trichinella spiralis IgG, Toxoplasma gondii IgM/IgG and Babesia IgG-/IgM+ Babesia EliSpot, Entamoeba histolytica IgG, Fasciola hepatica Ab, Trypanosoma brucei Ab (African trypanosomiasis), Trypanosoma cruzi Ab (South American trypanosomiasis), Schistosoma Ab Schistosomiasis, and Leishmania infantum IgG.

A checklist is available to determine which are the most likely to test for: https://aonm.org/checklists-for-testing/ as well as AONM order forms https://aonm.org/arminlabs-price-list-and-order-forms/ (see Additional Tests order form)

Dirani G, Zannoli S, Paesini E, Farabegoli P, Dalmo B, Vocale C, Liguori G, Varani S, Sambri V. Easy- screen™ Enteric Protozoa Assay For the Detection of Intestinal Parasites: A Retrospective Bi-Center Study. J Parasitol. 2019 Feb;105(1):58-63.

Autier B, Gangneux JP, Robert-Gangneux F. Evaluation of the AllplexTM Gastrointestinal Panel-Parasite Assay for Protozoa Detection in Stool Samples: A Retrospective and Prospective Study. Microorganisms. 2020 Apr 15;8(4):569. doi: 10.3390/microorganisms8040569. PMID: 32326453

4. Upcoming Events

AONM Webinar with Dr. Nancy O'Hara
Demystifying PANS/PANDAS Part 2, with extended Q&A
Wednesday 24th April 2024
7.15 pm – 9 pm (BST)
REGISTER: aonm.org/DrOHara

AONM Webinar with Professor Leona Gilbert, Kunal Garg, Dr. Gisell García-Bretón and Dr. Fajardo-Yamamoto
Revolutionising Lyme Disease Management: Predictive Modelling and Diagnostic Innovations Unveiled
Tuesday 30th April 2024
7.00 pm – 8.15 pm (BST)
REGISTER: aonm.org/DiagnosticInnovations

AONM Webinar with Professor Craig Shimasaki
The Autoimmune Brain Panel™ & Neurological Symptoms; CaMKII in Neurodevelopmental Disorders
Wednesday 8th May 2024
7.00 pm – 8.00 pm (BST)
REGISTER: aonm.org/AutoimmuneBrainPanel

AONM Roundtable Webinar
Professor Jack Lambert, Dr. Minha Rajput-Ray, Gordana Avramovic, Professor Leona Gilbert and Kunal Garg talk about their Irish studies on CD cells, Lyme and Coinfections and recent publications
Tuesday 2nd July 2024
7.00 pm – 8.15 pm (BST)
REGISTER: aonm.org/CDCellsRoundtable

ILADS European Scientific Conference
April 19th-21st, 2024
Hotel Vier Jahreszeiten Starnberg
Starnberg (near Munich)
Germany
Organised by Dr. Armin Schwarzbach, who will be speaking on "New 3 I Model of Infection + Inflammation + Immune Dysfunction: Viruses and their multisystem impact on testing, tracking and therapy in Post Covid/Long Covid"
https://www.ilads.org/ilads-conference/2024-germany/

IPM Conference
Dr. Armin Schwarzbach will be holding a workshop on Friday 7th June from 1:15–1:45pm called "The best testing strategies for pathogens"

AONM/ArminLabs will be present with a stand – please come and visit us!
QEII Centre. Broad Sanctuary, Westminster, London SW1P 3EE,UK
https://www.ipmcongress.com/
Discount code EXH-20

5th Annual ANP Summit:
Chronic & Complex Pathologies in Natural Medicine
14th and 15th September 2024
Gilian Crowther, AONM, will be giving a presentation on "How to recognise and provide relief for pathogen-triggered neuropsychiatric disorders"
https://theanp.co.uk/naturopathic-summit/

cont...

A.R.T. Advanced Training Day
April 19th 9.30 am – 5.30 pm

Family Constellation Day
April 20th 10.00 am – 5.30 pm

Klinghardt A.R.T.® 2 Intermediate Online Programme
April 23rd - May 21, 2024
https://klinghardtinstitute.com/events/

BRITISH SOCIETY FOR ECOLOGICAL MEDICINE

Gastroenterology Training Day: Ecological Medicine Approach to Gut Health
15th June 2024, 9.00 am - 5.00 pm
Hallam Conference Centre, London
Gilian Crowther, Director of Research of AONM, will be speaking about gut testing

BSEM Scientific Conference - Unravelling Brain Health
40th Anniversary Conference with the Public Health Collaboration UK
18th Oct 2024, 9.00 am – 5.00 pm
Cavendish Conference Centre, London
AONM will be present at this conference with a stand – please visit us!
https://www.bsem.org.uk/

Invest in ME Research

The 13th Invest in ME Research Biomedical Research into ME Colloquium 2024: The Infectious Aetiology of M.E.
26th - 27th June 2024
https://www.investinme.org/BRMEC13.shtml

Invest in M.E. Conference 2024: Advancing Understanding of ME: Bridging Research and Clinical Treatment
28th June 2024
9.00 am - 5.00 pm
Both events at:
Hinxton Hall Conference Centre, Wellcome Genome Campus, Hinxton, CB10 1RQ
Brochure of all IIMEC16 events:
https://www.investinme.org/documents/IIMEC16/conference2024.pdf

Nutritional Medicine Institute

An Energetic View: Mitochondrial Nutrition for Fatigue, the Brain, and Healthy Ageing
11th and 12th October 2024
Millennium Gloucester Hotel
London
https://www.nmi.health/nmi-summit-2024/

For more detailed information about AONM

Please see our website

www.aonm.org

+44(0)3331 210 305

info@aonm.org