



BANT[®]

Science-based nutrition
practice since 1997

Qnutrition EVIDENCE

NED EXPERT REVIEWS

Join the UK's leading Nutrition-Evidence Database community

ISSUE 1
JAN-JUNE 2023



Make informed clinical recommendations based on the latest nutritional science



www.nutrition-evidence.com/



© British Association for Nutrition & Lifestyle Medicine 2023

FULL PAGE ADVERT

£1500

WELCOME

YOUR NED EXPERT REVIEW JOURNAL IS READY!

We are excited to share the first edition of the NED Expert Review e-zine journal. This issue is packed with peer reviewed expert summaries of top quality research studies.

We present nutrition and lifestyle science on Mitochondrial Health, Metabolic Syndrome, Cancer and Phytonutrients, and Brain Health and Cognition.

The journal is a fantastic way to take a deep dive into the science, with clinical implications and take aways relevant to your practice. We hope you enjoy this edition. If you are looking for more information on any nutrition and lifestyle topic go straight to NED <https://www.nutrition-evidence.com>.

The British Association of Nutrition and Lifestyle Medicine (BANT) vision for the Nutrition Evidence Database (NED) is to provide nutrition and lifestyle science transformed and relevant for integrative and personalised practice. This journal demonstrates that this vision is being realised. NED is a unique offering in a rapidly expanding field of healthcare and is available open-access for all. We hope you find this first issue informative. If you have not yet subscribed to receive our popular monthly alerts on a wide range of nutrition topics, you can do so here <https://www.nutrition-evidence.com/> . Simply hit 'Subscribe'.

ABOUT NED

<https://www.nutrition-evidence.com/about>

NED FAQs'

<https://www.nutrition-evidence.com/faq>

MEET THE NED EDITORIAL BOARD

<https://www.nutrition-evidence.com/editorial-board>

MEET THE NED EXPERT REVIEWERS

<https://www.nutrition-evidence.com/expert-reviewers>



IN THIS ISSUE



PAGE 8

MITOCHONDRIAL HEALTH

- Urolithin A on biomarkers of mitochondrial health
- EGCG, Resveratrol & Mitochondria
- Mitochondrial-targeted antioxidants on glycaemic control



PAGE 18

METABOLIC SYNDROME

- Intermittent Fasting and glucose and lipid metabolism
- Oat beta-glucan intake and lipid profile
- Cadmium exposure and risk of diabetes and prediabetes
- Marine Oil and Pro-Resolving Mediators in Adults with Obesity.
- Comparative effects of vitamin and mineral supplements in the management of T2DM



PAGE 31

CANCER & NUTRITION

- Lipid intake and breast cancer
- Flavonoids and hormonal cancers
- Allium vegetables and cancer
- Carotenoids and colorectal cancer
- High-Lycopene and Lipid Metabolism
- Nutritional advice and colorectal cancer
- Inflammatory and insulinemic dietary patterns and risk of endometrial cancer



PAGE 45

BRAIN HEALTH & COGNITION

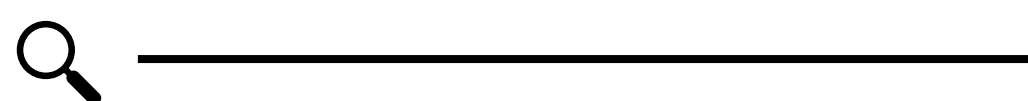
- Time Restricted eating (TRE) on sleep, Alzheimer's Disease and cognition
- Ketogenic drink and cognition



ALL ABOUT NED AND HOW TO SUBSCRIBE



Nutrition Evidence Database, known fondly as NED, is the UK's first scientific database of nutrition and lifestyle medicine research. It focuses on high-quality, human research and other science-supported information and is designed as a comprehensive platform for practitioners, academic researchers and students. The powerful, yet simple search functionality uses functional and lifestyle medicine filters to support evidence-based clinical decision making in personalised nutrition practice.



HALF PAGE ADVERT

£750

MEET THE NED EDITORIAL BOARD

Dr Justin Roberts, Ph.D, C.Sci, SFHEA,
mBANT - Editor-in-Chief

Dr Roberts is an Associate Professor in Health and Exercise Nutrition at the Cambridge Centre for Sport and Exercise Sciences, Anglia Ruskin University. Justin brings to Nutrition Evidence over 25 years applied and research experience in the field of exercise nutrition and metabolism. He has published over 40 peer-reviewed, scientific articles and book chapters, and is a reviewer for numerous academic journals.



EDITORIAL TEAM

Our expert editorial team bring knowledge of Systems biology, Bioinformatics, Neurodevelopment, Microbiome, Public Health Nutrition, Biomarkers and Chronic Pain. In clockwise order:

Michelle Barrow - Editor
BSc (Hons), MSc, QTLS, DProf, fBANT

Dr Kate Lawrence - Editor
BA(Hons), PhD, FHEA

Jessica Rigutto - Editor
MPharm, MPH, Dr.sc., ETH Zurich,
DiplON, mBANT

Clare Grundel, - Managing Editor
MSc, BA (Hons), mBANT

MEET THE NED EXPERT REVIEWERS

GUEST REVIEWER

We are joined in this issue by Guest Expert Reviewer, Gilian Crowther MA (Oxon), Dip NT/ND, FBANT, CNHC reg. a fully qualified Naturopath and Nutritional Therapist. Gilian specialises in complex multisystem disorders, and finds that her core focus mitochondrial dysfunction underlies much of today's chronic disease. Gilian provides two expert reviews on EGCG and Urolithin and their effect on mitochondrial biomarkers.



EXPERT REVIEWERS IN THIS ISSUE

In this issue we present:

Kirsty Baxter - MSc, DiplON, mBANT

Miranda Harris - MSc, FHEA

Clare Grundel - MSc, BA (Hons), mBANT

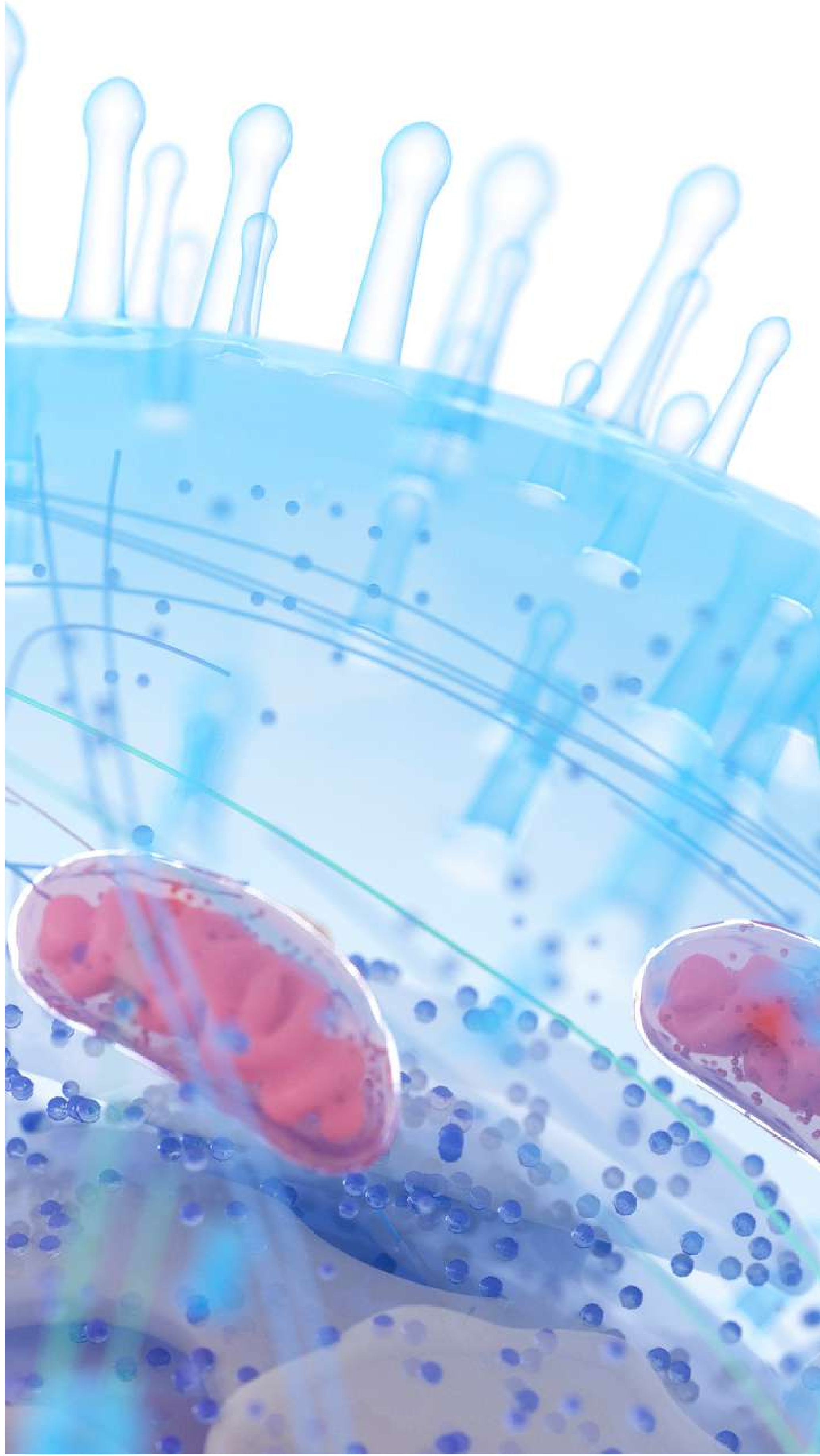
Gail Brady - MSc, DiplON, AFMCP, mBANT, rCNHC



Our reviewers each bring their individual expertise in areas of nutrition covering metabolic syndrome, weight loss, diabetes, inflammatory arthritis, chronic pain, female health, thyroid, mental health, behavioural health and sports nutrition.

MITOCHONDRIAL HEALTH

2 GUEST
REVIEWS



UROLITHIN & MITOCHONDRIA



Gilian Crowther

UROLITHIN A IMPROVES MUSCLE STRENGTH, EXERCISE PERFORMANCE, AND BIOMARKERS OF MITOCHONDRIAL HEALTH IN A RANDOMIZED TRIAL IN MIDDLE-AGED ADULTS

Singh, A ; D'Amico, D ; Andreux, PA ; Fouassier, AM ; Blanco-Bose, W ; Evans, M ; Aebischer, P ; Auwerx, J ; Rinsch, C
Cell reports. Medicine. 2022;3(5):100633

SUMMARY REVIEW:

Introduction

- Urolithin A (UA) is a microbiome metabolite – known as a postbiotic - of ellagitannins and polyphenolic compounds found in some plant foods including pomegranate, berries and walnuts.
- In animal models, UA has previously been shown to have a range of potential health benefits involving induction of mitophagy and on mitochondrial function, as well as on disease states including osteoarthritis, inflammatory bowel disease, cardiovascular disease, and neurodegenerative disorders.
- The current study sought to establish proof-of-concept of the efficacy and safety of long-term UA supplementation on physiological endpoints in middle-aged adults.

Methods

- The primary outcome was peak power output and secondary outcomes included a range of clinical and physiological parameters linked to muscle strength, exercise tolerance and physical performance.
- The study tested UA in 500mg and 1000 mg doses against placebo in a 3-arm randomized-controlled trial in n= 88 subjects aged 40-64y who were healthy, overweight (BMI 25.0-34.9 kg/m²), sedentary, and who had a low VO₂max at study inclusion. 79 subjects completed the study.
- Subjects were assessed at baseline, midpoint (2 months) and endpoint (4 months). In addition to the UA intervention, subjects were asked to maintain low physical activity status for the duration of the trial, and avoid pomegranates and supplements known to influence muscle performance (high protein, CoQ10m vitamin B3 or L-carnitine).

Results

- Though a difference in peak power output (primary outcome) was not observed, muscle strength improved by up to c. 12% with 500 mg daily UA (p=0.027). With 1000 mg UA daily, aerobic endurance improved by up to 15% (p=0.03), gait speed increased by 7% (p=0.004), and in the 6-minute walk test subjects improved by 7% (p=0.008) and walked on average more than 30 additional meters, indicating a clinically meaningful difference in mobility.
- In addition, subjects in the UA groups had improved biomarkers of cellular health. With 1000 mg UA daily, inflammation was reduced (CRP, p<0.05; IFN- γ and TNF- α , both p<0.05). In addition, biomarkers of mitochondrial efficiency were also improved with 500 mg UA daily, including increased protein levels related to improved mitophagy, and expression of genes belonging to mitochondria.

Conclusions

- UA was deemed as safe and well tolerated at both 500 mg and 1000 mg doses for 4 months' administration.
- A strength of the study was that the groups were balanced for all physiological parameters at baseline. However, the ratio of females was 2:1, and ethnicity was mainly western European. This may limit interpretation of the findings.
- All authors except one are either employees, board members or members of the scientific advisory board of Amazentis SA, who both manufacture Mitopure, the UA supplement used, and who funded this trial.

HOW TO BRING THIS RESEARCH INTO YOUR CLINICAL PRACTICE

TAKE HOME MESSAGE:

Mitochondrial dysfunction is associated with ageing and linked to deterioration of skeletal muscle and sarcopenia. Improving mitochondrial health may therefore help to improve muscle health as we age. Previous studies have demonstrated improvements in muscle endurance with long term UA intake in older adults (1) and the study by Singh et al. supports these findings in middle-aged adults. For middle-aged clients who are noticing a decline in muscle strength, exercise performance, or a general increase in fatigue, taking 500-1,000 mg UA daily for two to four months could lead to noticeable improvements in symptoms. The compounds from which UA is derived are also found in polyphenol-rich plant foods including pomegranates, berries and walnuts, therefore consuming these foods may be useful dietary additions for the same purpose.

These findings are likely to be relevant for younger populations too, as mitophagy, which is part of the action of UA, contributes to the removal and recycling of dysfunctional mitochondria, allowing healthier intact mitochondria to take their place.

CLINICAL PRACTICE APPLICATIONS:

- Mitophagy is an important step in improving mitochondrial health. This study demonstrates the potential of UA to activate this pathway.
- In healthy middle-aged adults who are overweight or obese, sedentary and with low physical performance, oral UA supplementation at a sufficient dose and duration may:
 - increase muscle strength
 - increase mitophagy proteins in human skeletal muscle, as well as various other mitochondrial markers
 - increase exercise performance and aerobic exercise
 - be a valuable intervention to consider in clients who are suffering from mitochondrial dysfunction

CONSIDERATIONS FOR FUTURE RESEARCH:

This study was exploratory and the sample size for some of the outcomes was very small and inadequate to demonstrate true statistical significance. Future studies of similar design are needed to confirm the findings.

Nevertheless, the study was well-structured with carefully elaborated markers. It could be used as a template for future studies.

REVIEWER: Gilian Crowther, Guest Expert Reviewer

CONFLICTS OF INTEREST: None

EVIDENCE CATEGORY: A - Meta-analyses, position-stands, randomized-controlled trials (RCTs)