acnem Australasian College of Nutritional and Environmental Medicine

Foundations of NEM 1&2

Foundations of NEM

The ACNEM *Foundations of Nutritional and Environmental Medicine* (NEM) course is the entry-point for GPs and other healthcare professionals wanting to learn about Nutritional and Environmental Medicine.

The course consists of two modules – Part 1 and Part 2 available to be completed online. Each module is equivalent to two days of training (i.e. four days in total).

On completion of both modules, the pre- and post-training activities and quiz, a Certificate of Completion is awarded. The course features presentations from highly experienced national and international clinicians.

Structure of Foundations of NEM Part 1

Learning Outcomes:

1. Evaluate the evidence-base of the key pillars of health and their impact on health outcomes
2. Conduct a patient consultation that includes history taking and examination that incorporates the key pillars of health
3. Identify and explain to a patient the environmental factors relevant to an individual's health
4. Critique published research in NEM at a basic level
5. Describe the medico-legal and regulatory framework for the practice of NEM relevant to your profession

- Practitioner Toolkit
- Feedback Survey
- Certificate of Completion

Assessments:

- Predisposing written assessment (300 words)
- 8 Self Knowledge Check quizzes
- Reflective written assessment

8 NEM Topics

- **Topic 1.** Introduction to the gastrointestinal system and the microbiome, functional pathology, testing & case studies
- **Topic 2.** Macronutrients & an anti-inflammatory diet
- **Topic 3.** Functional clinical assessment
- **Topic 4.** Comparing Dietary Approaches
- **Topic 5.** Micronutrients
- **Topic 6.** Mental Health: biochemical pathways, methylation & pyrroles
- **Topic 7.** Cardiometabolic Conditions
- **Topic 8.** NEM Practice; what you need to know –Medicare, PBS and prescribing, Q&A –practice models

CPD: 12 hours

Detailed Overview of Each Topic

Topic 1:
Introduction to the gastrointestinal system and the microbiome, functional pathology, testing & case studies

Lecture Duration
1h 36m

Presenter
Dr. Jason Hawrelak

Contents

- Gastrointestinal tract overview and definitions
- Composition and role of the microbiota organ
- Diseases associated with GI dysbiosis
  - IBS, IBD, Eczema, Obesity, Depression, Alzheimer's, Kidney Stones, Autism, etc
- Medication impact on dysbiosis
  - Antibiotics, PPIs, Chemotherapy, NSAIDs, Anti-Psychotics, Statins, etc
- Food additives, diets and natural medicines effect on dysbiosis
- The disappearing microbiota hypothesis
- Diagnosis and testing for dysbiosis
- Protection and maintenance of a healthy microbiota
  - Diet, probiotics, prebiotics, polyphenols, resistant starch, etc

Topic 2:
Macronutrients & an anti-inflammatory diet

Lecture Duration
1h 24m

Presenter
Dr. Michelle Woolhouse

Contents

- Protein
  - Definition, Composition, Biological Activity, Digestion, Recycling and Excretion
- Fats (Lipids)
  - Definition, Functional role, Deficiency, Types, Structure, Essential vs Non-essential, Cis and Trans, Sources, Anti-inflammatory vs Inflammatory, Fat soluble vitamins
- Carbohydrates
  - Definition, Digestion, Metabolism, Biological role, Simple vs Complex, Resistant Starches, FODMAPS, Fibre,
- Anti-inflammatory diet and foods

Topic 3:
Functional Clinical Assessment

Lecture Duration
1h 8m

Presenter
Dr. Nicole Nelson

Contents

- History taking (from a NEM perspective)
- Physical examination
  - Nail signs, condition of the skin, hand temperature, teeth and tongue signs, eye signs, posture, etc
- Medicare and functional testing (Australia only)
- Blood test reliability

Topic 4:
Comparing Dietary Approaches

Lecture Duration
1h 5m

Presenter
Dr. Michelle Woolhouse

Contents

- The evidence base (belief vs current evidence)
- Ketogenic diet
  - Definition, research, biological effects, contraindications
- Paleolithic diet
  - Definition, vs Keto, research
- Vegetarian diet (lacto-ovo)
  - Definition, cholesterol, CVD, cancer and diabetes
- Vegan diet
  - Definition, risk factors, vs vegetarianism, important considerations
- Intermittent fasting diet
  - Definition, evidence, weight loss, cardiometabolic effects, Alzheimer's and cancer, contraindications
- Dietary comparison table

Topic 5:
Micronutrients

Lecture Duration
2h 22m

Presenter
Rachel Arthur

Contents

- Introduction to micronutrients
- Digestion of vitamins
- Digestion of minerals
- Micronutrient absorption and bioavailability
- Parenteral nutrition (intravenous)
- Vitamin and mineral storage and excretion
- Bio-individuality of nutrition
- Micronutrient assessment
- Water soluble vitamins (deep dive)
- Fat soluble vitamins ADEK (deep dive)
- Mineral interactions
- Macrominerals
  - Calcium, magnesium, iron, zinc
- Important micronutrient resources

Topic 6:
Mental health: biochemical pathways, methylation and pyrroles

Lecture Duration
1h 24m

Presenter
Dr. Nicole Nelson

Contents

- The biology of mood
- 3 tiers of mental health
- Neurotransmitters
- Zinc, B12 and B6
- Folate and MTHFR
- Magnesium, GABA and B6
- Oxidative stress, brain derived neurotrophic factor and adenosine
- Methylation and acetylation
- Heavy metals
- Pyrroles
- Case studies
- Melatonin, depression and inflammation
- Hormones
- Treatments and nutrient prescriptions

Topic 7:
Cardiometabolic Conditions

Lecture Duration
1h 6m

Presenter
Dr. Sandeep Gupta

Contents

- Overview – 5 major risk factors for metabolic syndrome
- Overview – 4 pillars of health for prevention
- Cardiometabolic syndrome
  - Definition, epidemiology, risk factors, differential diagnosis
- Insulin resistance
- Visceral adiposity, endothelial dysfunction and dyslipidaemia
- Contributing factors
- Drug nutrient interactions
- Tests and investigations
- Co-morbidities and drivers of inflammation
- Diet and treatment options

Topic 8:
NEM Practice; what you need to know –Medicare, PBS and prescribing, Q&A –practice models

Lecture Duration
1h

Presenters
Dr. Shamistra Barathan
Dr. Caitlin O'Mahony

Contents

- Legal and practical objectives
- Billing
- Adequate recording keeping
- TGA
- Consent
- Professional indemnity insurance
- History taking, examination and investigations
- Functional pathology
- Step-by-step guide to NEM consultations

Structure of Foundations of NEM Part 2

Learning Outcomes:

1. List the main female sex hormones and recall the specific function and co-factors for production
2. Discuss the potential impacts of environmental pollutants and toxicants on short and long-term health outcomes
3. Develop a checklist of nutritional deficiencies and dietary-related factors that may be impacting on an individual's health and wellness status
4. Identify the role of diet, nutrition and environmental toxins in the aetiology and management of immune dysfunction

Assessments:

- Predisposing written assessment (300 words)
- Online quiz (20 questions)
- Reflective written assessment
- Additional Reading and Resources
- Feedback Survey
- Certificate of Completion

7 Sessions with 21 Topics (including case studies)

Session 1
- An Introduction to Women's health: Subfertility and recommendations
- Subfertility: Investigations and Interventions prior to referral (with case study)

Session 2
- An Introduction to Children's Health: The first 5 years
- An Introduction to Children's Health: School age
- Case Study: The first 5 years
- Case Study: School age

Session 3
- Fundamentals of Practicing Environmental Medicine
- Why the integrative clinician needs a building biologist

Session 4
- Lifestyle Medicine: Sleep
- Lifestyle Medicine: Stress
- The Role and Benefits of Exercise in Health Management
- Case Study: Lifestyle Medicine

Session 5
- Underactive Recurrent Infection
- Overactive Recurrent Infection
- Case Study: Chronic Urticaria

Session 6
- Cognitive Decline: Part 1
- Cognitive Decline: Part 2
- Case Study: Cognitive Decline

Session 7
- An Introduction to Epigenetics
- Drug-nutrient Interactions with case studies
- Health Coach: A practical case study on how and why a patient or client may see a health coach

CPD: 15 hours

Detailed Overview of Each Topic

Session 1.1:
An Introduction to Women's Health: Subfertility and Recommendations

Lecture Duration
40m

Presenter
Rhiannon Hardingham

Contents

- Definition
- Conception
  - Probability, statistics, IVF and subfertility
- Preconception considerations
  - Diet, EDCs, Alcohol, Tobacco, Caffeine, Weight
- Conclusions

Session 1.2:
Subfertility: Investigations and Interventions prior to referral (with case study)

Lecture Duration
47m

Presenter
Rhiannon Hardingham

Contents

- Introduction to testing and interventions
- Reproductive hormones
  - FSH, LH, E2, Prolactin, Progesterone
- Oestrogen detoxification
- Androgens
- SHBG
- Anti-mullerian hormone
- Thyroid function and conception
- Iodine, Zinc and Selenium
- Iron and Vitamin D
- B12, Folate and Homocysteine
- Conclusions

Session 2.1:
An Introduction to Children's Health: The first 5 years

Lecture Duration
1hr

Presenter
Dr. Leila Masson

Contents

- Overview: how to start children on their health journey
- Adverse childhood events
- Microbiome timeline
- Mode of birth and breastfeeding
- Weaning foods
- Common health issues in early years
- Sleep, Reflux and Colic
- Constipation
- Eczema and allergies
- Behaviour, developmental issues and prevention of developmental delays
- Summary

Session 2.2:
An Introduction to Children's Health: The first 5 years

Lecture Duration
1hr 10m

Presenter
Dr. Leila Masson

Contents

- Topic outline
- The pillars of optimal health
- Wholefoods and standard diet
- Common nutrient deficiencies
- Ecotherapy: active green play
- Screen time
- Sleep
- Toxin avoidance
- Common gut issues
- Gut assessment
- Treatments
- Picky eaters
- Anxiety
- PANS
- Irritability and oppositional behaviour
- ADHD
- Summary

Session 2.3:
Case Study: The first 5 years

Lecture Duration
22m

Presenter
Dr. Leila Masson

Contents

- 2 year old with speech delay
- History, Examination, Lab tests, Treatment, Interventions, Outcome
- Children and dairy

Session 2.4:
Case Study: School age

Lecture Duration
23m

Presenter
Dr. Leila Masson

Contents

- 11-year-old boy with Tourette's syndrome
- History, Examination, Concerns, Lab tests, Diagnosis, Treatment and response
- Discussion

Session 3.1:
Fundamentals of Practicing Environmental Medicine

Lecture Duration
39m

Presenter
Dr. Joe Pizzorno

Contents

- Overview
- Toxins and environmental toxicity
- The yellow canary
  - Chronic illness with no apparent cause
- Clear exposure
  - Not yet ill but obvious exposure
- Patients with chronic disease but no apparent toxin exposure
- Putting it all together
  - Most prevalent toxins clinically
  - Blood sugar dysregulation
  - Manifestation in later life
  - Bioaccumulation
- Resources

Session 3.2:
Why the integrative clinician needs a building biologist

Lecture Duration
1hr 4m

Presenter
Nicole Bijlsma

Contents

- History and definition of building biology movement
- Why do we need a building biologist?
- Case study 1: Lead
  - Sources, health effects, lab results, minimising exposure and management solutions
- Case study 2: Mould
  - Condensation, parliamentary enquiry, water damage, air sampling, remediation
- Case study 3: Electromagnetic Fields
  - Distance to base station
  - Recommendations
  - Lighting
- Case study 4: Toxicants
  - Biomonitoring
  - Air pollution - outdoor
  - Air pollution – indoor
  - Drinking water
  - Building plans
  - Geographical location
  - Pesticide history of local area
  - Main water supply
  - Base stations
  - Recommendations

Session 4.1:
Lifestyle Medicine: Sleep

Lecture Duration
35m

Presenter
Dr. Cristina Beer

Contents

- Overall Objectives
- Sleep statistics
- Role of sleep in health and disease
- Physiology of sleep
- Sleep disorders
- Sleep health assessment
- Lifestyle factors for sleep health
- Integrative interventions
- Case study 1 – 8 y/o girl
- Case study 2 – 48 y/o female
- Case study 3 – 68 y/o male

Session 4.2:
Lifestyle Medicine: Stress

Lecture Duration
47m

Presenter
Dr. Sanjeev Sharma

Contents

- The stress response
- Neuroendocrine pathways
- Good vs Bad stress
- Old vs New thinking
- Inflammation and PTSD
- Mitochondrial distribution
- Adrenal anatomy and response
- The physiological effect of the “Cortisol Steal”
- Effects of stress through the lifespan
- Adrenal dysfunction
- Circadian rhythm disruption and disease
- Trauma
- Stress management
- Overall clinical approach
- Overall dietary approach
- Overall supplementation approach
- Protecting the brain
- Brain Derived Neurotrophic Factor
- HRT

Session 4.3:
The Role and Benefits of Exercise in Health Management

Lecture Duration
58m

Presenter
Russell Jarrett

Contents

- Current exercise status
- Statistics and key health risk factors
- Exercise vs training
- Obstacles in modern-day exercise and training
- Sitting and poor health
- Main target areas
- Aerobic work
- Strength work
- Mobility and flexibility
- Body composition
- Pain management
- Summary

Session 4.4:
Case Study: Lifestyle Medicine

Lecture Duration
21m

Presenter
Dr. Sanjeev Sharma

Contents

- Case History
- Selye's General Adaptation Syndrome
- Depressed Cortisol
- Adrenal reserve
- Looking at drivers of illness
- Core strategies
- Brain mitocholdrial and cytoprotection
- Order of intervention

Session 5.1:
Underactive Recurrent Infection

Lecture Duration
44m

Presenter
Dr. Nindhi Ahilan

Contents

- Composition of the immune system
- Psycho-Immune-Neuro-Endocrine (PINE) system
- Characterising immunodeficiency
- Clinical clues
- Lab tests
- Nutrient deficiencies
- Additional therapeutics
- Sleep and immunity
- Melatonin
- Psychological stressors
- Exercise
- Gut microbiome
- Pollutants
- Herbs and immune function

Session 5.2:
Overactive Recurrent Infection

Lecture Duration
52m

Presenter
Lisa Costa-Bir

Contents

- Immune diseases and allergies
- Types of hypersensitivity
- Genome/environment interaction with food allergies and autoimmune disease
- Modifiers of immunity
- Dysbiosis and immunity
- Preventative approach instead of reactive approach
- Protective factor of breastfeeding
- Immunology and menstruation
- Histamine intolerance
- MCAS
- Therapeutic considerations
- Additional key nutrients in immune hyper responses
- Holistic considerations for immune modulation

Session 5.3:
Case Study: Chronic Urticaria

Lecture Duration
17m

Presenter
Lisa Costa-Bir

Contents

- 63 y/o female
- Chronic urticaria
- Case history
- Dietary analysis
- Naturopathic understanding
- Treatment plan
- Supplements and herbal medicine
- Blood tests
- 12 week results

Session 6.1:
Cognitive Decline: Part 1

Lecture Duration
41m

Presenter
Dr. Christabelle Yeoh

Contents

- Bredesen classification of cognitive decline
  - Inflammation
  - Glycotoxic/Insulin resistant
  - Atrophic
  - Toxic
  - Vascular
  - Traumatic
- Synaptoblasts and synaptoclasts
- Addressing inflammation
  - Diet, Sleep, Stress, Autoimmunity, Infections, Gut health
- Addressing glycotoxic/insulin resistance
- Addressing atrophy

Session 6.2:
Cognitive Decline: Part 2

Lecture Duration
49m

Presenter
Dr. Christabelle Yeoh

Contents

- Addressing toxic cognition decline
  - Detoxification, mould and mycotoxins
- Addressing vascular cognition decline
- Addressing traumatic cognition decline
- Cognoscopy – prevention is key
- In clinic assessment
- Tests according to Bredesen type
- Lab tests and function pathology
- Heavy metals
- Important additional considerations
- Gene testing
- Prevention checklist
- Brain flow and imaging
- Most impactful interventions

Session 6.3:
Case Study: Cognitive Decline

Lecture Duration
22m

Presenter
Dr. Christabelle Yeoh

Contents

- 72 y/o female
- Case history
- Systemic inquiry
- Psychosocial background
- Functional capacity at home
- Diet and environment
- Pathology
- Initial treatment options
- Ongoing care and supplement regime

Session 7.1:
Overactive Recurrent Infection

Lecture Duration
52m

Presenter
Lisa Costa-Bir

Contents

- Immune diseases and allergies
- Types of hypersensitivity
- Genome/environment interaction with food allergies and autoimmune disease
- Modifiers of immunity
- Dysbiosis and immunity
- Preventative approach instead of reactive approach
- Protective factor of breastfeeding
- Immunology and menstruation
- Histamine intolerance
- MCAS
- Therapeutic considerations
- Additional key nutrients in immune hyper responses
- Holistic considerations for immune modulation

Session 7.2:
Overactive Recurrent Infection

Lecture Duration
40m

Presenter
Dr. Nicole Nelson

Contents

- Definitions
- Cytochrome P450
- Gene polymorphisms
- Drug metabolism
- Grapefruit, fibre and CoQ10
- Case study 1: 75 y/o female
- Drug/herb interactions
- Case study 2: 27 y/o female
- Anticoagulants
- Caffeine
- Avoiding interactions
- Pregnancy
- Reporting adverse reactions

Session 7.3:
Health Coach: A practical case study on how and why a patient or client may see a health coach

Lecture Duration
56m

Presenters
Sharon Curtain
Shivaun Conn

Contents

- Resources and reading
- Reflection
- Medical vs Health Coaching approach
- What is helpful?
- Challenging assumptions
- Supporting the medical approach
- Behaviour change specialists
- Ingredients for successful change
- Coaching skillset
- Health coach tool kit
- Effective communication
- Evidence base
- Lifestyle changes and behaviour
- Clinical partnership model
- Scope of practice
- Collaborative care
- Options for health coaching