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# The impact of micronutrients and docosahexaenoic acid (DHA) on cognitive development of school-aged children: the NEMO studies

**Submission date**
19/12/2005

**Recruitment status**
No longer recruiting

**Registration date**
19/12/2005

**Overall study status**
Completed

**Last Edited**
03/11/2008

**Condition category**
Nervous System Diseases

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

**Plain English summary of protocol**
Not provided at time of registration

## Contact information

**Type(s)**
Scientific

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## Additional identifiers

**Protocol serial number**
NTR362

## Study information

**Scientific Title**

The impact of micronutrients with or without docosahexaenoic acid (DHA) on cognitive development of school-aged children in Indonesia and South Australia: a randomised controlled trial

## Acronym
NEMO

## Study objectives
An intervention with a fortified drink containing iron, zinc, vitamin A, vitamin C, folate, vitamin B-12 and B-6 and/or omega-3 polyunsaturated fatty acids over one year can improve cognitive performance in Australian well-nourished children and Indonesian marginally-nourished children.

## Ethics approval required
Old ethics approval format

## Ethics approval(s)
Received from the local medical ethics committee

## Primary study design
Interventional

## Study design
Multicentre, randomised, double blind, placebo controlled, factorial trial

## Study type(s)
Treatment

## Health condition(s) or problem(s) studied
Cognitive development

## Interventions
Children receiving fortified drink containing either:
1. Micronutrient mix (iron, vitamin A, vitamin C, vitamin B12, vitamin B6 at one recommended daily allowance [RDA], zinc at half RDA)
2. 88 mg DHA and 22 mg EPA
3. Both
4. Placebo

## Intervention Type
Supplement

## Phase
Not Specified

## Drug/device/biological/vaccine name(s)
Iron, zinc, vitamin A, vitamin C, folate, vitamin B-12 and B-6 and/or omega-3 polyunsaturated fatty acids

## Primary outcome(s)
Cognitive performance (working memory, attention and concentration, perceptual speed, problem solving, executive function, learning and memory, school performance)

### Key secondary outcome(s)
1. Biochemical indicators (blood iron status, zinc status, folate, vitamin B12)
2. Fatty acids status (plasma EPA, DPA, DHA, ALA and total n-3 plasma mass)
3. Growth (weight, height, body mass index)

### Completion date
01/04/2005

## Eligibility

### Key inclusion criteria
1. Children aged 6-9 years of age from six selected schools in urban Jakarta and 42 public schools in Southern Australia
2. Parents or carers provided informed consent

### Participant type(s)
Patient

### Healthy volunteers allowed
No

### Age group
Child

### Lower age limit
6 Years

### Upper age limit
9 Years

### Sex
All

### Key exclusion criteria
In the two study sites:
1. Children with severe physical and neurological health problems
2. No (intended) use of micronutrient/mineral and/or fatty acid supplements

In addition in Indonesia:
3. Children who are severely malnourished (weight/height Z-score less than or equal to -3 standard deviation [SD]) or severely anaemic (haemoglobin less than 8 g/l)

### Date of first enrolment
01/08/2003

### Date of final enrolment
01/04/2005

## Locations

### Countries of recruitment
Australia

Indonesia

Netherlands

### Study participating centre
**Unilever Food and Health Research Institute (UFHRI)**
Vlaardingen
Netherlands
3130 AC

## Sponsor information

### Organisation
Unilever Nederlands BV (The Netherlands)

### ROR
https://ror.org/02436cs38

## Funder(s)

### Funder type
Not defined

### Funder Name
Not provided at time of registration

## Results and Publications

### Individual participant data (IPD) sharing plan

### IPD sharing plan summary
Not provided at time of registration

### Study outputs

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| | Results | | | | |

| | | | |
|---|---|---|---|
| Results article | 01/10/2007 | Yes | No |