



*With a little
help from
my friends*

**HCA NATIONAL LEADERSHIP AND
DEVELOPMENT FORUM 2016**

14 - 15 APRIL 2016 | ACC LIVERPOOL





'Food is medicine'

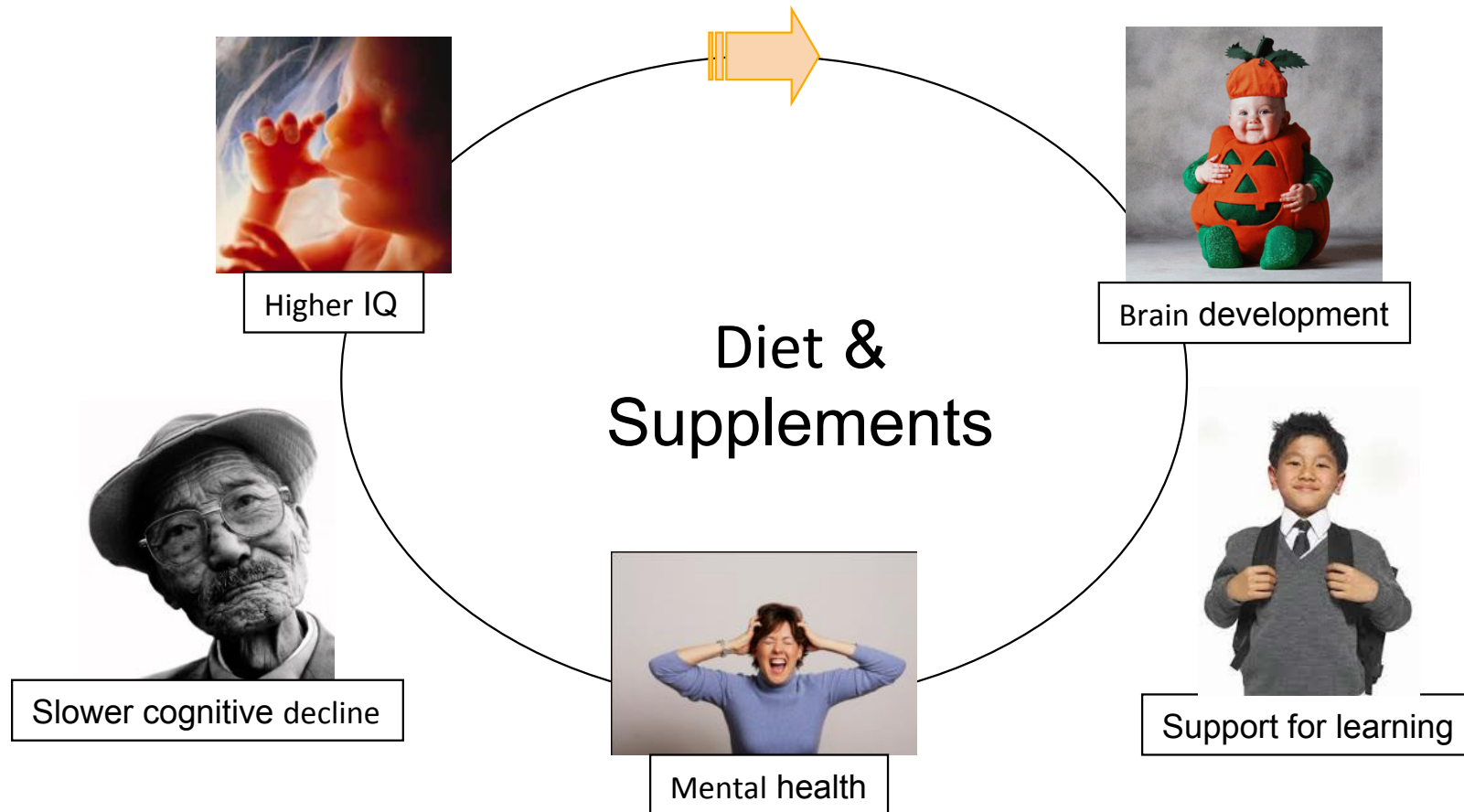
Foods for cognitive function

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Nutrition Communications

Cognitive health important across the lifecycle



Likely effects are different for different groups of people



Boosting via programming

Support for normal brain health

Preventing mental disorders

Preventing or **slowing** cognitive decline





Nutrients with brain-related health claims

Claim	Nutrient
Contributes to maintenance of normal brain function	Omega-3 fatty acids (DHA)
Contributes to normal cognitive function	Iodine, iron, zinc
Contributes to normal psychological function	Biotin, folate, niacin, vitamins B1, B6, B12, vitamin C, magnesium
Contributes to normal mental performance	Pantothenic acid
Alertness and concentration	Caffeine >75mg

European Commission authorised health claims



Focus on Older adults





Aims of catering/nutrition

1. Encourage regular food and fluid to meet nutritional needs
2. Provide a palatable, appealing source of brain-health nutrients
3. Provide a stimulating eating environment

So what are the best nutrients for this patient group?

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Evidence from studies





Intervention trials - micronutrients

Ref	Who	What	Outcome
1	Post-stroke	B complex; 3.4y	No effect on cognitive fx
2	Impaired cognitive fx	Folic acid, B12; 2y	Improved cognitive fx
3	Psychol distress	B complex; 2y	Cognitive decline slower
4	Impaired cognitive fx	B complex; 2y	Brain atrophy lower
5	Healthy	Zn; 6mo	Better memory
6	Post-stroke	Zn; 30d	Neurological fx improved
7	Healthy elderly	Zn, Cu, antiox; 7y	No effect on cognitive fx
8	Alzheimer's	Vit D, E, K; 2y	Slower functional decline
9	Healthy elderly	Multivit/min; 1y	No effect on cognitive fx

1. Hankey (2013) Stroke 44: 2232-9; 2. Walker (2012) AJCN 95: 194-203; 3. de Jager (2012) Int J Geriatr Psychiatry 27: 592-600; 4. Smith (2010) PLoS One 5: e12244; 5. Maylor (2006) BJN 96: 752-60; 6. Aquilani (2009) Nutr Neurosci 12: 219-25; 7. Yaffe (2004). Neurol 63: 1705-7; 8. Dysken (2014) JAMA 311: 33-44; 9. McNeil (2007) Nutr J 6:10.

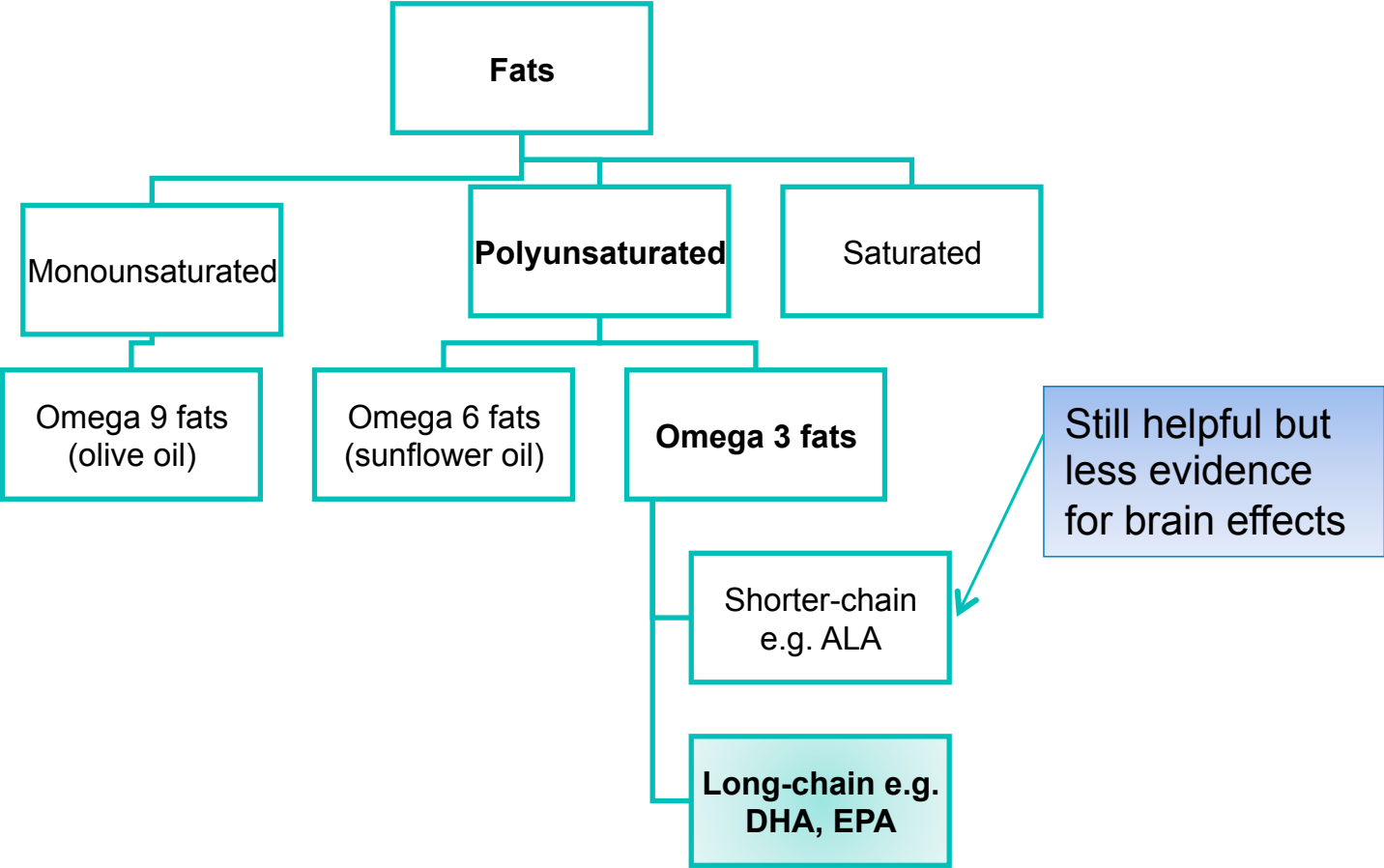


What does this mean?

- Best evidence for B vitamins and zinc
 - Results seen in 6 months to 2 years
 - Older people with a worse baseline nutritional status often benefited the most from additional nutrients
 - **Makes sense! Those in need get the most benefit!**
-



Omega 3 fatty acids: EPA and DHA





Sources of EPA/DHA

- Oily fish e.g. salmon, tuna, mackerel, herring, trout (2-3.9g EPA/DHA per 140g portion)
 - Seafood e.g. prawns (0.2g/portion)
 - Red meat (~0.1g per 100g)
 - Cod liver oil (vits A,D) (0.1-0.5g per daily dose)
 - Fish body oil supplements (as above)
 - Fortified foods or enriched eggs
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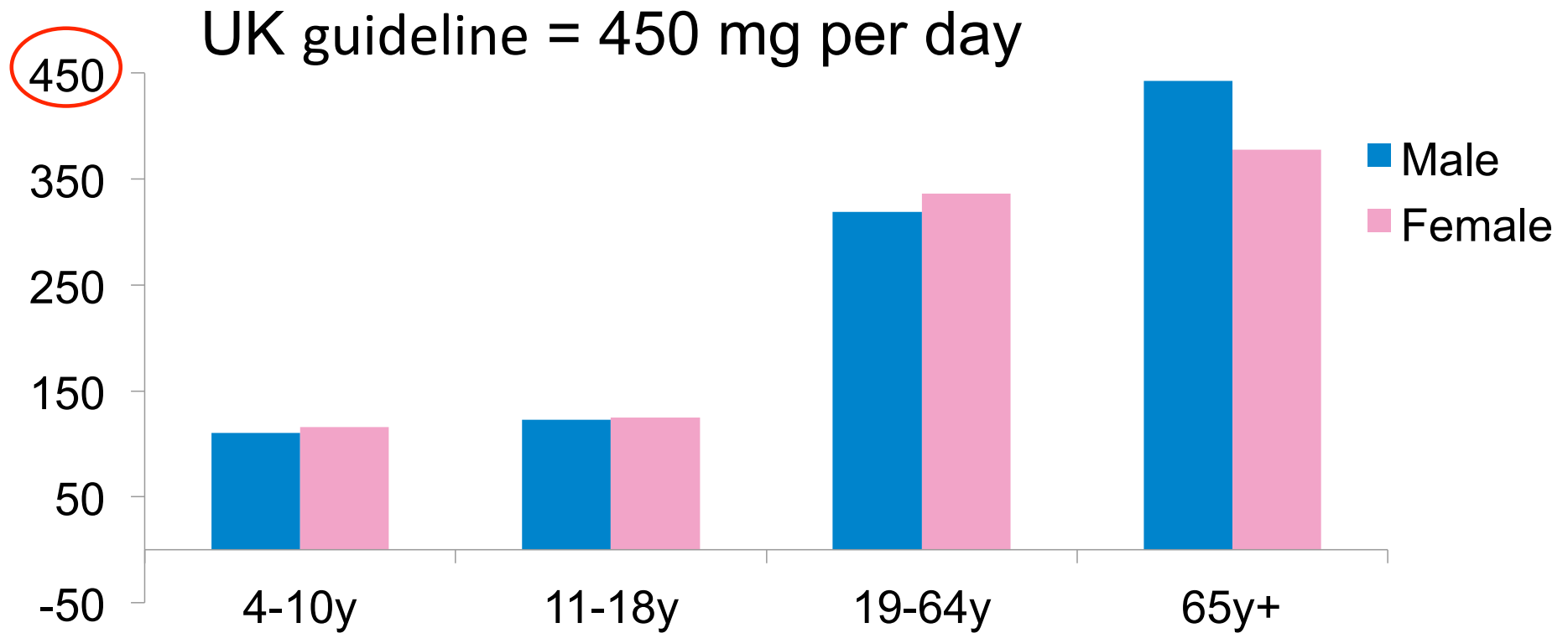


Recommendations

- **General advice:** 2 portions of fish per week, one of which should be oily
(translates as 0.45g DHA/EPA per day or 3g per week)
- **Men and older women** can have up to 4 portions of oily fish weekly
- Higher amounts recommended in US for therapeutic reasons e.g. **1g/d** for heart health post-MI (AHA)



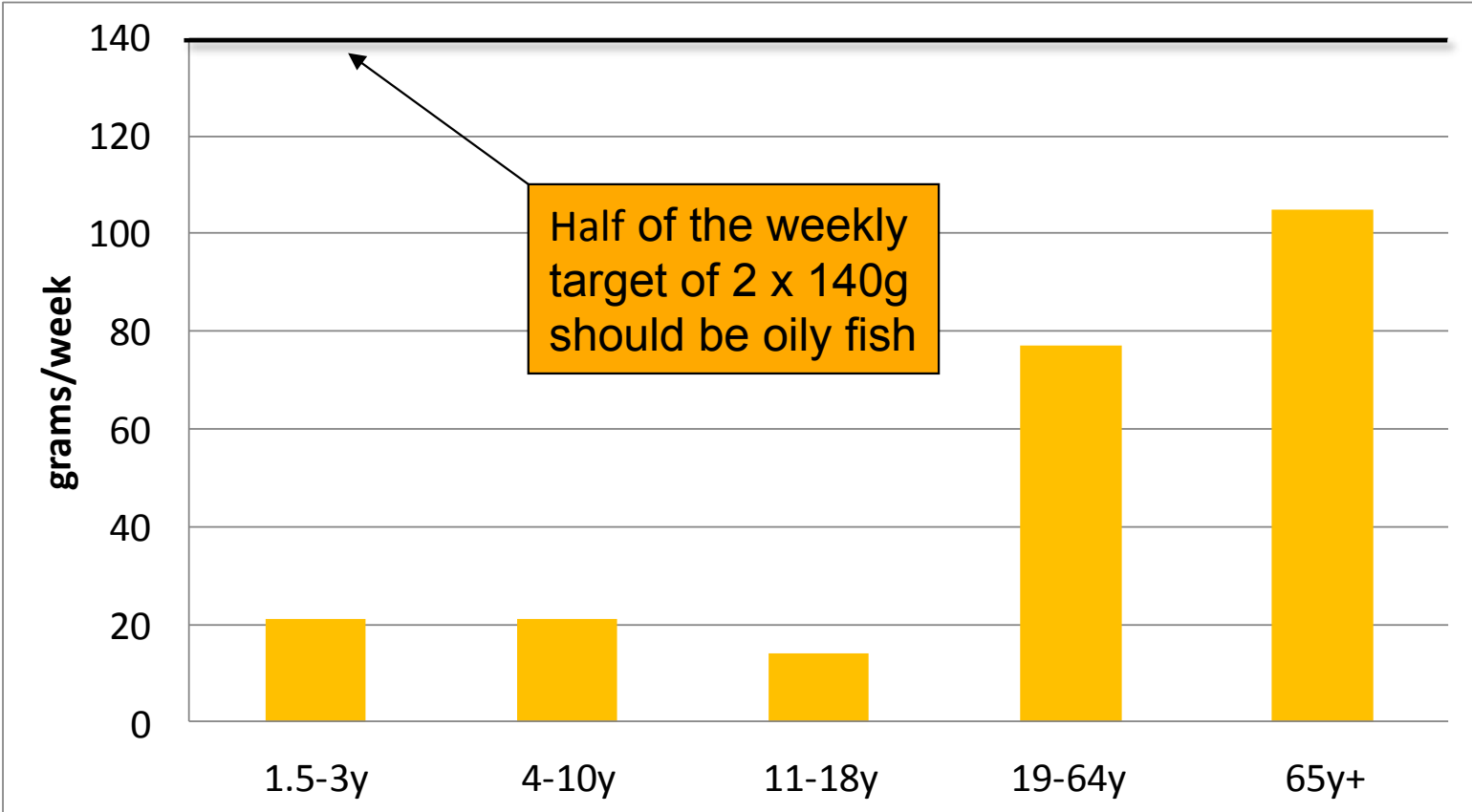
UK intakes below recommendations



Bates et al. (2012); with thanks to Dr Rachael Gibbs, University of Reading.



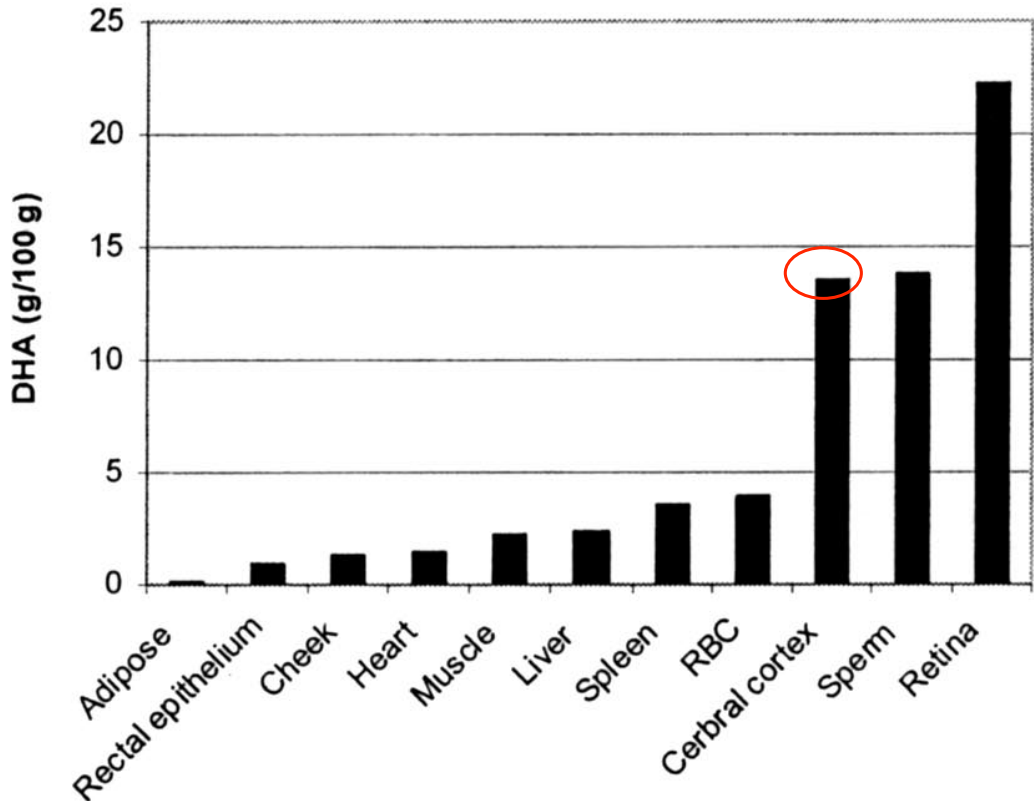
Driven by low intakes of oily fish



NDNS, Bates et al (2011). Data include coated fish and fish dishes



Omega-3s are in many body tissues



Arterburn et al. (2008) Am J Clin Nutr 83: 1467S–76S.

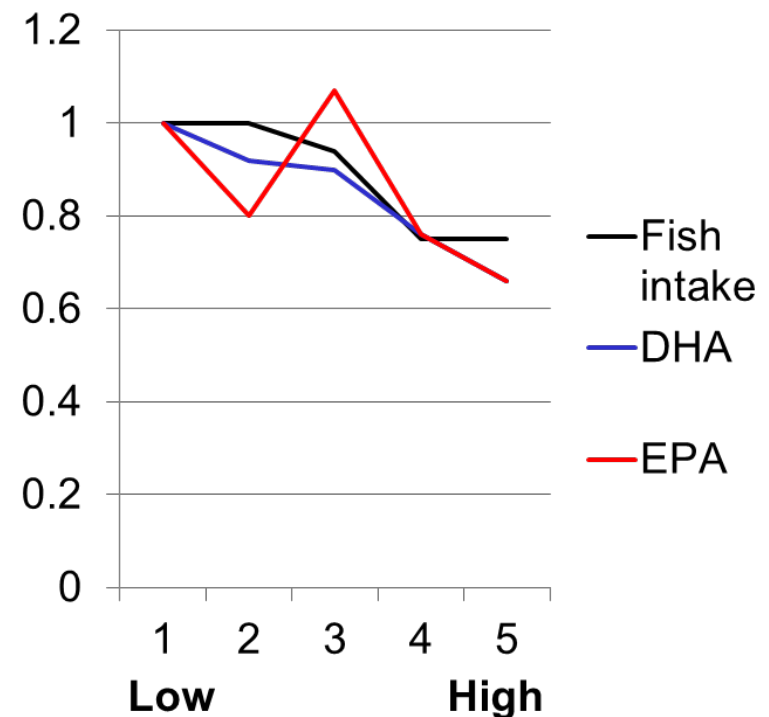


Link with depression

- Lower fish/omega-3 intakes linked with higher risk of depression
- Low blood levels of omega-3s found in depressed patients

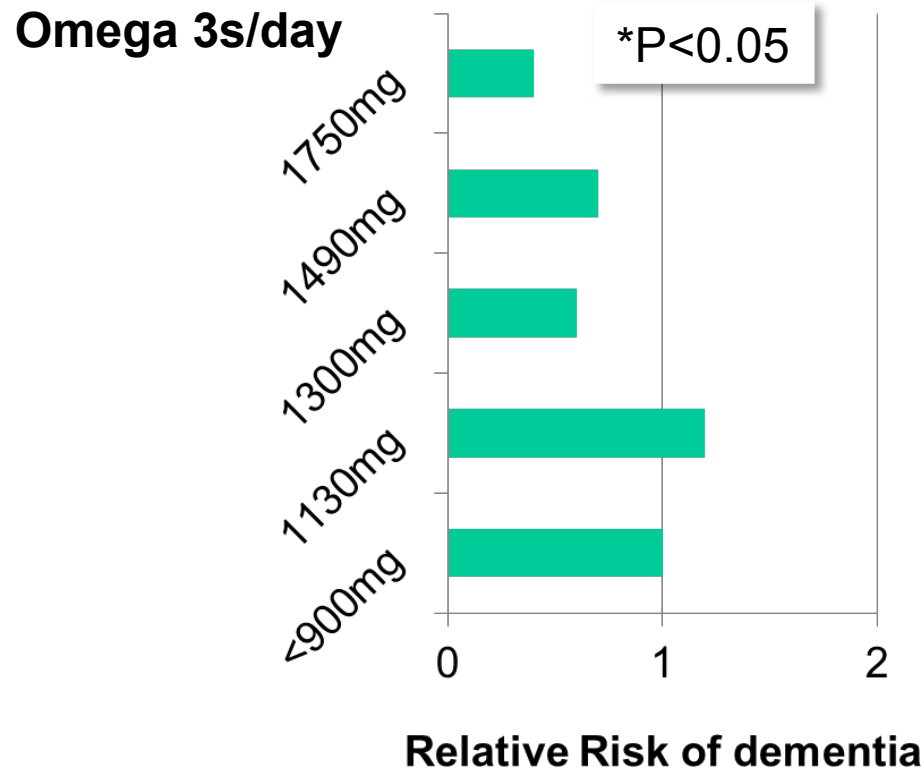


Risk of depression





Link with cognitive decline



Results:

- *Slower* cognitive decline as people age so long as omega-3 intakes remain good
- *Reducing* long-term risk of dementia and Alzheimer's with *more* omega-3s.

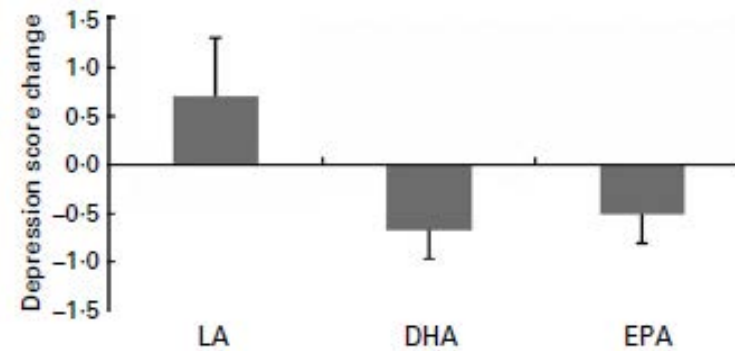
Morris et al (2003). Arch Neurol 60: 940–946; n=816 cohort study



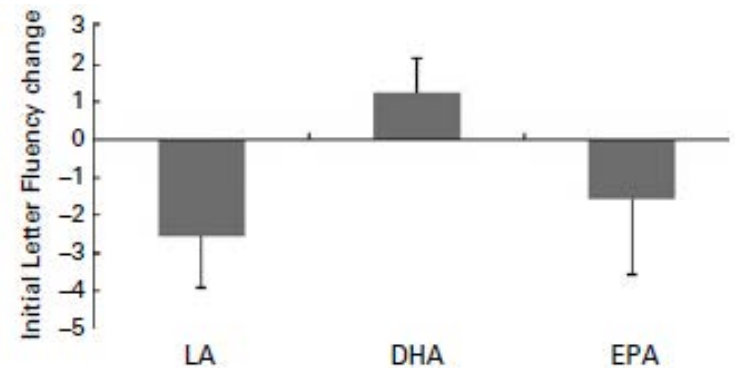
6 month study in impaired elderly

- 50 elderly with mild cognitive impairment
- Placebo vs. high EPA vs. high DHA for 6 months
- Significant differences after 6 months

Lower depression with EPA or DHA



Less cognitive impairment with DHA





Cochrane review of studies in healthy elderly was inconclusive

- Systematic review of studies > 6 month in healthy, normal elderly people
 - 3536 participants taking part in 3 trials of omega-3 supplementation
 - No evidence of cognitive benefit
 - **However**, participants in control and intervention groups experienced either a small or no cognitive decline
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Caffeine

- Caffeine is a mild stimulant
- Gives short-term effects 1-6 hours
- Found in tea, coffee, cola, chocolate
- Tea and coffee also contain flavonoids which have been linked with slower cognitive decline (no claims yet)
- EU caffeine limit = **400mg per day** so **8** cups of tea or **4** cups of coffee are safe



Vitamin D

- No claims as yet but ...
- Good vitamin D status in middle age linked with less decline in cognitive function in old age¹
- Good vitamin D status in middle age linked with better memory recall²
- Elderly with low vitamin D twice as likely to have depression³

1. Assmann KE et al. (2015) Br J Nutr 113: 1628-37; 2. Maddock J et al. (2014) Br J Nutr 111: 904-14; 3. Lapid MI et al. (2013) Clin Interv Aging 8: 509-514



Negative brain nutrients

- **Saturated fats:** fatty meats, butter, cheese, cakes, biscuits, chocolate
- **Salt:** cured meats, bread, processed foods
- **Sugary/high GI foods/drinks:** sugary soft drinks, white rice, mashed potato
- **Via negative impacts on blood pressure, vascular function and blood glucose levels**



**Food as medicine –
putting it into practice**



Food sources of brain nutrients



Biotin



Iron



DHA/EPA, zinc



Pantothenic acid

B vitamins, zinc



Folate



Vitamin C



Vitamin D



Magnesium



Dietary balance

EAT MORE/INCLUDE

- Fish (twice/week)
- Fruit and vegetables (5/day especially green leafy)
- Lean red meat (70g/day cooked weight)
- Eggs (runny is OK for Lion branded eggs)
- Nuts and seeds
- Poultry

EAT LESS

- Cakes, biscuits, confectionery
- Sugar-containing drinks
- Fatty meats
- Salty, processed foods
- High fat dairy foods including cheese and cream

Special diets excluded



Menu planning

Eating occasion	Food	Nutrient benefit
Breakfast	Fortified breakfast cereals	B vitamins, iron
	Orange juice	Folate, vitamin C
Main meal	Salmon or tuna (not tinned)	Omega-3 fats, zinc, iodine
	Green leafy vegetables (spinach, broccoli, kale)	Folate
Light meal	Eggs	B vitamins, vitamin D
	Colourful vegetables	Folate
	Fruit	Vitamin C
Snacks	Nuts and seeds	Magnesium
	Dried fruit	Iron
Drinks	Tea, coffee	Caffeine, flavonoids



Eating environment

- Small portions/choice stimulates appetite
- Eating with others = social interaction
- Appropriate cutlery for needs
- Consider **barriers** for brain nutrients:
 - Fear of fish bones
 - Inability to chew fruit/veg/red meat
 - Cooking destroying vitamin C
 - Nuts/seeds and choking hazard
 - Loss of taste and/or saliva



Conclusions

- There is evidence that certain nutrients help support cognitive function and reduce risk of depression in older patients
- Omega-3s, B vitamins and zinc are the main candidates but vitamin D also important
- Caterers can help patients to access brain nutrients through different foods and a stimulating eating environment