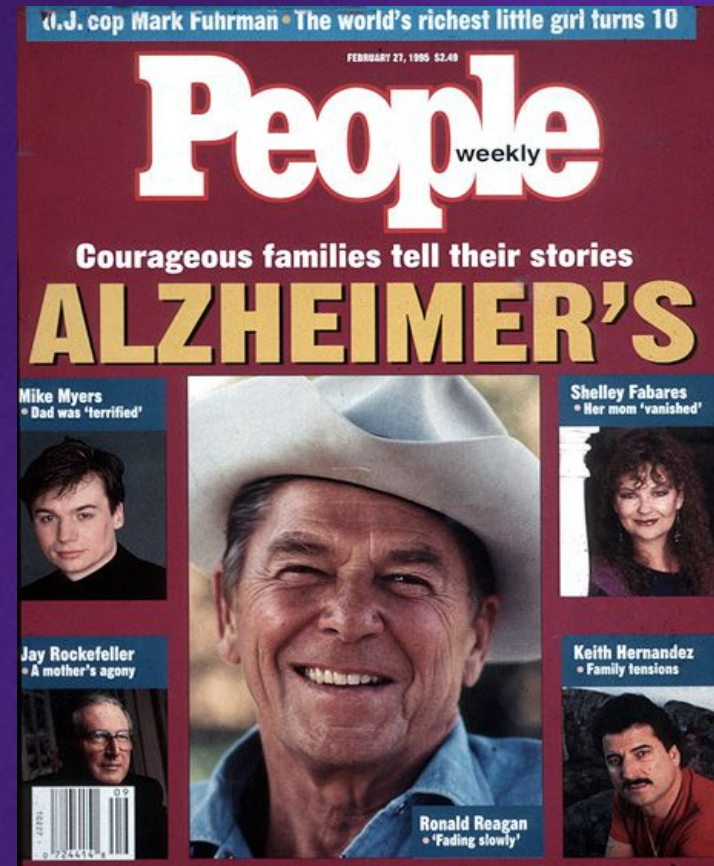


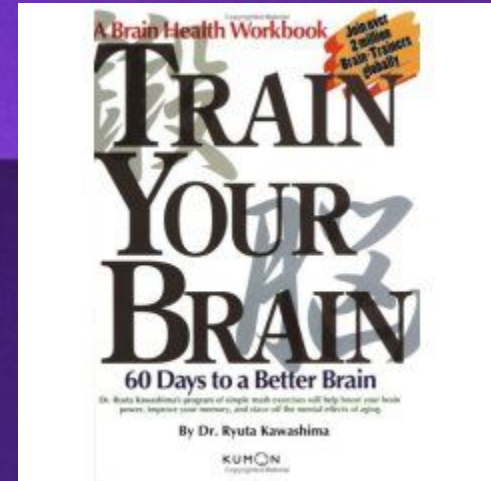
Can vitamins, supplements or medications prevent Alzheimer's?

Professor Henry Brodaty
Aged Care Psychiatry
Prince of Wales Hospital
& University of
New South Wales
Sydney, Australia

www.med.unsw.edu.au/adfoap



Train the Brain 4990 hits on Google!!



How often do you drink alcohol?

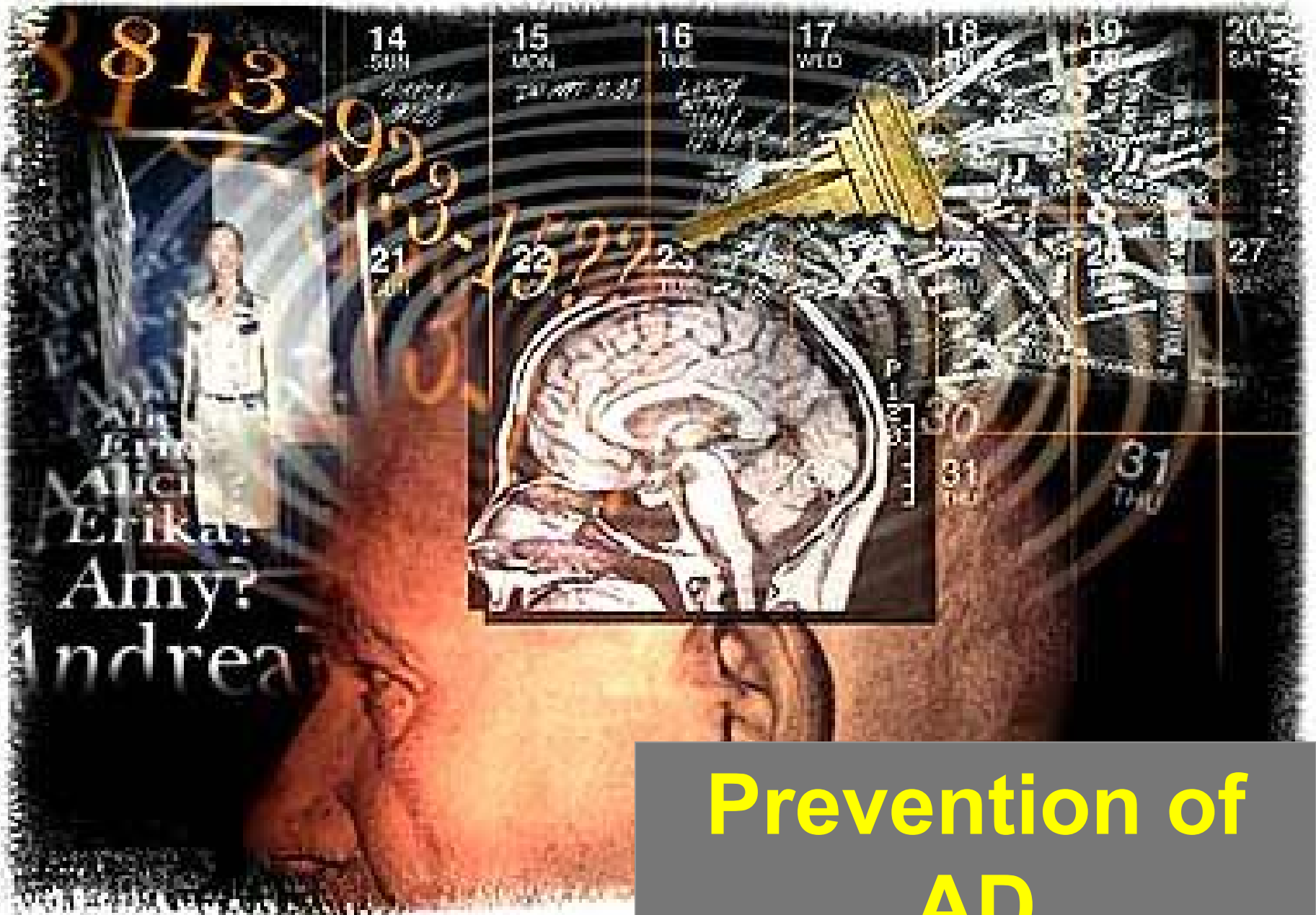
- 1. Never or hardly ever**
- 2. Less than once a week**
- 3. 1 - 3 times a week**
- 4. 4 or more times a week**

How often do you eat fish?

- 1. As infrequently as possible**
- 2. Less than once a week**
- 3. 1 - 3 times a week**
- 4. 4 or more times a week**

Who takes vitamin supplements?

- **Vitamin E**
- **Vitamin C**
- **Folic Acid**
- **Ginkgo biloba**
- **Others**



813

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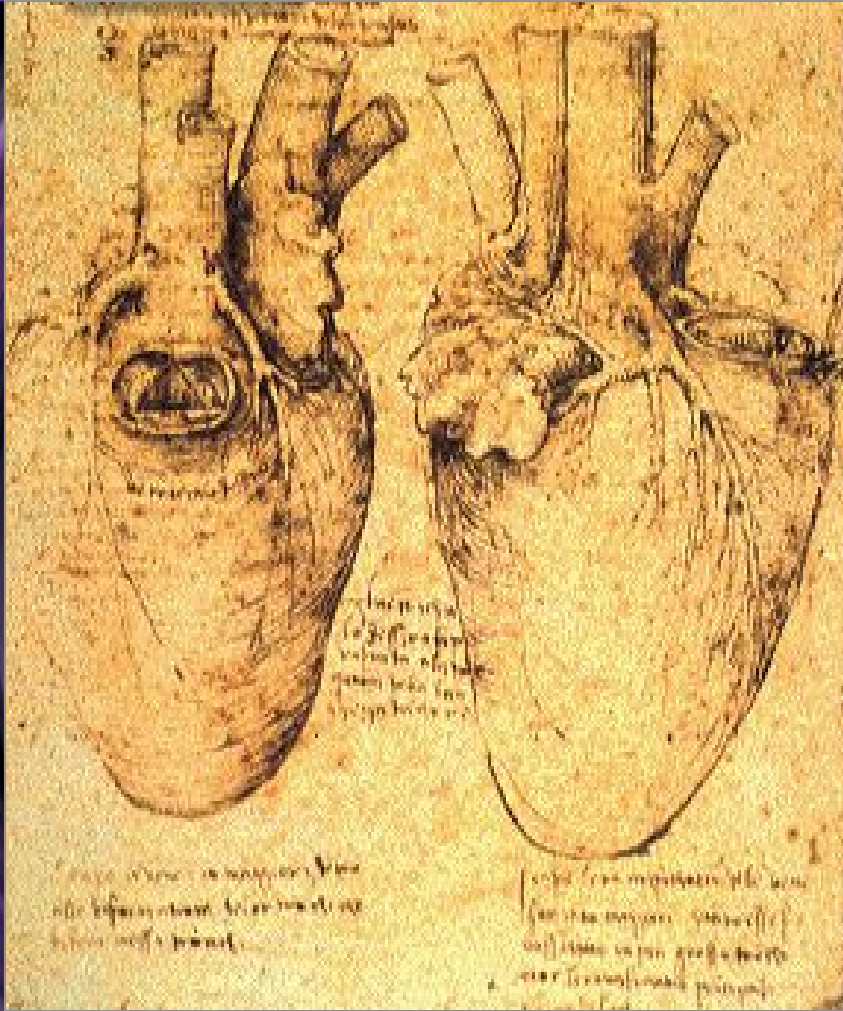
Erika
Alice
Erika
Amy?
Andrea

Prevention of AD

Elimination vs Postponement

- **Disease elimination**
 - eg smallpox vaccination
 - best prospect is AD vaccine
- **Disease postponement**
 - delay AD onset by 2 yrs, ↓ prevalence by >20%
 - delay AD onset by 5 yrs, ↓ prevalence by 50%

Cardiovascular factors



- Hypertension
- High cholesterol
- Homocysteine

The human heart, Leonardo Da Vinci

High blood pressure

- **Increases risk of heart disease, cardiac failure, stroke and.....**
- **..... Alzheimer's disease**
- **Reducing high blood pressure reduces risk of all of these factors**
- **European study showed lower rate of dementia after 5 years in group whose blood pressure had been treated**

High cholesterol

- **Associated with heart disease, stroke and vascular dementia**
- **Different fats in blood - some good for you, some bad**
- **Statins, drugs used to lower cholesterol may help prevent AD but this effect appears independent of lower cholesterol**
- **No evidence (?yet) that lowering cholesterol is beneficial in reducing risk of AD**

Homocysteine

- Homocysteine is an amino acid which is a building block to make proteins
- High levels have been associated with heart disease, stroke, vascular dementia and AD
- Homocysteine = the new cholesterol?
- HCy be readily lowered with folic acid
- Dose? (folate) 0.5 or 1 or 5mg per day
- Even more ↓ if take with Vit B12 (and B6)

Medications



- **Statins**
- **HRT**
- **NSAIDs**
- **Anti-diabetes**

Statins

- **Statins are drugs to lower cholesterol**
- **Examples: Lipex, Lipitor, Lopid, Pravachol, Vastin, Zocor**
- **Statin users less likely to develop Alzheimer's disease than non-users**
- **No evidence yet from randomised controlled trials**
- **Statins generally well tolerated but can have side effects.**

HRT and AD

- Up until May 2003 epidemiological evidence was convincing that HRT was protective against AD in post-menopausal women
- Then came an RCT
- **Women's Health Initiative Memory Study**
- Women 65+, six years on HRT or placebo
- Combined oestrogen and progestin (Prempro) had double risk of developing of dementia (AD or vascular dementia) vs placebo

Non-steroidal anti-inflammatory drugs (NSAIDs)

- **Examples: Voltaren, Naprosyn, Indocid, Celebrex, Feldene, Brufen, Vioxx**
- **Epidemiological studies - associated with lower rate of Alzheimer's disease**
- **Risks now well recognised: heart disease, high blood pressure, stomach ulcers**
- **No randomised controlled trial of effect**
- **Not recommended for prevention**

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Diabetic medication

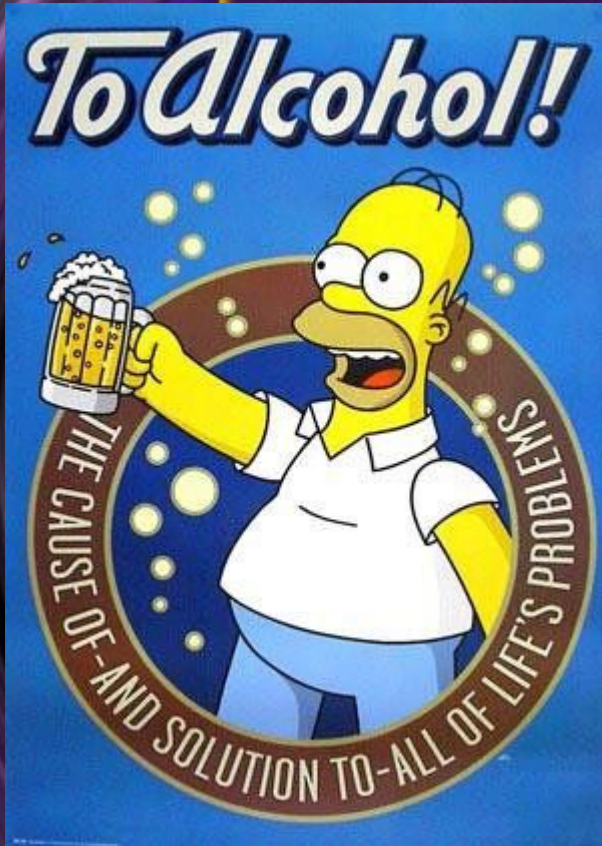
- Link between obesity and diabetes
- Link between diabetes and AD
- Prevention of obesity reduces risk of type 2 diabetes and possibly of AD
- Drugs to lower blood sugar eg Metformin, Avandia - no evidence
- Trial of Avandia (rosiglitazone) now at Sydney Centre for Clinical Cognitive Research, POW Hospital
- Call 9382 3733

Nutrition/ Supplements



- Alcohol
- Fish/Seafood
- Caffeine
- Vitamin E
- Vitamin C
- Ginkgo biloba

Alcohol & dementia



- Light to moderate alcohol consumption associated with lower risk of dementia *and* AD
- Example - Rotterdam study¹
45% less risk of any dementia in those who drink 1-3 drinks per day vs non drinkers

Recommendation - no need to cease (or begin!) Moderate alcohol use

Fish



- Higher intake of omega-3 fatty acids possibly also protective²
- Fish oil is high in omega-3

1. Arch Neurol 2003; 60:194-200

2. BMJ 2002; 325:932-933

Antioxidants

- **Some evidence that antioxidants may delay or reduce risk of AD**
- **Vitamins E and C, Ginkgo biloba, green tea, alcohol (red wine), polyphenols (fruits/ juice, vegetables/ juice)**
- **Circumin, ginger**
- **DHA (docosahexaenoic acid)**

Natural therapies



Curry spice curcumin^{1,2}

- active ingredient in turmeric, member of ginger family)
- metal chelator
- antioxidant
- anti-inflammatory agent & COX inhibitor

8. Ringman JM et al, Current Alz Research

9. Zhang H-Y, Science Direct 2005

Zingiberaceae ginger family

Vitamin E & C

- **Mixed evidence whether vitamin E has protective effects on dementia including AD**
- **Theoretically appealing - antioxidant**
- **Dietary Vit E ? more effective v. supplements**
- **Vit C enhances antioxidant effect of Vit E**
- **One review : 0.4% increased mortality rate when several studies of people taking Vit E for chronic medical conditions were pooled**
- **Negative trial of Vit E for MCI (Mild Cognitive Impairment)**

Vitamin E & C supplements & AD: Honolulu-Asia Aging Study¹

- **N = 3385 Japanese-US males aged 71-93**
- **Over 10 yrs, 132 developed dementia (47 AD)**
- **Mail survey on # of pills of multivitamins, Vitamin E or C in past year**
- **No benefit for Vits E or C or E+C for AD**
- **But both protective for VaD or mixed/other dementia**

¹Masaki et al *Neurology* 2000;54:1265-1272

Foods naturally rich in vitamin E



- Nuts, such as almonds
- Vegetable oils
- Seeds
- Wheat germ

- Spinach
- Other dark, green leafy vegetables



Other possibilities

- **Brahmi**
- **KH3**
- **Selenium**
- **Lecithin**

.....no evidence either way

Looking forward

- **AD Vaccine**
- ▽ **β - and δ - secretase inhibitors**
- **Nerve growth factor**
- **Gene therapy**
- **Stem cells**
- **New pharmaceuticals**

Prevention: the bottom line



The bottom line

- Active leisure, physical and intellectual life
- Vigorous blood pressure, cholesterol control
- Avoid harm
- Balance diet rich in Vit E, folic acid, antioxidants
- 1-2 glasses of red wine
- Perhaps supplements with Vit E, Vit C, Folic acid, B12 + B6 ???

Who intends to change their level of alcohol intake?

1. Increase
2. No change
3. Decrease

Who intends to change their fish intake?

1. Increase
2. No change
3. Decrease

Who intends to or will continue to take vitamin supplements?

- **Vitamin E**
- **Vitamin C**
- **Folic Acid**
- **Ginkgo biloba**
- **Others**

Thank you

The end

**Memory and Ageing Study
Clancy Auditorium
University of New South Wales
Near corner High and Botany Sts
Randwick**

**Saturday 28th October 2006
1- 4pm**

**Parking off Botany St
\$2 coin**

www.med.unsw.edu.au/adfoap