

# What Are The Associations Between Drinking, Exercise and Smoking and the Disease Progression of Alzheimer's Dementia?

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# Dementia

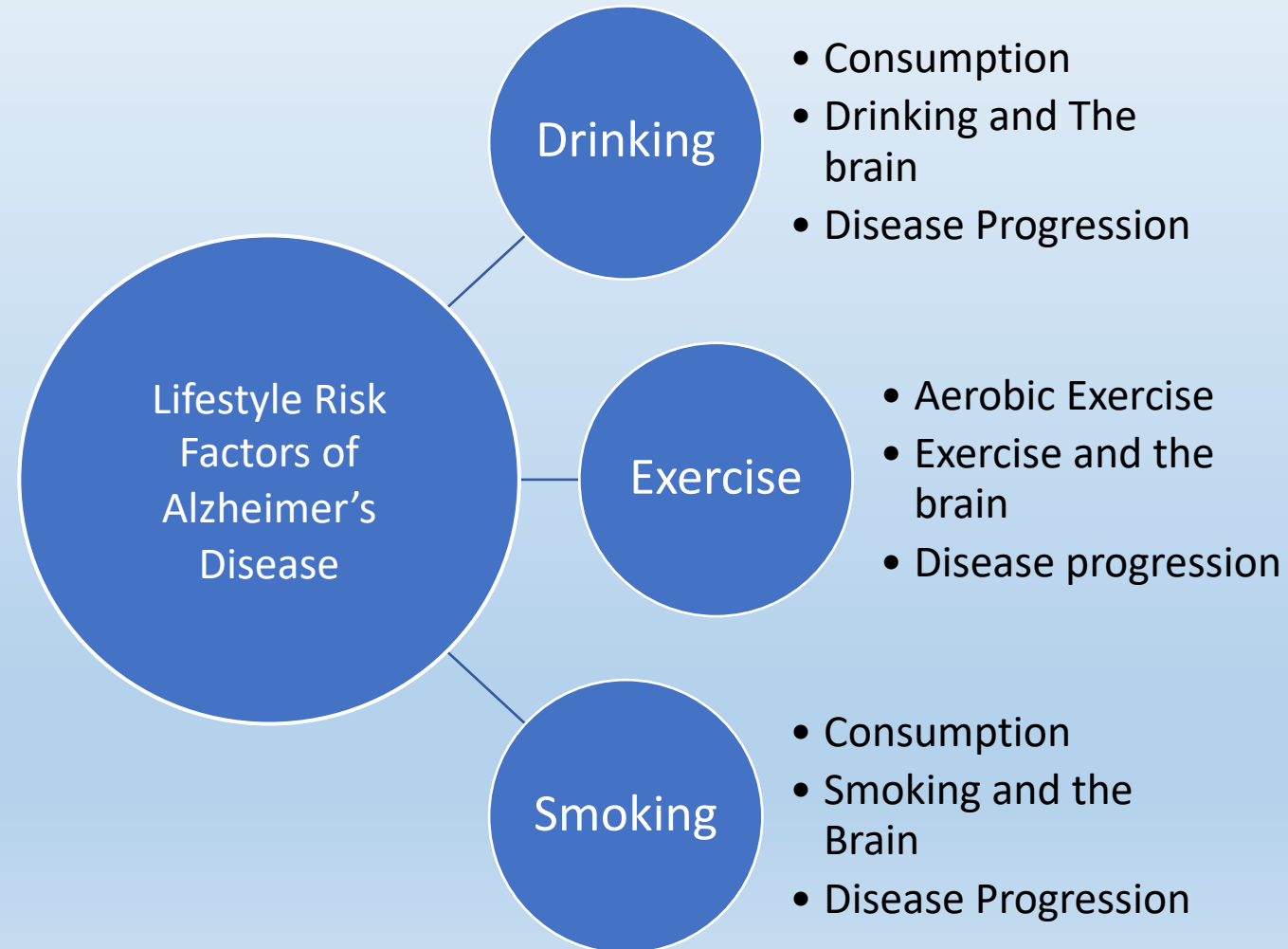
- Umbrella term for various symptoms
- Cognitive decline in memory, language and problem solving

Memory Loss,  
Confusion ,  
Cognitive  
impairment

# Alzheimer's Disease

- **Progressive brain disease**
- Impairs memory, cognitive function
- More severe as time goes on
- Plaques and tangles form in the brain because of built up beta amyloid proteins
- Neurons unable to communicate with each other; the neurons die
- The brain physically shrinks

# Drinking, Exercise and Smoking



# Alcohol & Alzheimer's Disease

GOAL	SAMPLE	METHODS	RESULTS	CONSUMPTION, THE BRAIN OR DISEASE PROGRESSION?	CITATION
Drinking patterns before AD and its effect on disease progression over 1 year.	P's with Alzheimer's Disease	<ul style="list-style-type: none"> <li>P's with AD assessed for 1 year; three groups; AD patients who were habitual drinkers in the past, either high or low consumers or naive to alcohol.</li> <li>Low consumption was capped at 1-7 drinks weekly and more than 8 drinks a week was considered high consumption</li> </ul>	<ul style="list-style-type: none"> <li>Baseline MMSE score; no differences in cognitive function between alcohol abstinent groups and the alcohol-naive group.</li> <li>MMSE scores decreased at the 12 months for the Alcohol abstinence group who were high consumers.</li> </ul>	CONSUMPTION & DISEASE PROGRESSION	(Toda et. al, 2013)
alcohol consumption is associated with cognitive decline in early old age	35-55 no dementia at the start of the study	P's took baseline cognitive assessments; alcohol was assessed 3 times within a 10-year period.	<ul style="list-style-type: none"> <li>Men specifically who did not consume alcohol had less of a cognitive decline than those who excessively drank.</li> <li>Compared to those who drank, women in this study who abstained drinking for 10 years had a faster cognitive decline</li> </ul>	THE BRAIN	(Sabia et. al., 2014)

# Aerobic Exercise and Alzheimer's

GOAL	SAMPLE	METHODS	RESULTS	THE BRAIN OR DISEASE PROGRESSION	CITATION
To see if Exercise had an effect on cognitive ability	60 years and older and no dementia; subjective memory impairments	RA to 4-week memory training while cycling (SIM) or completing the training sitting stagnant after completed cycling (SEQ)	The SIM group; significant improvement on composite memory. The SEQ group; significant improvement in executive functioning.	THE BRAIN	(McEwen et. al, 2018)
To explore how exercise prevents shrinkage	-----	-----	exercise can help preserve brain cells; slows the progression of brain shrinkage	THE BRAIN	(Tiberian et. al., 2018)
To uncover how Aerobic Exercise can help Alzheimer's	P's with Alzheimer's	<ul style="list-style-type: none"><li>Two groups; aerobic exercise, non-aerobic stretching and toning control intervention</li><li>Neuropsychological and other cognitive exams were conducted at baseline, at 13 and 26 weeks.</li></ul>	The more an individual exercises typically in aerobic exercises like walking or cycling, the less they are at risk for Alzheimer's.	DISEASE PROGRESSION	(Morris et. al., 2017)

# Smoking and Alzheimer's

GOAL	SAMPLE	METHODS	RESULTS	THE BRAIN OR DISEASE PROGRESSION	CITATION
To see if cigarette smoking is associated with cortical thinning	Smokers and non-smokers	MRI Scans of non-smokers	Cigarette smoking is associated with cortical thinning there was more cortical thinning in smokers' brain than nonsmokers	THE BRAIN	(Durazzo et. al, 2018)

# Cigarette Smoking & Cortical Thinning Graphs

Durazzo et al.

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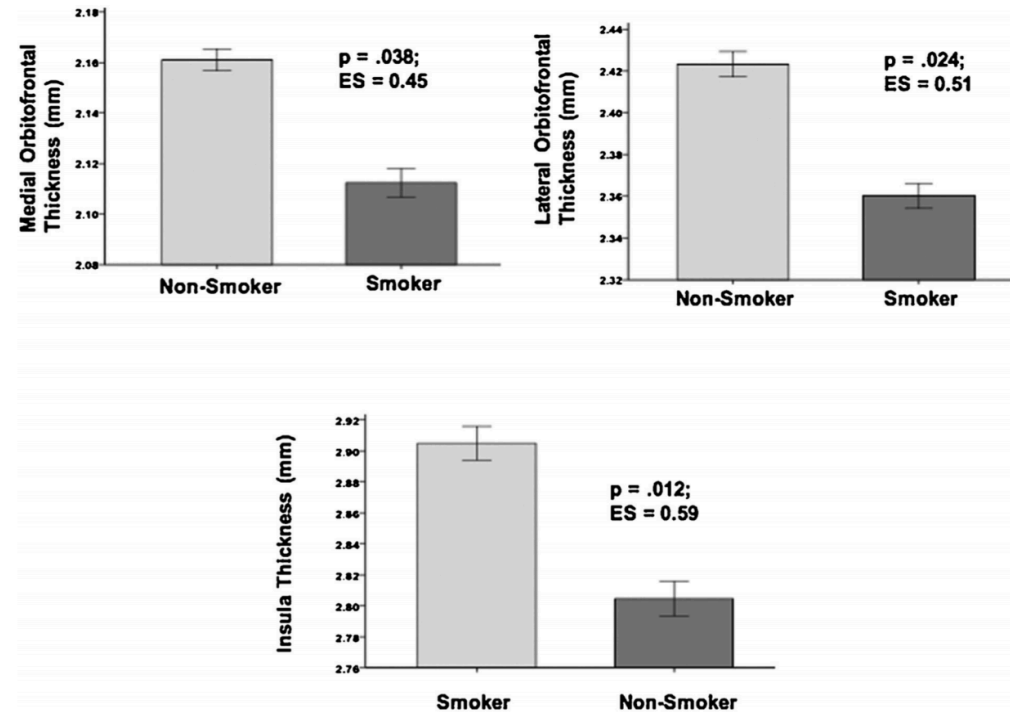


Fig. 1.  
ESER Regions significantly different between Non-Smokers and Smokers.

Durazzo et al.

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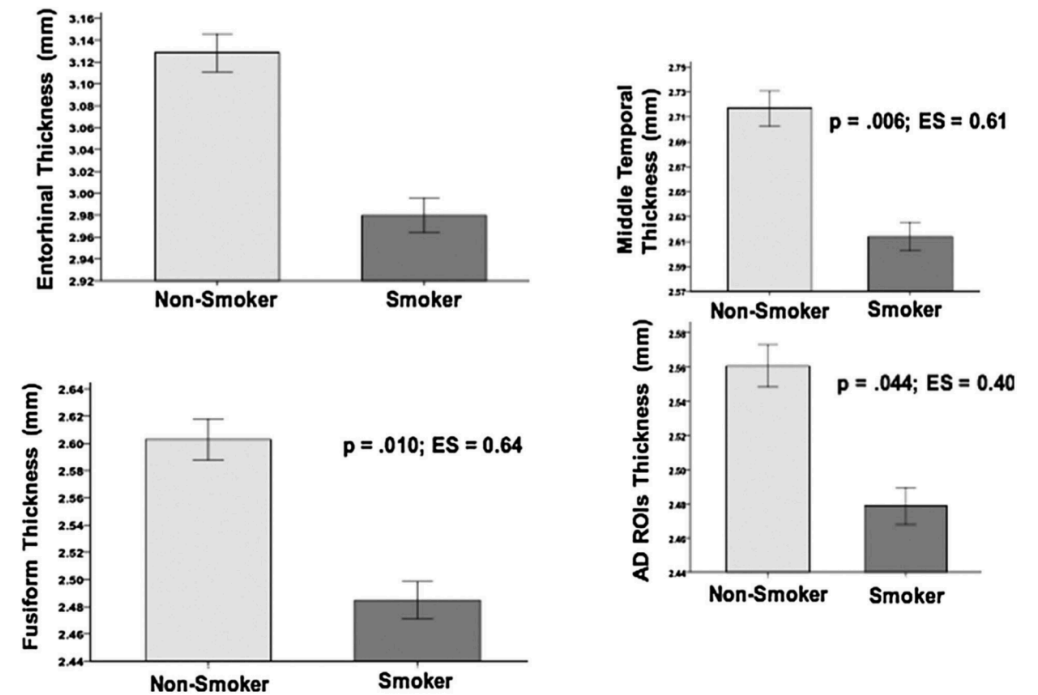


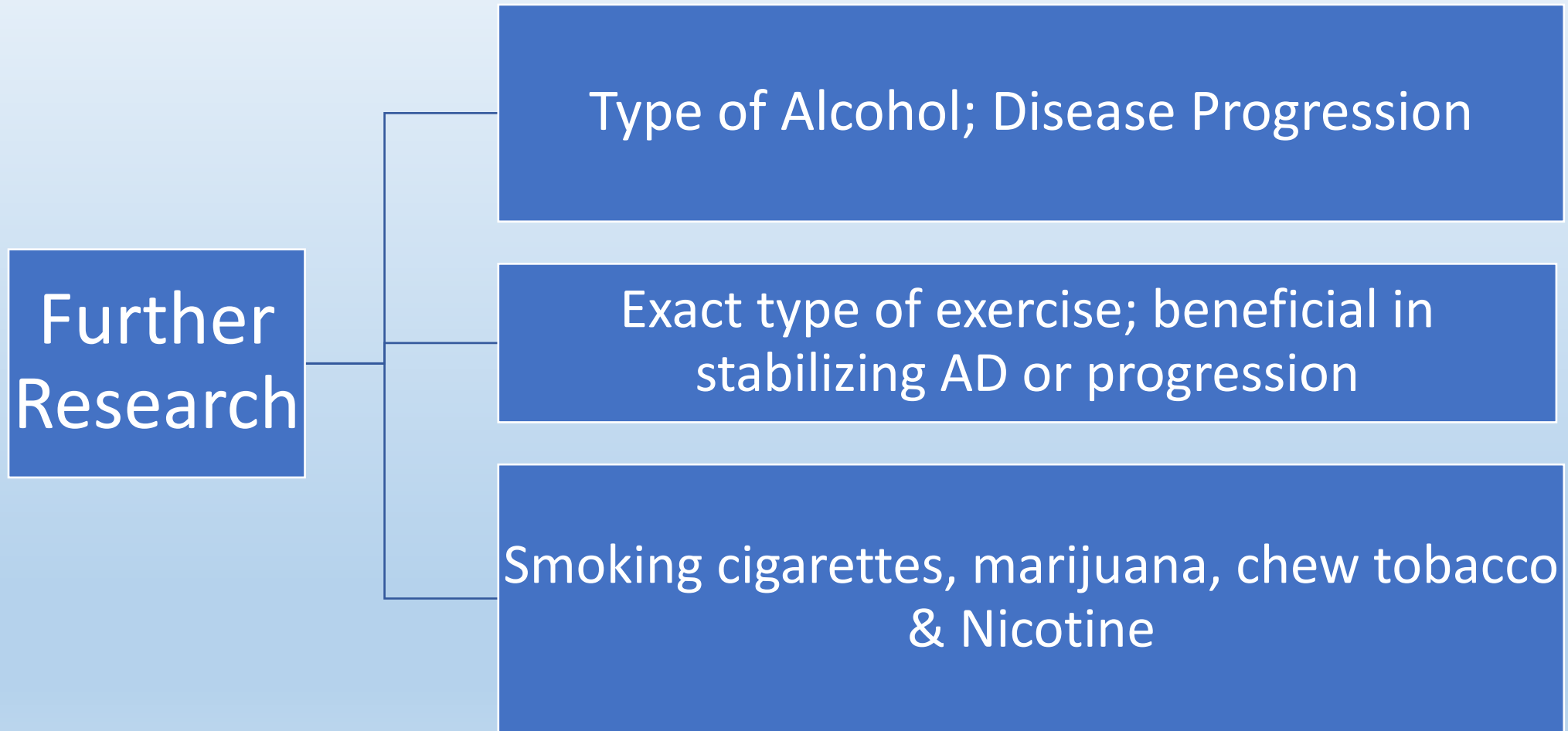
Fig. 2.  
AD Regions significantly different between Non-Smokers and Smokers.

# Smoking and Alzheimer's

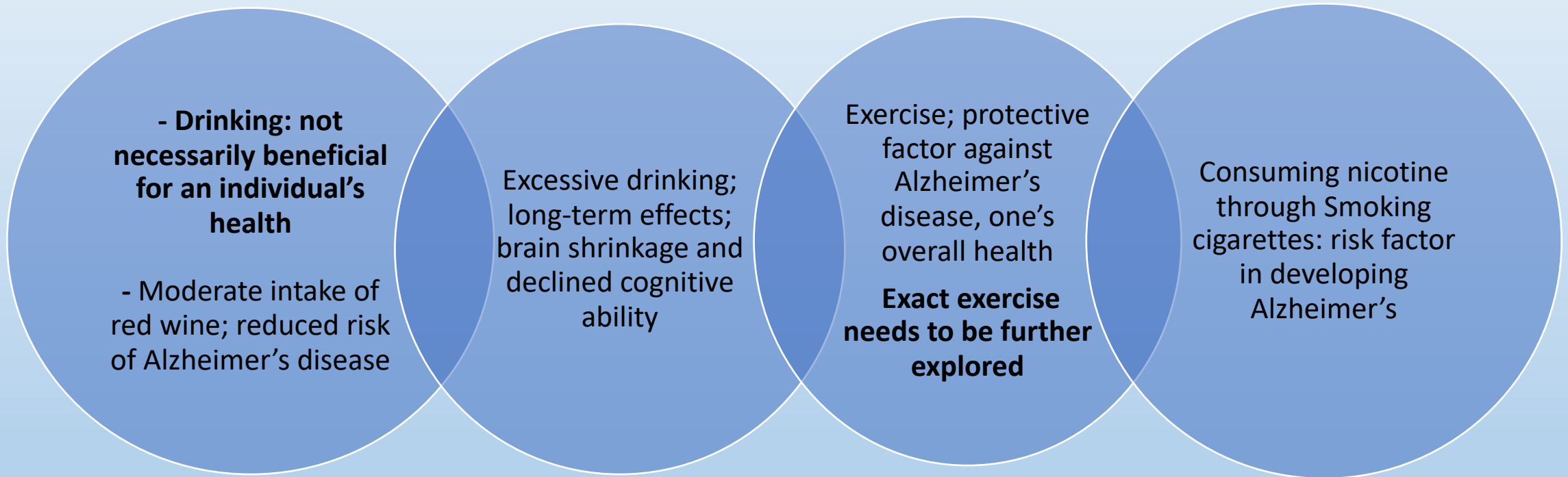
GOAL	SAMPLE	METHODS	RESULTS	THE BRAIN OR DISEASE PROGRESSION	CITATION
Review of Smoking and it's effect on the brain	-----	-----	Smoking cigarettes causes cancer which includes neurobiological and neurocognitive abnormalities like hippocampal volume loss, learning and memory deficits	THE BRAIN	(Durazzo et. al, 2014)



# Further Research



# Take Home Message



# References

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# Back Pocket Studies

GOAL	SAMPLE	METHODS	RESULTS	CONSUMPTION, THE BRAIN OR DISEASE PROGRESSION?	CITATION
relationship between the amount of consumption of alcohol and dementia	65 years + and no dementia at start	<ul style="list-style-type: none"><li>P's were given a food frequency questionnaire; followed annually for 4 years; Reported how much of type of alcohol they consumed</li></ul>	<ul style="list-style-type: none"><li>Out of those who drank alcohol, 26% of people developed dementia at the end of the study</li><li>Drinking moderately is related to lower risk of dementia but drinking wine specifically was the most protective compared to beer or liquor.</li></ul>	CONSUMPTION OF ALCOHOL	(Luchsinger et. al., 2004)