

Seattle Nikkei Health Study: Cross Cultural Surveys between Seattle and Japan

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Background of the Study

Effects of environmental changes on cardiovascular health can be examined by comparing factors between the same race who live in different environment conditions. Thus, Japanese Americans are ideal subjects to be compared with native Japanese, because both have the same genetic background but live in drastically different environment. We hope that our study outcome can contribute to further understanding of disease etiology and cardiovascular disease prevention.

Objectives

Compare the following indicators between Japanese Americans and native Japanese:

- Lipids and lipoproteins
- Aortic pulse wave velocity (PWV)
- Coronary heart disease (CHD)
- Retinal artery changes

Study Sample

Seattle Japanese Americans

Base population: 12,507
Age 30 - 79

Screening participants:
1,389 (11%)
For all analyses

Nutrition survey participants:
830:

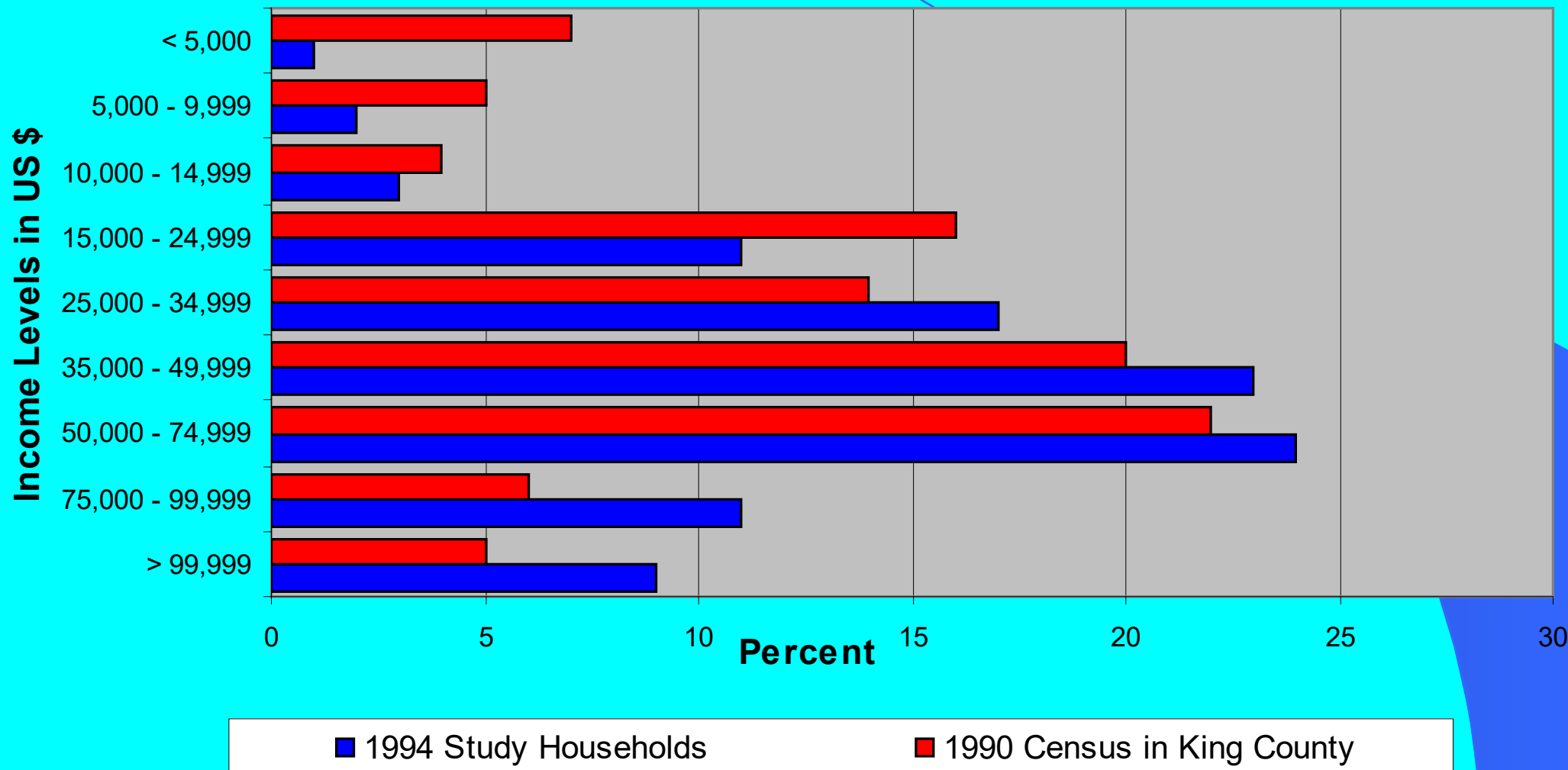
Native Japanese in Japan

Base population: 28,745
Age 30 - 79 (screening participants)
For cholesterol analysis

4,134 randomly selected
For all other analyses

Nutrition survey participants:
1841

Comparison of household income distribution between King County census population and study participants of Japanese Americans

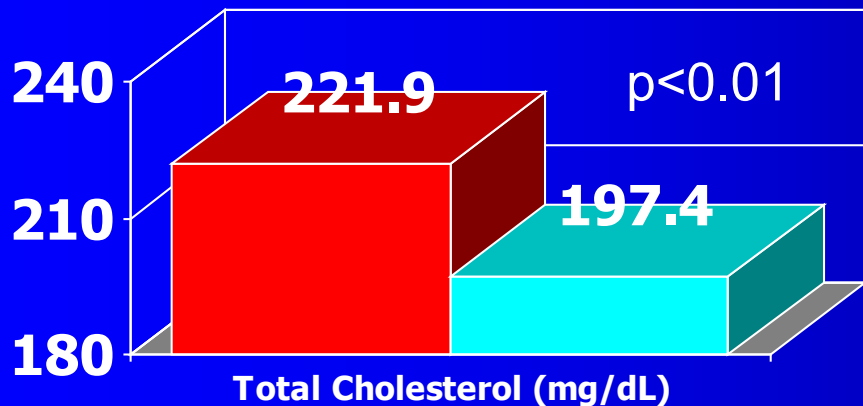


Methods

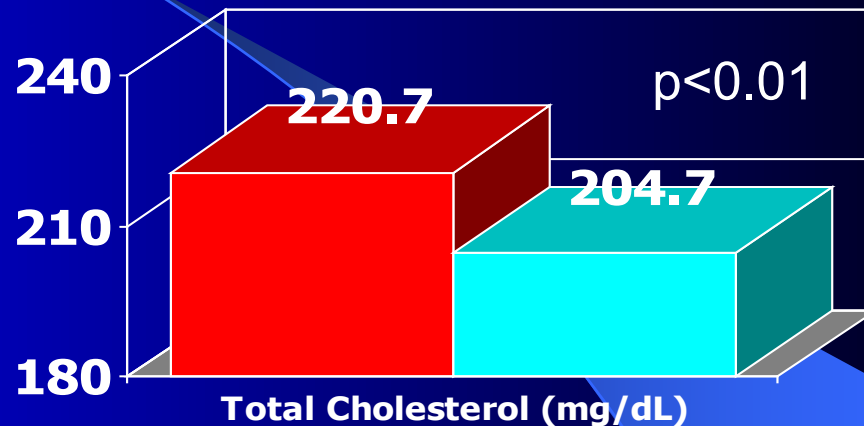
- **Clinical examinations:** Lipid profiles, glucose, blood pressure, PWV, ECG, retinal photos, lung function test
- **Self-administered questionnaire survey** (disease history, lifestyle, diet, etc.)
- **Criteria for definite CHD**
 - ◆ **Abnormal Q or QS pattern by Minnesota codes**
 - ◆ **And/or self-reported history of angina pectoris and/or myocardial infarction**
- **Statistical analyses:** descriptive statistics, multiple regression analysis, multiple logistic regression analysis

Comparison of age-adjusted average cholesterol levels between Japanese Americans and native Japanese

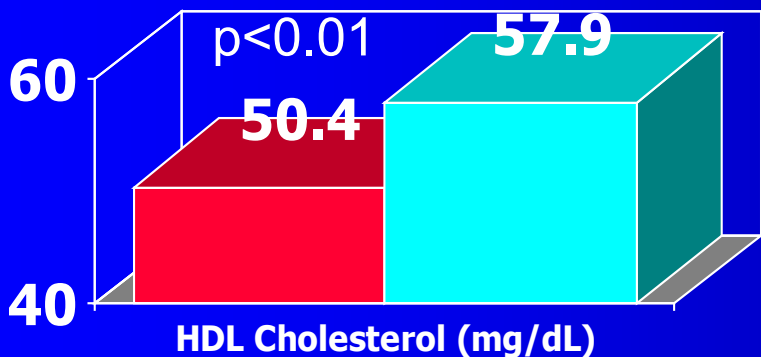
■ Japn-Amer males ■ Native-Japn males



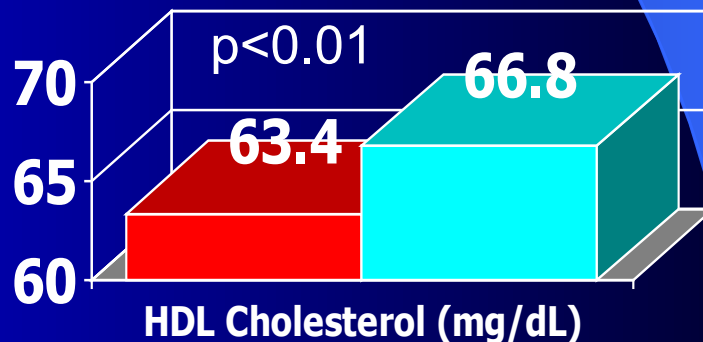
■ Japn-Amer female ■ Native-Japn females



■ Japn-Amer males ■ Native-Japn males



■ Japn-Amer females ■ Native-Japn females



Selected Characteristics of Study Samples: Males

Selected Characteristics	Japn- Amer	Native- Japan
Mean		
BMI	25.7**	23.8
Daily alcohol consump(g)	5.8**	27.3
Percent		
Current smokers	15.4%**	46.0%

* $p < 0.05$

** $p < 0.01$

肉眼的内膜病理所見と生前大動脈脈波速度の関係

PWV-anatomy

女性 22歳

PWV : 6.4m/sec

病理所見 : 硬化所見なし



男性 56歳

PWV : 8.3m/sec

病理所見 : アテロームが20-30%を占めています。



女性 86歳

PWV : 10.3m/sec

病理所見 : アテローム、潰瘍、石灰化が80%を占めています。



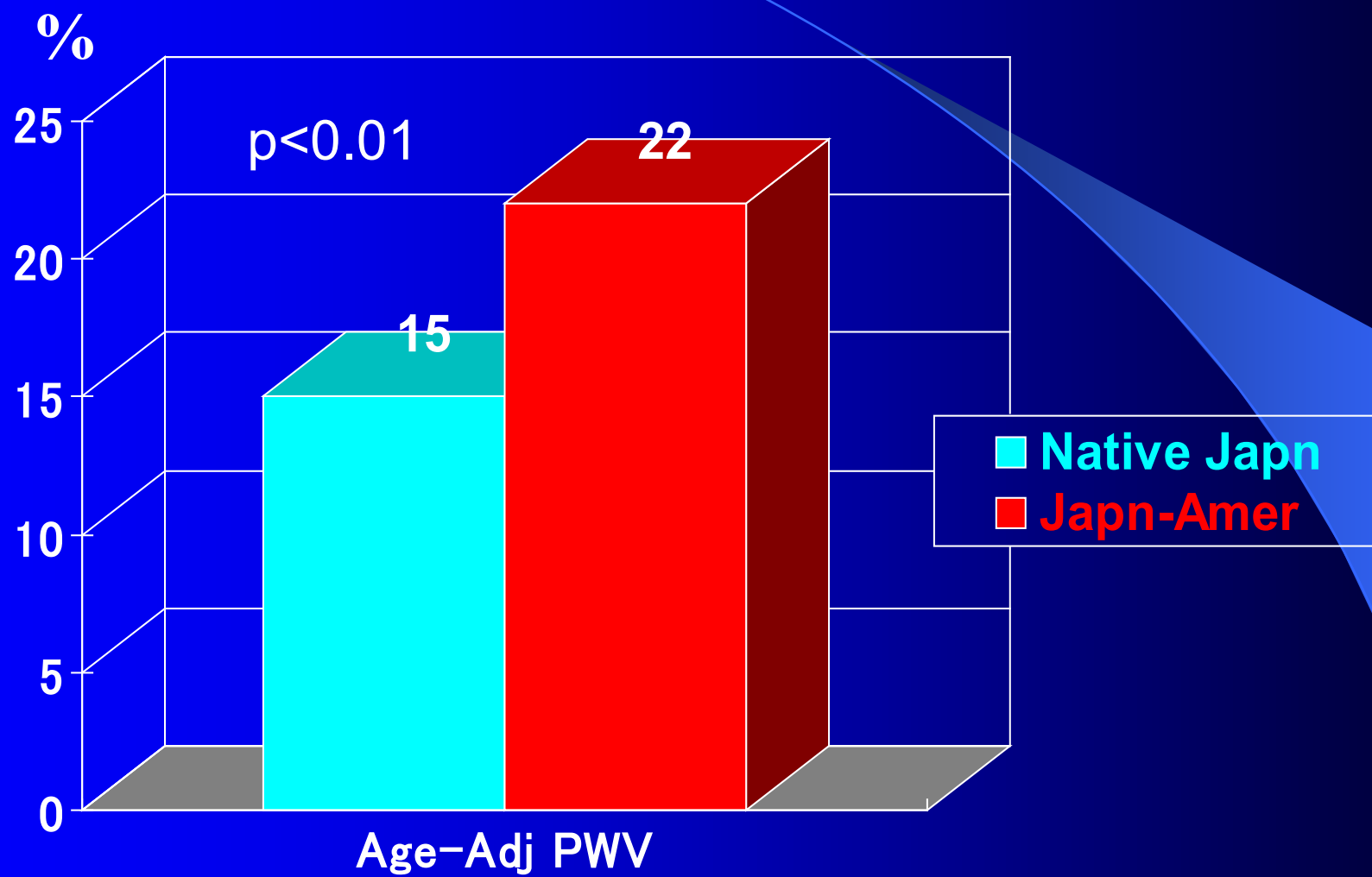
男性 62歳

PWV : 14.3m/sec

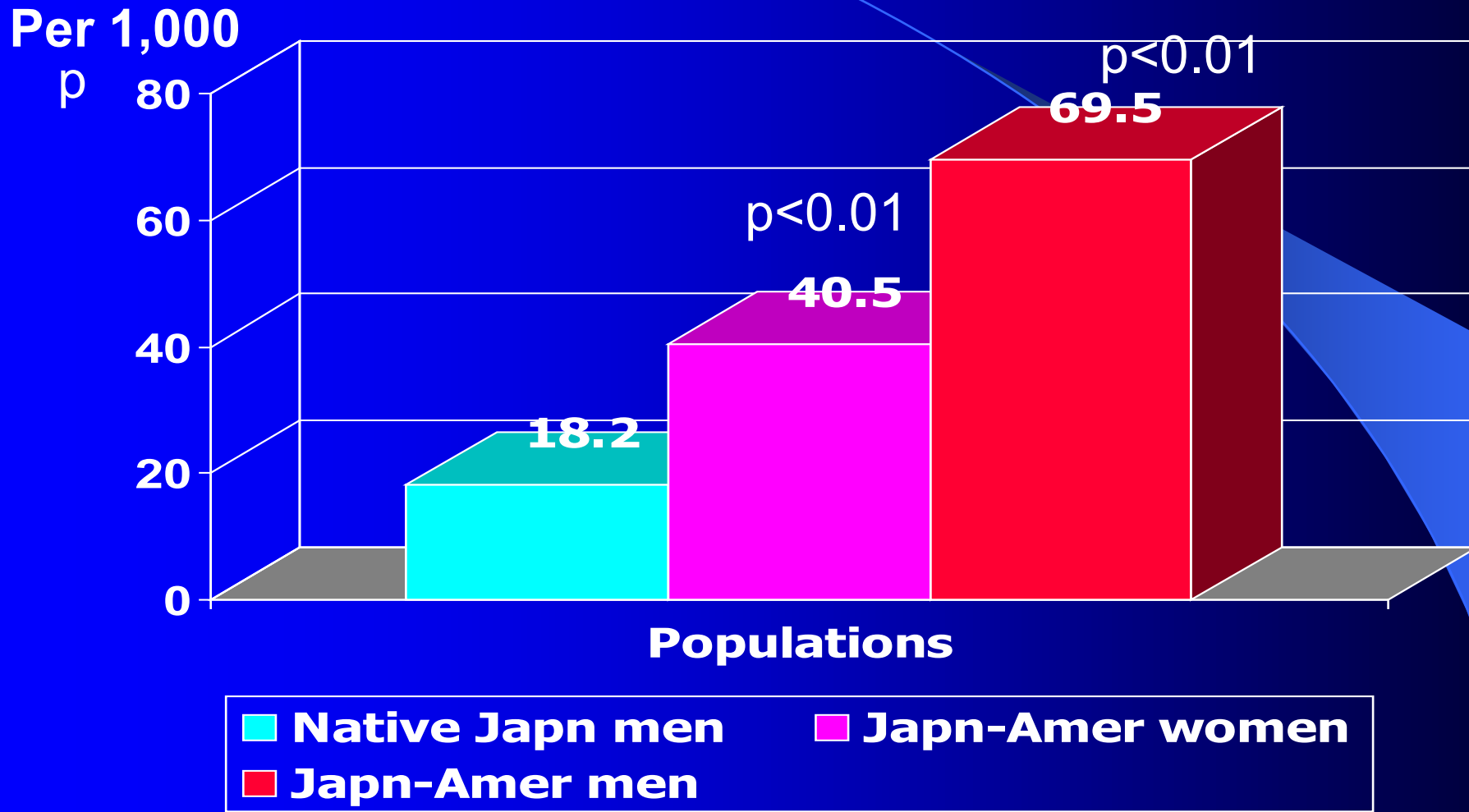
病理所見 : 内膜全域に硬化所見を認めています。



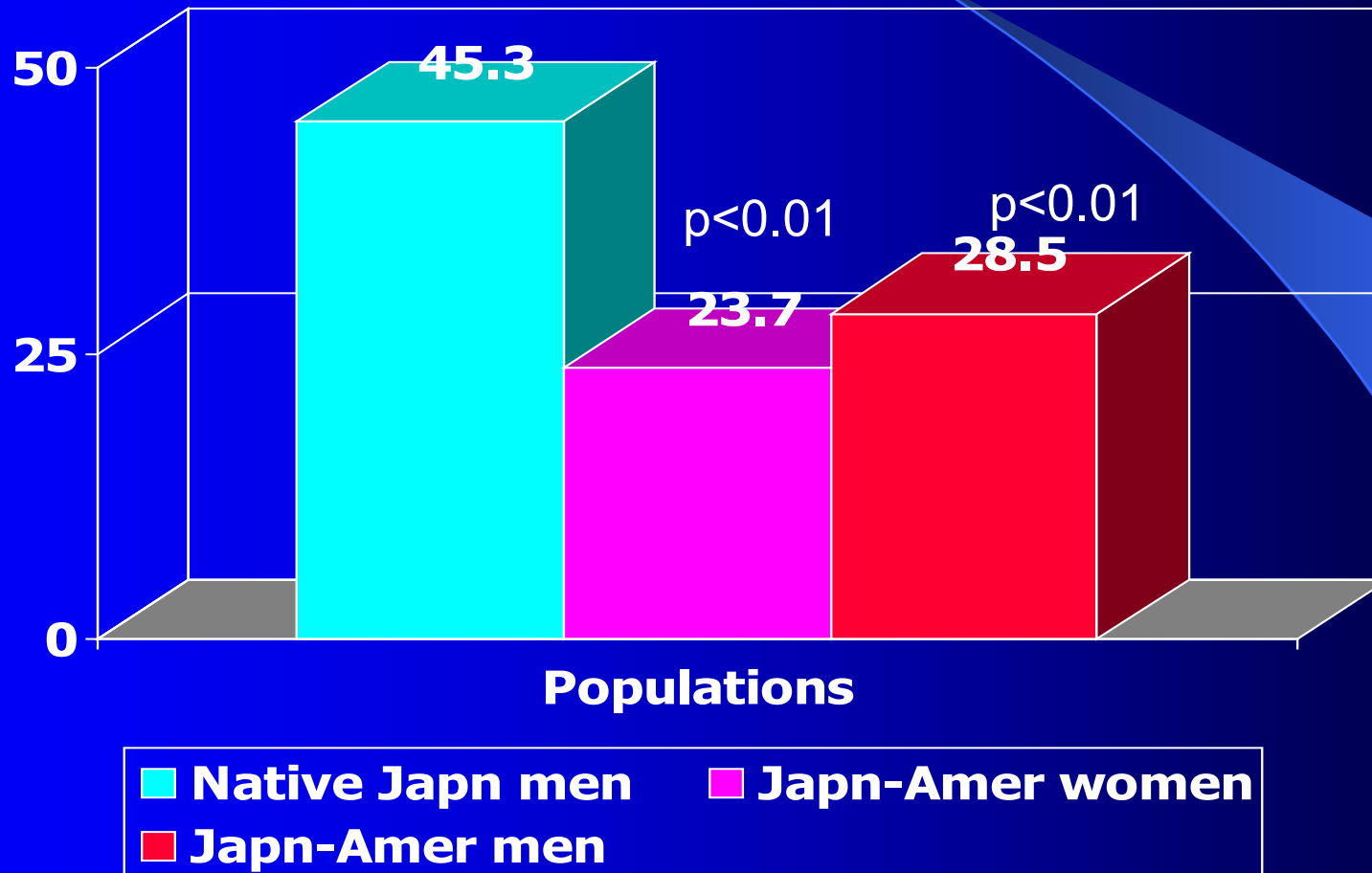
Age-adjusted prevalence of abnormally high PWV among Japanese Americans and native Japanese



Age-adjusted prevalence of coronary heart disease among Japanese American men and women and native Japanese men

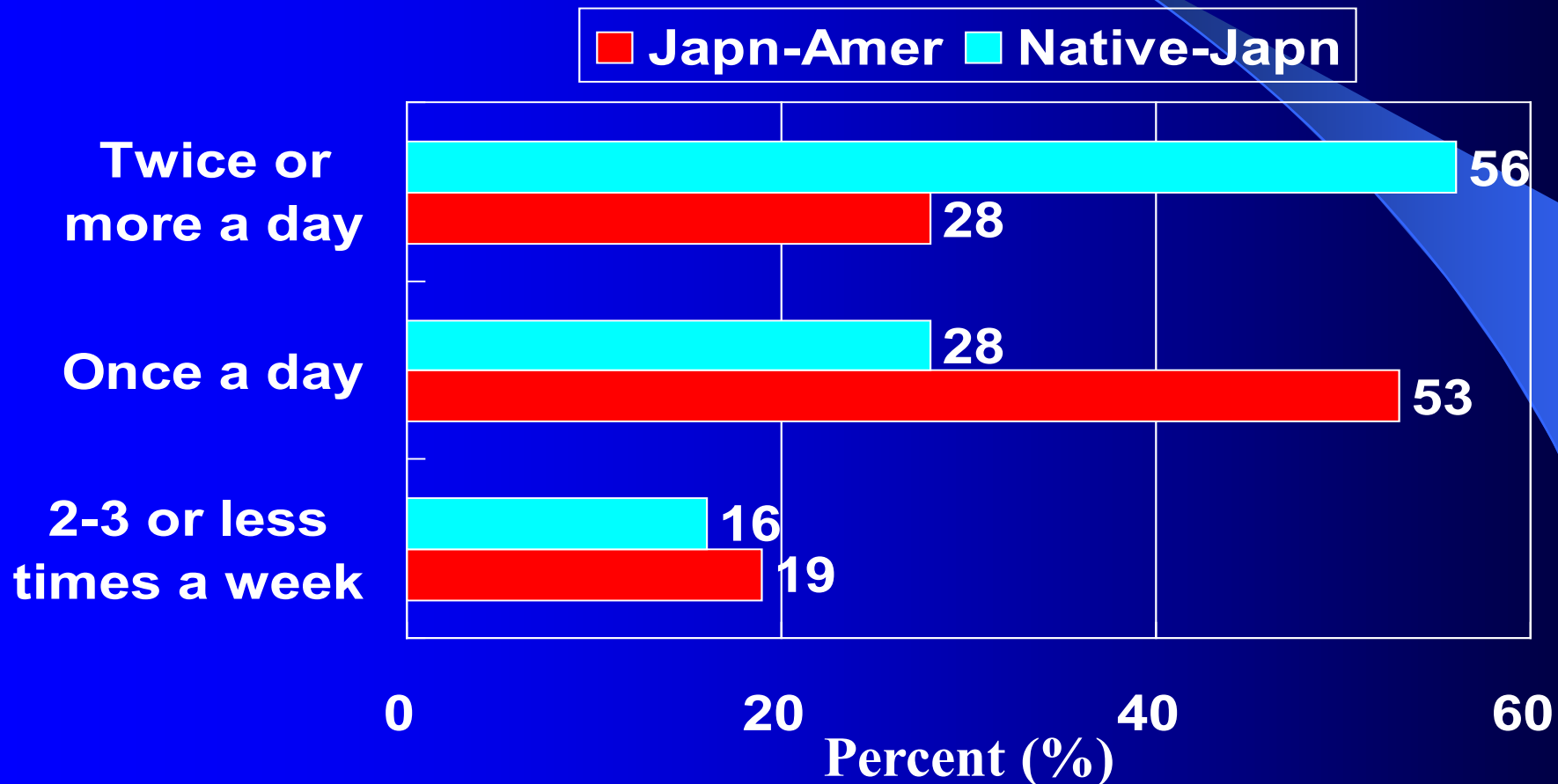


Age-adjusted prevalence of abnormal changes in retinal artery among Japanese American men and women and native Japanese men



Comparison of vegetable consumption between Japanese Americans and native Japanese

How often do you eat vegetable?



Adjusted odds ratios for presence of abnormally high PWV Among Japanese Americans and native Japanese

Variables	Reference (OR=1.00)	Japn-Amer	Native Japn
BMI	<27	1.08	1.34**
Hypertension	No	2.01***	2.76***
TC/HDL-ratio	<4.5	1.61***	1.28**
Diabetes	No	3.66***	2.43***
Current drinkers	No	0.45***	0.85 (p<.06)
Ex-drinkers	No	0.47***	1.07
Current smokers	No	1.47***	1.02
Ex-smokers	No	1.65**	1.05

Discussion and Conclusion

- ◆ **The result of PWV analysis implied that atherosclerosis among Japanese Americans advances much earlier for their age than among native Japanese , leading to higher risk for developing CHD among Japanese Americans.**
- ◆ **It is considered that one of the factors to have higher prevalence of abnormally high PWV values and CHD among Japanese Americans is due to much less consumption of vegetables among Japanese Americans than among native Japanese.**
- ◆ **As our results shows, Japanese are not superior to other races in terms of their health. As Japanese lifestyle and diet is westernized, an increase in incidence of diabetes and CHD may be predicted in the future.**

We've been greatly appreciated to late Prof. Chikio Hayashi for his invaluable advice and contribution and to late Miss Mizuki Takahashi for conducting cardiovascular screening in Seattle, U.S.A.



Miss Mizuki Takahashi

1970 – 2007

Prof. Chikio Hayashi

1918 -2002

Dr. Namekata Dr. Miyamoto Dr. Suzuki

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