Question: What is the relationship between acculturation and dietary intake?

Table 2: Association between multidimensional or multiple proxy measures of acculturation and dietary intake in Asian populations

Author, Year Sample Size Data Source, Location Risk of Bias*	Race/Ethnicity/Nativity Age Gender	Acculturation Measure Dietary Intake Measure	Results	Trend by Acculturation Measure
Longitudinal Studies				
Novotny, 2012 **N=1,612** **Work, Weight and Wellness (3W) Program, Hawaii** **6/24**	Filipino (42.0%), other Asian (32.0%), Pacific Islander (13.0%), White (9.0%), African American (1.0%), other (3.0%) 46.0y (SD=10.2) 52% female	Acculturation scale (not validated) **Dietary Measure:** Dietary intake screening questions derived from 3 validated tools (frequency/portions)	**Acculturation level at 24 months with baseline, diet; association with variables across a 24 month intervention period:** *Dietary intake:* Associated with consuming more servings of **meat** at baseline (F=4.45, P<0.0002); there was no change in **meat** consumption across the intervention period. Associated with consuming more **sugar sweetened drinks** (SSB) at baseline (F=2.58, P=0.02), but not with change in sweetened drink consumption across the intervention period. Associated with more **fruit** consumption at baseline (F=5.58, P<0.0001), but not with change in **fruit** intake across the intervention period.	**Increased acculturation (baseline):** *Fruit:* Positive association *Meat:* Positive association *SSB:* Positive association **Increased acculturation (2-yr follow-up):** *Fruit:* No association *Meat:* No association *SSB:* No association

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Unger, 2004 **N=2,004** **School-based survey, California** **2/24**	Latino/Hispanic (69%), Asian Descent (31%) 11y 53.7% female	**Acculturation:** US orientation subscale of the Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA) (validated) **Dietary Measure:** 2 questions-frequency of fast-food during week and weekend	**Fast-food consumption (1 year)** Acculturation to US associated with increased frequency (β =0.078, P<0.001) **Language usage:** NS	The association between acculturation and fast-food intake differs based on acculturation proxy. **Fast food** *AHIMSA subscale*: Positively associated *English language proxy:* No association
Cross-sectional Studies				

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Gomez, 2004 **N=3,965** **Data from Kaiser Permanente Medical Care Program case-control study, California** **5/24**	White (79.8%), Chinese (6.6%), Japanese (2.5%), Filipino (6.8%), other Asian (2.3%), multiple-race Asian (2.0%) >45 y 75.9% female	**Proxies:** Country of birth; age at which family moved to the US; generation language **Dietary Measure:** Frequency of soy milk, tofu and alcohol intake	**Soy consumption and length of residence** (Referent group: US-born Asians of second generation or later) *Foreign-born Asians in US ≤50% of their lives:* OR=3.1 (95% CI=1.6-6.1; P<0.05) *Foreign-born Asians who had been in US 50-75% of their lives:* OR=2.4 (95% CI=1.3-4.6; P<0.05). **Alcohol consumption and language preference** (referent group: Preferring English in all contexts): *Preferring foreign language in all contexts vs. preferring English in all contexts:* OR=0.3 (95% CI 0.2-0.6; P<0.05)	**Nativity:** Compared to US-born Asians, foreign-born Asians are more likely to consume soy. **Language:** Asians that prefer their native language in all contexts, compared to preferring English in all contexts, are less likely to consume alcohol.
Parikh, 2009 **N=517** **2003 New York City Chinese Health Survey, New York** **2/24**	Chinese 55-75y 42.2% female	**Proxies:** Proportion of lifetime spent in US; language **Dietary Measure:** Type and frequency of drinking; ordinal categories non-drinker, 1-30 drinks/month, >30 drinks/mo	**Alcohol intake (Acculturated vs. not acculturated) OR (95% CI)** *Women:* OR=7.99 (1.33, 48.19), P<0.05 *Men:* NS	**Proportion of time in US and language**: Chinese women more acculturated to the US are more likely to consume alcohol than women less acculturated. There was no difference in alcohol intake in men based on degree of acculturations.

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Shin, 2011 **N=517** **Survey, Indiana** **2/24**	Asian descent (100%) 41.6y (SD=13.81) 51.7%	**Acculturation:** Lee's Acculturation Scale (validated) **Dietary Measure:** 18-item Healthy Eating Benefits and Barriers Scales; Self-Efficacy for Eating Habits Scale; Health Promoting Lifestyle Profile (HPLP) II	**Healthy eating scores**, **mean (SD)** **Stratified by age group:** *English survey:* 18-40y 2.49 (0.55), >40y 2.81 (0.56); (P<0.05) *Korean survey:* NS **Stratified by gender:** *English survey:* NS *Korean survey:* Male 2.23 (0.56), female 2.47 (0.52); (P<0.05) **Stratified by acculturation category:** *English survey:* Assimilation 2.49 (0.63), integration 2.77 (0.55), separation 2.54 (0.54); (P<0.01) *Korean survey:* NS	Asians who chose an **English-language** survey and were in the **"integrated" cluster** had higher healthy eating scores than all other groups.
Song, 2004 **N=3,330** **Survey, California** **4/24**	Korea-descent (100%) >18y ~50% female	Multidimensional scale (validated) **Dietary Measure:** Reported frequency consumption of major food groups, high fat foods, ethanol, beverages and behaviors.	**Frequency per week (SE), all values are significantly different (P<0.05):** **Beef** *Seoul Residents:* 1.52 (0.08) *Traditional:* 2.13 (0.03) *"Acculturated":* 3.40 (0.22) **Fish** *Seoul Residents:* 3.12 (0.12)	**Increased acculturation:** Associated with high intake of American foods (e.g., beef, butter/margarine, fried food) , alcohol (in women, not men) and low intake of traditional Korean foods (e.g., Kimchi, vegetables, fruit, rice, fish)

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			Traditional: 2.76 (0.04) *"Acculturated"*: 1.84 (0.12) **Rice** *Seoul Residents:* 13.57 (0.09) *Traditional:* 9.6 (0.08) *"Acculturated"*: 6.25 (0.27) **Fruit** *Seoul Residents:* 7.04 (0.18) *Traditional:* 6.35 (0.06) *"Acculturated":* 5.39 (0.24) **Green Vegetables** *Seoul Residents:* 12.37 (0.15) *Traditional:* 6.46 (0.06) *"Acculturated":* 5.74 (0.21) **Yellow/White Vegetables** *Seoul Residents:* 12.26 (0.17) *Traditional:* 5.01 (0.06) *"Acculturated":* 4.14 (0.20) **Milk** *Seoul Residents:* 4.76 (0.17) *Traditional:* 3.03 (0.08) *"Acculturated":* 2.75 (0.23)	

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Wang, 2011 **N=5,074** **California Health Interview Study (CHIS), California** **4/24**	Chinese (56%), Korean (19%), Vietnamese (25%) 43.6y 57.3% female	Combined nativity, language proficiency (English and Asian) **Dietary Measure:** Frequency of fruit/vegetable, soda and French fry intake/week based on 30-d recall	Number of times foods were consumed in the last 7 days by acculturation category (baseline measure) **Fruits and vegetables:** *Men:* NS *Women*: NS **Fries and soda:** *Men:* "Traditional" (1.99), "Bicultural" (2.87), "Acculturated": (3.85), P=0.0001 *Women:* "Traditional" (0.805), "Bicultural" (1.38), "Acculturated": (2.17), P<0.0001 Addition of diet mediators to the logistic regression model examining independent association of acculturation category and overweight/obesity reduced the odds ratio only minimally.	**Acculturated (ref: traditional):** Fries and soda consumption increased with the level of acculturation (from traditional to bicultural to acculturated) for both men and women. There were no differences in fruit and vegetable consumption.

*Risk of Bias as determined using the Nutrition Evidence Library Bias Assessment Tool