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Comparing dietary patterns of college students when eating in America versus eating in China: Impact on nutrition intake, body weight and waist circumference

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Eating in China vs. eating in America

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Attractive?



Food and culture

- * What is culture (1)
 - * Also refers to ethnicity
 - * Values, beliefs, attitudes and practices accepted by a community of individual
 - * Culture is learned by living in groups, not inherited
 - * Pass within generations through enculturation
- * Same culture/ethnicity share same behavior patterns (1)
 - * Eating behavior
 - * Dress
 - * Language
 - * Family structure
 - * Religion

Food and culture

- * Eating is highly associated with culture (2,3)
 - * food availability. What kind of food is available in one culture. It also relates to agriculture and geography factors
 - * food preference. The given priority over other food choices
 - * food acceptance. Unique definition about the edible kind of food

Food acculturation

- * Acculturation is the process of adopting the cultural traits of a society different from one's own
- * Food acculturation is a complex process combining ethnic eating practices and acceptance of foreign eating habits (4)
- * Studies compared American subjects, American born Chinese subjects and Chinese born Chinese subjects.

Previous study results

- * Consumed more vitamin C (127 ± 2 mg), calcium (720 ± 88 mg) and iron (13 ± 2 mg) (4)
- * Chinese-American subjects had the highest energy level (1801 ± 112 kcal) (4)
- * Similar energy distribution from CHO(49%, 50%, 50%), protein (14%, 16% 15%)and fat (34%, 33%, 34%) categories. (5)
- * Low iron intake for Chinese born Chinese subjects (10 ± 1 mg), failed to meet RDAs level(18mg/day) (5)
- * Different food sources of fat intake. (6)
 - * Cooking oil and meat for Chinese subjects
 - * Dairy, fried food and salad dressing for American subjects

Typical Chinese diet

- * Traditional habits and beliefs of Chinese diet (1)
 - * Balance of yin (light) and yang (dark)
 - * Moderation in diet. No excess intake from any food groups
 - * Starch sources: mainly from rice (south) and wheat (north) (7)
 - * Tea consumption as beverage

Typical Chinese diet

- * Only eat fresh vegetables and fruits that are in season
- * Most food is cooked
- * Widely use of soy beans
 - * Sauces: soy sauce, oyster sauce and hoisin sauce
 - * Tofu
 - * Soy milk

Typical American diet

- * Balance eating and eating in variety
- * My plate: Six groups of food (8)
 - * Fruits: fresh, canned, frozen or dried fruit or 100% fruit juice
 - * Vegetables: fresh, canned, frozen, or dehydrated vegetable or 100% vegetable juice
 - * Protein: meat, poultry, seafood, beans and peas, eggs, soy products, nuts and seeds

Typical American diet

- * Dairy: fluid milk and milk products. Fat-free and low fat preferred
- * Grain: food made from wheat, rice, oats, cornmeal, barley or another cereal grain. More whole grains, less refined grains
- * Oils: canola oil, corn oil, cottonseed oil, safflower oil, soybean oil and sunflower oil. Plant sources is preferred

Purpose

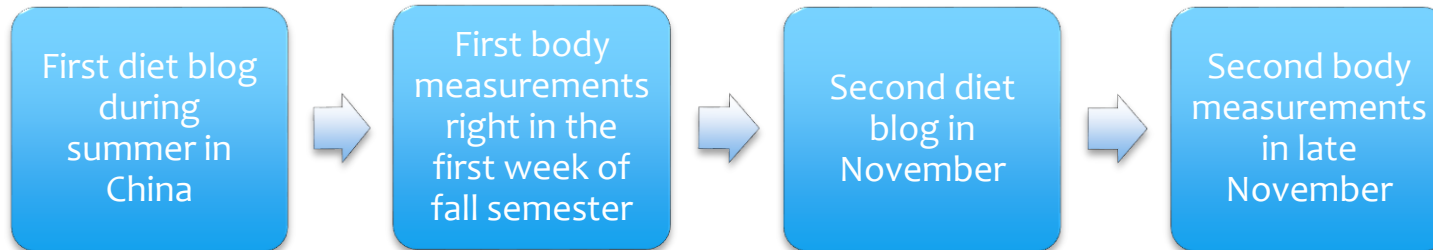
- * Compare the the dietary intake of Chinese international students
 - * while living at CSBSJU during fall semester
 - * while living at home in China over summer
- * Comparing the dietary intake of American CSBSJU students
 - * while living at CSBSJU during spring semester
 - * while living in China during the summer
- * Examine the impact of dietary changes on body composition by measuring
 - * body weight
 - * waist circumference

Method

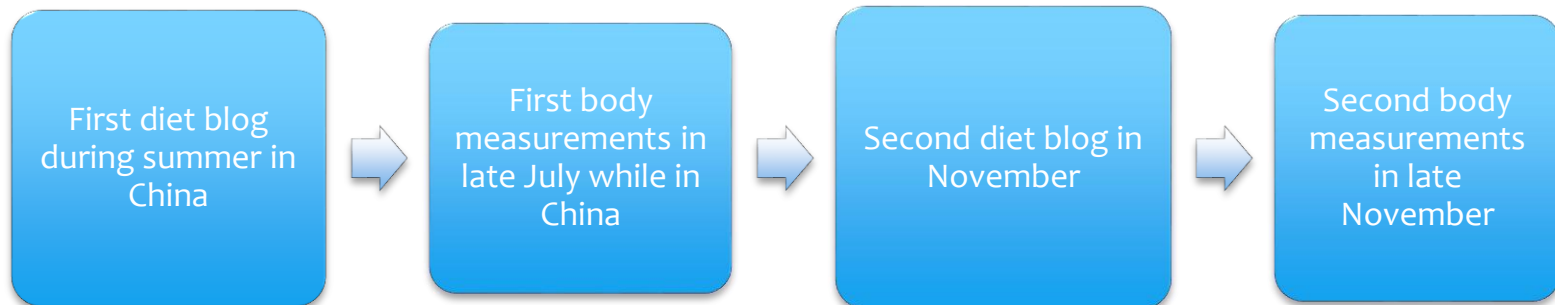
- * Received IRB approval
- * Chinese international students (n=17) and American students participated in China summer program (n=3) were recruited through emails.
- * Consent forms were signed.
- * 7-day food blog and body measurements were asked two times from all participants
- * Super tracker for diet analysis
- * Paired t test for statistical test

Research design

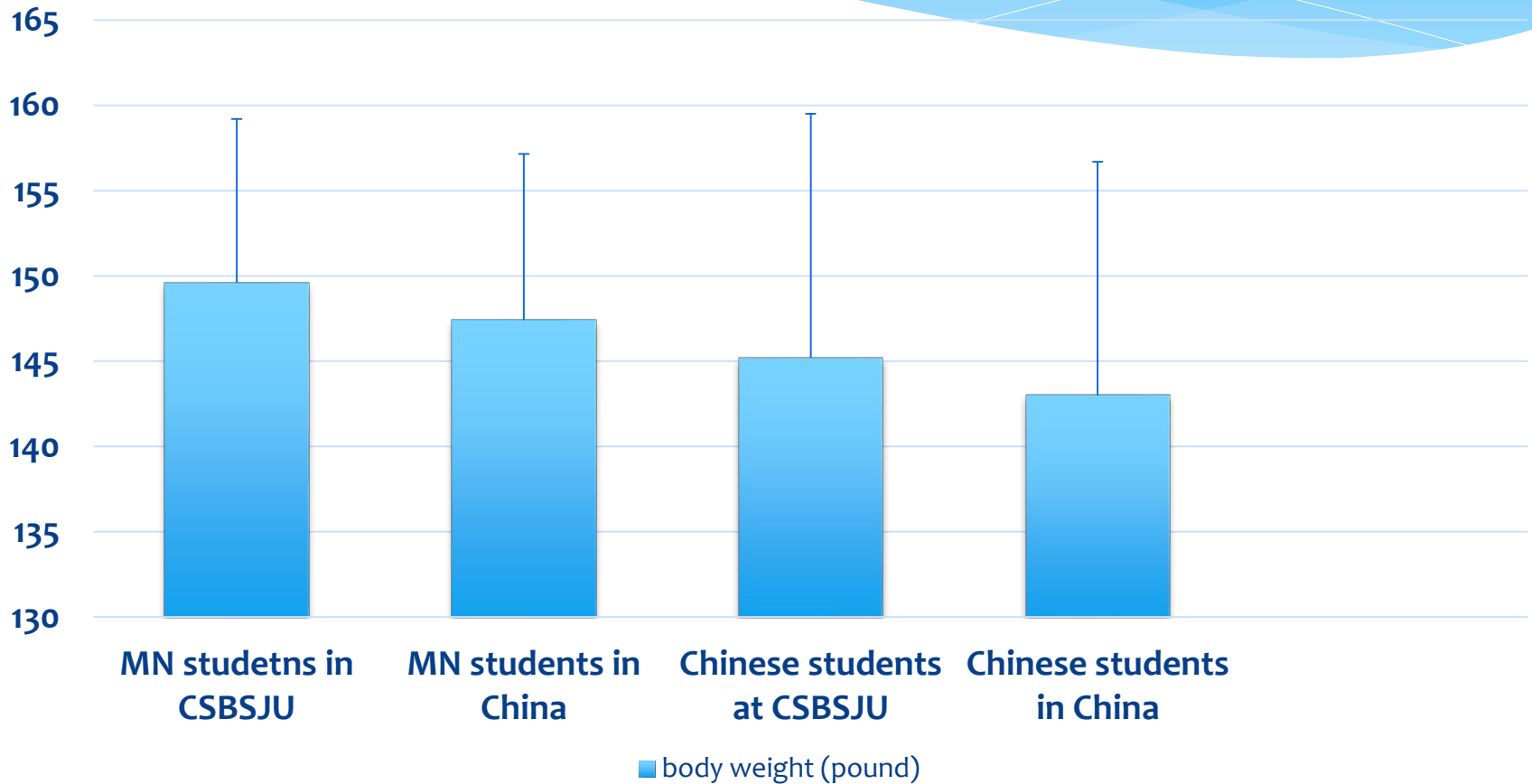
Chinese subjects



American subjects



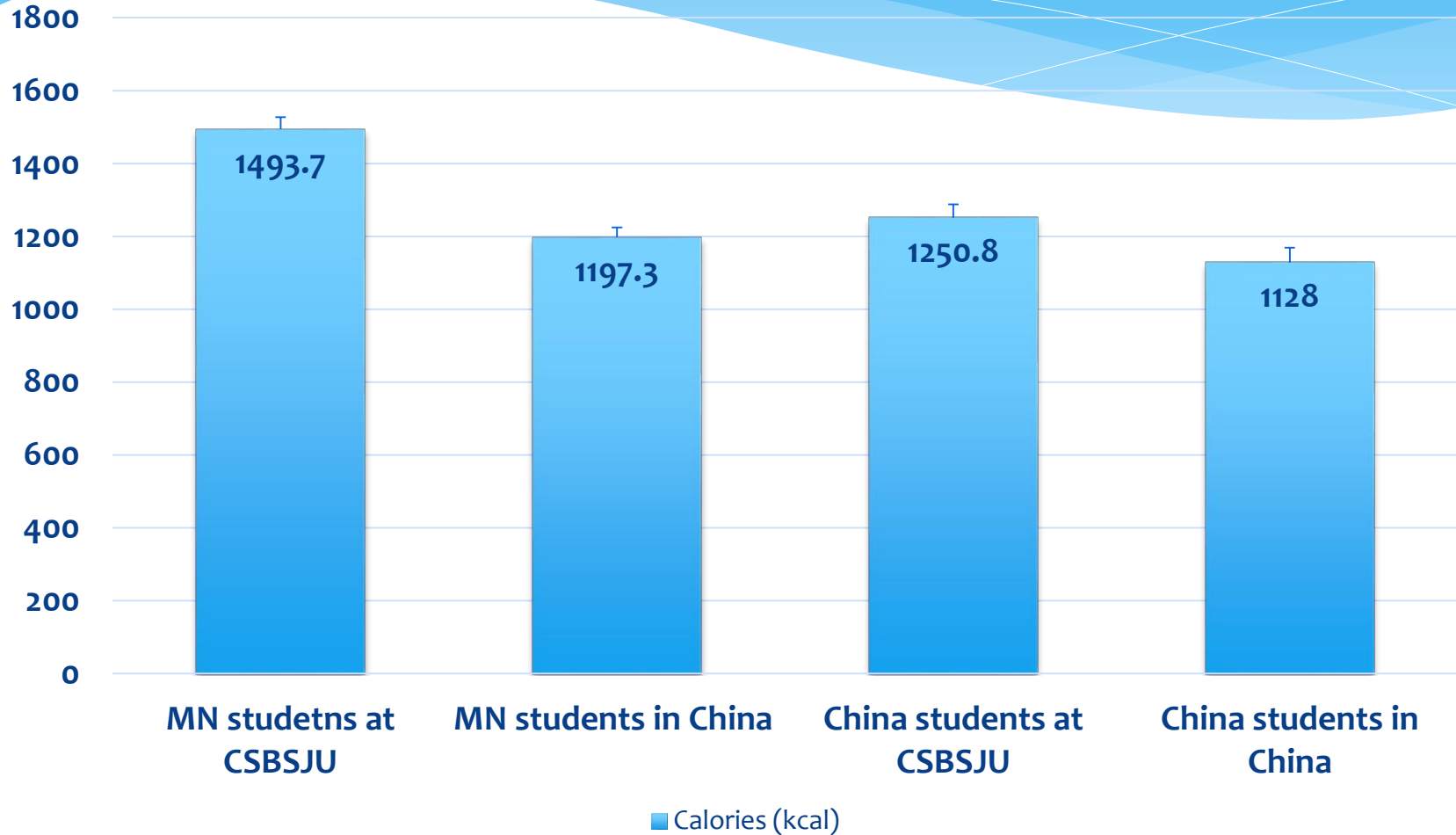
Mean value of body measurements in MN and Chinese students



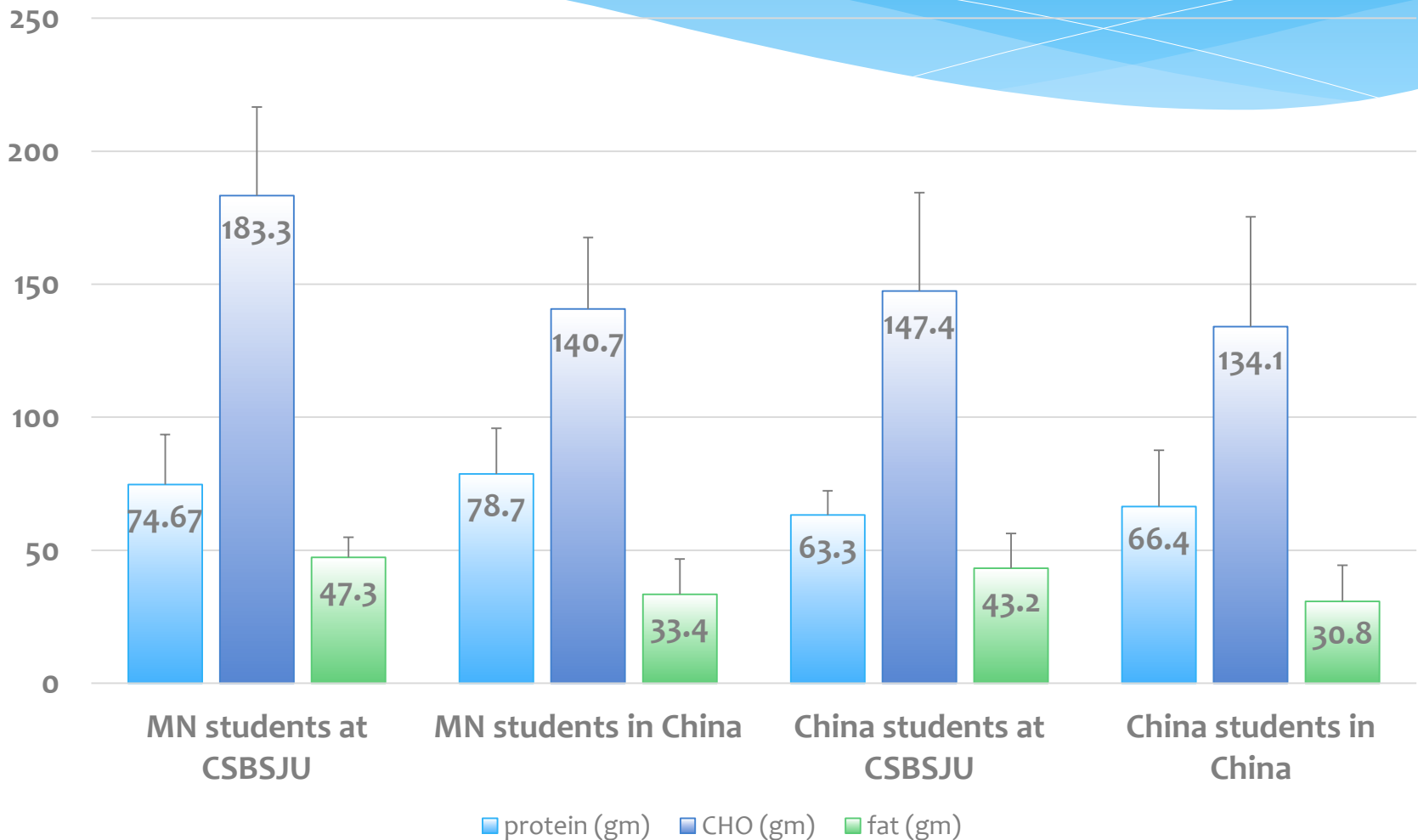
Waist circumference and BMI

	Mean BMI	Mean Waist circumference (inch)
MN students in CSBSJU	22.2	30.2
MN students in China	22.3	30.2
Chinese students in CSBSJU	22.6	22.6
Chinese students in China	22.3	22.3

Calorie intake of MN and Chinese students



Protein, CHO and fat intake in MN and Chinese students



Result

- * For both groups, no significant change in
 - * body weight
 - * BMI
 - * waist circumference
 - * nutrients intake
- * While living at CSBSJU, Chinese students consumed
 - * More fat (47.3 ± 9 grams)
 - * More energy (1498 ± 21 kcals)
- * While living in CSBSJU, American students consumed
 - * More fat (47 ± 13 grams)
 - * More energy (1250 ± 41 kcals)
- * Protein intake was higher when subjects were in China
 - * American students (78 ± 7 grams)
 - * Chinese students (66 ± 12 grams)

Discussion

- * Body weight, BMI and waist circumference kept consistent
- * Nutrients intake showed slight changes, but not significant in statistical level
- * Protein intake was higher in China
 - * More food choices during break
 - * For Chinese participants, feel more comfortable while eating
 - * For American participants, want to try new food in a new culture
- * Iron intake in American participants was due to
 - * More protein intake in American participants
 - * American students consume more bread while at CSBSJU

Discussion

* Possible Limitations

- * Limited amount of subjects, especially American participants
 - * In other studies, average participants amount was sixty
 - * Total participants in my study was 20 (Chinese=17, American=3)
- * Short range of research length
 - * Most researches study Chinese immigrants that had lived in the USA for couple years.
 - * In my study, Chinese international students all went back to China during breaks. American participants only stayed in China for no more than 3 months
- * Super tracker was used for nutrients analysis, which is an American diet based system

Conclusion

- * Significant changes in body composition did not occur despite some changes in nutrients intake
- * Different culture shapes different eating behavior
 - * Nutrients intake
 - * Food choices

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Question?

