



# Leisure Time, Non-leisure Time, and Occupational Physical Activity in Asian Americans

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**PURPOSE:** Asian American immigrants' risk of heart disease, diabetes, and obesity increase with duration of residence in the United States (US). Regular physical activity reduces the risk of these diseases, yet little is known about physical activity in Asian Americans and how it changes after immigration.

**METHODS:** Data from the 2001 California Health Interview Survey, which oversampled Asian Americans, were analyzed to investigate the effects of ethnicity, nativity, and years in the US on leisure time physical activity (LTPA), non-leisure time physical activity (NLTPA), and occupational physical activity. A total of 4226 Asian Americans and 29,473 US-born non-Asians were included.

**RESULTS:** Asian Americans were much less likely to meet recommended levels of LTPA than US-born non-Asians (odds ratio [OR], men = 0.51, 95% confidence interval [CI], 0.42, 0.61, OR, women = 0.48, 95% CI, 0.40, 0.57). Foreign-born Asians were least likely to participate in LTPA; LTPA increased as years in the US increased. After accounting for NLTPA, Asian Americans had significantly lower estimated weekly energy expenditure than US-born non-Asians.

**CONCLUSIONS:** Asian Americans, especially immigrants, are at risk for low levels of LTPA and high levels of physical inactivity. NLTPA does not offset these lower levels of LTPA. Increasing physical activity is key to protecting the health of this rapidly growing population.

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**KEY WORDS:** Exercise, Emigration and Immigration, Asian Americans, Acculturation, Health Surveys, Health Behaviors.

## INTRODUCTION

Regular physical activity reduces the risk of cardiovascular disease, diabetes, obesity, and other chronic conditions. Increasing physical activity is a national health priority (1). However, data on physical activity among Asian Americans are lacking, although they represent 4% of the US population and are the fastest growing minority group (2). While studies have shown that Asian Americans have lower mortality rates and report better health than other US populations (3–5), these studies grouped all Asians together and may have masked heterogeneity (6). Over 60% of Asian Americans are foreign-born, and Asian subgroups have marked differences in culture, socioeconomic status, and immigration patterns. Recent studies that disaggregate Asian Americans by ethnicity demonstrate that some Asian subgroups have a higher incidence of chronic diseases than previously thought (7–10). For example, the incidence of

cardiovascular disease in South Asian Americans is high (11, 12), and breast cancer incidence in Japanese American women is rapidly approaching that of non-Hispanic whites (13). As Asians live in the US longer, their risk of chronic diseases increases (7, 13, 14), yet little is known about modifiable risk factors in Asian Americans, such as physical activity, and how these risk factors change after immigration.

Researchers often hypothesize that immigrants have fewer chronic diseases because they are less likely to participate in unhealthy behaviors, such as a high-fat diet, smoking, and a sedentary lifestyle (15–19). Except for smoking, there are few data to support the hypothesis that immigrants have better health behaviors. Physical activity has consistently been shown to impact multiple health outcomes (20–26), but it remains to be seen if the lower mortality among Asian Americans can be partially explained by higher levels of physical activity. National surveillance data suggest that two-thirds of US adults do not meet the current recommendations for regular leisure time physical activity (LTPA), and that an even higher percentage of Asian Americans do not meet the requirements (27). However, it is not known if this is true for all Asian subgroups and if Asian Americans offset less LTPA with other types of physical activity. More recent immigrants may have less access to labor-saving technology and lifestyles that include more physical activity related to employment and transportation. Few population-based studies examine physical activity in Asian Americans and

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**Selected Abbreviations and Acronyms**

CHIS = California Health Interview Survey  
CI = confidence interval  
LTPA = leisure time physical activity  
NLTPA = non-leisure time physical activity  
OR = odds ratio  
SE = standard error  
US = United States

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whether it varies by nativity, ethnicity, and duration of residence in the US (28–33).

The main objective of this study was to determine the effects of ethnicity, nativity, and duration of residence in the US on LTPA, non-leisure time physical activity (NLTPA), and occupational physical activity among the six largest Asian subgroups using population-based data from California, the state with the largest Asian American population (2). LTPA is defined as physical activity performed during exercise, recreation, or any time other than that associated with one's regular occupation, housework, or transportation (34). NLTPA includes walking or cycling for transportation; occupational activity is physical activity performed at work, including housework (34). This distinction is important because focusing only on LTPA underestimates physical activity, particularly in women and minorities (35, 36) Certain immigrant groups may participate in significant NLTPA or occupational activity even though they report little LTPA. One qualitative study of Korean American women found that the women, many of whom were immigrants, placed little value on LTPA, but did report being very active as part of their daily routine (28). Although the evidence is not as strong, studies suggest that NLTPA and occupational physical activity, like LTPA, may also be associated with higher levels of fitness and lower mortality (37–40).

Some of the increase in obesity among industrialized countries is due to technology that lowers daily physical activity requirements (vacuum cleaners, laundry machines, automobiles) (41). Most individuals in non-industrialized countries are less sedentary than individuals in the US because they are less likely to drive and have access to technology that lowers physical activity requirements. In non-industrialized countries, individuals become more sedentary after moving from rural to urban areas (42–46). An Australian study found lower levels of LTPA among non-European immigrants (47); however, it is not known if this pattern is seen when Asians move to the US.

We hypothesized that foreign-born Asian Americans would be less likely to meet recommended LTPA than US-born Asian Americans and non-Asians, and that LTPA would increase as years in the US increased. Immigrants may engage in little LTPA because, economically, LTPA may be viewed as a commodity that requires income and discre-

tionary time (41). As immigrants spend more time in the US, incomes typically increase (48) and so too may free time. We also hypothesized that foreign-born Asian Americans would report more NLTPA and occupational physical activity than US-born persons. Lastly, we hypothesized that there would be significant ethnic heterogeneity in physical activity among the six Asian American subgroups.

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**METHODS****Data**

The California Health Interview Survey (CHIS) is a population-based random digit dialing telephone survey of California's civilian households. CHIS was designed to support the study of health-related behaviors, health status and conditions, and health insurance and health care access of California's major racial and ethnic groups. The primary sampling strata were based on counties and aggregates of smaller counties. Because CHIS aims to provide reliable estimates for smaller ethnic groups, the sample also includes supplemental oversamples to improve the sample size and precision estimates for these groups. While there were sufficient numbers of Chinese and Filipinos in the primary sample to support subgroup analysis, an additional supplemental sample of South Asians, Japanese, Koreans, and Vietnamese was collected. These six groups comprise 90% of the US Asian population. Interviews were conducted in English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean. A randomly selected adult was chosen from each household. A total of 55,428 adults were included in primary sample, and an additional 1761 individuals were sampled for the supplemental sample. CHIS data were collected between November 2000 and October 2001.

The Public Use Data File for CHIS contains two separate files, the primary sample and the Asian supplemental sample. The primary sample includes non-Hispanic whites, Hispanics, African Americans, Chinese, Filipinos, and "other Asians." It is not possible to distinguish Vietnamese, Koreans, Japanese, and South Asians among the "other Asians" in the primary sample. It is possible to disaggregate Asians by ethnicity in the supplemental sample. In the first step of this analysis, Asian Americans (in aggregate) in the primary sample are compared with US-born non-Asians (whites, Hispanics, and African Americans). In the second step of this analysis, we compare physical activity among the six Asian subgroups by merging the Chinese and Filipino records from the primary sample with the supplemental sample. Duplicate observations were deleted to create one data file with the six Asian subgroups. The CHIS survey design precludes accurate standard error estimation if the entire primary and supplemental samples are combined.

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