Translating Physical Activity Recommendations into Interventions for South Asians

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The CDC federal guidelines recommend that in order to get substantial health benefits, adults should perform at least:

- 150 minutes a week of moderate-intensity aerobic physical activity OR
- 75 minutes a week of vigorous-intensity aerobic physical activity, OR
- An equivalent combination of both moderate- and vigorous-intensity aerobic activity.

There are also recommendations to include resistance/muscle strengthening exercises on 2 or more days a week. These should work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).
Percent of Americans meeting current CDC guidelines  
(National Health Interview Survey - 2016)

- Using self-report data from NHIS 2016, 51.7% (95% confidence interval = 50.57%-52.87%) of U.S. adults aged 18 and over met CDC’s physical activity guidelines for aerobic activity (based on leisure-time physical activity).

- This percentage was higher than the 2015 estimate of 49.0%.

- Only 22% of adults met guidelines for both aerobic and resistance exercise.

- There is also a lot of variation by gender, race, ethnic group, and age bracket. Several years of national data must be merged to get sufficient sample size for stable estimates for smaller population groups.
Some groups are more active than others.

- If we look by sex/gender, men over age 18 do a better job of being physically active than women over 18.

- If we look by age group, younger folks have higher PA rates than older folks. However older adults benefit from the same guideline of 150 minutes/week.

- As a reminder, this is not taking into consideration work-related PA. But all Americans are not benefitting equally.

- And maybe we aren’t all interested in the same activities or receiving the same messaging.
There are also differences reported by racial/ethnic group:

- Age-sex-adjusted percentage of adults by race and ethnicity who met the CDC physical activity guidelines for aerobic activity (leisure-time PA) was 44.3% for Hispanic adults, 44.4% for non-Hispanic black adults, and 56.2% for non-Hispanic white adults.

- Much harder to estimate rates for other ethnic groups. Based on less than 2% of participants in NHIS, about 47% of Asians included in NHIS 2014 met the CDC leisure-time PA goal but no breakdown by group was done.

- Ye et al. (2009) aggregated 3 years of NHIS data to yield sufficient statistical power to assess CV risk factors in specific Asian American subgroups; used public-use NHIS data for Chinese, Asian Indians, and Filipinos, and combined remaining subgroups into “Other Asians”.

**Asian Indians had the highest rate of physical Inactivity (OR = 1.5).**

In what main types of PA do people engage?
(NHANES 1999-2006)

- NHANES estimated the proportion of total volume of leisure-time physical activity that is “moderate-equivalent minutes” was attributable to 9 specific types of activities using self-reported data from 21,685 adult participants (≥18 years) in the National Health and Nutrition Examination Survey between 1999-2006.

- Overall the most common PAs, by moderate equivalent minutes, were: walking (28%), sports (22%), and dancing (9%) (based on % of leisure-time activity “volume”).

Gender differences noted in PA preference/type of activity - NHANES

The NHANES (1996-2006) breakdown varied by gender:

- Women had a higher percent of their PA volume as walking (36% for women vs. 23% for men), dancing (16% vs. 4%), and conditioning exercises (10% vs. 5%).
- Conversely, men had more of their leisure-time PA spent on sports (30% for men vs. 11% for women).
- One can debate cultural factors, less opportunity, societal messaging about PA. Regardless, adult women may end up with different PA interests and lower levels of PA. We can leverage this info to create better interventions.

- The Community Guide is an evidence-based resource of what works in public health. Like USPSTF, the CPSTF is an independent panel that uses systematic literature review to develop evidence-based approaches. [www.thecommunityguide.org/topic/physical-activity](http://www.thecommunityguide.org/topic/physical-activity)

Today we are focusing on *individual-level interventions*:

- Individually-adapted health behavior change programs are tailored to a person’s interests and needs. They teach goal-setting and problem-solving to help people incorporate and maintain physical activity in their lives. These types of programs have been shown to increase physical activity and fitness, and decrease weight, in both adults and children.

- Social support interventions in community settings focus on building social support networks, such as buddy systems or walking groups. These supportive relationships have been shown to help people exercise more often, and for longer periods of time.
Evidence about PA intervention effects on health

- Generally **PA increases can impact health at virtually any age.** Inadequate PA increases rates of DM, IHD, & breast and colon CA.

- **Lower levels of PA** time and intensity than the CDC guideline can **still positively impact health** - it is never too late to start, as long as it is safe to be active.

- PA effects on older adult health demonstrate not only CV benefits but also **cognitive and mood benefits**. Resistance training and Tai Chi also demonstrate reductions in falls.

- PA benefits extend to women who are pregnant and to families who exercise together.
Information on needs/beliefs for women of color - mixed methods

- Simonsen et al. (2015) used a gender-based approach for developing a healthy lifestyles intervention in a diverse group of women (5 ethnic groups). Survey data (BRFSS) demonstrated lower rates of meeting PA targets among all women except in the White category. 20% of women reported no LTPA.

- Focus group results in African American, African, AI/AN, Latinas, and Pacific Islanders demonstrated a number of common themes - women often noted that limited resources and time influence behaviors including PA, that norms around healthy weight vary, that women believe they can influence healthy behaviors in their families, and that men and women have different influences on these behaviors.

Dance Interventions found as effective as other PA interventions

- In a recent review (28 articles) and meta-analysis (23 articles) of studies that compared dance interventions with other types of PA interventions, dance was found overall as effective as other forms of moderate-vigorous PA (Fong Yan et al., 2018).

- In addition, dance interventions overall, relative to other exercise, reduced BMI and total fat mass significantly more.

- Yoga alone, while not the focus of the review, wasn’t as effective as other PA in a few studies that compared multiple types of PA, however it does have effects on improving balance.

- Dance can safely be prescribed or recommended by physicians for PA and overall health. Few studies focus on South Asian women.

Designing a culturally acceptable physical activity intervention for women

- In a study of South Asian women with Type 2 diabetes, a South Asian medical student who also had expertise in Indian dance, designed a Bollywood dance intervention working with a dance instructor who was then paid to lead the classes (Nateson, et al., 2014), Nateson then examined effects using an RCT design.

- Our randomized controlled trial examined the efficacy of a culturally relevant Bollywood dance exercise intervention in improving HbA1c among South Asian women with type 2 diabetes, compared with usual care (control). The intervention group demonstrated a statistically significant reduction in HbA1c from baseline compared with the control group.
CURES-D (Culturally Relevant Exercise for Type 2 Diabetes)

- 8-week Bollywood dance program conducted at a community center, women age 18-85 with Type 2 DM were eligible.

- Based on prior qualitative work, the PI believed cultural dance exercise programs could be conducted in community settings.

- Dance programs also provide a source of group cohesion and support as well as social interaction and enjoyment, all of which are factors that may motivate women to exercise more.

Photo Courtesy of Amlu Nateson, MD (2018)
PA interventions should include some resistance training, too.

- After warm-up and 30 minutes of moderate PA, the women get hand weights from a side rack and continue dance moves while using the weights.
- Women are counseled that they need both types of activity.
- The exact level of weight can be varied based on strength, presence/absence of arthritis/pain, individual goals, etc.

Photo Courtesy of Amlu Nateson, MD (2018)
CURES-D results

- Participants attending at least 62% of sessions in the intervention had a statistically significant reduction in weight compared with those who attended fewer sessions, demonstrating a dose-response.

- Even those participants who did not lose any weight in the intervention group still showed significant reductions in their HbA1c, while those experiencing no weight loss in the control group saw no reduction in HbA1c.

CURES-D retained 82% of participants.

- Counseling of women about the need for PA to reduce their risks
- Invitation to participate in the Bollywood dance class
- Offered at India Community Center - a convenient, well-appointed, and culturally competent CBO in Milpitas, CA
- During mid-day to allow working women to come

Photo Courtesy of Amlu Nateson, MD (2018)
CURES-D research and intervention team

Photo Courtesy of Amlu Nateson, MD (2018)
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