ARE THERE BENEFITS TO STANDING UP & MOVING MORE?

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Most people have heard or read that physical activity is good for them.
Being Physically Active:

- However, it is difficult to engage in enough physical activity on a consistent basis for health benefits

{40-80% do not meet guidelines}
# Adults need a mix of physical activity to stay healthy.

**Moderate-intensity aerobic activity***
Anything that gets your heart beating faster counts.

- **at least** 150 minutes a week

**Muscle-strengthening activity**
Do activities that make your muscles work harder than usual.

- **at least** 2 days a week

If you prefer vigorous-intensity aerobic activity (like running), aim for at least 75 minutes a week.
If that’s more than you can do right now, **do what you can**. Even 5 minutes of physical activity has real health benefits.

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**Walk. Run. Dance. Play. What’s your move?**
<table>
<thead>
<tr>
<th>Age Group</th>
<th>5 - 11 years</th>
<th>12 - 17 years</th>
<th>18 - 64 years</th>
<th>65 years and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines</td>
<td>Children should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily.</td>
<td>Youth should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily.</td>
<td>Adults should accumulate at least 150 minutes of moderate- to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more.</td>
<td>Adults aged 65 years and older should accumulate at least 150 minutes of moderate- to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more.</td>
</tr>
<tr>
<td></td>
<td>This should include:</td>
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<td>It is also beneficial to add muscle and bone strengthening activities using major muscle groups, at least 2 days per week.</td>
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</tr>
<tr>
<td></td>
<td>• Vigorous-intensity activities at least 3 days per week.</td>
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<td>More physical activity provides greater health benefits.</td>
<td>Those with poor mobility should perform physical activities to enhance balance and prevent falls.</td>
</tr>
<tr>
<td></td>
<td>• Activities that strengthen muscle and bone at least 3 days per week.</td>
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<td></td>
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</table>
2018 Physical Activity Guidelines Update:
Physical Activity Guidelines Update:

- Added information on the benefits of physical activity for brain health, physical function & sleep
- Re-affirmed previous recommendations on how much physical activity is needed for health benefits
Physical Activity Guidelines Update:

- 150 min/wk of moderate intensity aerobic activity or
- 75 min/wk of vigorous physical activity
- Muscle strengthening exercise 2 days/wk

Over 10 years, adherence rates had not changed.
However, time spent in sedentary activities had increased significantly.

New recommendation added: Move more and sit less.
Sedentary Behavior and Health: Update from the 2018 Physical Activity Guidelines Advisory Committee

PETER T. KATZMARZYK, KENNETH E. POWELL, JOHN M. JAKICIC, RICHARD P. TROIANO, KATRINA PIERCY, and BETHANY TENNANT, FOR THE 2018 PHYSICAL ACTIVITY GUIDELINES ADVISORY COMMITTEE

1Pennington Biomedical Research Center, Baton Rouge, LA; 2Centers for Disease Control and Prevention, Atlanta, GA; 3Department of Health and Physical Activity, University of Pittsburgh, Pittsburgh, PA; 4Division of Cancer Control and Population Sciences, National Cancer Institute, U.S. Department of Health and Human Services, Rockville, MD; 5Office of Disease Prevention and Health Promotion, US Department of Health and Human Services, Rockville, MD; and 6ICF, Fairfax, VA

ABSTRACT

KATZMARZYK, P. T., K. E. POWELL, J. M. JAKICIC, R. P. TROIANO, K. PIERCY, and B. TENNANT, FOR THE 2018 PHYSICAL ACTIVITY GUIDELINES ADVISORY COMMITTEE. Sedentary Behavior and Health: Update from the 2018 Physical Activity Guidelines Advisory Committee. Med. Sci. Sports Exerc., Vol. 51, No. 6, pp. 1227–1241, 2019. Purpose: To provide an overview of relationships between sedentary behavior and mortality as well as incidence of several noncommunicable diseases and weight status reported in the 2018 Physical Activity Guidelines Advisory Committee Scientific Report (2018 PAGAC Scientific Report), and to update the evidence from recent studies. Methods: Evidence related to sedentary behavior in the 2018 PAGAC Scientific Report was summarized, and a systematic review was undertaken to identify original studies published between January 2017 and February 2018. Results: The 2018 PAGAC Scientific Report concluded there was strong evidence that high amounts of sedentary behavior increase the risk for all-cause and cardiovascular disease (CVD) mortality and incident CVD and type 2 diabetes. Moderate evidence suggested sedentary behavior is associated with incident endometrial, colon and lung cancer. Limited evidence suggested sedentary behavior is associated with cancer mortality and weight status. There was strong evidence that the hazardous effects of sedentary behavior are more pronounced in physically inactive people. Evidence was insufficient to determine if bouts length or breaks in sedentary behavior are associated with health outcomes. The new literature search yielded seven new studies for all-cause mortality, two for CVD mortality, two for cancer mortality, four for type 2 diabetes, one for weight status, and four for cancer; no new studies were identified for CVD incidence. Results of the new studies supported the conclusions in the 2018 PAGAC Scientific Report. Conclusions: The results of the updated search add further evidence on the association between sedentary behavior and health. Further research is required on how sex, age, race/ethnicity, socioeconomic status, and weight status may modify associations between sedentary behavior and health outcomes. Key Words: SITTING, MORTALITY, COHORT, CHRONIC DISEASE
What is Sedentary Behavior?

- Participation in activities that do not substantially increase energy expenditure above resting levels (e.g., sitting, lying on the couch)

- An activity we do not think about much
Sedentary Behavior:
Sedentary Behavior Impacts Health:

- Health consequences of sedentary behavior:
  - premature mortality
  - cancers (ovarian, colon, endometrial)
  - diabetes
  - obesity/weight gain

**EVEN AMONG THOSE WHO ARE PHYSICALLY ACTIVE**
Sedentary Behavior During Waking Hours

Accelerometer data of a female for one week span.

**Key message**: it is possible to reach a level of activity consistent with the public health guidelines for health-related physical activity but to spend most waking hours in sedentary activity.
Increased focus on sedentary behavior
Limited amount of research with adults over 65 years of age
Research indicates that sedentary behavior is associated with functional loss & diminished ability to perform activities of daily living
Sedentary Behavior:

- Despite many efforts to increase physical activity, only a small % of adults > 65 yrs meet national guidelines (~ 8%)
- Thus, shifting the focus from increasing physical activity to decreasing sedentary behavior is emerging as a new strategy
Our Research:

* Began working with UW-Madison Community-Academic Aging Research Network (CAARN) – Jane Mahoney & Jill Ballard
* To develop and pilot test an intervention to reduce sedentary behavior (community-based)
* Rock County Council on Aging
* Funded by GWAAR
Intervening to reduce sedentary behavior in older adults – pilot results

Kelli F. Koltyn1*, Kevin M. Crombie1, Angelique G. Brellenthin2, Brianna Leitzelar1, Laura D. Ellingson2, Jill Renken3, Jane E. Mahoney4

1Department of Kinesiology, University of Wisconsin-Madison, Madison, Wisconsin, USA
2Department of Kinesiology, Iowa State University, Ames, Iowa, USA
3Wisconsin Institute for Healthy Aging, Madison, Wisconsin, USA
4Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin, USA
Pilot Research:

- Intervention was designed to break up extended sitting time by standing up & moving more throughout the day (delivered as a 4-wk small-group workshop)
Intervention:

- Sessions were once/week for 4 wks (refresher at 8 wks)
- Provided information on sedentary behavior
- Elicited ideas from participants on why they would want to reduce sedentary behavior and how they would go about it
Intervention:

- Helped them set practical goals
- Helped them develop action plans to reach their goals
- Shared their progress as well as obstacles with the group
- Refined goals and action plans
Outcomes:

- Outcomes included sedentary behavior (interviews & monitors), physical activity (monitors) and SF-36 (health-related quality of life)

- Assessments occurred before and following the 4-week workshop
Results:

- Participants (69 yrs) averaged ~ 11 hours/day sitting
- Strategies used most often: standing up during TV commercials and spreading household chores out across the day
- Also: stand up to get a drink of water and set a timer to stand up
Results:

- Significant reductions in sitting time (~ 60 minutes/day)
- Significant increases in light intensity physical activity
- Moderately large effect size changes in vitality & physical function
The Director of the Rock County Council on Aging indicated it was a practical & feasible workshop to implement.

“The intervention worked because it was simple. It is not complex and that is the beauty of it.”
Stand Up and Move More Study:

- Decided to expand the study to multiple counties
- Worked with CAARN & State Aging Units in Wisconsin
- Submitted a grant proposal to the National Institutes of Health
Translating a “Stand Up and Move More” intervention by state aging units to older adults in underserved communities

Protocol for a randomized controlled trial

Kevin M. Crombie, MS, Bриanna N. Letzelter, MS, MA, Neda E. Almassi, BS, Jane E. Mahoney, MD, Keil F. Holyn, PhD.

Abstract

Introduction: As aging is associated with functional decline, preventing functional limitations and maintaining independence throughout older life has emerged as an important public-health goal. Research indicates that sedentary behavior (prolonged sitting) is associated with functional loss and diminished ability to carry out activities of daily living. Despite many efforts to increase physical activity, which can be effective in countering functional loss, only an estimated 3% of older adults meet national physical activity guidelines. Thus, shifting the focus to reducing sitting time is emerging as a potential new intervention strategy but little research has been conducted in this area. With community support and funding, we developed and pilot tested a 4-week “Stand Up and Move More” intervention and found decreases in sedentary behavior, increases in physical activity, and improvements in mobility and vitality in a small sample of older adults. The purpose of this project is to expand upon these pilot results and examine the effectiveness and feasibility of translating a “Stand Up and Move More” intervention by State Aging Units to older adults in underserved communities.

Eighty older adults from 4 counties across Wisconsin predominantly made up of rural older adults and older African American adults are randomly assigned to Intervention (n = 40) or wait-list control (n = 40) groups. The intervention consists of 4 weekly sessions plus a refresher session at 6 weeks, and is delivered by community partners in each county. The sessions are designed to yield ideas from older adults regarding how they can reduce their sitting time, help them set practical goals, develop action plans to reach their goals, and refine their plans across sessions to promote behavior change. Sedentary behavior, physical activity levels, functional performance, and health-related quality of life are assessed before and after the intervention to examine the effectiveness of the program. Feasibility of implementing the program by our community partners is assessed via semi-structured interviews. Strengths of this project include strong community collaborations and a high need given that the older adult population is projected to increase substantially in the next 15 years.

Conclusion: This project will provide an important step in developing effective strategies for maintaining independence in older adults through determining the feasibility and impact of a community-based intervention to break up sitting time.


Keywords: intervention, older adults, physical function, sedentary behavior, sitting.
Procedures

- Screened 94 adults > 55 yrs from Iowa, Rock & Vilas Counties
- 56 adults (74 yrs) randomly assigned to the workshop or wait-list control groups (only 3 drop-outs – excellent adherence)
- Workshops/assessments occurred in Rock County (March 14-June 5); Iowa County (March 29-June 22) & Vilas County (April 19-July 12, 2018)
Outcomes/Assessments:

- Outcomes included participant satisfaction, sedentary behavior, physical function (SPPB), pain levels, and health-related quality of life (SF-36).

- Assessments were completed at baseline (i.e., introductory session), after the workshop (i.e., 4 weeks), and at follow-up (i.e., 12 weeks).
Participant Satisfaction:

- How many thought the workshop was beneficial?

***EVERYONE!!!***
What Did You Like About the Workshop?

- Made us aware of moving more
- Nonjudgmental, supportive atmosphere
- Interactive class with good conversation & sharing
- Action plans created structure for establishing goals
- Improved thoughts, attitudes & confidence levels
- Treats!
What Strategies Worked the Best?

- Standing up during TV commercials
- Spreading household chores out across the day
- Physical reminders around the house (setting a timer)
- Standing during quilting, sewing, reading, working on puzzles, while talking on the phone, while paying bills
Significant Results:

- Total Time Spent Sedentary (i.e., sitting per day)
- Short Physical Performance Battery
- Pain Interference and Intensity
- Health-Related Quality of Life (SF-36)
Time Spent Sedentary Per Day
Overall

Note. Lower scores indicate less sedentary behavior.
**SPPB Balance**

**Overall**

Note. Higher scores indicate better balance.
SPPB Gait Speed
Overall

Note. Lower scores indicate improved function.
Note. Lower scores indicate improved function.
Pain Intensity
Overall

Note. Lower scores indicate less pain.
Pain Interference
Overall

Note. Lower scores indicate less pain interference.
Note. High scores indicate more vitality.
General Health
Overall

Note. Higher scores indicate better health.
Problems in Performing Work or Daily Activities due to Physical Health

Overall

Note. High scores indicate fewer problems.
Problems in Performing Work or Daily Activities due to Emotional Health

Overall

Note. High scores indicate fewer problems.

- **Intro**
  - Waitlist: 75
  - Workshop: 78

- **Week 4**
  - Waitlist: 69
  - Workshop: 90

- **Week 12**
  - Waitlist: 72
  - Workshop: 85

(score representation from 0 to 90)
Summary of Results:

- Significant decreases in sedentary behavior after the workshop (approximately 68 min/day)
- However, sedentary behavior increased during the follow-up (at 12 wks, only 18 min/day lower than baseline)
- Functional performance was improved following the workshop and maintained at the follow-up
Summary of Results:

- Pain (intensity & interference) was lower in the group that received the workshop compared to the wait-list control group at 4 wks. *Note:* The “Stand Up & Move More” workshop did not increase pain.

- There were significant improvements in vitality and general health; as well as fewer problems performing work or daily activities due to physical & emotional health following the workshop (which were maintained during the follow-up).
Conclusion:

- The “Stand Up and Move More” workshop was effective in reducing sedentary behavior, as well as improving physical function & quality of life in adults 55 years and older.
SITTING IS
THE NEW SMOKING
GET UP & MOVE!
Acknowledgements:

- **Partners**
  - CAARN
    - Jill Renken
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  - ADRC of Southwest WI- Iowa County
    - Brittany Mainwairing
    - Valerie Hiltbrand
  - Rock County Council on Aging
    - Joyce Lubben
    - Lisa Lucas

- **Vilas County Commission on Aging**
  - Amie Rein
  - Sue Richmond

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  - National Institutes on Aging & GWAAR

- **Research Staff**
  - Dr. Kelli Koltyn
  - Neda Almassi
  - Angelique Brellenthin
  - Kevin Crombie
  - Brianna Leitzelar
Take Home Message:
thank you
Data were also collected for the following variables but these results were not statistically significant (probably due to variability across participants)
Stands Per Day
Overall

Note. Higher scores indicate more stands per day.
Duration of Sitting Bouts

Note: Lower scores indicate less time spent sitting without a break.

- **Intro**
  - Workshop: [Data representation]
  - Waitlist: [Data representation]
- **Week 4**
  - Workshop: [Data representation]
  - Waitlist: [Data representation]
- **Week 12**
  - Workshop: [Data representation]
  - Waitlist: [Data representation]

**Overall**

**Minutes**

0 10 20 30 40 50 60 70 80
Light Intensity Physical Activity Per Day
Overall

Note. Higher scores indicate more light physical activity per day.
Moderate Intensity Physical Activity Per Day

Overall

Note. Higher scores indicate more moderate physical activity per day.