

# Healthy Environments for Learning

*Shaping the Future Workshop*



**CARDEL**  
PLACE

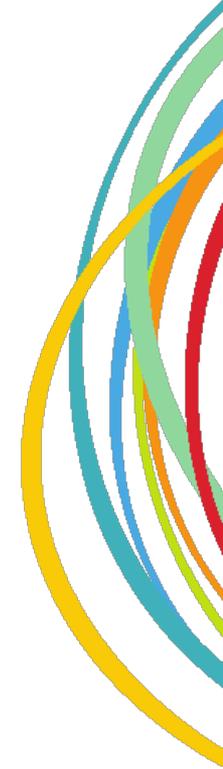
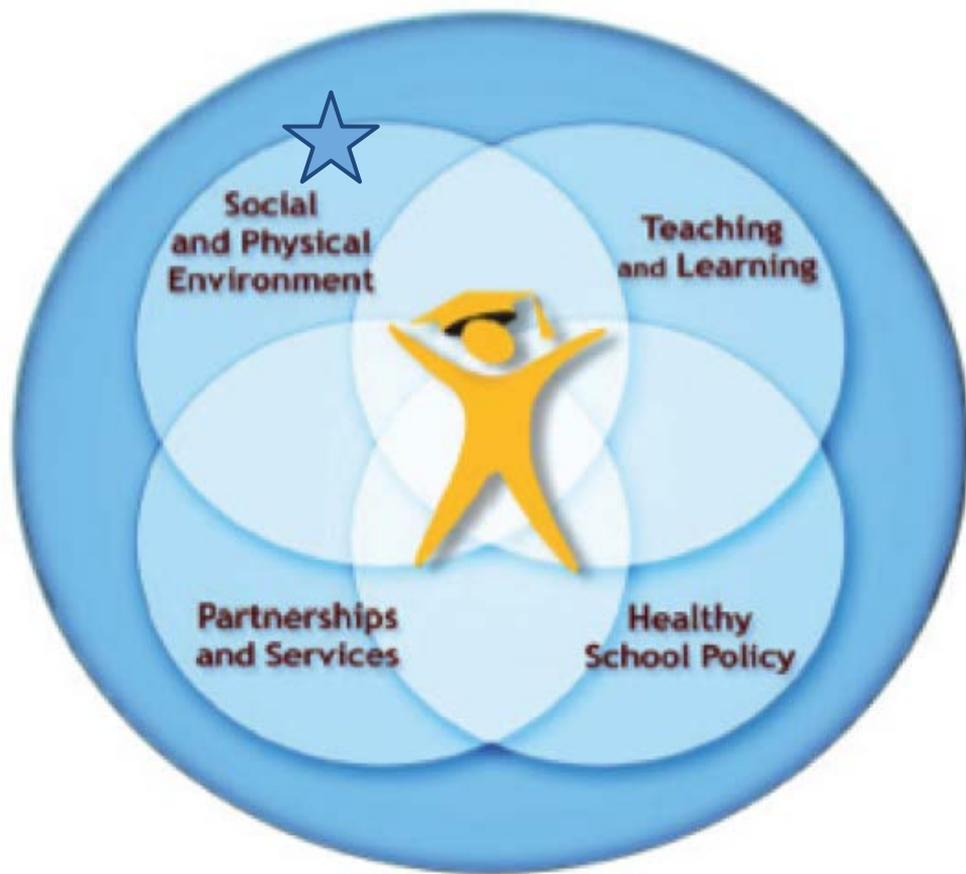


CARDEL  
PLACE



How do we optimize the learning environment for improved health and learning outcomes?





Small changes, big effects!





# Workshop Objectives

1. Develop a deeper understanding of healthy learning environments.
2. Tinker, prototype and test solutions for healthy learning environments.
3. Create an online community of practice to implement solutions on individual, school and sector levels.



CARDEL  
PLACE



# The Socio-ecological Approach



# Socio-ecological Approach



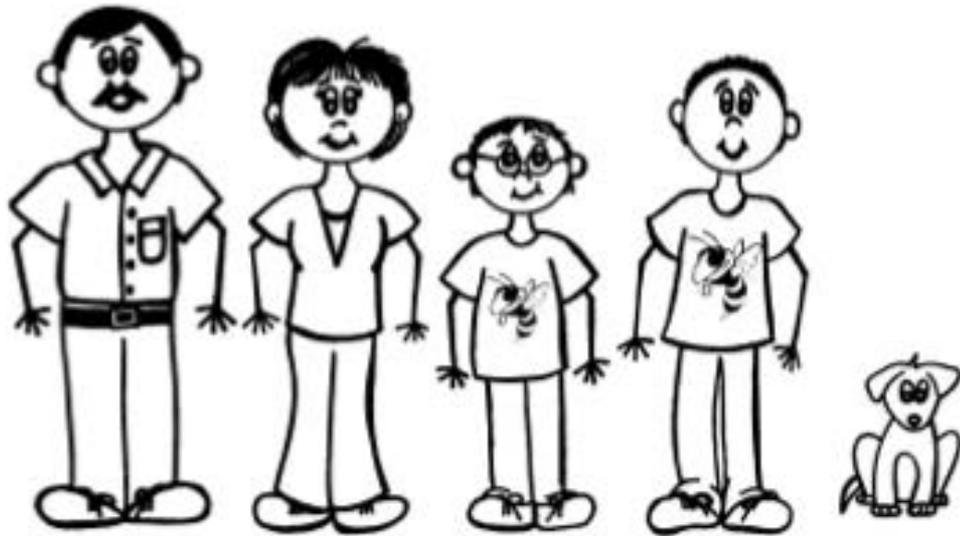
# Socio-ecological Approach



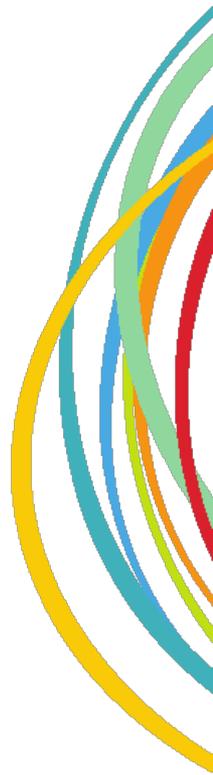
Individual Responsibility



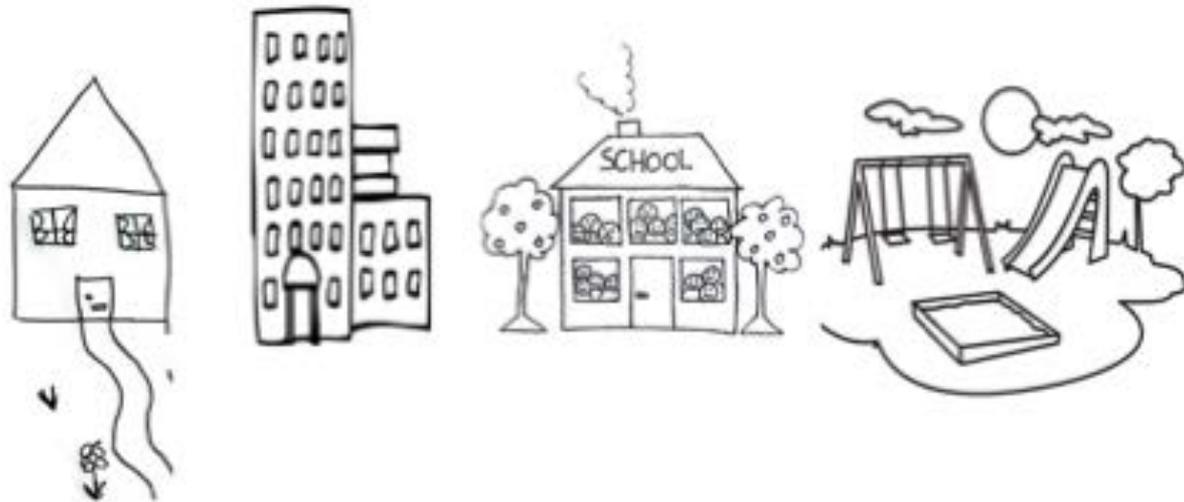
# Socio-ecological Approach



Social & Interpersonal Connection



# Socio-ecological Approach



Supportive Environments



# Socio-ecological Approach



Community



# Socio-ecological Approach



Population



# Rapid-Fire Panel Discussion

Sitting Disease - Trevor Day

Nudge - Nishan Sharma

Bodies in Motion, Brains in Motion - Ryan Kuchler

What Happens on Monday? - Trish Savill

***Trevor Day  
Department of Biology  
Mount Royal University  
tday@mtroyal.ca***

***We all know there is a growing obesity epidemic...***

***But, how bad is it really?***



# ***Obesity Trends Among U.S. Adults Between 1985 and 2010***

***Obesity: Body Mass Index (BMI) of 30 or higher***

***Body Mass Index (BMI): A measure of an adult's weight in relation to height***

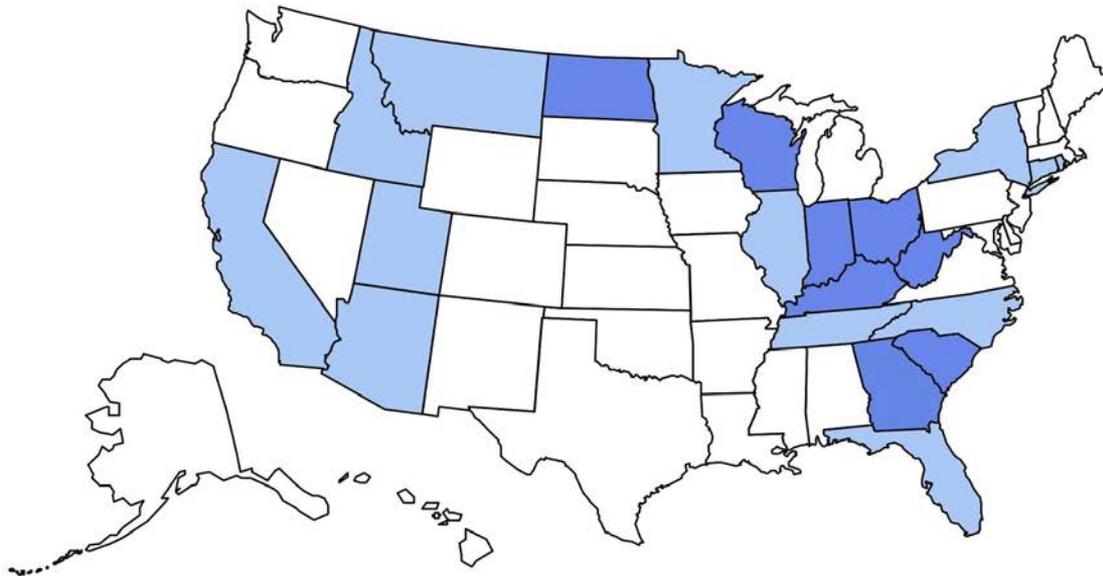
***BMI is expressed in  $\text{kg}/\text{m}^2$***



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1985

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

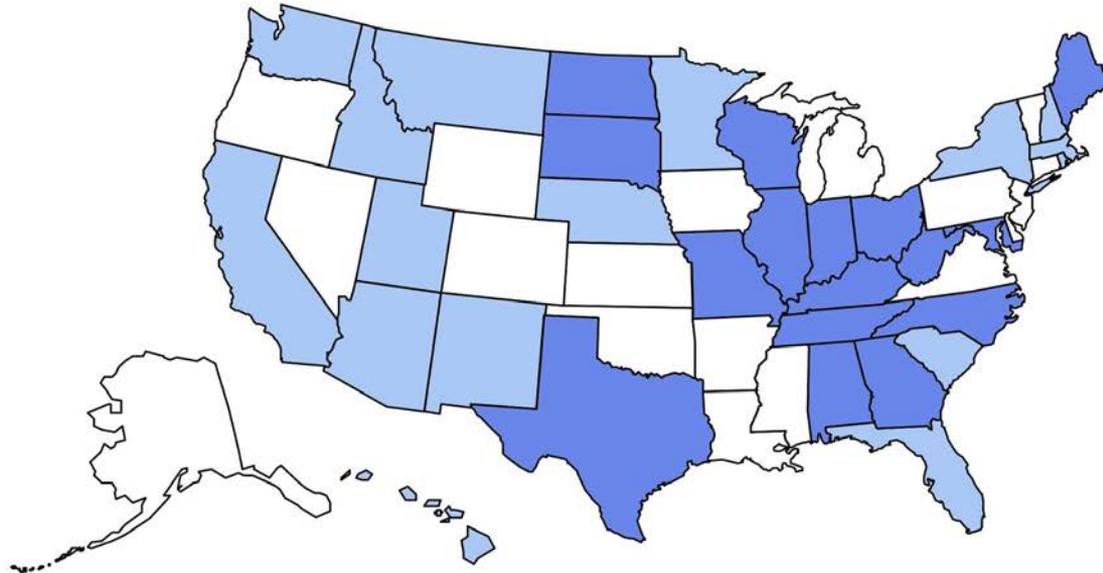




# Obesity Trends\* Among U.S. Adults

## BRFSS, 1987

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.



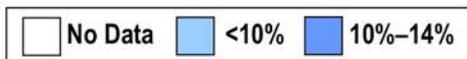
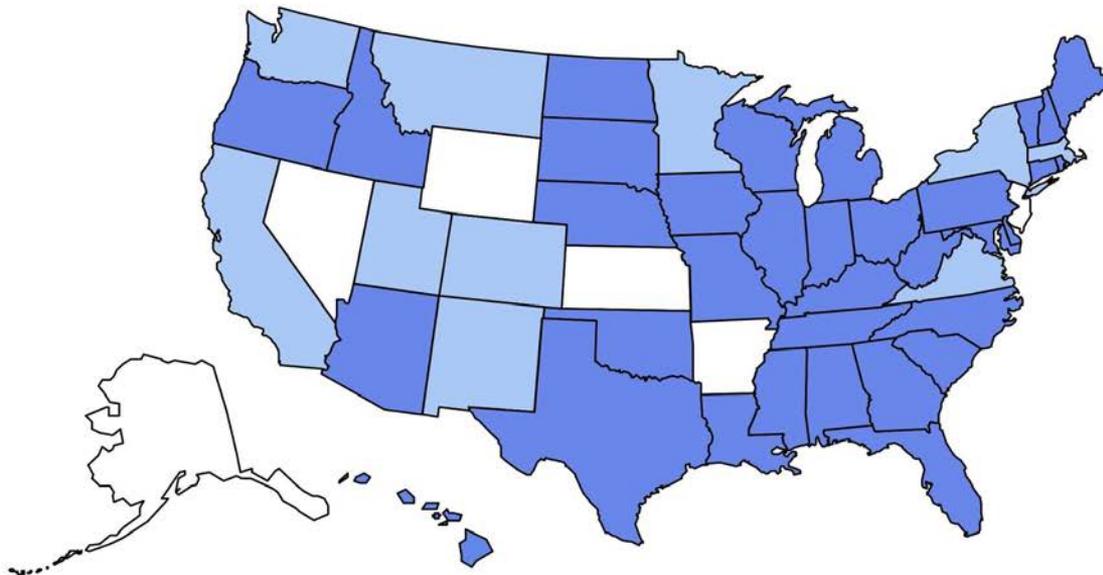




# Obesity Trends\* Among U.S. Adults

## BRFSS, 1990

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



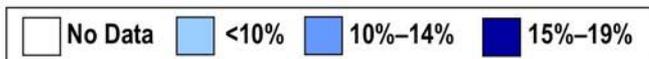
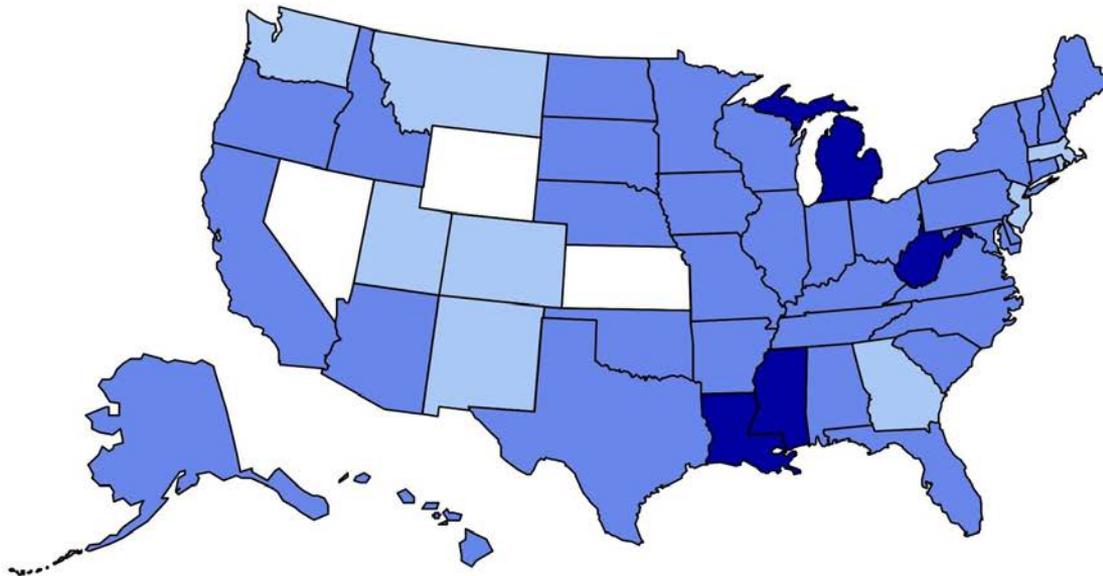
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1991

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



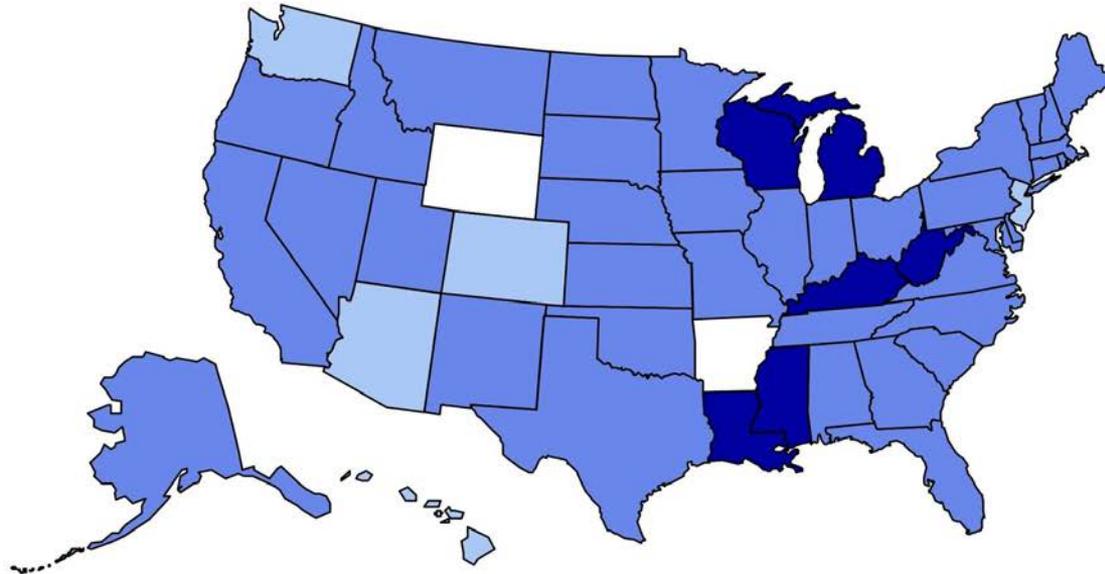
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1992

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



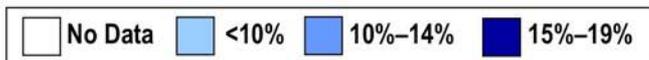
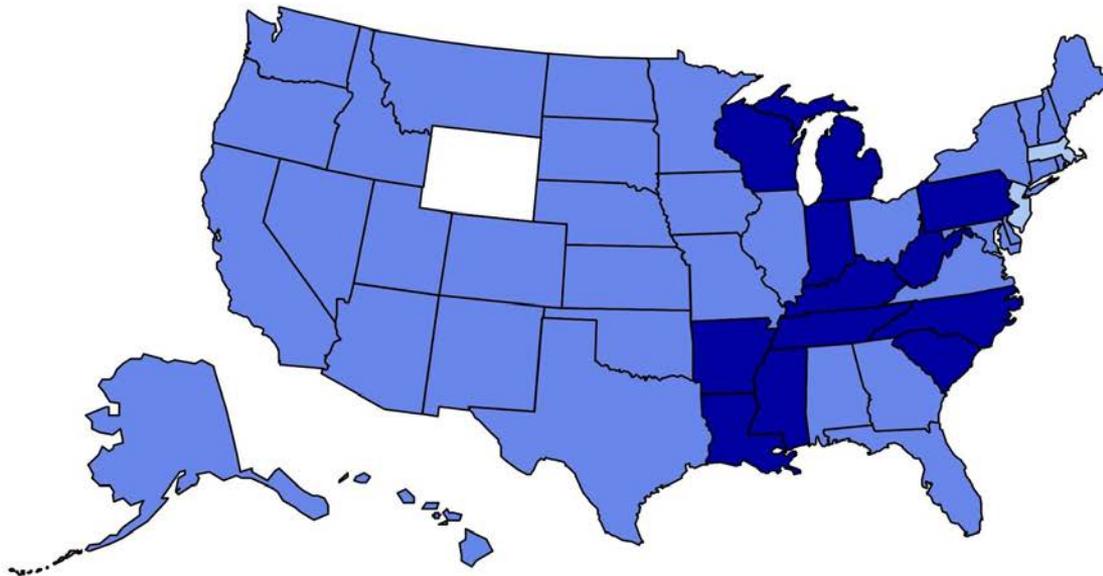
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1993

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



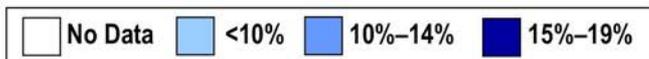
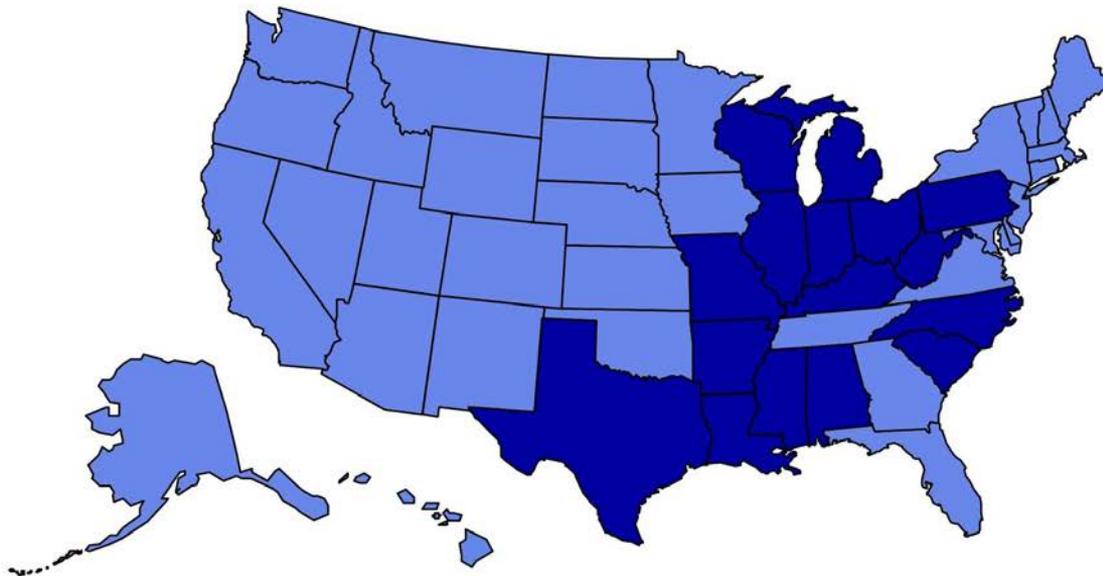
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1994

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



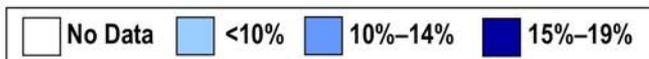
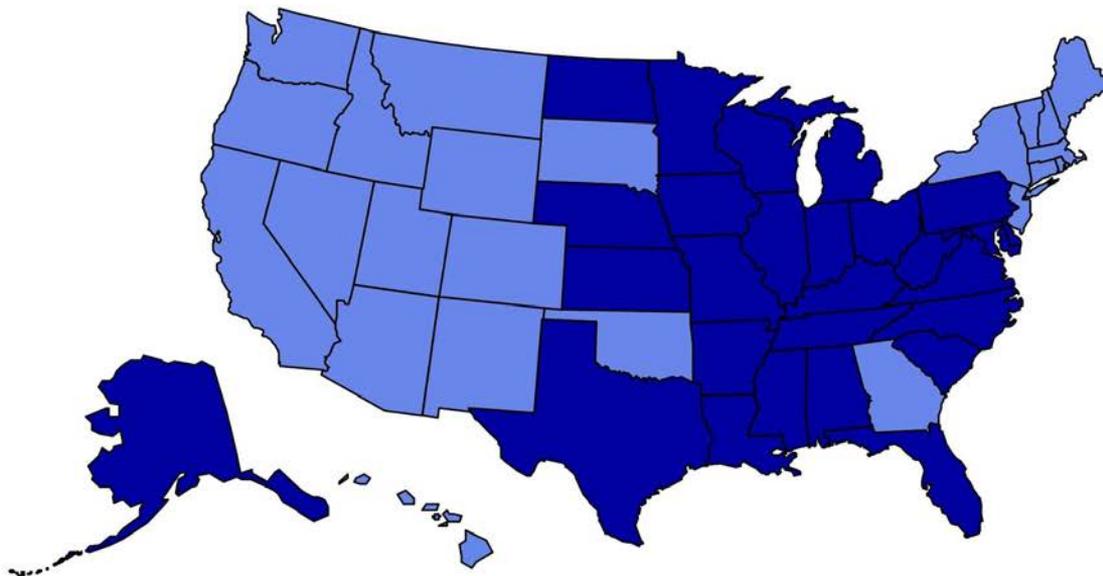
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1995

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

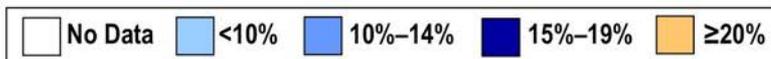
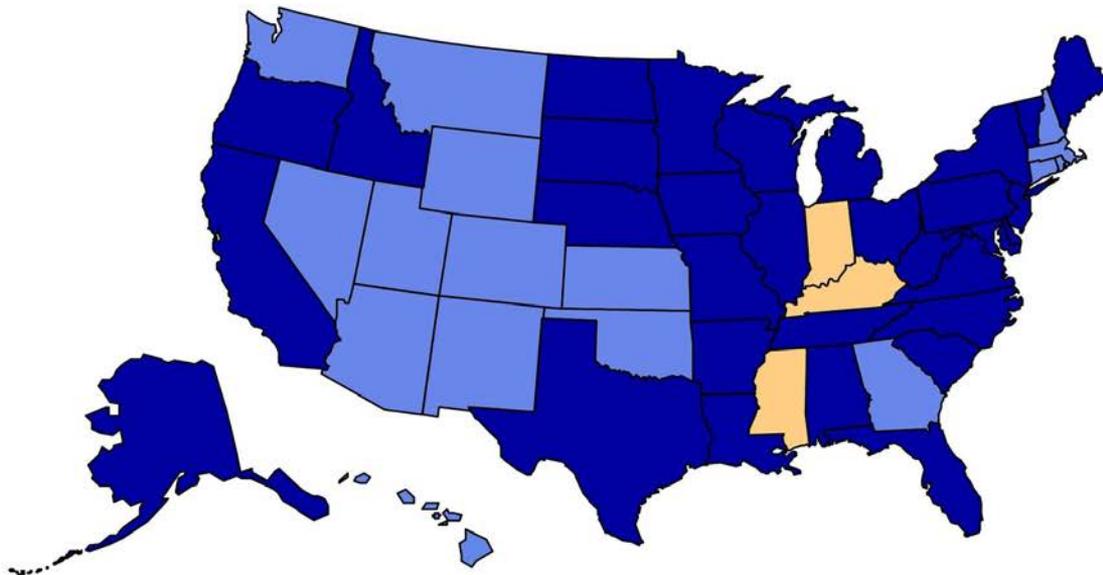




# Obesity Trends\* Among U.S. Adults

## BRFSS, 1997

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

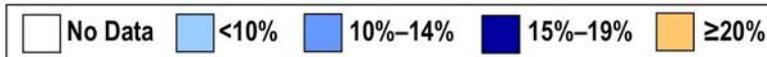
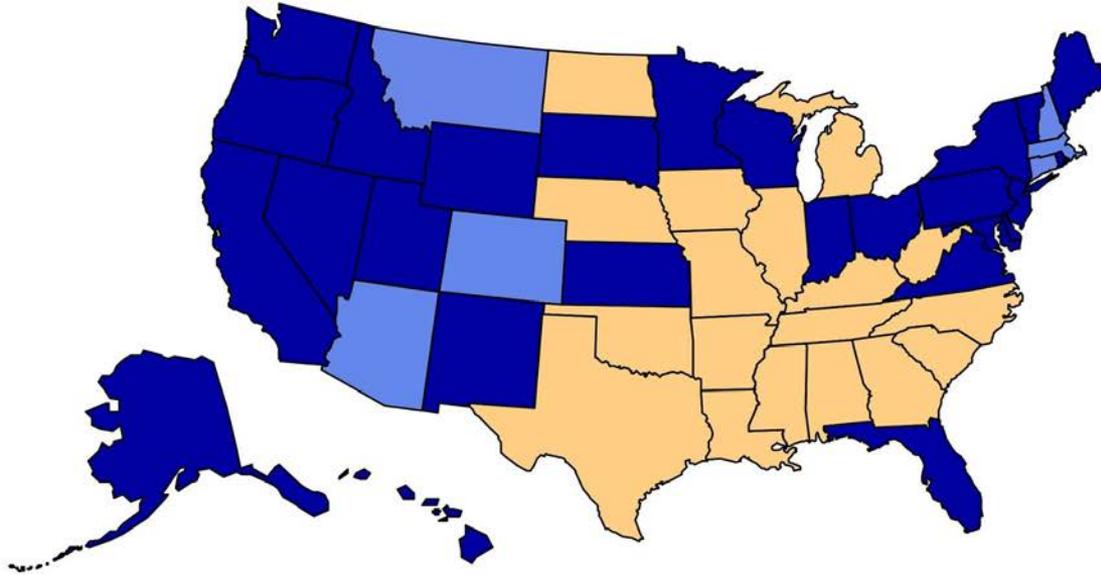




# Obesity Trends\* Among U.S. Adults

## BRFSS, 1999

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



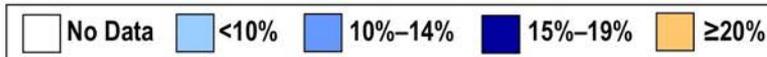
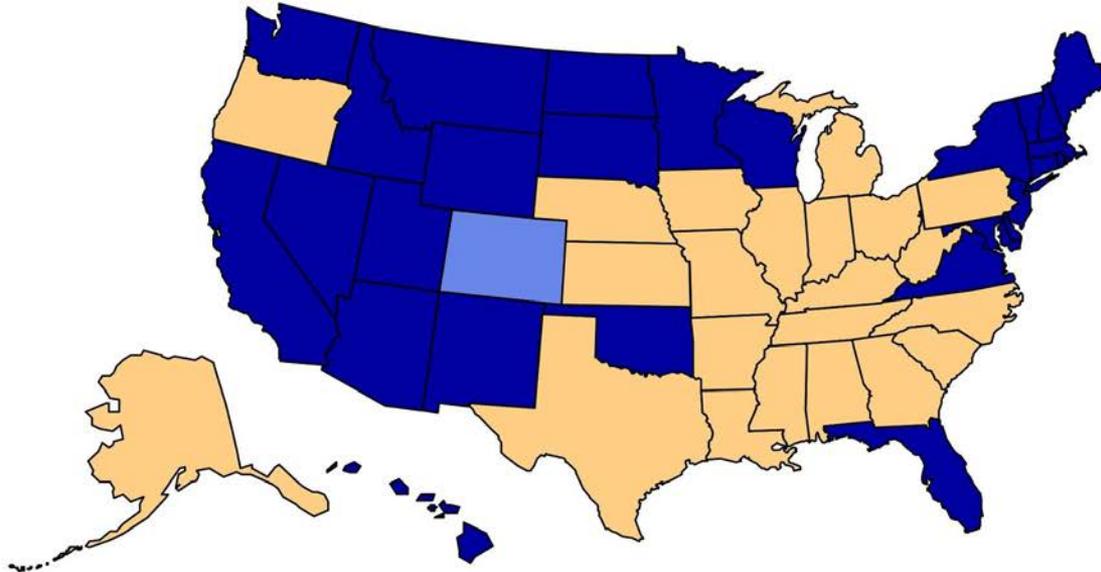
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2000

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

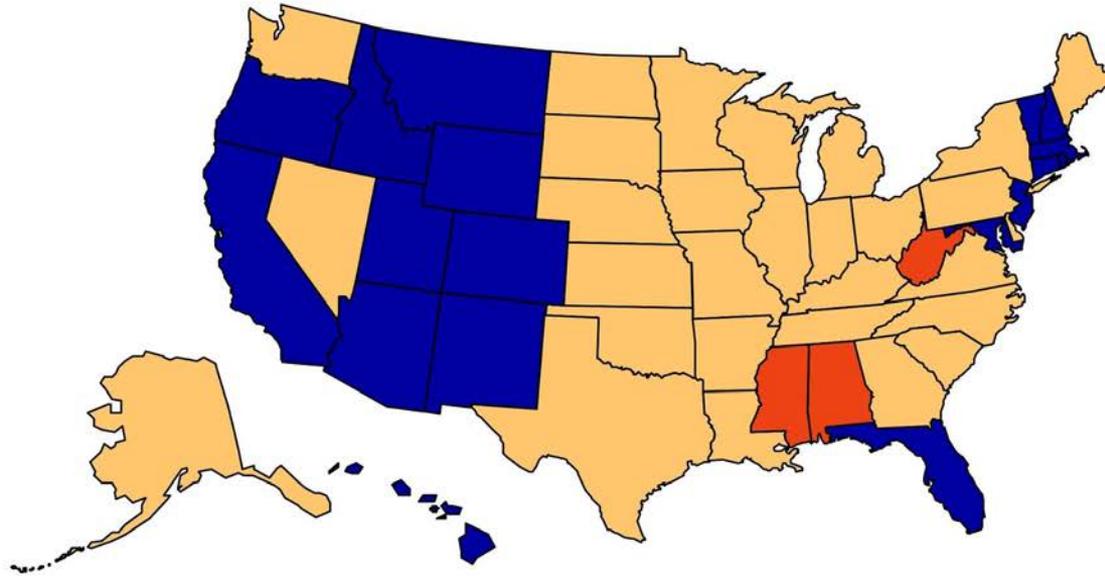




# Obesity Trends\* Among U.S. Adults

## BRFSS, 2002

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

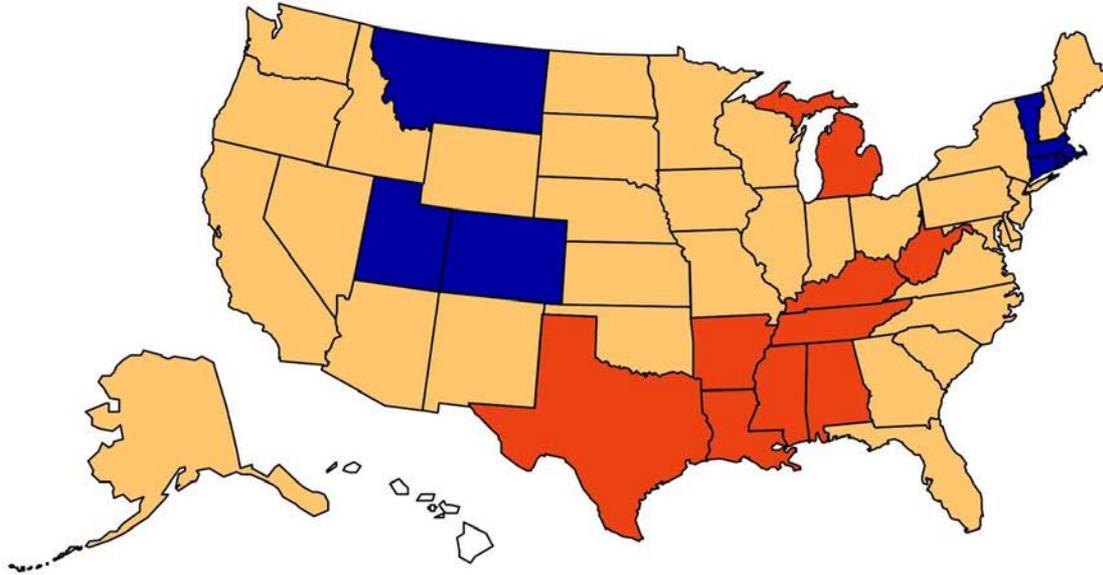




# Obesity Trends\* Among U.S. Adults

## BRFSS, 2004

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



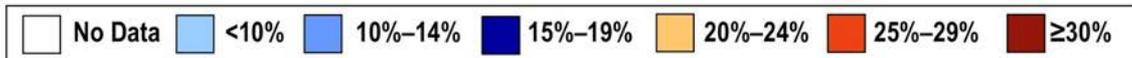
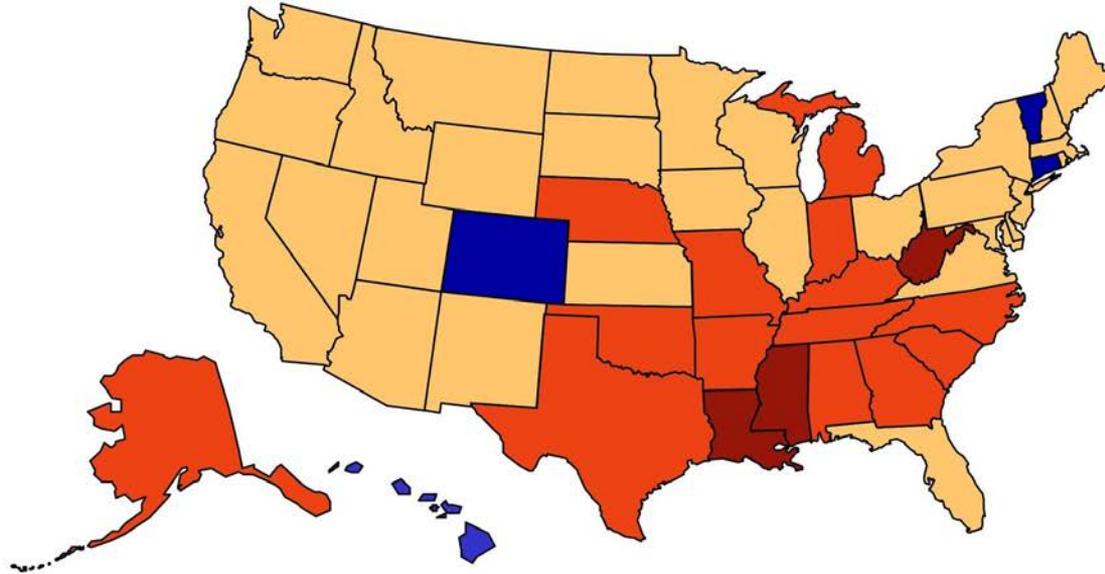
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2005

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



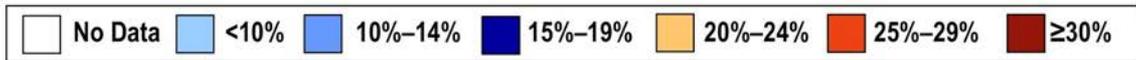
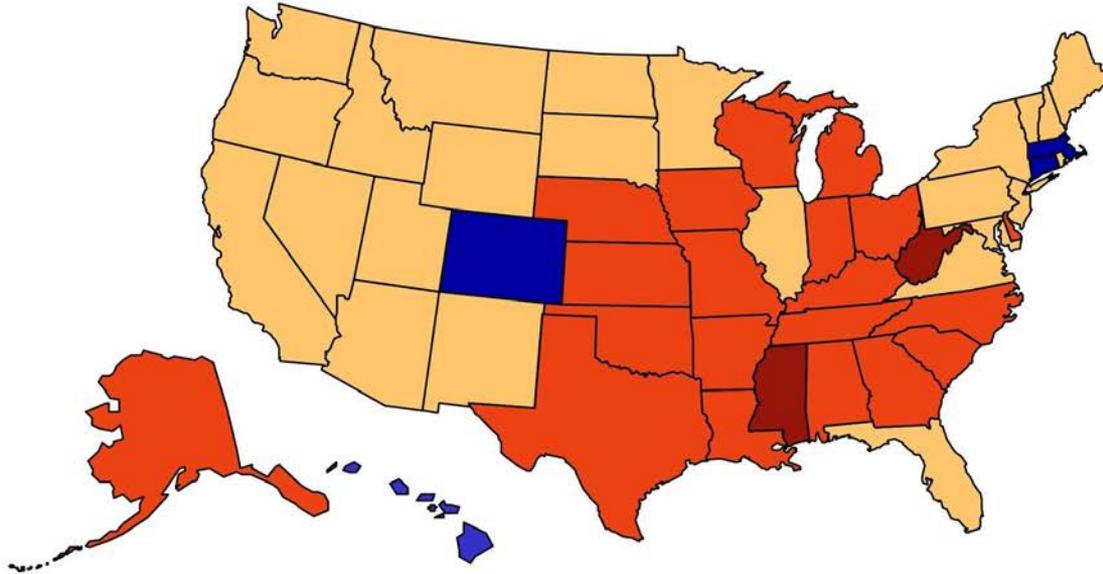
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2006

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



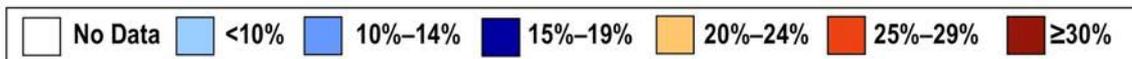
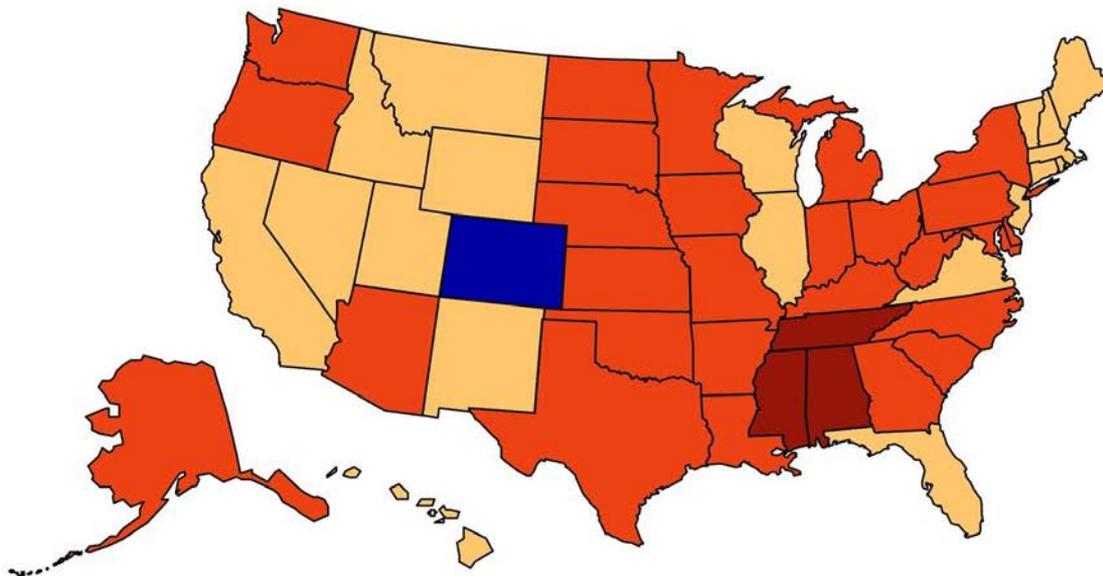
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2007

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



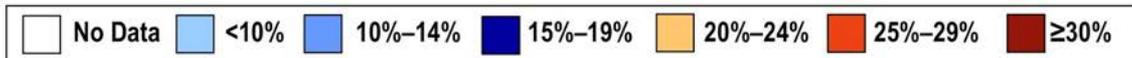
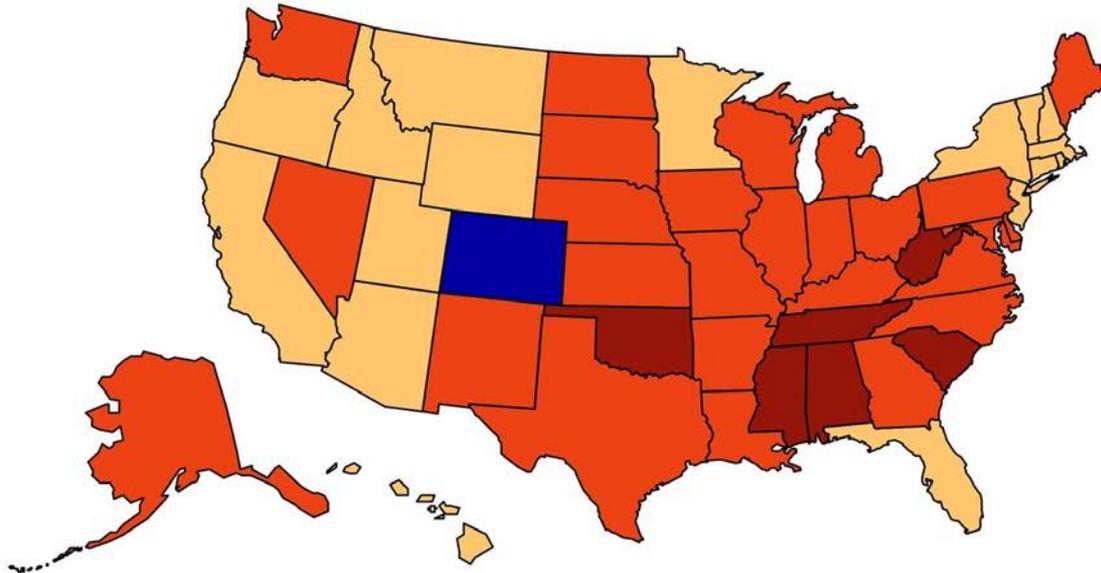
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2008

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



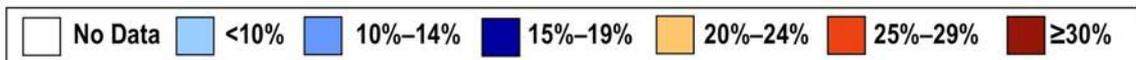
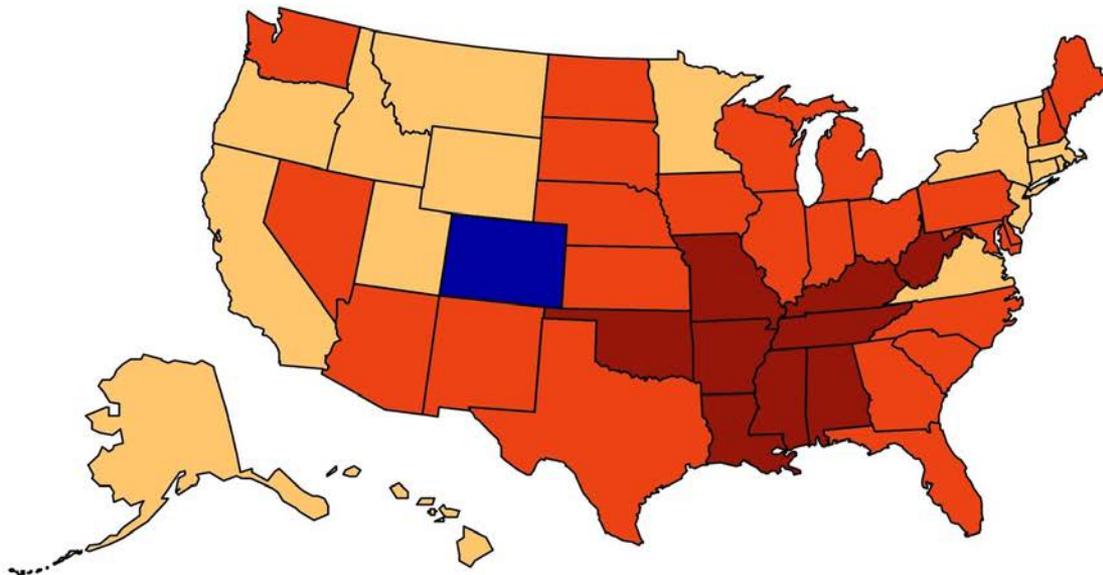
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2009

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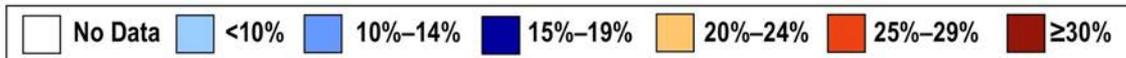
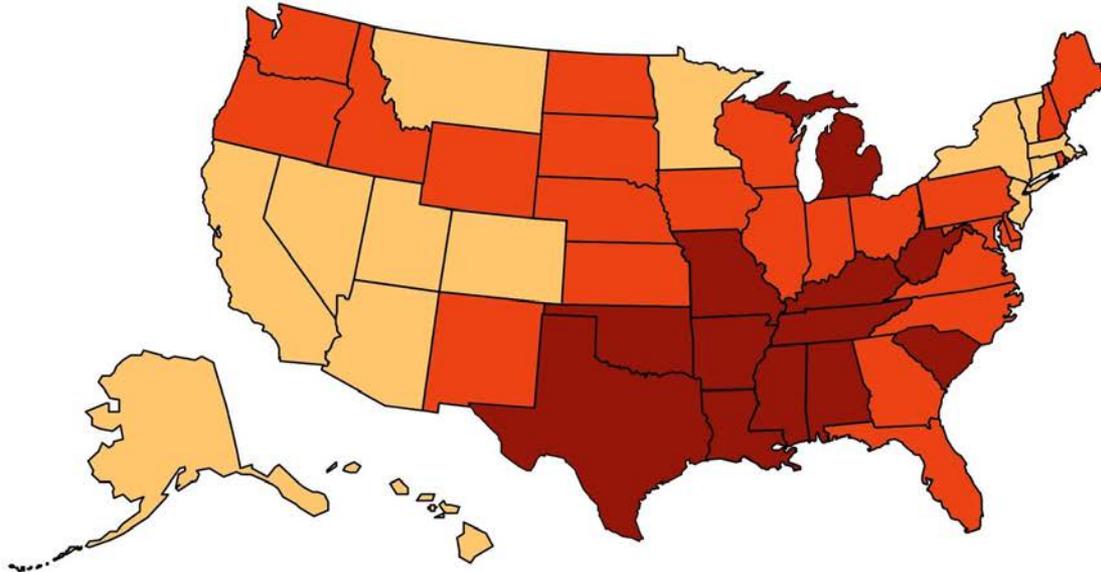
Source: Behavioral Risk Factor Surveillance System, CDC.



# Obesity Trends\* Among U.S. Adults

## BRFSS, 2010

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

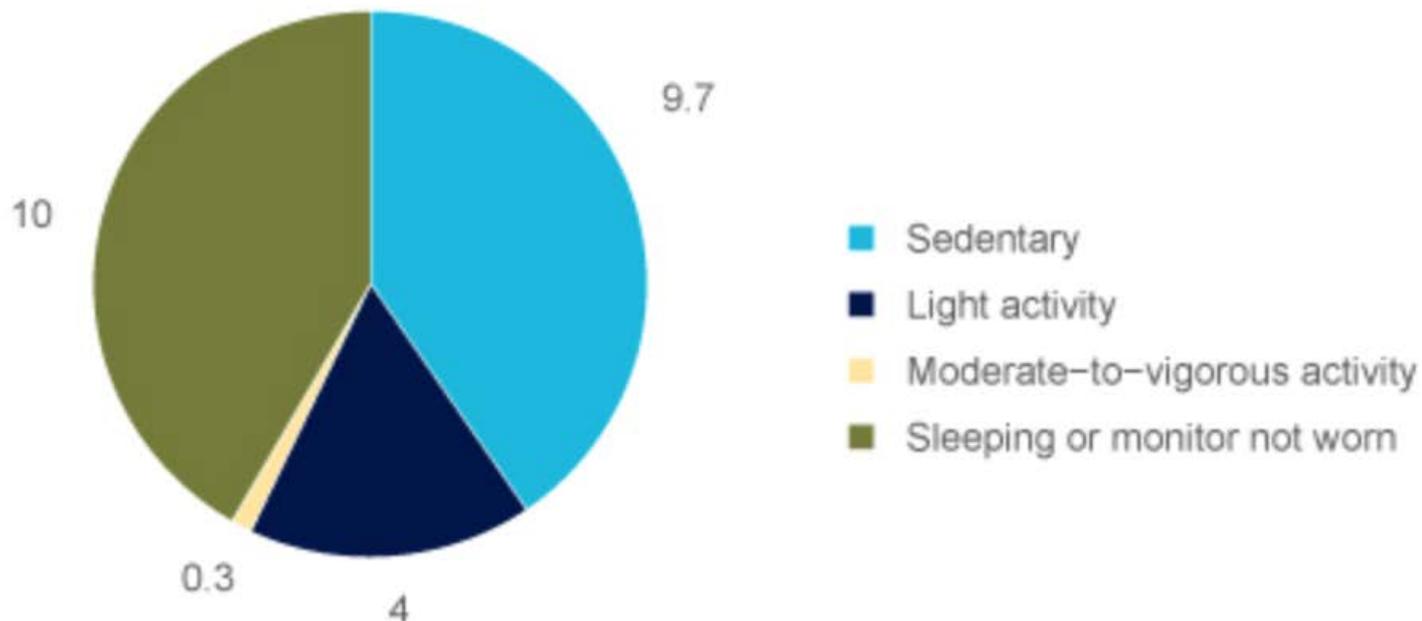


***Previous Projection: 2030 - 30% - BMI over 30***

***As of 2013 - Half the USA is already there!***



## Canadians Spend Little Time Being Active (hours)

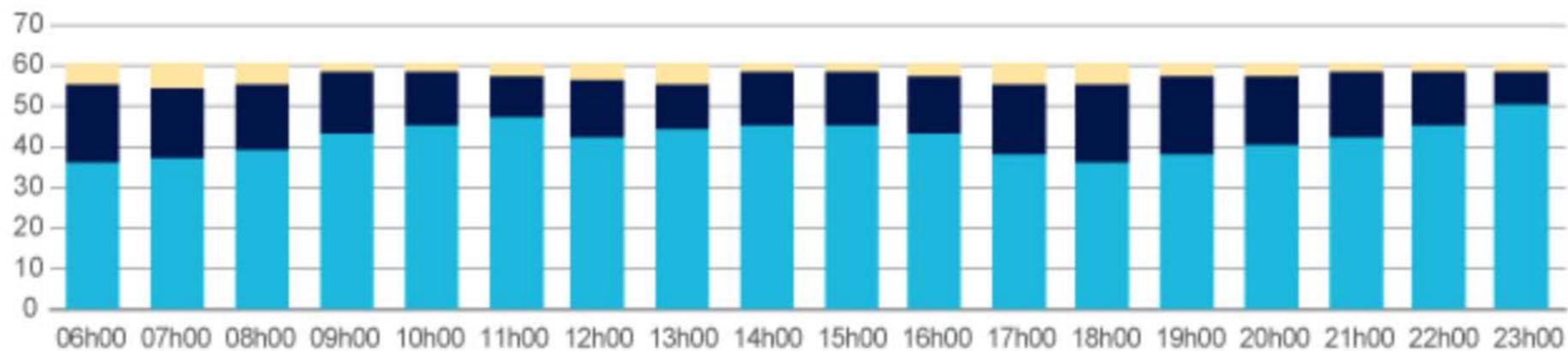


Sources: Colley and others, "Physical Activity of Canadian Adults."

## Activity During Workdays

(minutes of activity)

■ Sedentary ■ Light activity ■ Moderate-to-vigorous activity



Sources: Thorp and others, "Prolonged Sedentary Time."

# ***The Costs of Sedentary Behaviour***

*Accumulating evidence shows that sedentary behavior is associated with increased risk of:*

- Obesity***
- Diabetes***
- Cancer***
- Cardiovascular Disease***
- Lung Disease***
- Depression***
- Back and Neck Pain***
- “All-Cause” Mortality***

*...and increased sick days and costs to the health care system*

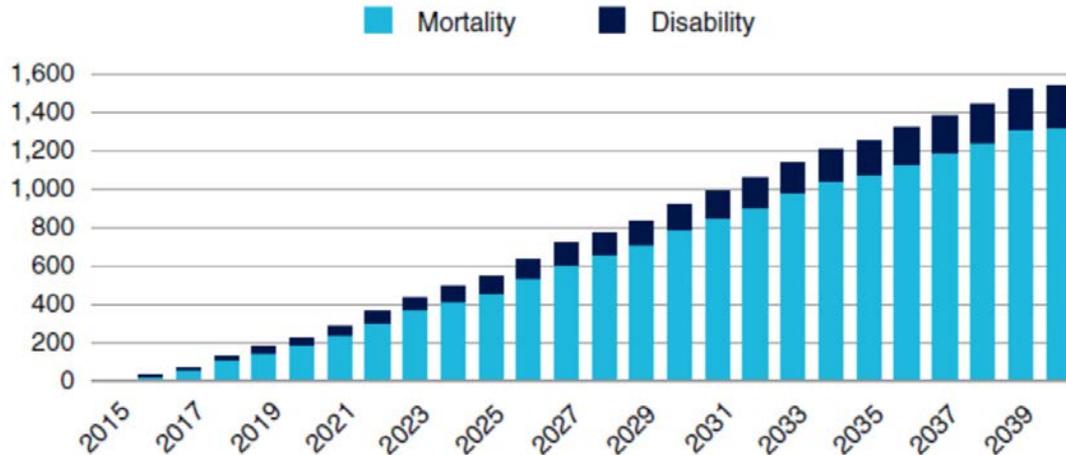
*...and reduced productivity and quality of life*



**2014 Conference Board of Canada Report: *The economic benefits would start to show as early as 2020 - if starting in 2015, 10 per cent of Canadians sit less, walk more each week, and increase their daily physical activity.***

### Economic Impact of Reducing Physical Inactivity and Sedentary Behaviour

(change in GDP; 2013 \$ millions)



***The Solution***

***EXERCISE***



# ***The Solution***

***EXERCISE***



***Too much sedentary behaviour is  
distinct from too little exercise***



# ***METABOLISM***



**INPUT (kcal consumed)**

**OUTPUT (kcal spent)**



## ***Three Components to Energy Expenditure:***

- ❑ ***Basal Metabolic Rate: Core body functions, at rest (~60%)***
- ❑ ***Thermic Effect of Food: Cost of digesting, absorbing and storing food (~10%)***
- ❑ ***Activity Thermogenesis: Exercise and non-exercise thermogenesis (NEAT)***



# ***METABOLIC EQUIVALENT OF TASK (MET)***

*A unit of relative energy cost of any activity  
(Aisnworth et al. 2011)*



# ***The Compendium of Physical Activities***

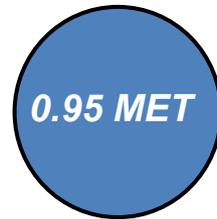
***[sites.google.com/site/compendiumofphysicalactivities](https://sites.google.com/site/compendiumofphysicalactivities)***

***1 MET = Basal Metabolic Rate  
1 kcal/kg/hour***



# ***SLEEP***

*0.95 MET*

A blue circle with a black outline, containing the text "0.95 MET" in white, italicized font.

# ***LYING AWAKE***



***1.0 MET***



# ***SITTING QUIETLY***

***1.3 MET***

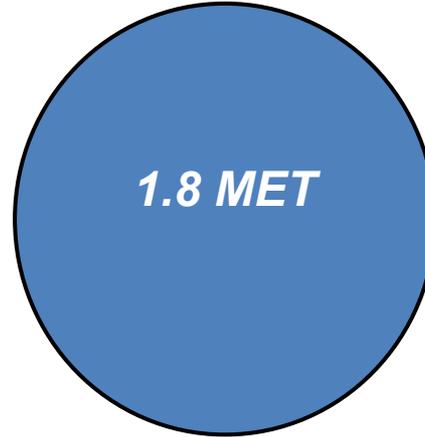


# ***SITTING, FIDGETING***

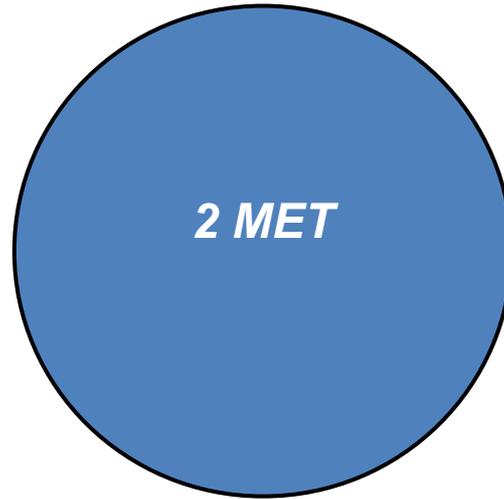
***1.5 MET***



# ***STANDING, FIDGETING***

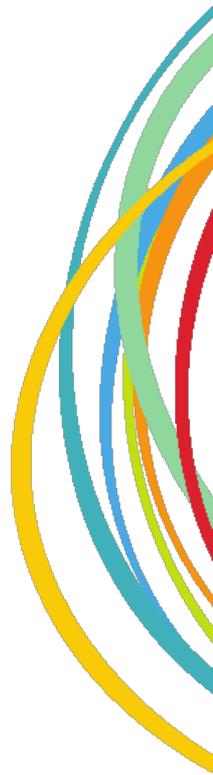


***WALKING UNDER 2  
MPH***



# ***ACTIVE WORKSTATION TREADMILL DESK WALKING***

***2.3 MET***



# ***WALKING OVER 2 MPH***

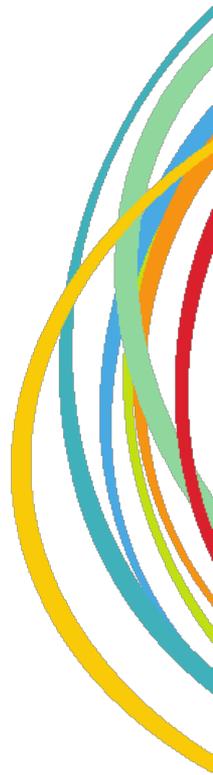
***2.8 MET***



ACTIVITY	MET
Sleeping	0.95
Lying quietly, watching television	1
Sitting quietly, watching television	1.3
<i>Sitting quietly, fidgeting hands (e.g. computer work)</i>	<i>1.5</i>
<i>Standing, fidgeting</i>	<i>1.8</i>
Walking, less than 2.0 mph, level plane, very slow	2
<i>Active workstation, treadmill desk, walking</i>	<i>2.3</i>
Walking, 2.0 mph, level plane, slow pace	2.8

*20% INCREASE!*

*65% INCREASE!*



## **OUR CHALLENGE TO YOU:**

***Increase your MET from 1.0 to 2.0 for  
TWO HOURS PER DAY***

***Equates to an 8% increase in energy expenditure***

***15 lbs fat loss (burned) in one year!***

***...and reduces your risk of obesity, diabetes, cancer,  
cardiovascular and lung disease, depression, death...***



***WHERE DO I START?***



Nishan Sharma

We want to make you **uncomfortable** sitting and listening to us...

**Stand** if/when you believe that sitting is killing you.



Our emphasis is on the workplace (and maybe tips for you), but hopefully...

We can help you to help kids develop better habits for their futures...

The Riddell Library and Learning Centre  
Mount Royal University  
Open early 2017



Many of us have lives that look like this...



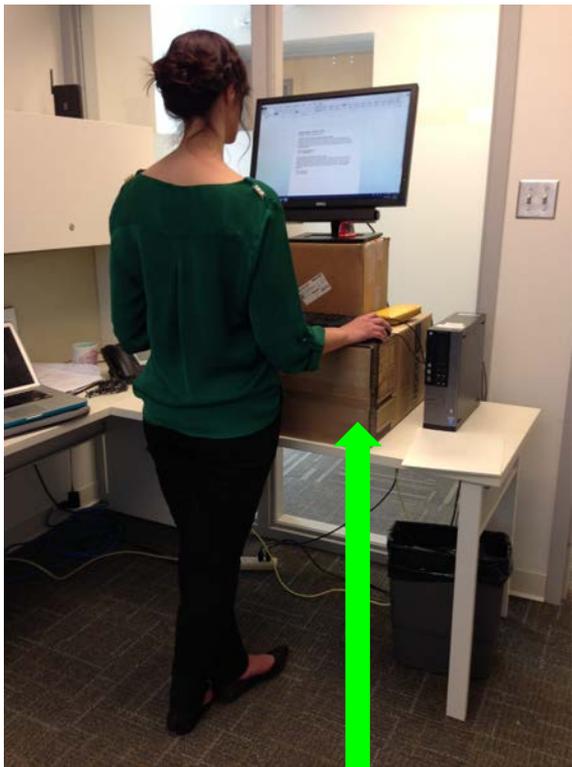
So, where can you make the **biggest impact** on your sedentary behaviour **without** compromising leisure time, sacrificing dinner with the family, moving closer to work?

What about **where you sit most**, where you have a little control, and where you have to be anyway?  
At work (or school)



Some options to break up those long sedentary periods at your desk...

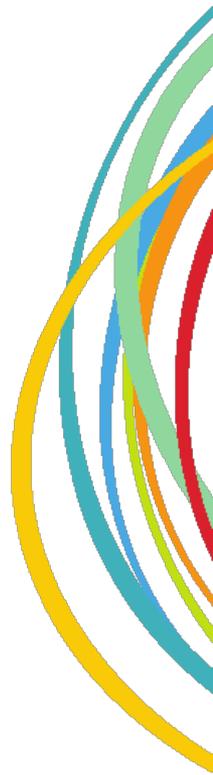




\$0



**StandStand**  
**\$50**

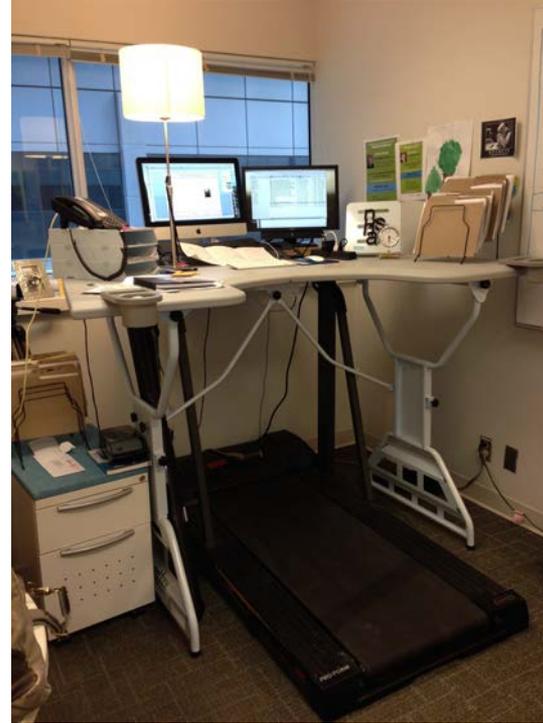




More Views

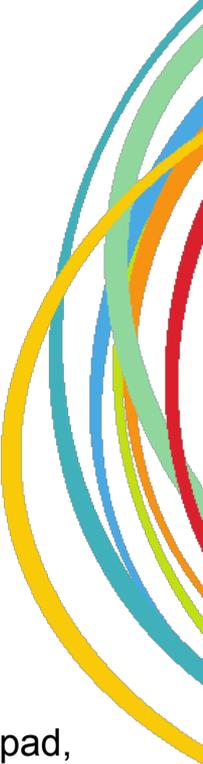


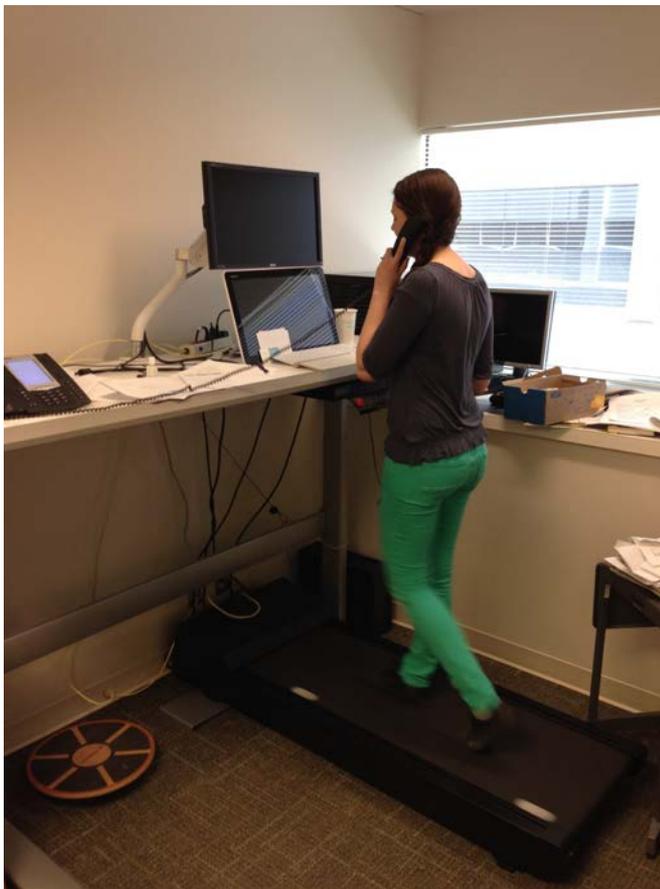
**Varidesk**  
**\$300**



**TrekDesk**  
**\$700**

Add a treadmill, pad,  
balance board, stepper...





**\$4200**

quiet treadmill

power height-adjustable desk

stability arm for monitor



But let's face it - there are **space, financial, and social barriers** to overcome

So here are some things you can do starting Monday to reduce your sedentary behaviour...

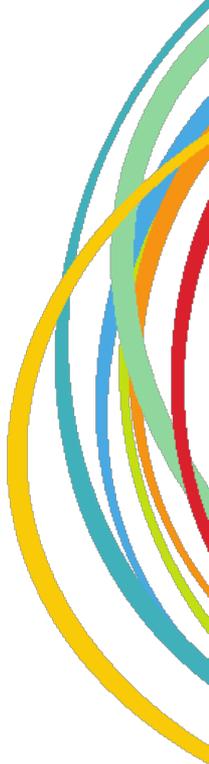


Put a stickie on your phone that says:

**STAND UP!**

Cost: nil

Social awkwardness: nil



1. **Keep a water bottle at your desk**
2. Drink frequently
3. Follow nature's course

Cost: the water bottle

Social awkwardness: mild

Bonus: hydration





## Stand up when someone comes to chat/meet

Cost: nil

Social awkwardness: nil

Bonus: shorter meetings





## Walking meetings

Cost: nil

Social awkwardness: mild





## Park further away

Cost: nil

Social awkwardness: nil

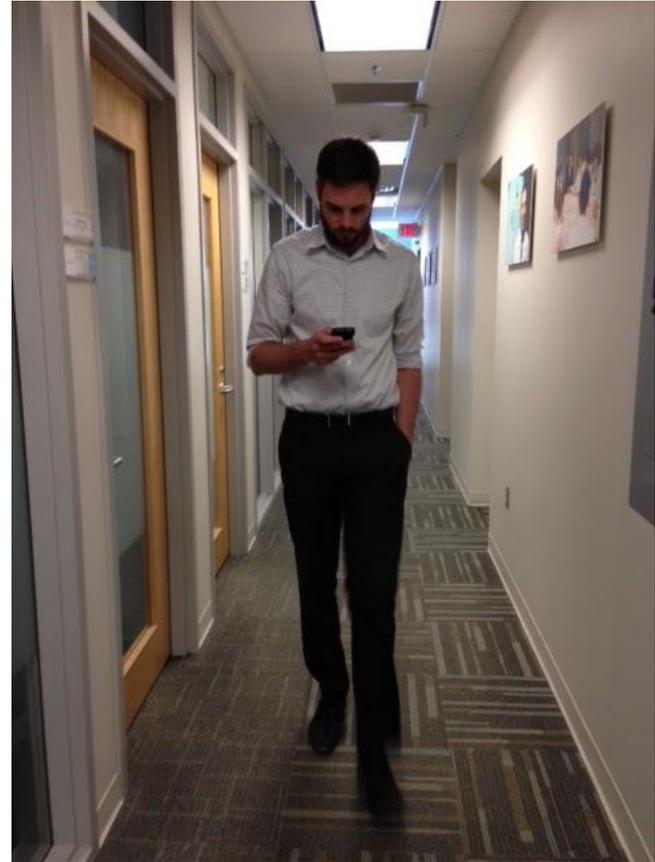
Bonus: probably get to desk  
same time



Pick a routine task (like email) to do on your phone

Cost: nil

Social awkwardness: nil



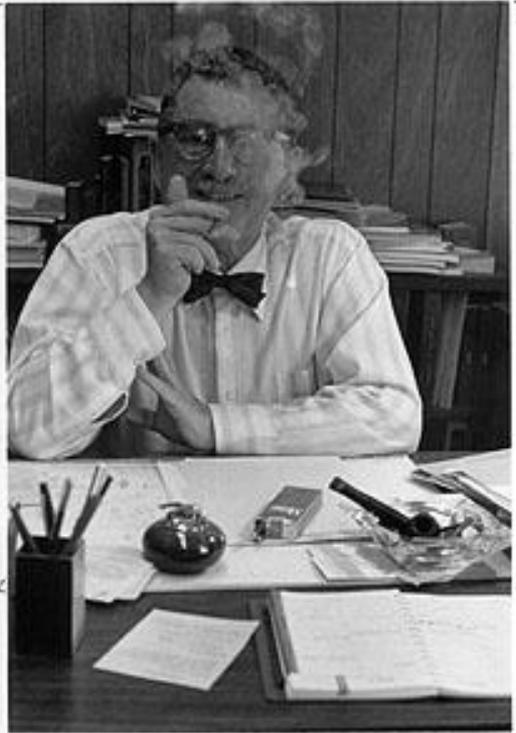
We are only saying what others are saying, and what is in the **evidence**.

We want to **change things so this is not the norm...**



**Too big of a cultural shift?** Maybe, but remember, **this** was once “normal” too...





**Thank you!**

Nishan Sharma

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@NishanSharma29

[www.breakupyourday.com](http://www.breakupyourday.com)

@breakupyourday



# RETHINK SCHOOL FURNITURE

Did you know...

**VS**



Active sitting  
supports  
physical &  
mental health



Students sit  
on average  
9hrs/day



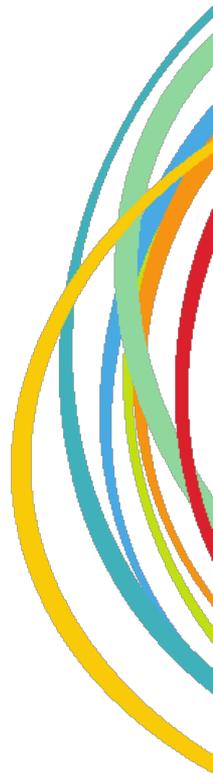
Ergonomic  
standards  
not applied  
in schools

WILLIAM MORRIS  
OFFICE SOLUTIONS  
INC.

**Bodies in motion = Brains in motion.**

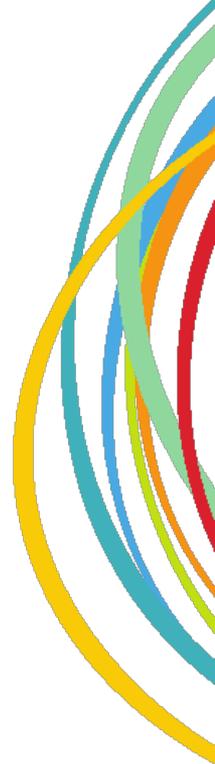


**ACTIVE SITTING SUPPORTS  
BETTER HEALTH AND  
COGNITIVE FUNCTION**





**21ST CENTURY  
LEARNING ENVIRONMENTS**



# Kids Love to Move





“Must we always teach our children with books? Let them look at the stars and mountains above. Let them look at the waters and trees and flowers on Earth. Then they will begin to think, and to think is the beginning of a real education.” Polis



**Invite experts into your space**





**STAND**





**Move to a comfortable place on the floor**



**Students use their bodies to represent their learning**



**Brain Gym**





**The sidewalk as a recording device**



**Learning comes to life in the playground**





**Uncover concepts with a community walk**





**Discover your local natural area**





**What happens when you move the furniture aside?  
Ask your students what makes a good learning space.**



CARDEL  
PLACE



# Piloting, Testing and Tinkering

Rapid Idea Generation - Kris Kelly-Frère



# RIG\*

idea generating workshop



A RIG\* IS A PHYSICAL BRAINSTORM

• We Build Ideas Together •

+

FOCUS ON REFRAMING OUR PERSPECTIVES

~~FOCUS ON REFRAMING OUR PERSPECTIVES~~

GENERATE Lots  
of IDEAS around  
A SPECIFIC CHALLENGE,  
TOPIC OR OPPORTUNITY.

SHOW NOT TELL  
PHYSICALLY MANIFEST  
SO THAT EVERYONE CAN  
SEE.

Remind you that there  
is Joy in the work,  
AND THAT other people  
CAN BE A RICH SOURCE  
OF IDEAS + CAPACITIES



• THIS IS A FRIENDLY  
SPACE

- RESPECT
- NO JUDGEMENT
- FAIL POSITIVE

RIG\* GROUND RULES

• IDEA COMMONS •

- the work belongs to everyone
- TAKE it, RUN with it
- RIFF, inspire, iterate

STEAL

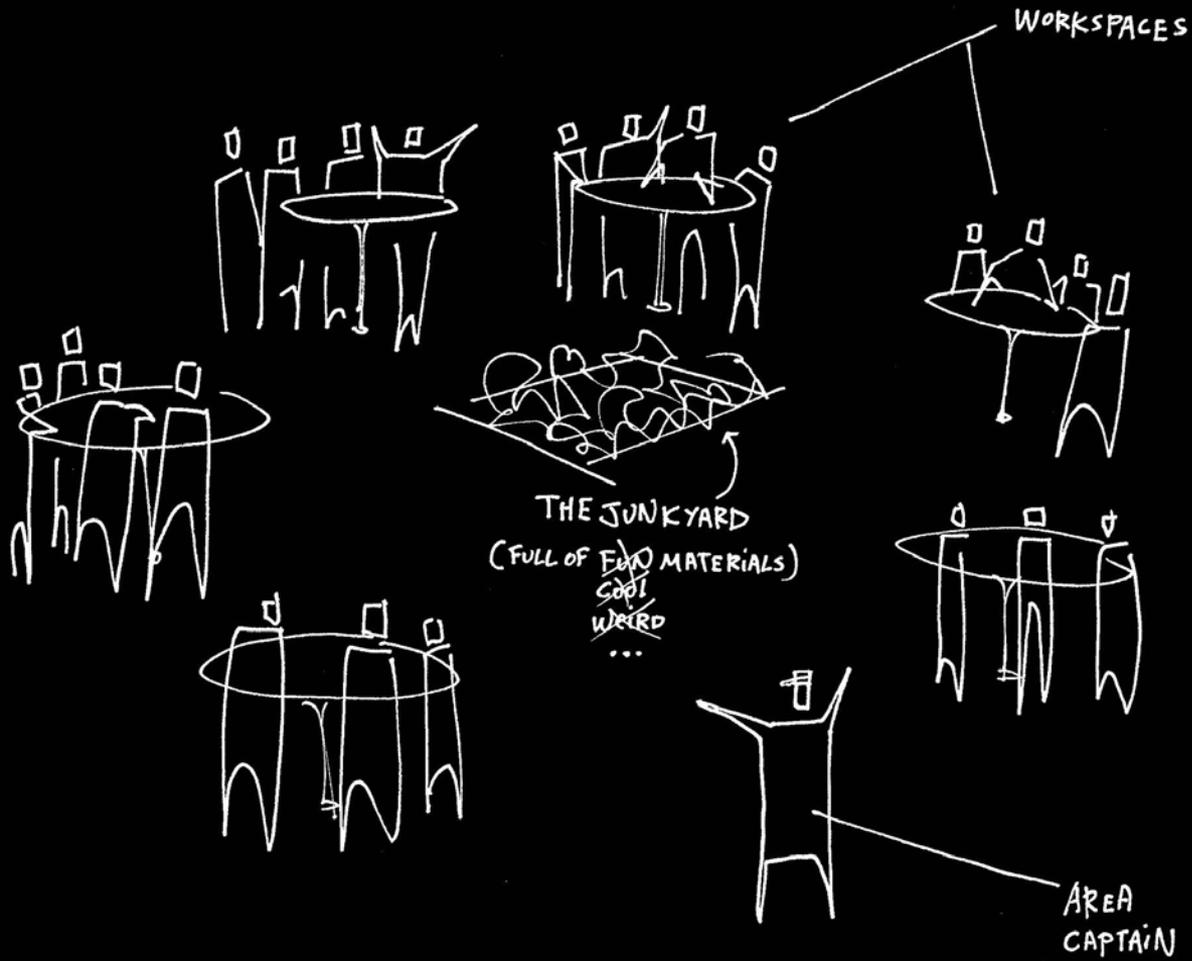
• ALL-IN - EVERYONE •

- WE ALL PARTICIPATE
- WHAT HAPPENS HERE, STAYS HERE
- LEAVE YOUR TITLE AT THE DOOR

• MAKES SPACE TO BE CREATIVE •

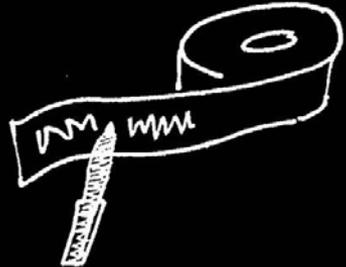
- no distractions
- you CAN go Anywhere From  
Anywhere
- Anything can be Anything





# THINK OF TWO WORDS ②

- FIRST THINK OF A VERB THAT SOUNDS FUNNY
- THINK OF AN ANIMAL

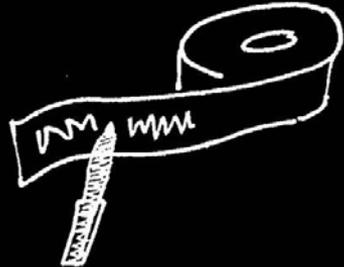


Write it on  
the DUCT TAPE



# THINK OF TWO WORDS ②

- FIRST THINK OF A VERB THAT SOUNDS FUNNY
- THINK OF AN ANIMAL



Write it on  
the DUCT TAPE



WEAR IT PROUDLY  
Your team must  
use these names.





potato



tomato

THINGS ARE NOT WHAT THEY SEEM



You've just invented \_\_\_\_\_,

AND it is going to CHANGE the WORLD.

oh... and you just got invited to share it on the  
home shopping network...



You've just invented \_\_\_\_\_,

AND it is going to CHANGE the WORLD.

oh... and you just got invited to share it on the  
home shopping network...

INTRODUCE YOURSELF | tell us ABOUT YOUR  
invention | GIVE it A NAME



# ROUND 1

- Go to a TABLE - MAKE A GROUP OF 3 or 4 people
- OPEN ENVELOPE #1
- You HAVE 10 minutes to build your idea.

GO!



## SHOW (AND TELL)

US ABOUT YOUR IDEA.

(GIVE it A Title)



## Document

WHAT YOU CAME  
UP WITH ON  
THE CHALLENGE  
SHEET



## Celebrate +

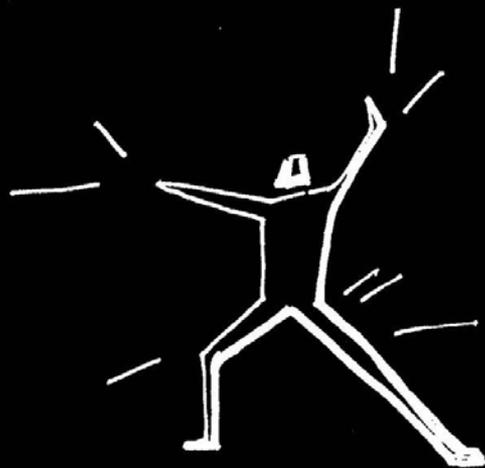
## Take it APART

SEND YOUR IDEAS  
OUT INTO THE COMMONS  
DISMANTLE EVERYTHING.



# How to survive a surprise dance party

BE THESE 3 CHARACTERS



THE FEARLESS  
TODDLER



THE "COOL"  
ONE



THE ROLLERCOASTER



# ROUND 2

- GO TO A NEW TABLE AND MAKE A NEW GROUP
- OPEN ENVELOPE #2
- YOU HAVE 10 minutes to build your idea.

Go!



## SHOW (AND TELL)

US ABOUT YOUR IDEA.

(GIVE it A Title)



## Document

WHAT YOU CAME  
UP WITH ON  
THE CHALLENGE  
SHEET



## Celebrate +

## Take it APART

SEND YOUR IDEAS  
OUT INTO THE COMMONS  
DISMANTLE EVERYTHING.



i like



i wish



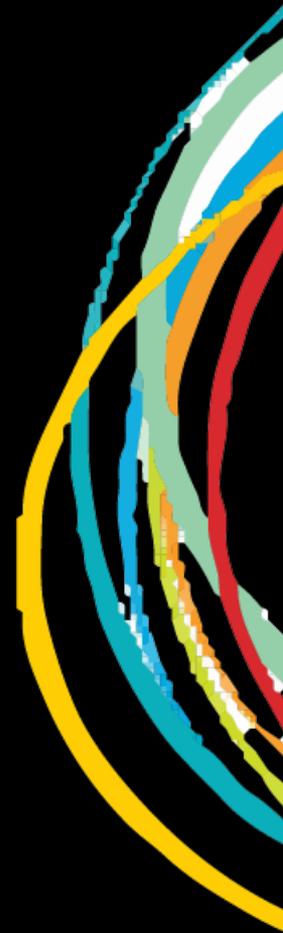
WHAT IF?



AHA!



How Do you DEFINE PROGRESS?



WHY IS THIS KIND OF THINKING  
IMPORTANT?



WISDOM : THE ABILITY to  
See WHAT NEEDS to be done, AND to Do it Successfully,  
Without being told WHAT to Do.

- JOHNNY MORGAN, INVIT ELDER: SILATUNIRMUᑦ, 1991



YOU ALREADY HAVE THE CAPACITIES  
to be helpful. It's time to  
get to work.

