

How about:

- Walking meetings?
- Chewing gum?
- Taking stairs?
- Doing the dishes?
- Playing Wii with your kids?
- Not using a remote for everything?
 - TV, Garage Door, Stereo, DVD




5 minutes

- Think of ways to be active
 - Work
 - Home
 - School



Why are these activities important?

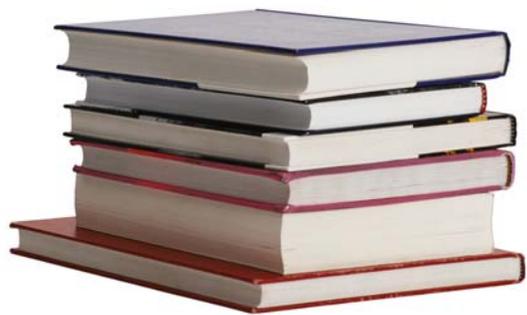
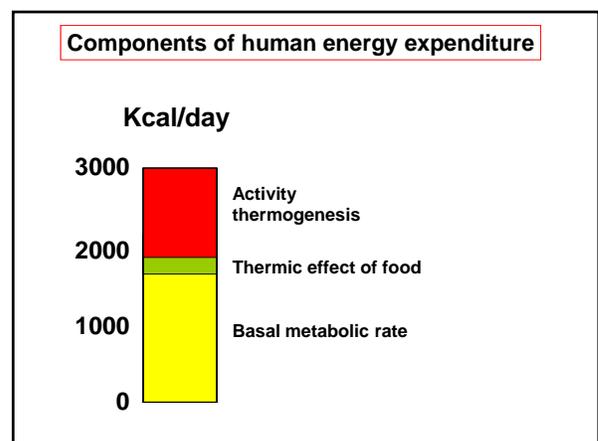


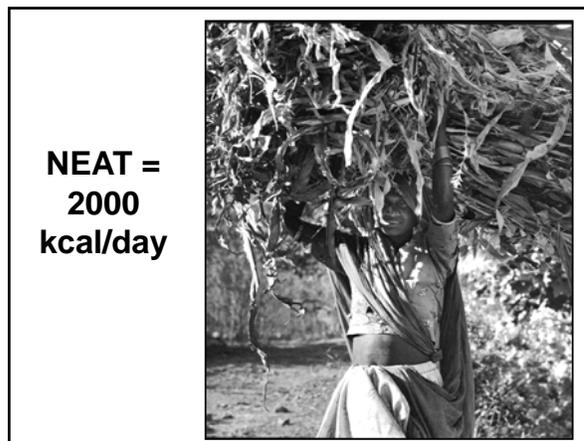
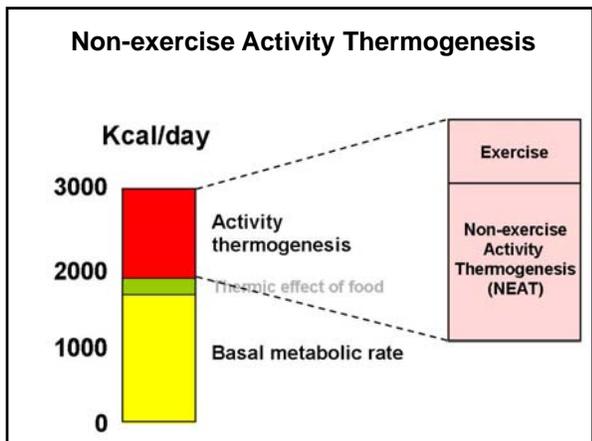
Why are these activities important?



They are NEAT

A quick Non-Exercise Activity Thermogenesis Education

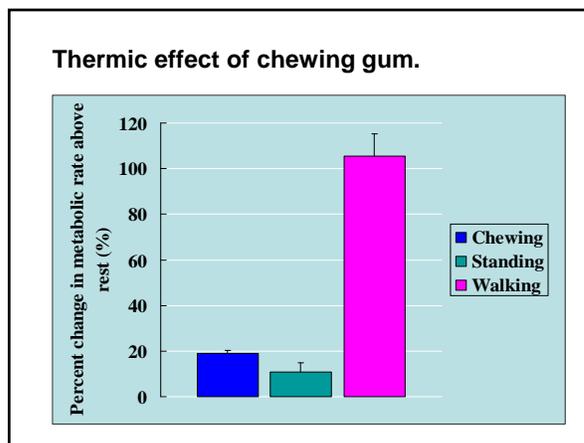
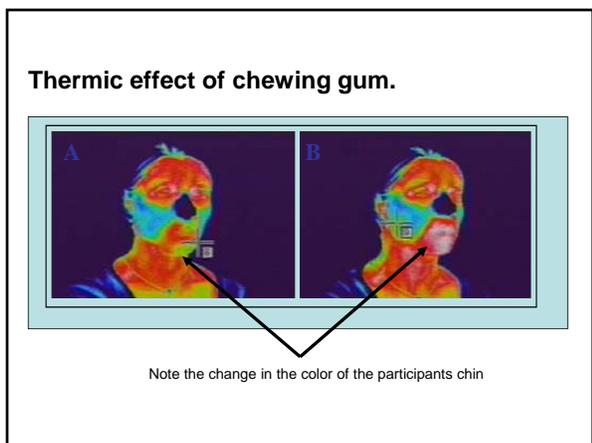


NEAT variability: effect of work

Occupation-type	NEAT (kcal/day)
Chair-bound	300
Seated work: no option of moving	700
Seated work: discretion & requirement to move	1000
Standing work; e.g. homemaker, shop assistant	1400
Strenuous work; e.g. agriculture	2300

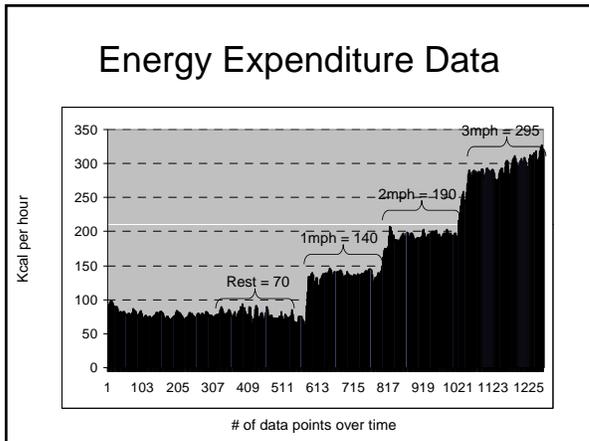
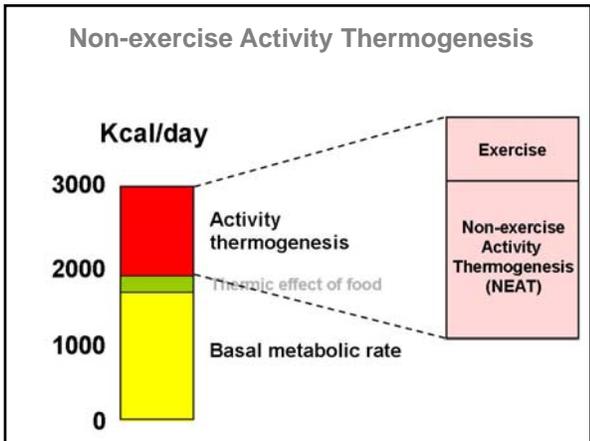
Data assuming BMR = 1600 kcal/day

Black, Eur J Clin Nutr 50:72



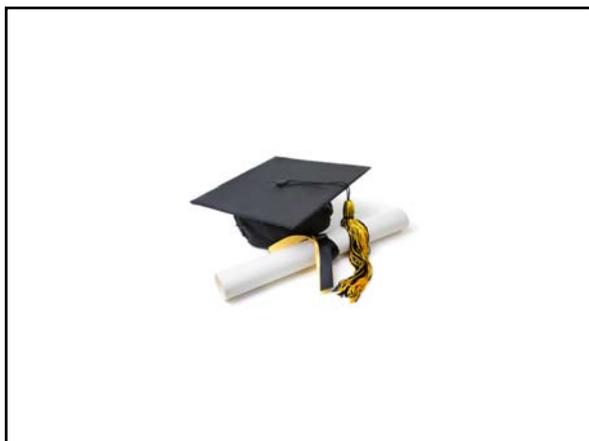
Do the Math

- 20 calories x 40 hours/week x 52 weeks per year = 41600 calories
- 3500 calories = 1 pound of fat
- $41600/3500 =$ approx. 12 lbs of fat per year
- Just from avid gum chewing!



Do the Math

- 2mph for 2 hours a day
 - 120 calories x 10 hours/week x 52 weeks per year = 62400 calories
 - 3500 calories = 1 pound of fat
 - $62400/3500 =$ approx. 18 lbs of fat per year
 - No gyms and no sweating



Take 5 minutes

- Break into small groups (2-5) for the Active Space Challenge



Active Space Challenge

- With unlimited financial support how would you change a office, home, or school?



SÁIO



4:1 Ratio

Office of the Future at Mayo Clinic



1:1 Ratio

Office of the Future at Mayo Clinic



Walking Track

NEAT support staff



Activity monitoring





Active Space Challenge

- With \$2,000 how would you change a office, home, or school?



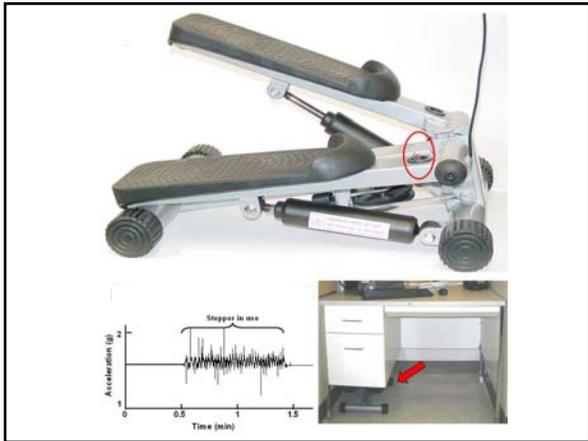
The block contains three illustrations: a desk with a computer monitor and a chair, a small house with a red roof and a chimney, and a yellow schoolhouse with a bell tower.

The Walkstation by Steelcase



The image shows a person in a pink shirt standing on a treadmill while working at a desk with a computer monitor and keyboard. The treadmill is integrated into the desk structure.

TreadDesk



Home | Description | Personnel | Images and videos | Publications | Experimental Study

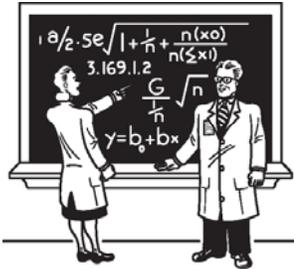
NEAT-o-Games

The figure shows the NEAT-o-Games app interface with a navigation menu. Below are screenshots of people using the app, with red arrows pointing to the app icon on their phones.

WALK 'N' PLAY iPhone App

The figure shows a screenshot of the WALK 'N' PLAY iPhone app. It displays '+22 Cal' and '96 Cal' burned for user 'mayo1001'. It also shows 'Goal Progress: 38%' and 'US Central Average' with '74 Cal' burned. The date is 10/14.

The Research



Two Questions

- How does changing the environment affect health?
- How does changing the environment affect productivity?

Workplace Intervention Studies

- SALO
 - 18 subjects
- Educational Credit Management Corporation
 - 40 subjects
- Integrated study protocol into workflow.
 - NEAT Initiatives
 - Biometric Testing
 - Energy Expenditure Testing

Air Displacement Plethysmography



**Platinum-standard
NEAT-measurements**



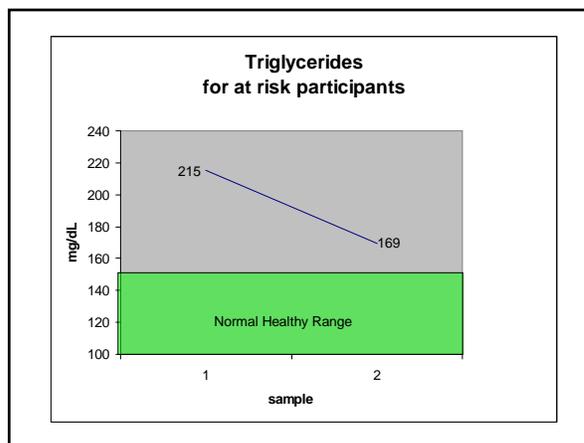
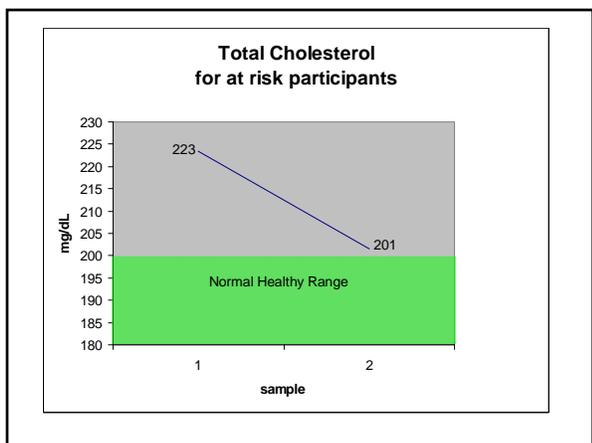
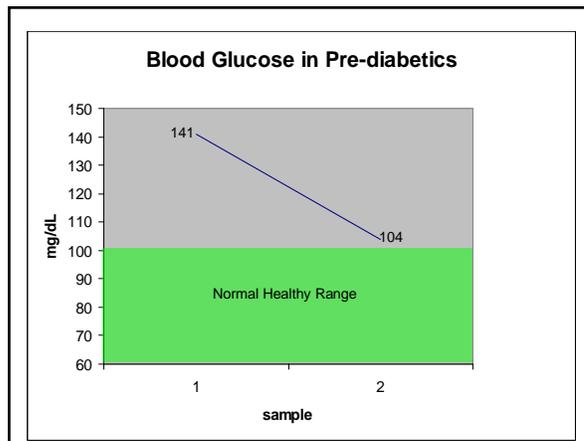


Health Results

Phase	Whole Group		Overweight/obese		Lean	
	baseline	6 month	baseline	6 month	baseline	6 month
Weight (kg)	80.2 ± 18.6	76.2 ± 16.8****	92.7 ± 14.9	86.5 ± 13.6****	67.7 ± 12.7	66.0 ± 12.4
BMI (kg/m ²)	25.5 ± 4.0	24.2 ± 3.5****	28.4 ± 3.4	26.5 ± 3.2****	22.6 ± 1.9	21.9 ± 2.1
Fat weight (kg)	22.2 ± 11.4	18.6 ± 10.8****	29.6 ± 11.2	24.2 ± 12.1***	14.8 ± 5.5	13.0 ± 5.5
Fat Free Mass (kg)	58.0 ± 13.2	57.6 ± 13.4**	63.1 ± 8.7	62.3 ± 9.5	52.9 ± 15.3	52.9 ± 15.7

More positive trends

Phase	Whole Group		Overweight/obese		Lean	
	baseline	6 month	baseline	6 month	baseline	6 month
Glucose mg/dL	91.8 ± 7.0	89.6 ± 8.5	96.2 ± 6.0	92.5 ± 9.7	86.8 ± 4.0	86.8 ± 6.3
Hemoglobin A1c %	5.5 ± 0.2	5.4 ± 0.6	5.5 ± 0.3	5.6 ± 0.9	5.4 ± 0.2	5.2 ± 0.2
Cholesterol mg/dL	180.5 ± 32.4	173.6 ± 25.1	195.5 ± 28.2	180.7 ± 20.5*	163.6 ± 29.5	166.4 ± 28.3
LDL mg/dL	98.1 ± 33.1	101.0 ± 26.9	110.6 ± 35.7	106.8 ± 24.7	84.1 ± 25.0	94.5 ± 28.6
HDL mg/dL	60.7 ± 14.7	62.2 ± 18.1	56.7 ± 17.5	56.3 ± 17.1	65.3 ± 10.0	68.1 ± 10.0
Triglyceride mg/dL	110.4 ± 79.0	74.5 ± 31.2	145.3 ± 95.9	81.8 ± 33.6	71.1 ± 20.7	67.2 ± 28.6



Productivity Results

- SALO Highest Profit Margin in the Middle of the study.
- ECMC was studied by the Carlson School of Management Economics team and showed no productivity decline
- Teachers reported no decline in student productivity.

Feasibility of using a walking workstation during CT image interpretation

- 2 Radiologists participated
- Over 1500 data points collected
- Showed significant improvement in detection rates
- 80-85% Conventional Method
- Over 99% while walking

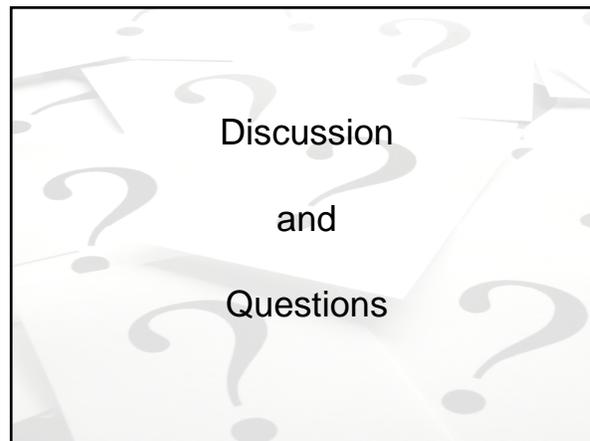
Fiderl, et al.
J Am Coll Radiol. 2009 Mar;6(3):213; author reply 213-4.

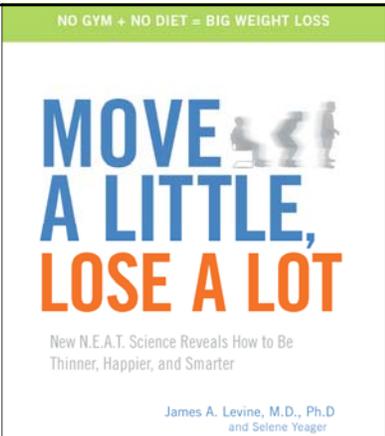
NEAT in action SALO on 20/20

http://www.youtube.com/watch?v=Y1VEqHR_i54



Discussion and Questions



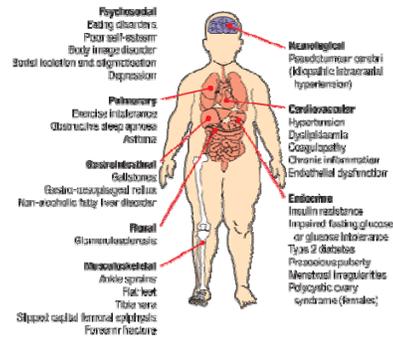
<p>The NEAT life:</p> <ul style="list-style-type: none"> •Fun! •Healthy! •Dynamic! •Dream! •Losing weight <p style="font-size: x-small;">Crown Random house January 2009</p>	<p style="font-size: x-small; background-color: #90EE90; padding: 2px;">NO GYM + NO DIET = BIG WEIGHT LOSS</p>  <p style="font-size: x-small;">New N.E.A.T. Science Reveals How to Be Thinner, Happier, and Smarter</p> <p style="font-size: x-small;">James A. Levine, M.D., Ph.D and Selene Yeager</p>
--	---



Cost of Obesity



Complications of Obesity



ECMC Study

