A Lifestyle Intervention Via Email

An intervention to improve Nutrition and Physical Activity

- **Developed by**
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Behavioral Goals

- Change in <u>behavior</u>
  - Not just in Stage of Readiness for Change
  - Increase physical activity
  - Increase fruits and vegetables
  - Decrease saturated & trans fats & added sugars

- **<u>Not</u> a weight loss program**

Features

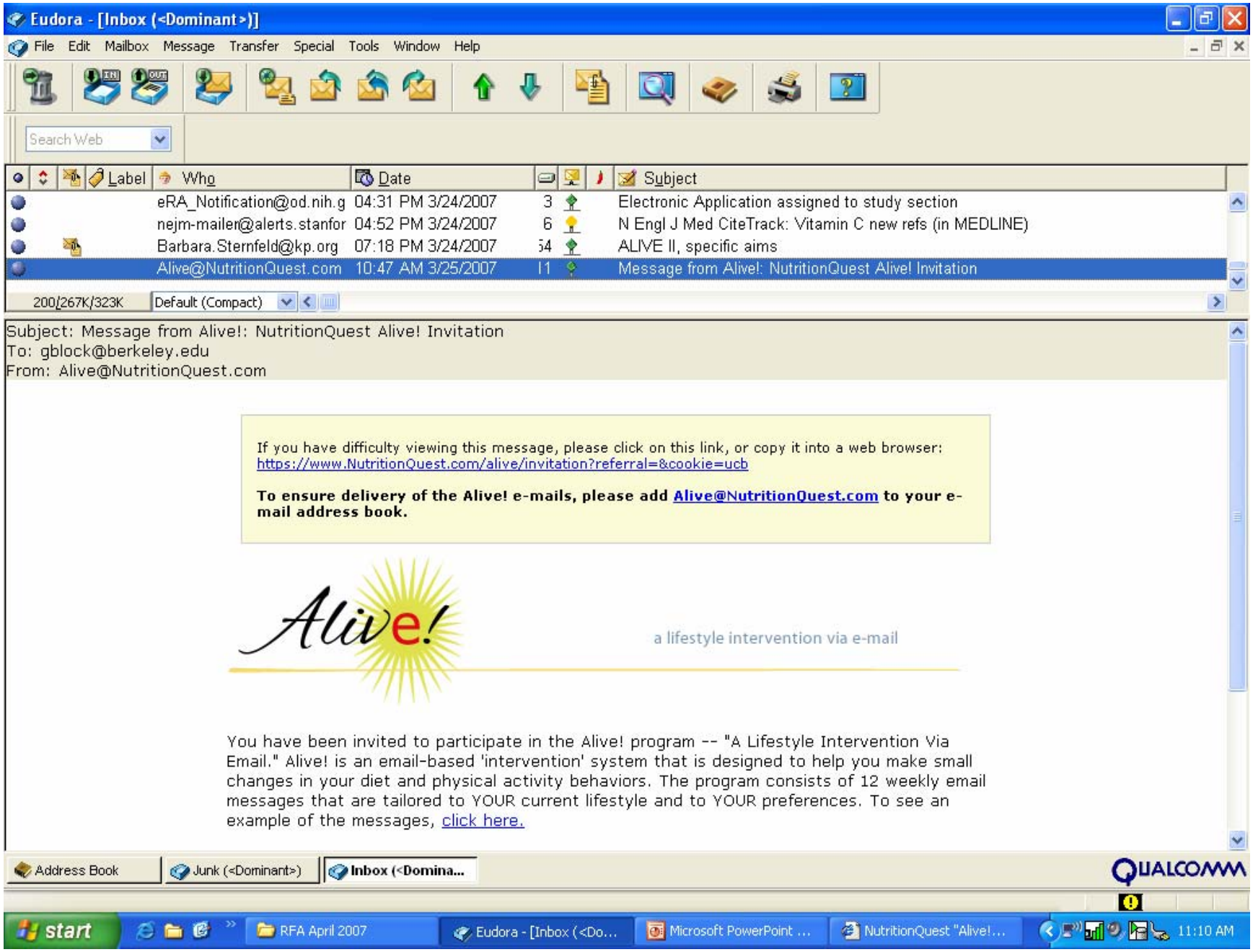
- Health Risk Assessment (HRA)
- Tailored feedback on participant's physical activity and diet
- Tailored intervention
  - Not just to Stage of Readiness for change
  - Tailored to lifestyle and preferences
    - What they eat. Kind of exercise they prefer.
    - Kids at home? Eat out a lot? Do the cooking?
- Weekly small-step goal-setting

Components

- Weekly messages contain
  - Suggested **goals** to try for the week, *tailored* to each individual
  - **Tips** for achieving the selected goals
  - Tips for overcoming **barriers**
  - Health **information**, information on nutrition and physical activity
  - **Interactive** tool to explore effects of specific changes
  - **Links** to other health/nutrition sites
  - Links to track diet and physical activity
  - More!

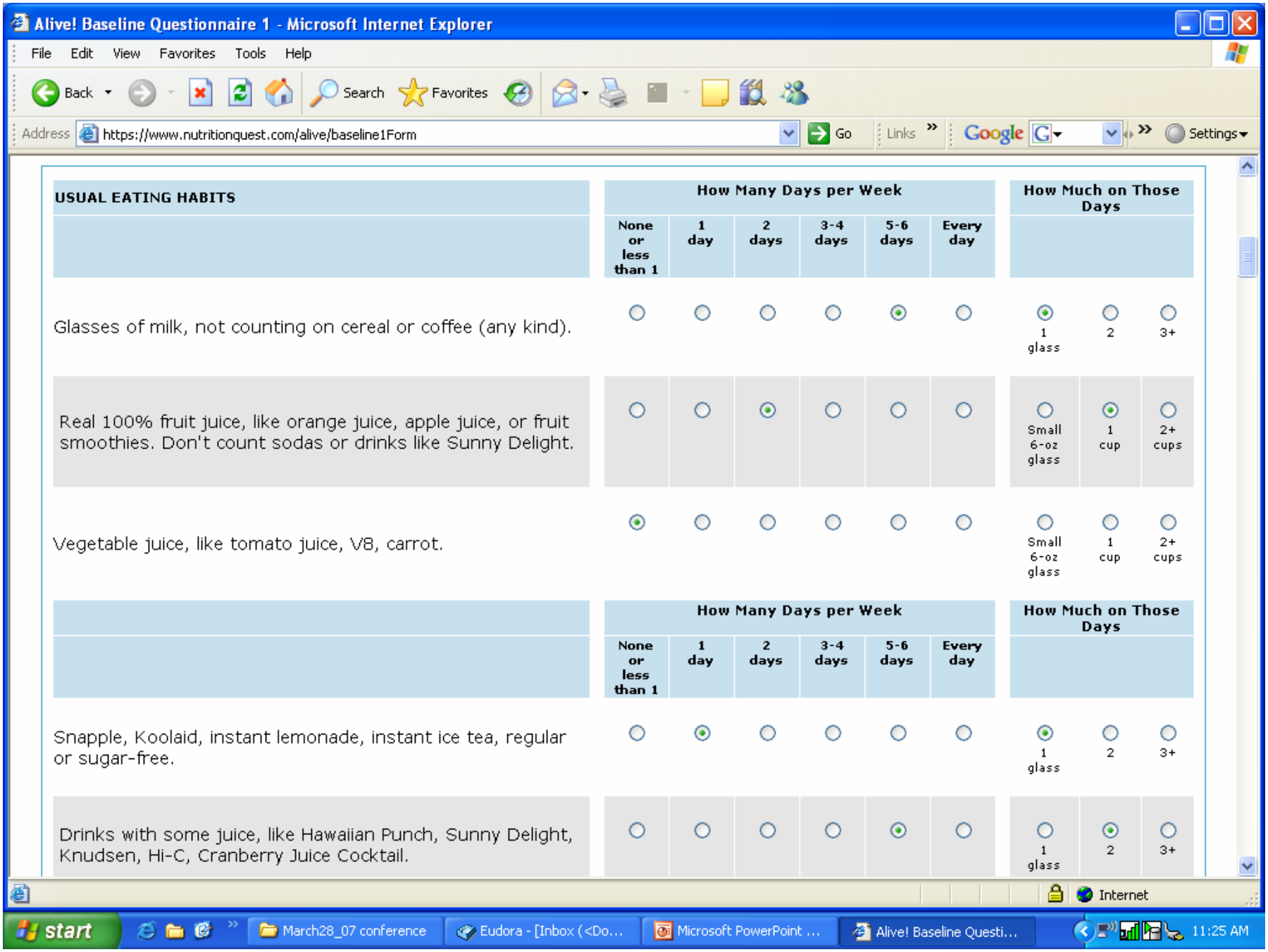
How the process begins

- Email is sent by the organization or company, or researcher
  - Batch email, to organization's target group



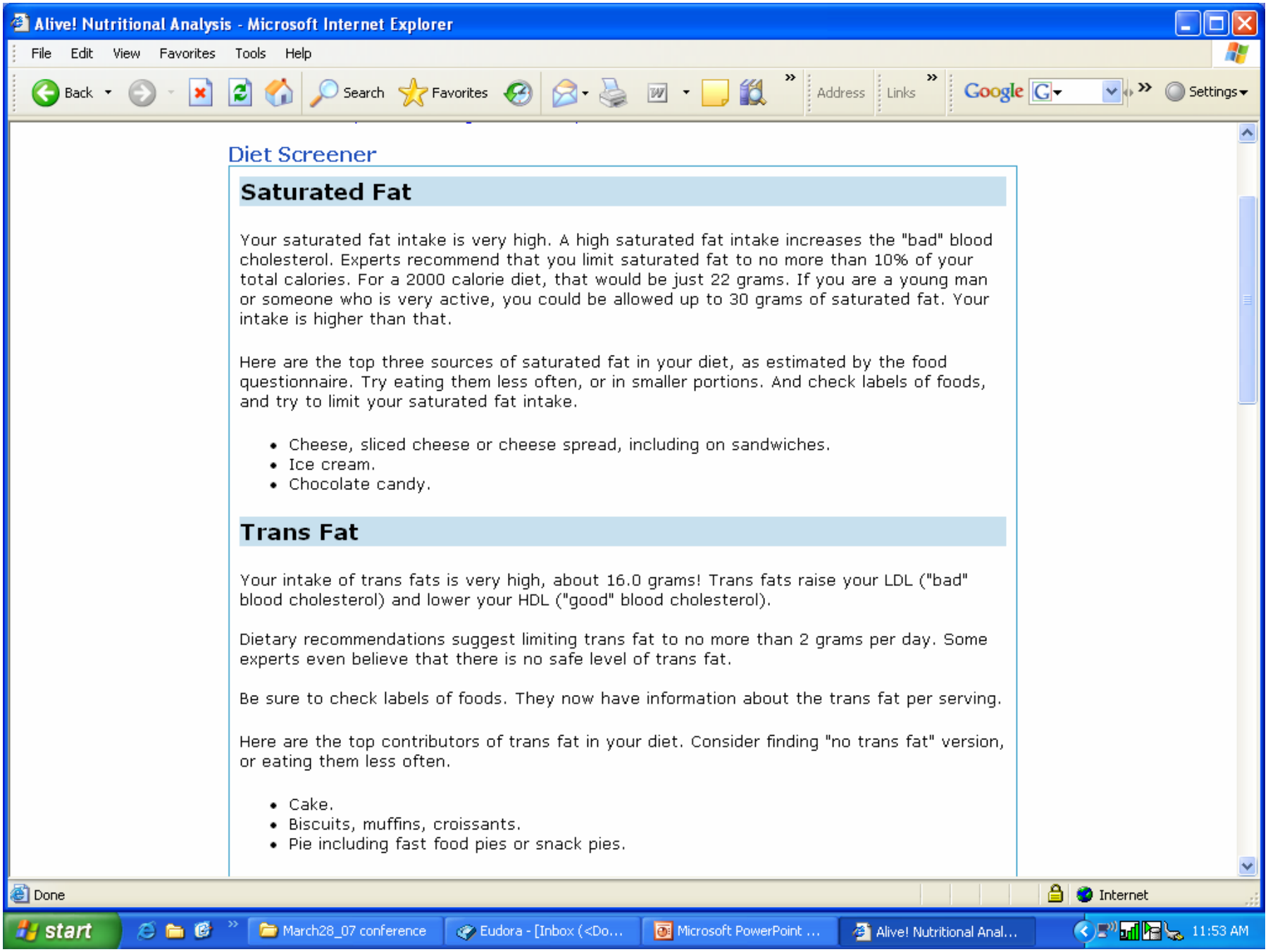
First Step: Health Risk Assessment

- Diet and physical activity screeners
- Available to all, whether they decide to participate in the full program or not
- Completed online in about 15 minutes
- Instant feedback on individual's
  - Saturated and trans fat intake, sugars
  - Fruit & vegetable intake
  - Physical activity and sedentary behavior



Instant Feedback from Screener

- Personalizes the need for improvement
  - Saturated and trans fat intake, sugars
  - Fruit & vegetable intake
  - Physical activity and sedentary behavior
  - In relation to national recommendations



Next Step:
Choose your Big Goal

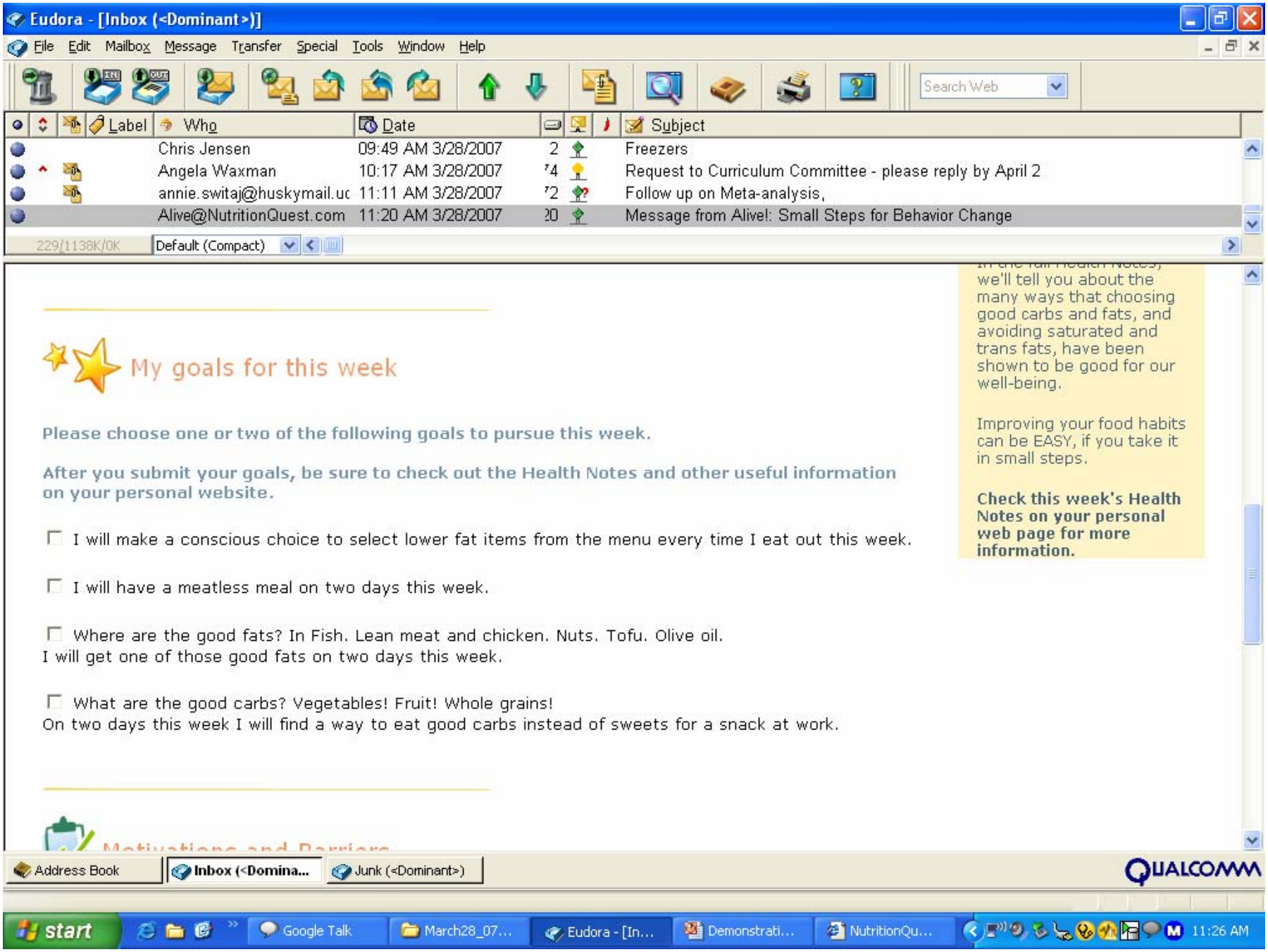
- Choose one to work on for next 12 weeks
  - Decrease saturated & trans fats & added sugars
  - Increase fruits and vegetables
  - Increase physical activity

Next Step: Tailoring Questionnaire

- Goals and tips are tailored
  - Specific foods reported in diet screener
  - Who does the cooking?
  - Kids at home?
  - Eat out a lot?
  - Prefer exercise structured or around home?
  - Stage of physical activity

Weekly email messages

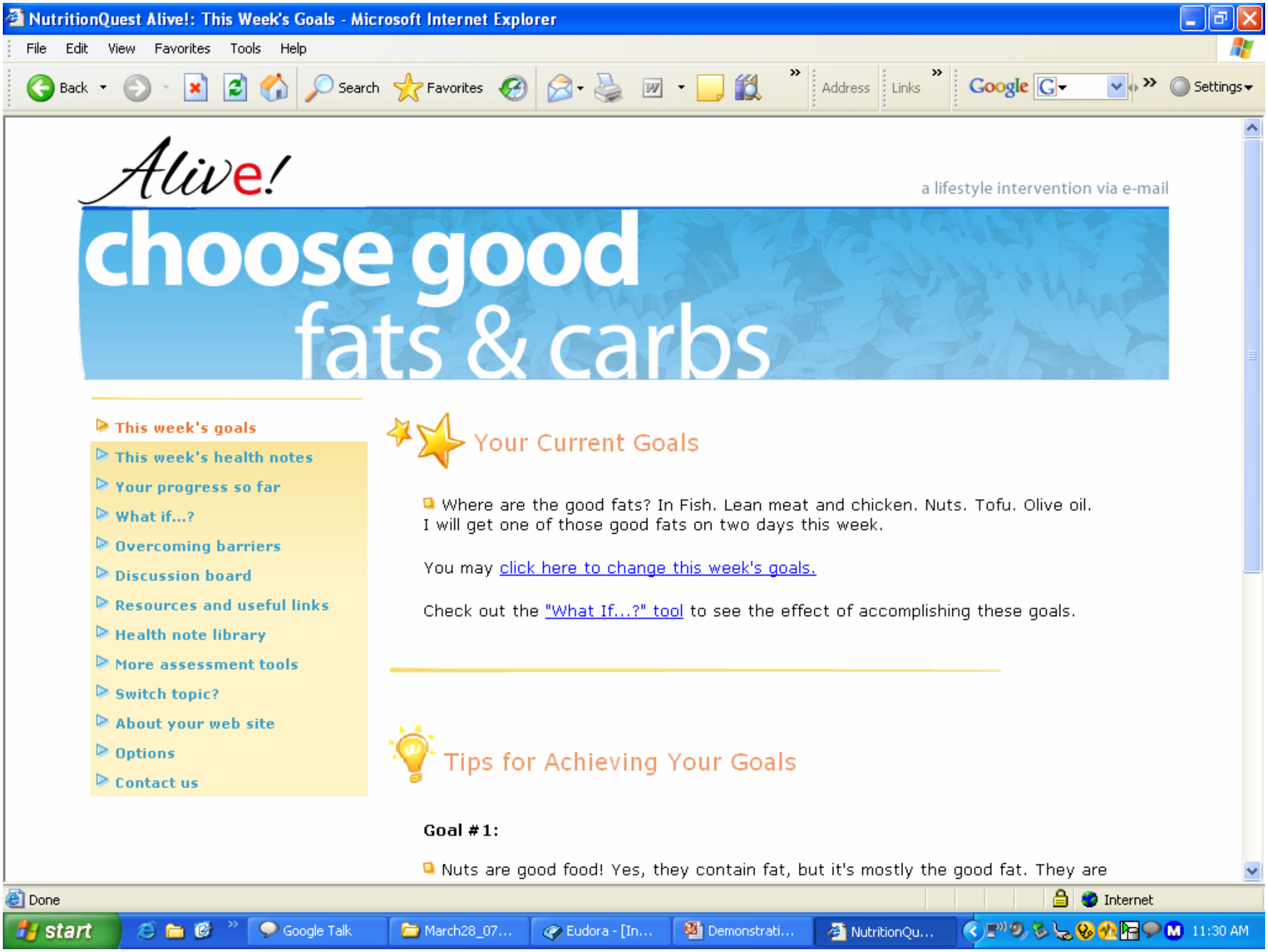
- Directly to email inbox
- Contain
  - Four *tailored* goals to choose from
  - Summary of the week's Health Notes



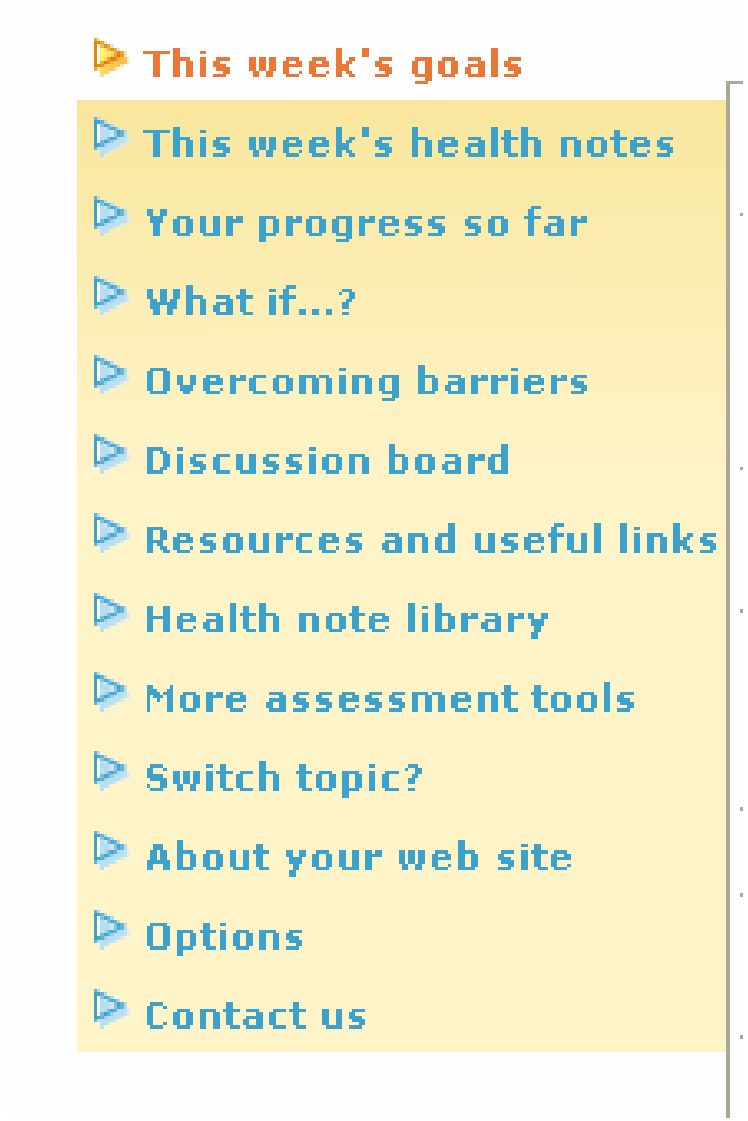
Clicking to choose a weekly small-step goal

- Takes you to your Personal Home Page

- Home page contains
  - Restating of small-step goal you chose
  - Tailored tips for achieving that goal
  - Numerous other opportunities for interaction



Tools on the Personal Home Page



ALIVE! in the Workplace: Results of a Randomized Trial

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Study Outcomes

- Primary outcomes
  - Physical activity (PA)
    - total PA, MET-mins/wk
    - moderate PA, vigorous PA, walking, and sedentary behavior, all in mins/wk
  - Diet
    - fruits and vegetables, cup equivalent servings/day
    - saturated fat, trans fats, and added sugars, all in gms/day
- Secondary Outcomes
  - Health-related quality of life, presenteeism, psycho-social factors

Data Analyses

- Intent to treat analyses
  - Mixed random effects models to estimate effect of treatment on change in outcome variables
    - random effect of department
    - fixed effects of baseline level, age and gender
  - Two definitions of treatment variable
    - 2 level variable (intervention and control groups)
    - 4 level variable (PA, fruits/veggies, fats and sugar paths and control group)
  - Change in non-responders (33.9% of intervention group and 27.4% of control group) assumed to be zero
- Also examine change in responders only

Baseline Characteristics of Intervention and Control Groups

	Intervention	Control	p value
N, (%)	351 (44.0)	446 (56.0)	--
Age (yrs), mean (sd)	44.8 (10.0)	43.5 (11.0)	.09
Women, N (%)	256 (72.9)	334 (74.9)	.53
Non-white, N (%)*	78 (41.3)	107 (35.7)	.82
< College, N (%)	97 (27.6)	138 (30.9)	.57
BMI, N (%)			.36
<25	123 (35.0)	170 (38.1)	
25-29.9	117 (33.3)	128 (28.7)	
30-34.9	55 (15.7)	63 (14.1)	
≥35	56 (16.0)	85 (19.1)	

Study Enrollment

- 797 employees from 171 departments were randomized
  - 351 (44%) to Intervention Group
  - 446 (56%) to Control Group
- Path chosen by intervention group
  - fruits/veggies = 57 (16.2%)
  - fats/carbs = 99 (28.2%)
  - physical activity = 195 (55.6%)

Process Outcomes

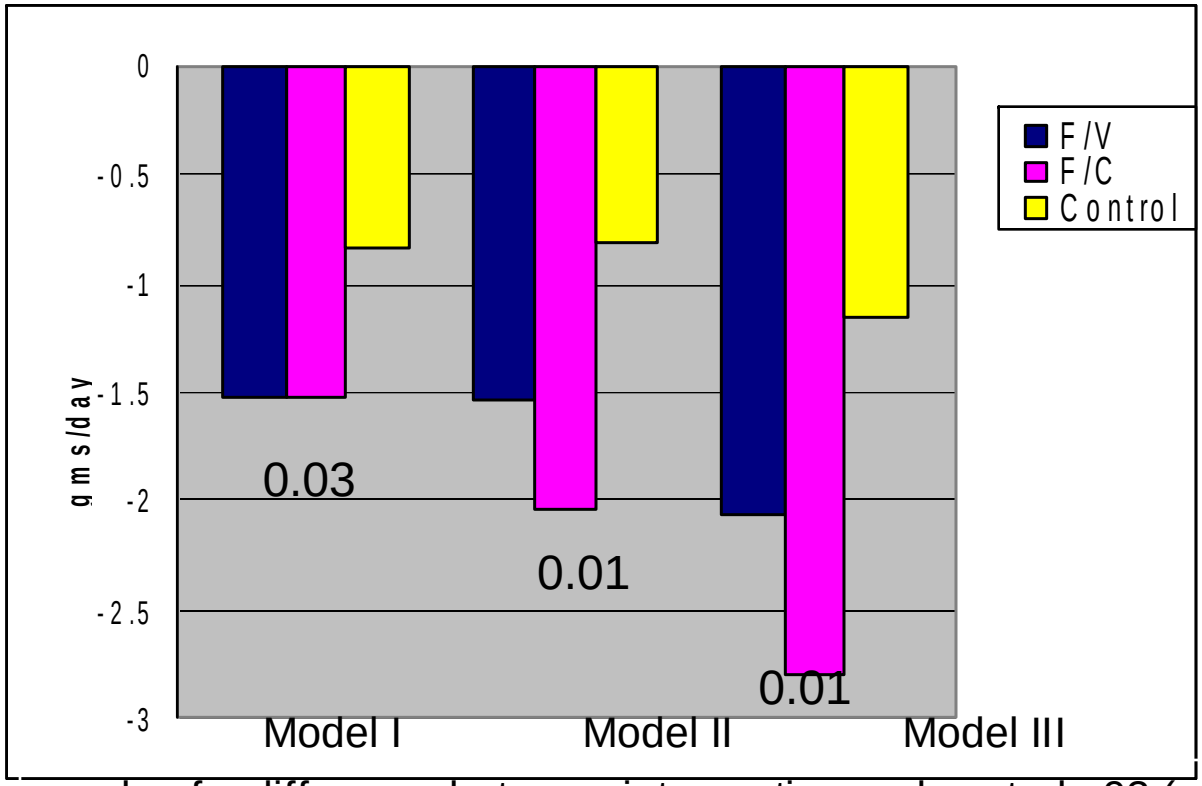
- Involvement with program
  - Total of 3,838 goals selected by 351 in intervention
  - Average # of goals/person = 10.9
- Learned “Some” or “A lot:
  - 75% of those in PA path
  - 69% of those in Fruit/Veg path
  - 83% of those in Carb/Fat path
- Relevance of selected goals
  - 84% found them “Somewhat” or “Very relevant”
- Helpfulness of tips
  - 80% found them “Somewhat” or “Very helpful”

Diet & PA Results

- Physical activity increased in intervention group relative to control group
  - total activity: p=.02
  - minutes/week of walking: p=.007
  - minutes/week of moderate activity: p=.001

- Diet improved in intervention group relative to control group
  - servings of fruits/veggies: p=.004 (.007 in Fruit/Veg grp)
  - decrease in saturated fats: p=.03 (.01 in CarbFat grp)

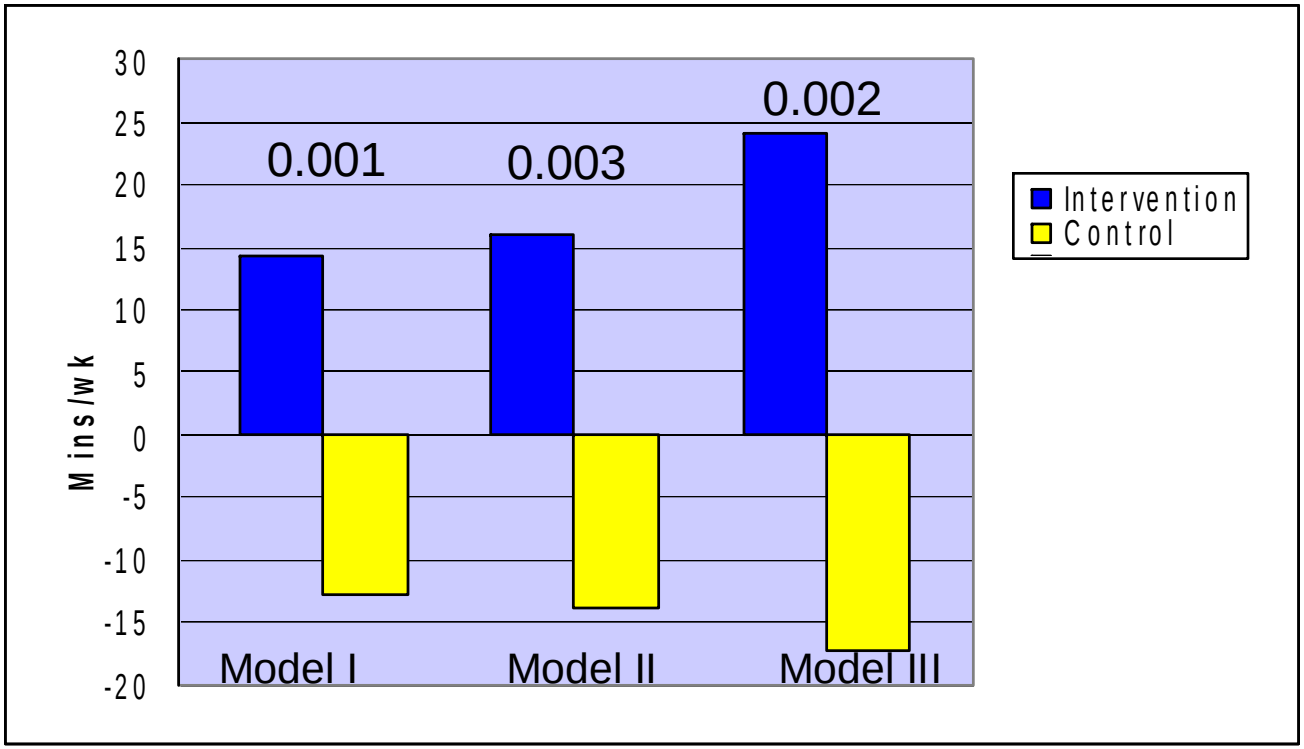
Adjusted Mean Change (95% CI) in Saturated Fats



p value for difference between intervention and control: .03 (model I), .23 and .01 (model II), .26 and .01 (model III)

model I=intervention vs. control, adjusted for department, baseline value, gender, and age; model II=Fats path vs. control, plus adjusted for BMI, model III=Fats path vs. control in responders only, adjusted for covariates in model II

Adjusted Mean Change (95% CI) in Moderate Physical Activity



p value for difference between intervention and control: .001 (model I), .003 (model II), .002 (model III)

model I=intervention vs. control, adjusted for department, baseline value, gender, and age; model II=PA path vs. control, plus adjusted for BMI, model III=PA path vs. control in responders only, adjusted for covariates in model II

Mean Change in Health-Related Quality of Life

	Intervention	Control	p value
SF-8 Physical			
All	1.20	0.26	.046
Responders	1.63	0.27	.039
SF-8 Mental			
All	1.00	0.22	.08
Responders	1.32	0.58	.19
Overall Health Status			
All	0.18	0.04	.01
Responders	0.26	0.08	.02
Responders not at top	0.37	0.14	.007

Psycho-Social Outcomes

- Forward movement in stage of change
  - PA: p=.04 in PA path
  - Fruits/veggies: p=.007 in FV group
  - Fats: p=.03 in FC group
  - Sugars: p=.06 in FC

- Improvement in Self-Efficacy
  - Diet: p=.009 in Diet groups
  - Physical Activity: p=.35 in PA group

What's Unique

- Proven behavior change in a randomized trial
- Low cost
- No administrative burden on employer or organization
- Highly tailored intervention

Block Dietary Data Systems
Exhibit Booth # 542

Thank you

Behavior Change Principles

- Maximizing individual **relevance--**through assessments, feedback and tailoring
- **Tailoring** to stage-of-change, individual diet habits, exercise preferences
- **Goal setting**
- **Small-steps** toward new habits
- Continued **feedback** and reinforcement
- Increasing **salience** and motivation through health information, tips and reminders
- Encouraging **social support**

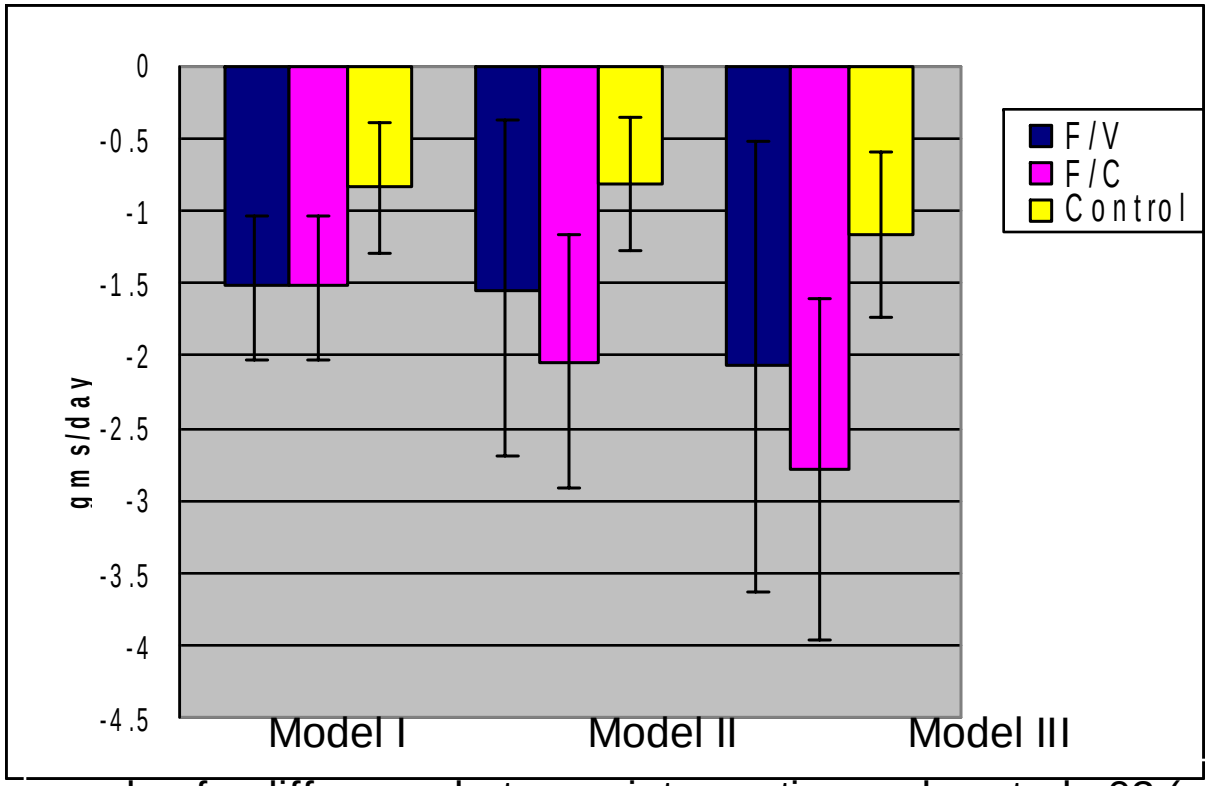
CB2

CB2 Mention--can sign up family members, as example of social support
CLIFFORD BLOCK, 10/30/2006

Some “Health Notes” Topics

- Carbs and the Glycemic Index
- Fruits, Veggies and Cancer
- Physical Activity and Breast Cancer
- Diet and Cognitive Function
- Mood, Stress and Physical Activity
- Components of Fitness
- Trends in Physical Activity Programs
- “Good” Fats, “Bad” Fats
- and many others

Adjusted Mean Change (95% CI) in Saturated Fats



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