



A Lifestyle Intervention Via Email



An intervention to improve Nutrition and Physical Activity

- **Developed by**
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 - Clifford Block, PhD; Gladys Block, PhD; Torin Block; Jean Norris, DrPH; Donald Hopkins
- *Kaiser Permanente Division of Research*
 - Barbara Sternfeld, PhD



Behavioral Goals

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

Eudora - [Inbox (<Dominant>)]

File Edit Mailbox Message Transfer Special Tools Window Help

Search Web


Label	Who	Date		Subject
	eRA_Notification@od.nih.g	04:31 PM 3/24/2007	3	Electronic Application assigned to study section
	nejm-mailer@alerts.stanford	04:52 PM 3/24/2007	6	N Engl J Med CiteTrack: Vitamin C new refs (in MEDLINE)
	Barbara.Sternfeld@kp.org	07:18 PM 3/24/2007	54	ALIVE II, specific aims
	Alive@NutritionQuest.com	10:47 AM 3/25/2007	11	Message from Alive!: NutritionQuest Alive! Invitation

200/267K/323K Default (Compact)

Subject: Message from Alive!: NutritionQuest Alive! Invitation
 To: gblock@berkeley.edu
 From: Alive@NutritionQuest.com

If you have difficulty viewing this message, please click on this link, or copy it into a web browser:
<https://www.NutritionQuest.com/alive/invitation?referral=&cookie=ucb>

To ensure delivery of the Alive! e-mails, please add Alive@NutritionQuest.com to your e-mail address book.


a lifestyle intervention via e-mail

You have been invited to participate in the Alive! program -- "A Lifestyle Intervention Via Email." Alive! is an email-based 'intervention' system that is designed to help you make small changes in your diet and physical activity behaviors. The program consists of 12 weekly email messages that are tailored to YOUR current lifestyle and to YOUR preferences. To see an example of the messages, [click here](#).

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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

Alive! Baseline Questionnaire 1 - Microsoft Internet Explorer

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Address <https://www.nutritionquest.com/alive/baseline1Form>

Google G Settings

USUAL EATING HABITS	How Many Days per Week						How Much on Those Days		
	None or less than 1	1 day	2 days	3-4 days	5-6 days	Every day			
Glasses of milk, not counting on cereal or coffee (any kind).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> 1 glass	<input type="radio"/> 2	<input type="radio"/> 3+
Real 100% fruit juice, like orange juice, apple juice, or fruit smoothies. Don't count sodas or drinks like Sunny Delight.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> Small 6-oz glass	<input checked="" type="radio"/> 1 cup	<input type="radio"/> 2+ cups
Vegetable juice, like tomato juice, V8, carrot.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> Small 6-oz glass	<input type="radio"/> 1 cup	<input type="radio"/> 2+ cups
Snapple, Koolaid, instant lemonade, instant ice tea, regular or sugar-free.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> 1 glass	<input type="radio"/> 2	<input type="radio"/> 3+
Drinks with some juice, like Hawaiian Punch, Sunny Delight, Knudsen, Hi-C, Cranberry Juice Cocktail.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/> 1 glass	<input checked="" type="radio"/> 2	<input type="radio"/> 3+

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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

Alive! Nutritional Analysis - Microsoft Internet Explorer

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Diet Screener

Saturated Fat

Your saturated fat intake is very high. A high saturated fat intake increases the "bad" blood cholesterol. Experts recommend that you limit saturated fat to no more than 10% of your total calories. For a 2000 calorie diet, that would be just 22 grams. If you are a young man or someone who is very active, you could be allowed up to 30 grams of saturated fat. Your intake is higher than that.

Here are the top three sources of saturated fat in your diet, as estimated by the food questionnaire. Try eating them less often, or in smaller portions. And check labels of foods, and try to limit your saturated fat intake.

- Cheese, sliced cheese or cheese spread, including on sandwiches.
- Ice cream.
- Chocolate candy.

Trans Fat

Your intake of trans fats is very high, about 16.0 grams! Trans fats raise your LDL ("bad" blood cholesterol) and lower your HDL ("good" blood cholesterol).

Dietary recommendations suggest limiting trans fat to no more than 2 grams per day. Some experts even believe that there is no safe level of trans fat.

Be sure to check labels of foods. They now have information about the trans fat per serving.

Here are the top contributors of trans fat in your diet. Consider finding "no trans fat" version, or eating them less often.

- Cake.
- Biscuits, muffins, croissants.
- Pie including fast food pies or snack pies.

Done Internet

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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


Eudora - [Inbox (<Dominant>)]

File Edit Mailbox Message Transfer Special Tools Window Help

Search Web

Label	Who	Date	Subject
	Chris Jensen	09:49 AM 3/28/2007	Freezers
	Angela Waxman	10:17 AM 3/28/2007	Request to Curriculum Committee - please reply by April 2
	annie.switaj@huskymail.uc	11:11 AM 3/28/2007	Follow up on Meta-analysis,
	Alive@NutritionQuest.com	11:20 AM 3/28/2007	Message from Alive! Small Steps for Behavior Change


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 **My goals for this week**

Please choose one or two of the following goals to pursue this week.

After you submit your goals, be sure to check out the [Health Notes](#) and other useful information on your personal website.

- I will make a conscious choice to select lower fat items from the menu every time I eat out this week.
- I will have a meatless meal on two days this week.
- Where are the good fats? In Fish. Lean meat and chicken. Nuts. Tofu. Olive oil. I will get one of those good fats on two days this week.
- What are the good carbs? Vegetables! Fruit! Whole grains! On two days this week I will find a way to eat good carbs instead of sweets for a snack at work.

 **Motivations and Barriers**

In our Fall Health Notes, we'll tell you about the many ways that choosing good carbs and fats, and avoiding saturated and trans fats, have been shown to be good for our well-being.

Improving your food habits can be EASY, if you take it in small steps.

Check this week's Health Notes on your personal web page for more information.

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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

Alive!

a lifestyle intervention via e-mail

choose good fats & carbs

- ▶ This week's goals
- ▶ This week's health notes
- ▶ Your progress so far
- ▶ What if...?
- ▶ Overcoming barriers
- ▶ Discussion board
- ▶ Resources and useful links
- ▶ Health note library
- ▶ More assessment tools
- ▶ Switch topic?
- ▶ About your web site
- ▶ Options
- ▶ Contact us

★ ★ Your Current Goals

Where are the good fats? In Fish. Lean meat and chicken. Nuts. Tofu. Olive oil. I will get one of those good fats on two days this week.

You may [click here to change this week's goals.](#)

Check out the ["What If...?" tool](#) to see the effect of accomplishing these goals.

💡 Tips for Achieving Your Goals

Goal # 1:

Nuts are good food! Yes, they contain fat, but it's mostly the good fat. They are

Tools on the Personal Home Page

▶ This week's goals

- ▶ This week's health notes
- ▶ Your progress so far
- ▶ What if...?
- ▶ Overcoming barriers
- ▶ Discussion board
- ▶ Resources and useful links
- ▶ Health note library
- ▶ More assessment tools
- ▶ Switch topic?
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- ▶ Options
- ▶ Contact us



ALIVE! in the Workplace: Results of a Randomized Trial

Barbara Sternfeld¹, Torin Block², Clifford Block²,
Charles Quesenberry, Jr¹, Melissa Nelson¹,
Heather Clancy¹ Gail Husson¹, Jean Norris²,
Gladys Block²

1. Division of Research, Kaiser Permanente
2. Block Dietary Data Systems

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

	<u>Intervention</u>	<u>Control</u>	<u>p value</u>
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

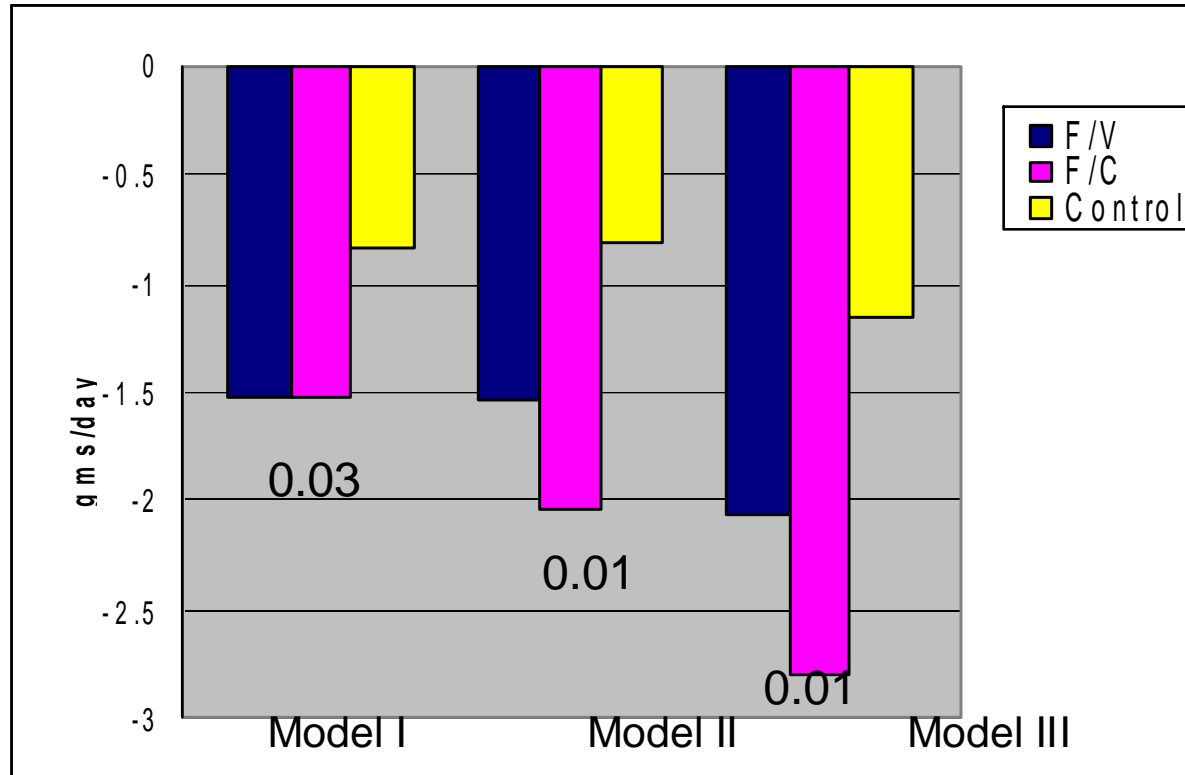
- Involvement with program
 - Total of 3,838 goals selected by 351 in intervention
 - Average # of goals/person = 10.9
- Learned “Some” or “A lot:
 - 75% of those in PA path
 - 69% of those in Fruit/Veg path
 - 83% of those in Carb/Fat path
- Relevance of selected goals
 - 84% found them “Somewhat” or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

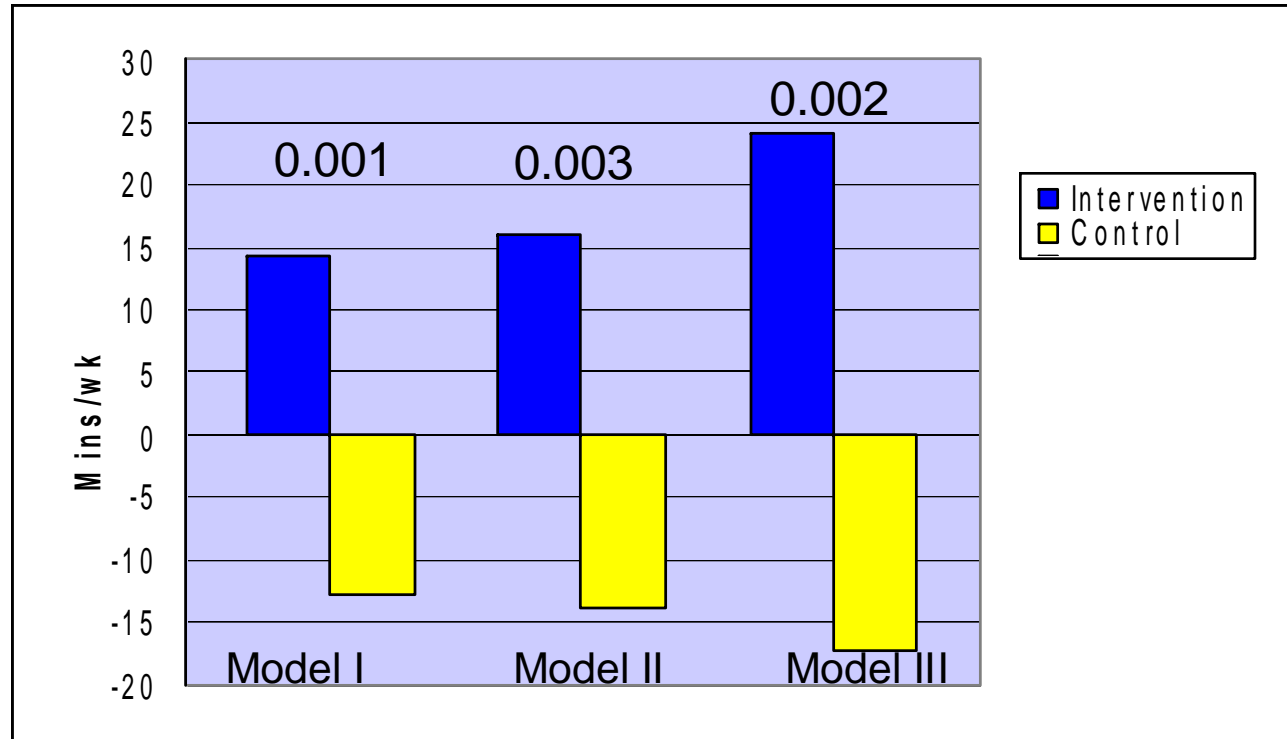
Adjusted Mean Change (95% CI) in Saturated Fats



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

CB2

- 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

Mention--can sign up family members, as example of social support

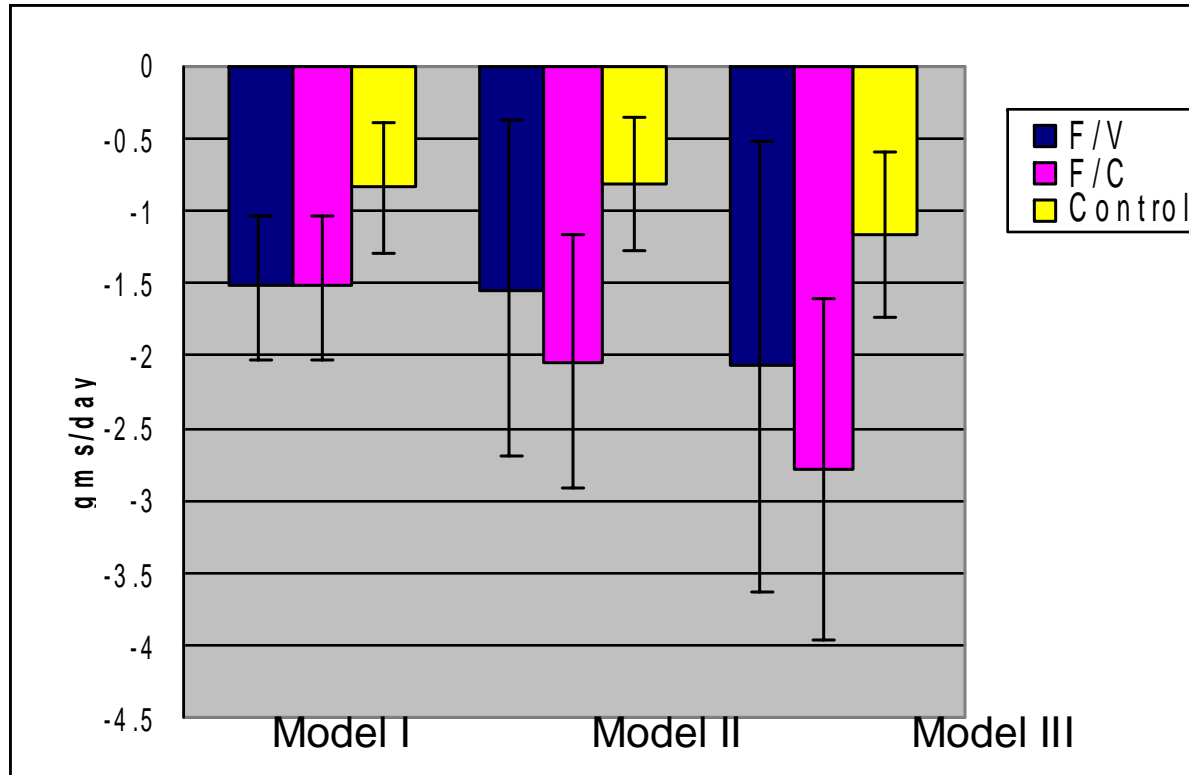
CLIFFORD BLOCK, 10/30/2006



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



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=PA path vs. control, plus adjusted for BMI, model III=PA path vs. control in responders only, adjusted for covariates in model II