

# Breakfast

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**Early to Bed, Early to Rise,  
Start the Day with Breakfast and  
You'll Be the Right Size  
'and Smarter, Too'**

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# Topics Covered

Breakfast – **Who's not eating it?**

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Breakfast, **OptimumHealth** and **Performance**,  
**BodyWeight**, **NutrientIntake** and **DiseaseReduction**

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Breakfast and **Chronic Disease**

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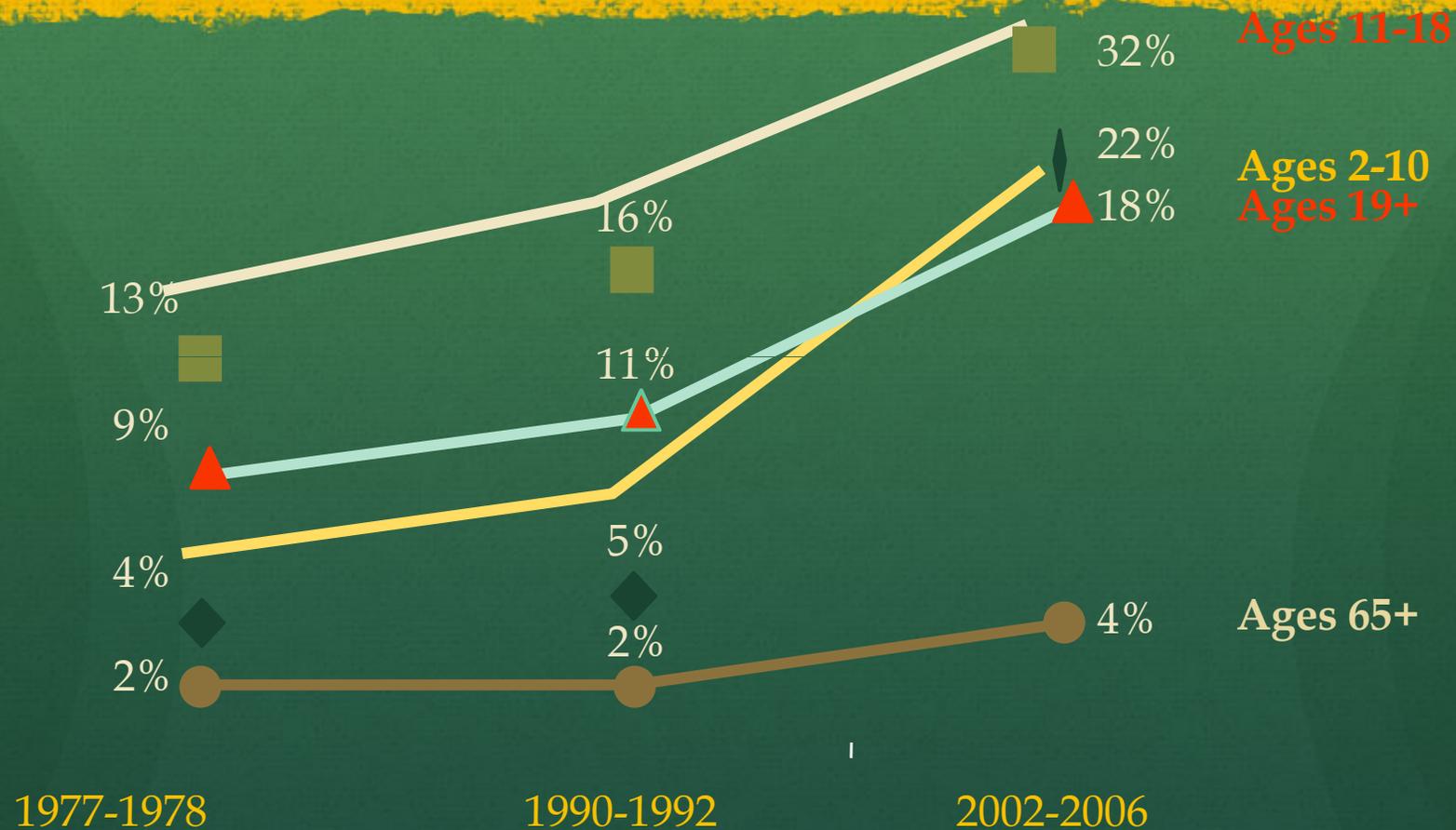
Breakfast, **NutrientsofConcern**



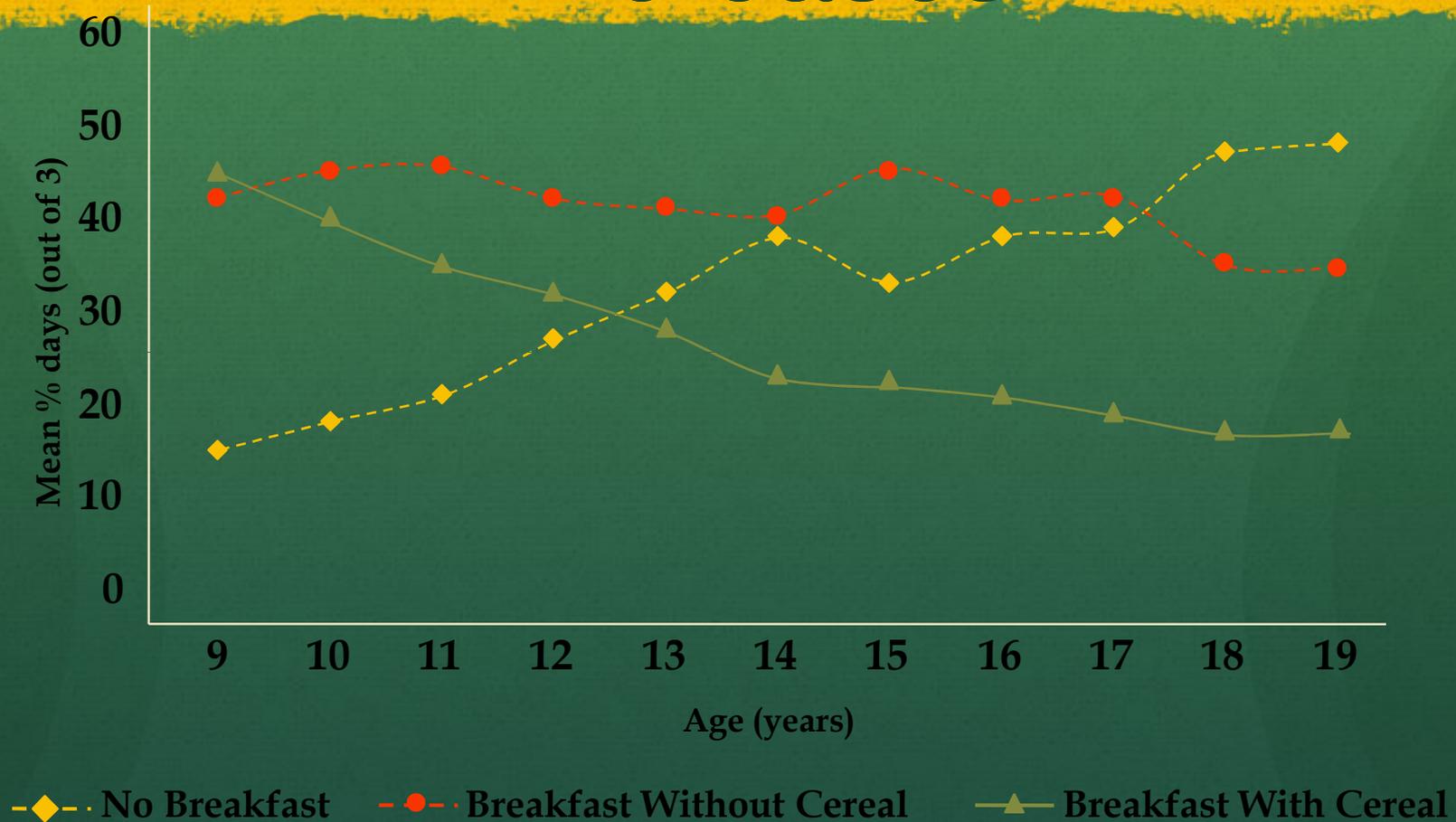
**Who's not eating breakfast?**  
**What are the results of skipping?**



# US Breakfast Skipping Is Increasing



# Teen Years: Breakfast Skipping Increases



Slide adapted from General Mills, Inc

Barton, et al, *JADA*, 2005;105:1383-1389.

# Why Do Children Skip Breakfast?

- Lack of role model in parents
- Busy, hectic mornings
- Lack of participation in breakfast programs

Keski-Rahkonen, et al. *Eur J Clin Nutr.* 2003; Jul;57(7):842-53. Roper Study, 2005

# Breakfast Skippers

- 35.9% of children and 25.4% of adolescents consumed RTE cereal
  - ↓ intakes of total fat and cholesterol
  - ↑ intakes of total CHO, dietary fiber, and several micronutrients
- skippers had higher body mass index-than RTE
  - Obesity was higher higher in breakfast skippers than RTE cereal consumers
  - Obesity higher in other breakfast consumers than RTE cereal consumers only in adolescents

Deshmukh-Taskar PR et al J Am Diet Assoc.  
2010;110(6):869-78

# Breakfast Skipping and Weight: 3- 12 yrs

- Over 2000 pre-school children in Quebec, average age 4 yrs; Figi school children
- 10% missed at least once a week
- Skippers more likely to be overweight
  - *Skipper - Ate breakfast less than 7 X /wk*

Asia Pac J Clin Nutr. 2010;19(3):372-82. Dubois, et al.  
*Public Health Nutr.* 2008;18:1-10.

# Breakfast and Physical Activity and Cardio Fitness

- N > 4300 UK students
- 'Sometimes' or 'never' eaters were more likely to be obese than those who always did
- Never eaters were more likely low physical activity and lower cardio-fitness scores

Sandercock et al EJCEN 2010 Aug 4. [Epub ahead of print]

# Why do Teens and Adults Skip Breakfast?

- Lack of role models (teens)
- Lack of time
- Don't want to eat in the morning
- Poor body image
- Attempt to manage weight and high body mass index
- Non-eaters more likely to not exercise, smoke, have lower educational level

# Breakfast and Teen Obesity

- Niemeier, et al. *J Adolesc Health*, 2006.
  - 9,919 adolescents
  - Breakfast skipping predicted obesity in transition to adulthood
- Crossman. *Soc Sci Med*, 2006.
  - Among 6,400 adolescents, eating breakfast was only behavior to influence weight in boys
- Fiore, et al. *JADA*, 2006
  - Breakfast eating may lower risk in adolescents with obese parents
- D'Addesa et al *Int J Pediatr*. 2010;2010:785649.
  - Direct associations were also observed between BMI and skipping breakfast



# Breakfast Skipping & Weight: Teens & Adults

- Higher mean BMI for
  - Adult skippers - NHANES III
  - Black and white adolescents girls
- Greater overall caloric intake - 24 hrs
- Over 1300 Greek children & teens
  - Lower BMI even accounting for low E reporters
  - Finns and Greek teen boys

Cho et al, *JACN*. 2003; 22:296-302; Obayashi, et al . *JADA* 2005;105:1373-1382;  
Yunsheng, et al. *Am J Epidemiol*. 2003;158(1):85-92; Kontogianni et al .  
*JADA*. 2010;110:215-21.

# BMI and Adults

- NHANES 1999 – 2004 12,300
- Women who ate breakfast - lower BMI
- Men - no
  - If breakfast was very high calorie, then NO difference in BMI

Kant et al AJCN 2008

# Breakfast: One Habit of Successful Losers

- National Weight Control Registry (NWCR) of “successful losers”
  - Founded in 1994 by Drs. James Hill and Rena Wing
- $\geq 30$  lbs of weight loss for 1+ years
  - Lost an average of 67 lbs; kept it off for an average of 6 yrs
- 78% of “losers” ate breakfast regularly; only 4% never ate breakfast
- Six habits – one was to eat breakfast

Wyatt HR, et al. *Obes Res.* 2002 ;10(2):78-82.

# Better Weight Maintenance

- Breakfast eaters had better weight maintenance

Grief SN, Miranda RL. Weight loss maintenance.  
Am Fam Physician. 2010 Sep 15;82(6):630-4.

Rayner ,et al .*Diabetes Care.* 2008;31(7):1299-304.

# Diabetics: Better Weight Loss Success

- LookAHEAD study: > 5000 people newly diagnosed with type 2 diabetes, age 45-60
- Higher BMI in those who ate breakfast less frequently
- Breakfast eaters had better weight loss success
- Successful losers listed eating more fruits and vegetables as one of three success strategies

Rayner ,et al .*Diabetes Care*. 2008;31(7):1299-304.

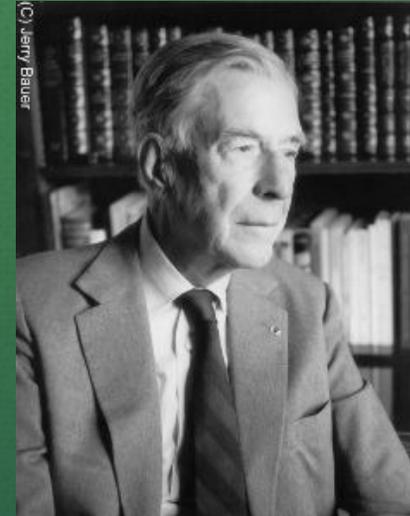


# Breakfast Benefits Beyond Weight: Cardiovascular and Mental Well-Being and Performance

“It takes some skill to spoil  
a breakfast - even the  
English can't do it.”

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John Kenneth Galbraith



# Breakfast and Cardiovascular Disease (CVD)

- Collaborative Cohort Study > 100,000 Japanese 40-79 yrs
  - Cutting breakfast was associated with increased mortality from cardiovascular disease
- Whole grain (WG) breakfast cereal
  - Harvard Physicians Health Study 86,190 males
  - Total mortality and death from CVD were both inversely related to whole grain breakfast cereal consumption
  - Congestive failure - inversely related to WG breakfast cereal
  - Type 2 diabetes was inversely related to whole, not refined, grain breakfast cereal

Iso, et al. Nutrition and disease in the Japan Collaborative Cohort Study for Evaluation of Cancer (JACC), 2007; . *Asian Pac J Cancer Prev.* 2007;8 Suppl:35-80. 3. S Liu, HD, Sesso, JE, Manson, WC Willett, JE Buring. *Am J Clin Nutr.* 2003;77:594-599.

“My wife and I tried to breakfast together, but we had to stop or our marriage would have been wrecked.”

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Winston Churchill



# Breakfast, Performance and Well-Being In Adults

-  Physical Complaints
-  Fatigue
-  Depression and Anxiety
-  Self-reported Cognitive Failures

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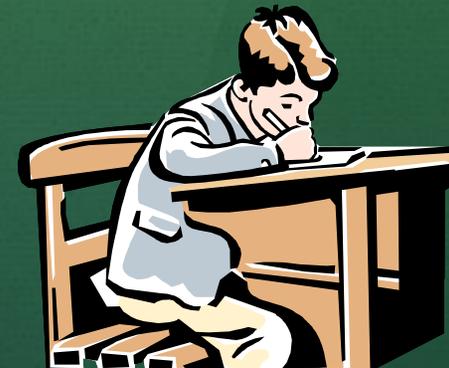
 Improved Overall Health Behaviors

Two studies - 262; ages 21 – 85; mean age of 61 and 200 19-21 yr olds

Smith. *NutrNeurosci.* 2003;6:59-61. *Int J Food SciNutr.* 1999;50:445-449. 3. *Int J Food SciNutr.* 1999;49:397-402.

# Breakfast and School Performance

- Review of 22 studies
- May **improve** cognitive function **related to memory**
  - Improved math and reading scores
  - Fewer problems in the late morning
- **More** positive attitude **towards school**
  - Less likely to be tardy or miss class
  - Fewer reported discipline problems



Rampersaud, et al. *J Am Diet Assoc.* 2005;105(5):743-60. Wahlstrom and Begall, 1999. Kleinman, et al, 2002. Wesnes, et al, 2003; Benton D. *Mol Nutr Food Res.* 2010 ;54(4):457-70.; Mahoney, et al. *PhysiolBehav.* 2005 ;85 (5): 635-645.

# Breakfast and School Performance

- Regular breakfast group - Indian
  - Scores in Science, English and total higher compared to those scored by the children in the no breakfast group.
  - associated with immediate recall memory score explaining 4.3 percent variation.



Gaire et al Indian Pediatr. 2008 Oct;45(10):824-8.

# Breakfast: Older Adults and Mental Agility

- 205 adults, ages 60-79

38.4

Those who consumed breakfast every day scored higher on the National Adult Reading Test

34.7

Those who irregularly consumed breakfast

Vs.

# Breakfast and Mood

N= 686 Wales

- Rate their mood better with breakfast, happier, more relaxed
- In men CHO -associated with feeling happy rather than sad and relaxed rather than stressed
  - No assoc with fat, protein and total energy

Benton et al Appetite. 2010 Aug 13. [Epub ahead of print]

# Breakfast – Why it is helpful?

- Breakfast provides energy for the brain
- Breakfast skipping impairs attention and memory
- Breakfast improved alertness
- Missing breakfast interferes with cognition and learning



# Spotlight on Key Breakfast Foods and Nutrients

“To eat well in England  
you should have  
breakfast three times  
a day.”

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W. Somerset Maugham



# Top US Breakfast Foods

## Children

1. Milk
2. Ready-to-eat cereal
3. White bread
4. Juice
5. Eggs
6. Meat
7. Fruit
8. Breakfast pastries,  
donuts, granola bars
9. Cooked cereal
10. Pancakes

## Adults

1. Milk
2. Coffee and coffee drinks
3. Bread
4. Ready-to-eat cereal
5. Juice
6. Fruit
7. Eggs
8. Cooked cereal
9. Meat
10. Breakfast pastries,  
donuts, granola bars

# Breakfast Eaters Have Better Diets

## Skippers more likely:

- To have overall diets defined as poor or inadequate
- To be associated with increased snacking
- To lead to the omission of other meals, which exacerbated inadequate intake

## Eaters more likely:

- To make more healthy food choices and to have better diet and health habits
- To eat more vegetables, fruit and milk, fewer soft drinks, and lower intake of french fries

1. Dubois, et al . *Public Health Nutr.* 2008;18:1-10. 2. Rampersaud , et al . 2005. 3. *JADA.*105 (5):743-760.

# Breakfast on the Run

- 1,700 college age adults
- Not sit down to a meal - less healthy choices
  - 35 % of men
  - 42 % of women
  - Ate fewer fruits, veg, more fat foods , sat fat , soft drinks
- Suggestions - GOgurt, string cheese, fresh dried fruits, drinkable yogurts, string cheese
- Whole grains rolls, bags of high fiber cereal
- Larson et al 2008

# Breakfast Choices

- NHANES 12,300 80% ate something
- 17% reported having a pastry, meal replacement drink or bar, or some other item that didn't fit into one of the five food groups (grain, fruit, vegetable, dairy, and meat or meat alternative)

Kant et al AJCN 2008

# Breakfast: Nutrients for Kids

- Review of 47 studies - Breakfast Eaters
- **Superior nutrient profiles**
- Breakfast contributes
  - < 20% of daily calories, but more than
  - > 30% of calcium, iron, B vitamins
- Nutrients missed at breakfast are typically not made up during the day.

*Rampersaud et al. JADA. 2005;105:743-60; and NHANES 1999-2002; Barton et al, 2005. JADA.;105:1383-9; Murphy et al, 1998 Arch Pediatr Adolesc Med. ;152:899-907. Nicklaset al, 2002 J ADA. ;102:226-233.*

# Breakfast: Nutrients for Adults

- Breakfast consumption associated with:
  - Better overall nutrient intakes
  - More “nutrients of concern”
  - Less fat/cholesterol intake overall
  - Higher intakes of dietary fiber

Song, et al. 2005. 2. Bazzano, et al. 2005. Thane ,et al. 4. Public Health Nutr. 2003;6:485-96. 5. Bertrais ,et al. 2000. 6. Galvin , et al. 2003.

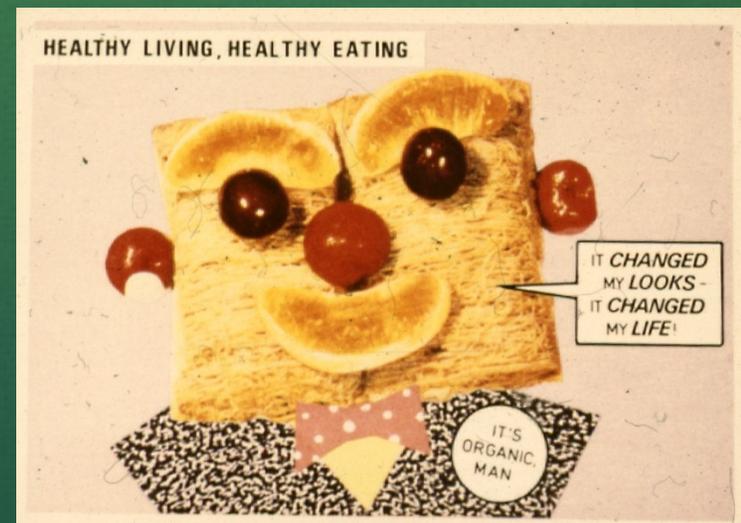
# Breakfast and Fruit Intake

- 103 4<sup>th</sup> to 6<sup>th</sup> graders 4urban schools St. Paul
- 80% did not eat 5 sv.
- Over half F&V at school
  - Those with low intakes more came from schools
- Robinson- O'Brien et al J Sch Health. 2010 ;80:487-92

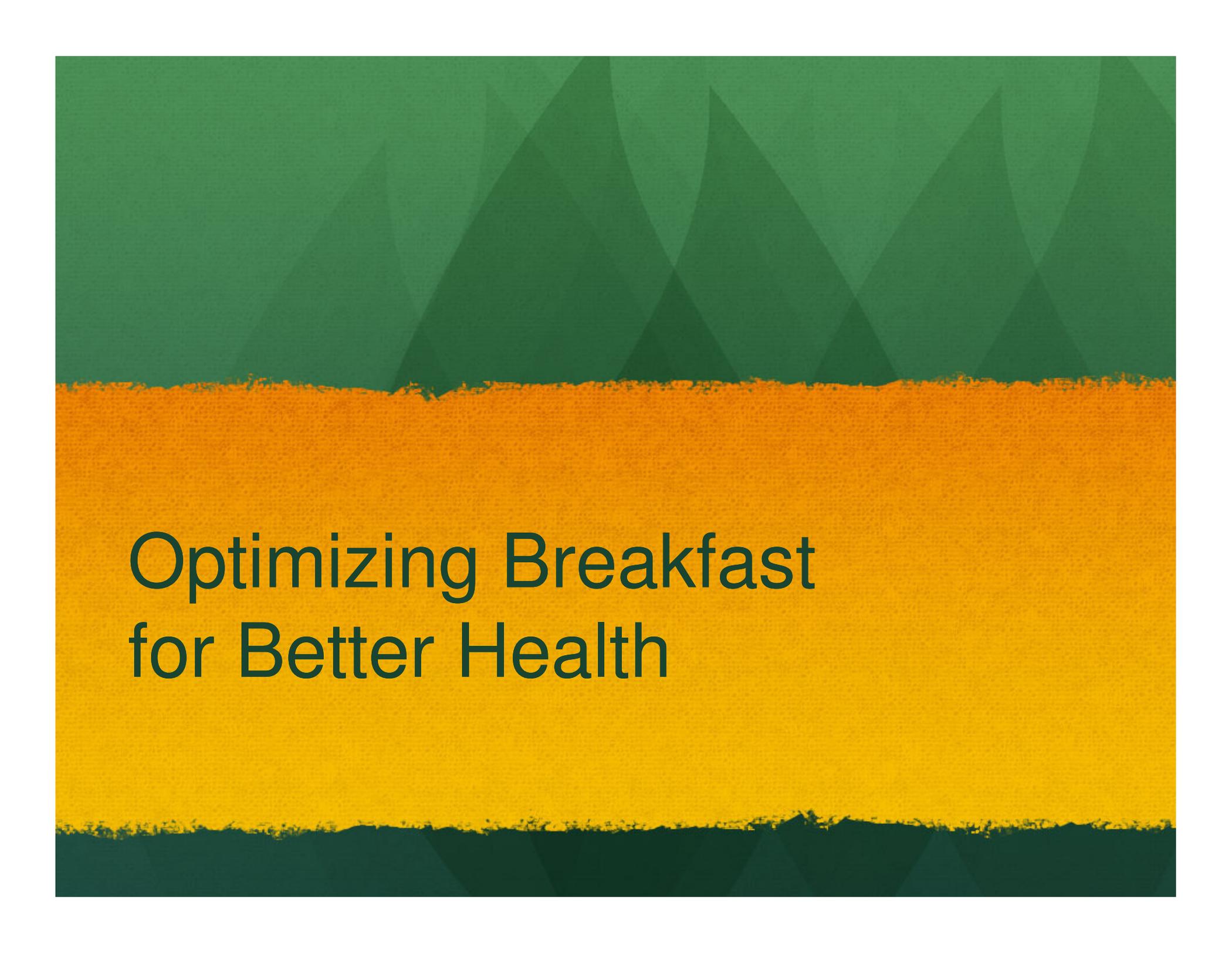
# Breakfast and Whole Grain Intake

- Whole grain intake
  - 0.8 servings whole grain/day
  - <10% eat recommended amounts
  - 40% never chose it
- Whole grains taste great with fruit and you get the benefits of both

The Whole Grain, Fruit  
And Vegetable Lifestyle



CSFII, 1994-6. US adults  
Cleveland, et al. *JACN*.2000;19:331S

The background features a central horizontal band of bright orange with a fine, grainy texture. Above and below this band are areas of dark green, each containing a pattern of overlapping, semi-transparent triangles that create a layered, mountain-like effect. The overall composition is modern and geometric.

# Optimizing Breakfast for Better Health

# Breakfast and Eggs

- 40 hyperlipidemic men and women
- Egg - No adverse effect on endothelial function or cholesterol
  - Different from sausage / cheese
  - Egg substitute improved it

Nilke et al Nutr J. 2010 ;9:28.

# Breakfast and Eggs

- 21 men 20-70 yo crossover design
- Egg vs bagel
- Bagel - subjects were hungrier and less satisfied 3 hr after
- Bagel higher plasma glucose area under the curve ( $P < .05$ ) as well as an increased ghrelin and insulin area under the curve

Ratliff et al Nutr Res. 2010 ;30(2):96-103.

# Breakfast and Perception

- Isocaloric breakfasts
  - appearing different in calorie content. N=123
- Cereal breakfast was perceived to be lower in calories, fuller, happier, relaxed, and more satisfied about weight and body vs muffin breakfast. more positive psychological reactions.
- Perceptions influence health and well-being, mood and body image satisfaction affect outcome.

Lattimore et al. *Appetite*. 2010 Sep 9. Epub ahead of print

# Breakfast Tips

- Cook oatmeal once a week; store in the refrigerator (bowl or bag); microwave and serve with cinnamon and raisins
- Prepare whole grain nut and raisin pancakes; freeze and warm to use
- Make peanut butter sandwiches with raisins – whole grain bread the night before; grab them with your lunch
- Use nut, raisin, whole grain breakfast bars
- Love bran cereals

# Breakfast Tips for People with Diabetes

- Use high fiber, portion controlled products
- Make oatmeal and add psyllium, flax
- Barley
- Look for high-fiber, low-sugar ready-to-eat cereals
- Look for bars that have a low glycemic impact and that deliver starch and nutrients

# Summary

- **Breakfast is important for the health of all**
  - Maintaining or achieving a healthy body weight
  - Improving overall diet quality and helping to get adequate fruit, potassium and fiber in the diet
  - Improving physical, as well as mental health
- **Breakfast helps people with diabetes control blood sugar throughout the day**
  - People with diabetes benefit with portion- and carbohydrate- controlled breakfast cereal
  - A controlled-release carbohydrate and fruit or dried fruit, such as California raisins
  - Delivering carbohydrate gives a steady fuel supply, improves performance
- **And in the end, a happier, healthier you**

"Only dull people  
are brilliant  
at breakfast."

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Oscar Wilde



# For More Information