



# EFNEP Evaluation

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## Learning from the Past, Moving to the Future

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# This session will cover

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1. History of EFNEP evaluation tools
2. How and why the methods chosen helped develop a new and improved EFNEP evaluation tool
3. Future uses of the new EFNEP evaluation tool

# Expanded Food and Nutrition Education Program (EFNEP)

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- Healthy eating and active living education for limited resource adults and youth
- Peer education model
- Almost 4 million adult participants since 1968



# History of EFNEP Behavior Checklist

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- 1990 – Committee Formed
- 1992 – Expert Panel/Focus Groups
- 1993 – Revised/Pilot Testing
- 1997 – Final Behavior Checklist Released



# Quality Evaluation

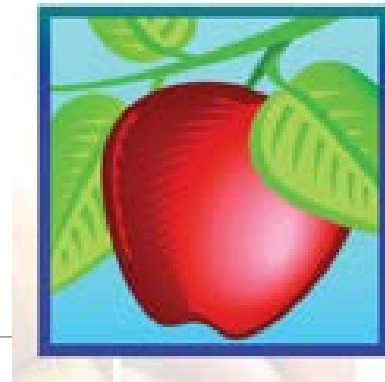
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- Measures outcomes to determine how well a program works
  - Requires tested tools
  - Provides input for program improvement
  - Provides program outcomes/impacts

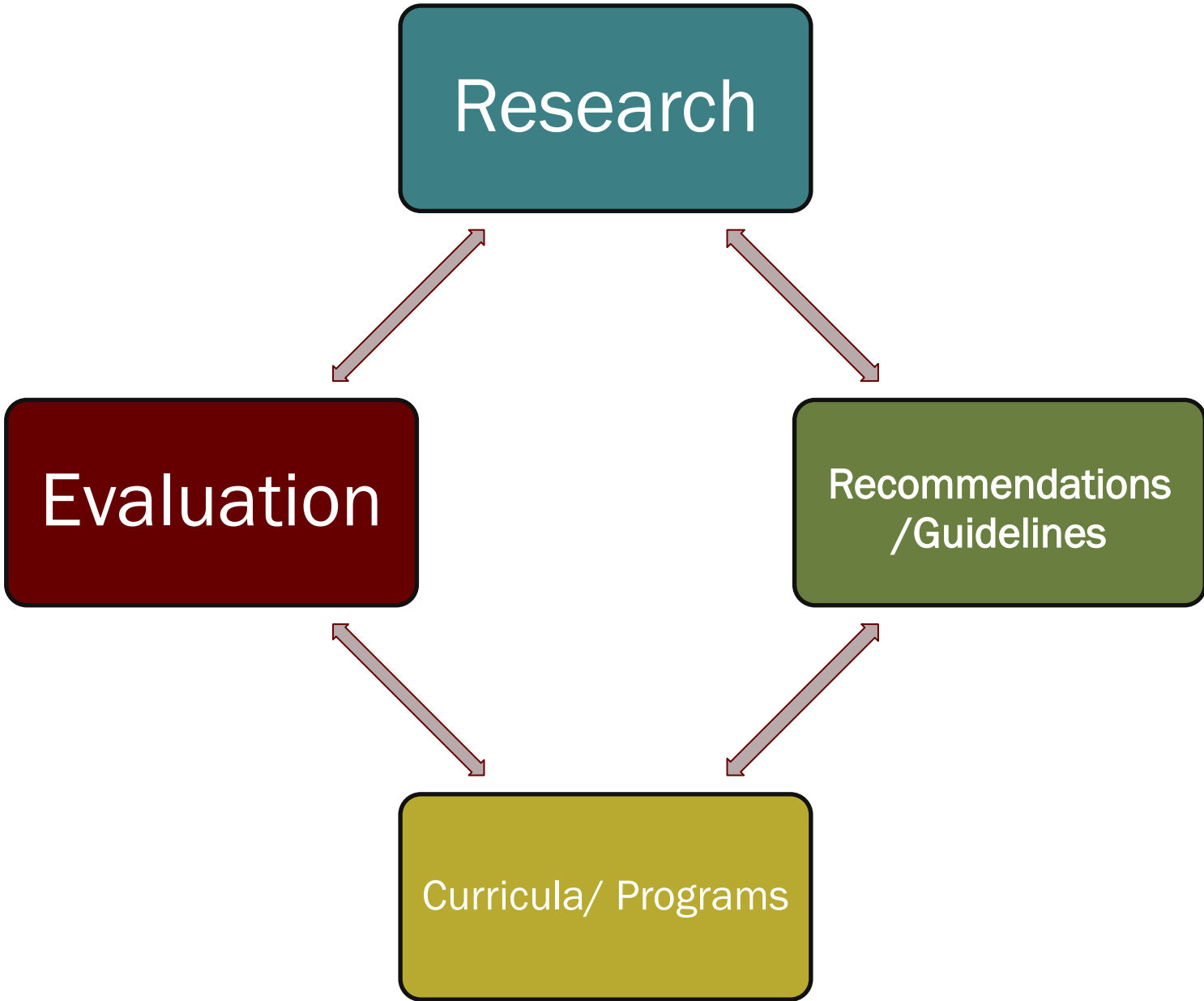


# Why does EFNEP need a new tool?

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- New research findings
- 2015-2020 Dietary Guidelines
- 2008 Physical Activity Guidelines





# Tool Development Team

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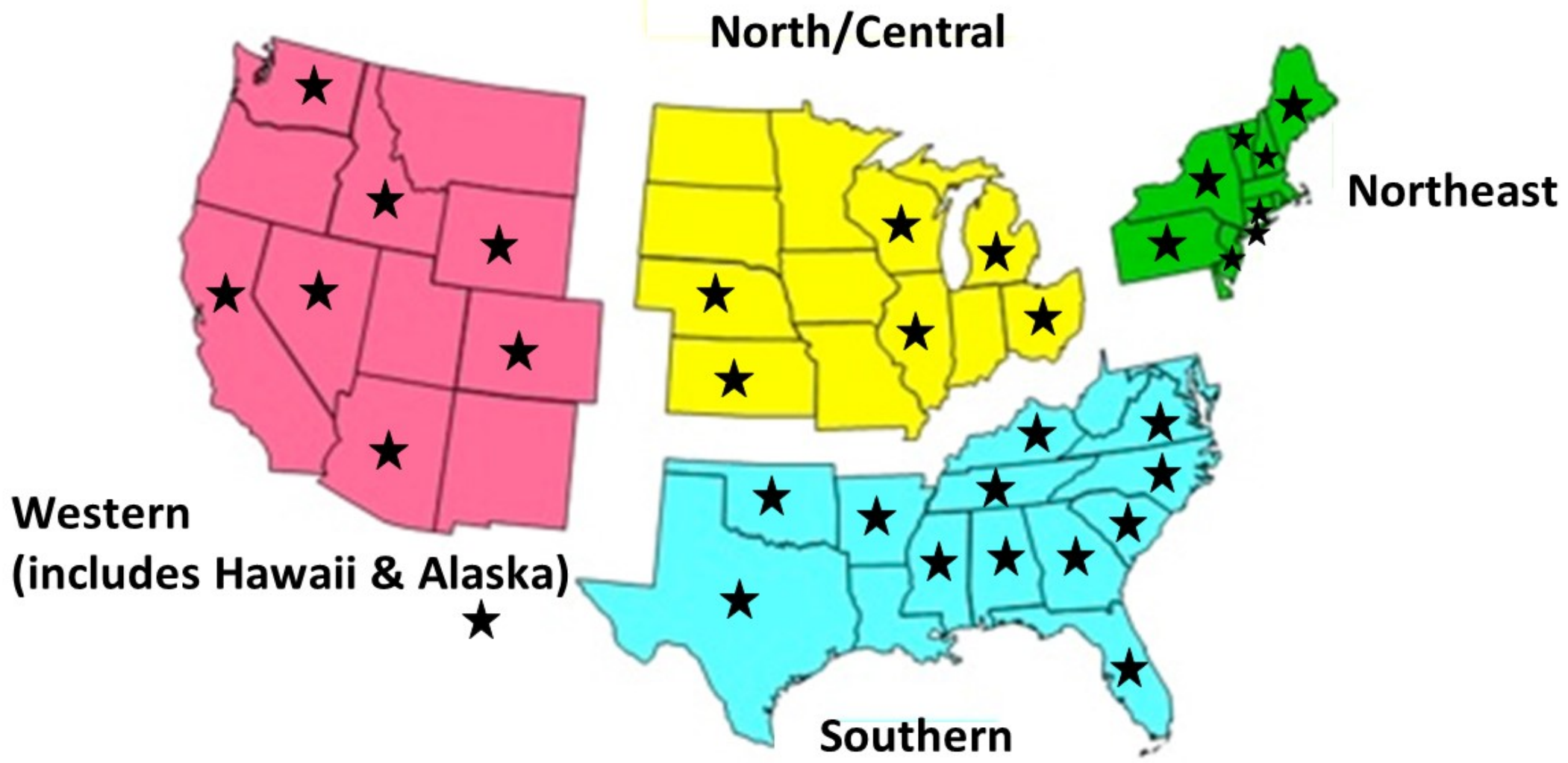




# EFNEP Core Content Areas

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- Nutrition
- Physical Activity
- Food Resource Management
- Food Safety
- Food Security





# Process for New Survey Development

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- Content Review
- Identification of Questions
- Face validity
- Reliability Testing
- Validity
- Sensitivity



# EFNEP Curricula for 78% of Graduates

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- Eating Smart • Being Active (Colorado/California)



EATING SMART  
BEING ACTIVE

- Eating Smart & Moving More (North Carolina)



- Healthy Food & Healthy Family (Texas)





# Content Review

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- Review of content in educational materials
- Compares content with national program guidelines and/or expert recommendations
  - Confirms content
  - Identifies missing content



# Content Standards

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- **Nutrition & Food Safety** = 2015 Dietary Guidelines for Americans
- **Physical Activity** = 2008 Physical Activity Guidelines for Americans
- **Food Security** = USDA Household Food Security module
- **Food Resource Management** = key concepts identified by subject matter experts



# Curriculum Review

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- Delivery
  - Lecture only
  - Lecture and discussion
  - Lecture, discussion and interactive activity
  
- Frequency within lesson
  - Once
  - Twice
  - Repeatedly



# Key Concept = Identify emergency food programs

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- Reviewer #1: Written in cookbook but not mentioned specifically in curriculum
- Reviewer #2: Discussed in classes but not mentioned specifically
- Reviewer #3: Not identified in curriculum





# Content Validity

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- Does the tool represent the breadth and scope of the topic of interest?
- Typically determined by “expert” panel
  - Researchers/NIFA Sub-committee members
  - EFNEP Coordinators
  - NC2169 members

1. Murray, E., et al. (2015).
2. Murray, E., et al. (in press).



# Identify Questions

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- Questions identified from research and literature or developed as needed
- Expert panels provided feedback and suggestions on all questions:
  - How representative is the question?
  - How clear is the question?
  - What questions are missing?
  - What questions do not need to be included?



# Face Validity

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- Items appear to measure what they are supposed to AND
- Everyone interprets the item in the same way and as intended
- Typically use cognitive interviews

3. Willis, Gordon B. (1999).

# Cognitive Theory Process

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- Comprehension of the question
- Retrieval from memory of relevant information
- Decision processes
- Response processes

# Cognitive Interviews

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- Identify/evaluate sources of response error in questionnaires
- Explore reasons for the problems
- Obtain information to fix the problems
- Revise questions
- Test the revisions

# Probes for Understanding Questions

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- Can you tell me in your own words what that question means to you?
- Are there any words that might be confusing?
- Can you think of a better way to ask the question so that it would be easier to understand?



# Probes for Understanding Response Options

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- What do the response options mean to you?
- What other ways could you answer this question?

# Participant Feedback

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*In the past week, how many days did you exercise when you breathed harder than normal for at least 30 minutes?*

“I think it means that you want to know how out of shape I am. Breathing hard for 30 minutes means I’m really out of shape.”

“Breathing hard means you are out of shape. There is nothing healthy about this question. You should not be breathing hard for this long.”



# Example Process: Food Safety

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- Phase 1 – How often do you leave food sitting out on the counter to thaw?
- Phase 2 – Do you leave food sitting out at room temperature to thaw?
- Phase 3 – How often do you defrost frozen food on the counter or in the sink?
- Phase 4 – How often do you thaw frozen food on the counter or in the sink?
- Phase 5 – How often do you thaw frozen food on the counter or in the sink at room temperature?



# Cognitive Interviews Completed

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- Over 350 cognitive interviews conducted in 15 states
- All items tested regionally



# Reliability

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- Consistency, repeatability of a measure
  - Assuming nothing has changed, do you get the same response?

## Two important types of reliability to test

- Reliability over time - Test/retest  
(correlations and paired t-tests)
- Internal consistency (Cronbach alpha)

# Scale



- 180 lbs
- 175 lbs
- 188 lbs
- 185 lbs
- 176 lbs

NOT RELIABLE

- 180 lbs
- 182 lbs
- 180 lbs
- 179 lbs
- 181 lbs

RELIABLE  
**but** I weigh  
192 so NOT  
VALID


Reliability is necessary but not sufficient to establish validity!



# Reliability vs. Validity?

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- Reliability = consistency
- Validity = questions measure the thing you are trying to measure
- Reliability is tested first because:
  - You CAN have questions that are reliable but not valid; but,
  - You CAN'T have questions that are valid unless they are reliable.



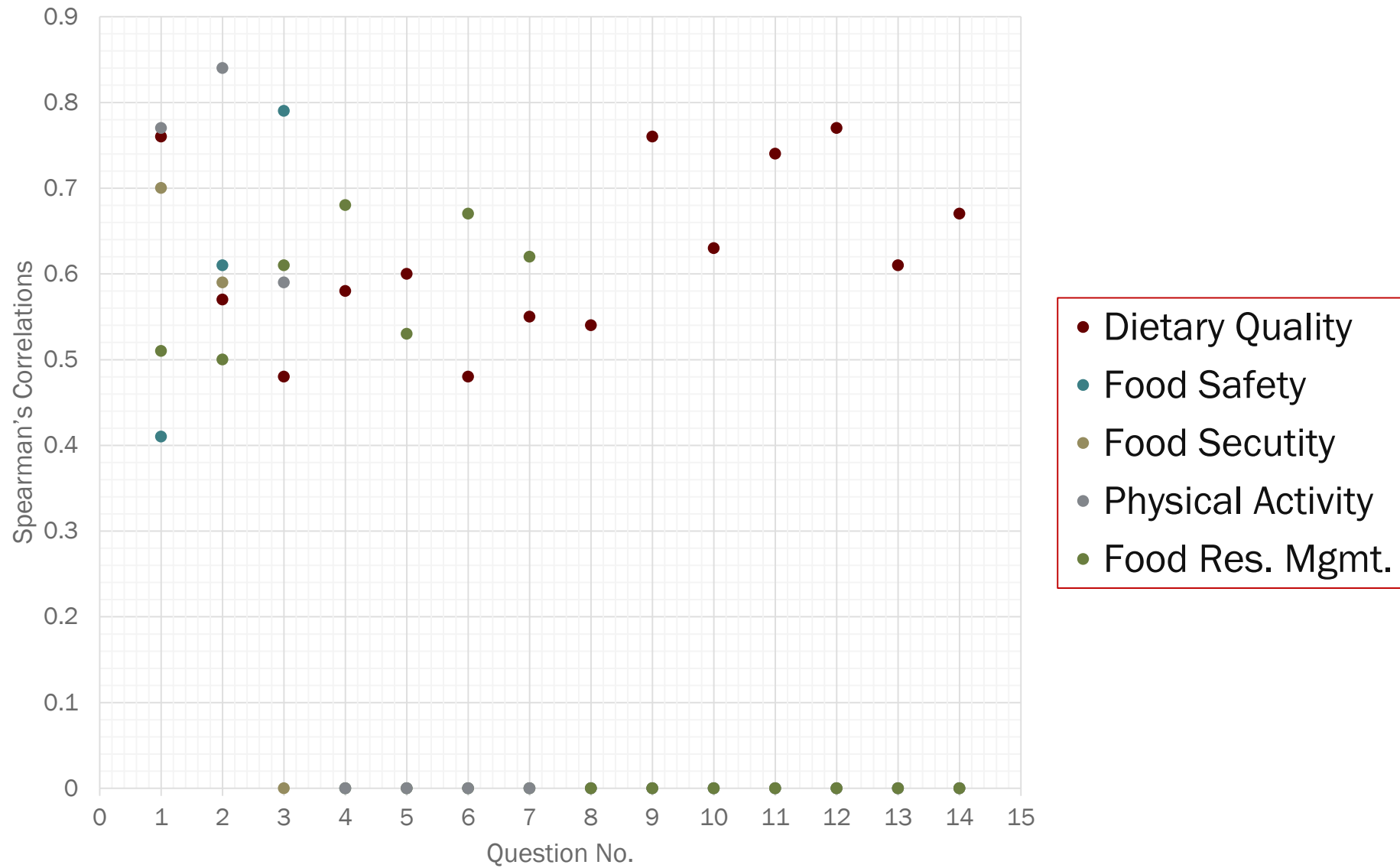
# Reliability - Test/retest

(Do you answer questions the same way each time you are asked?)

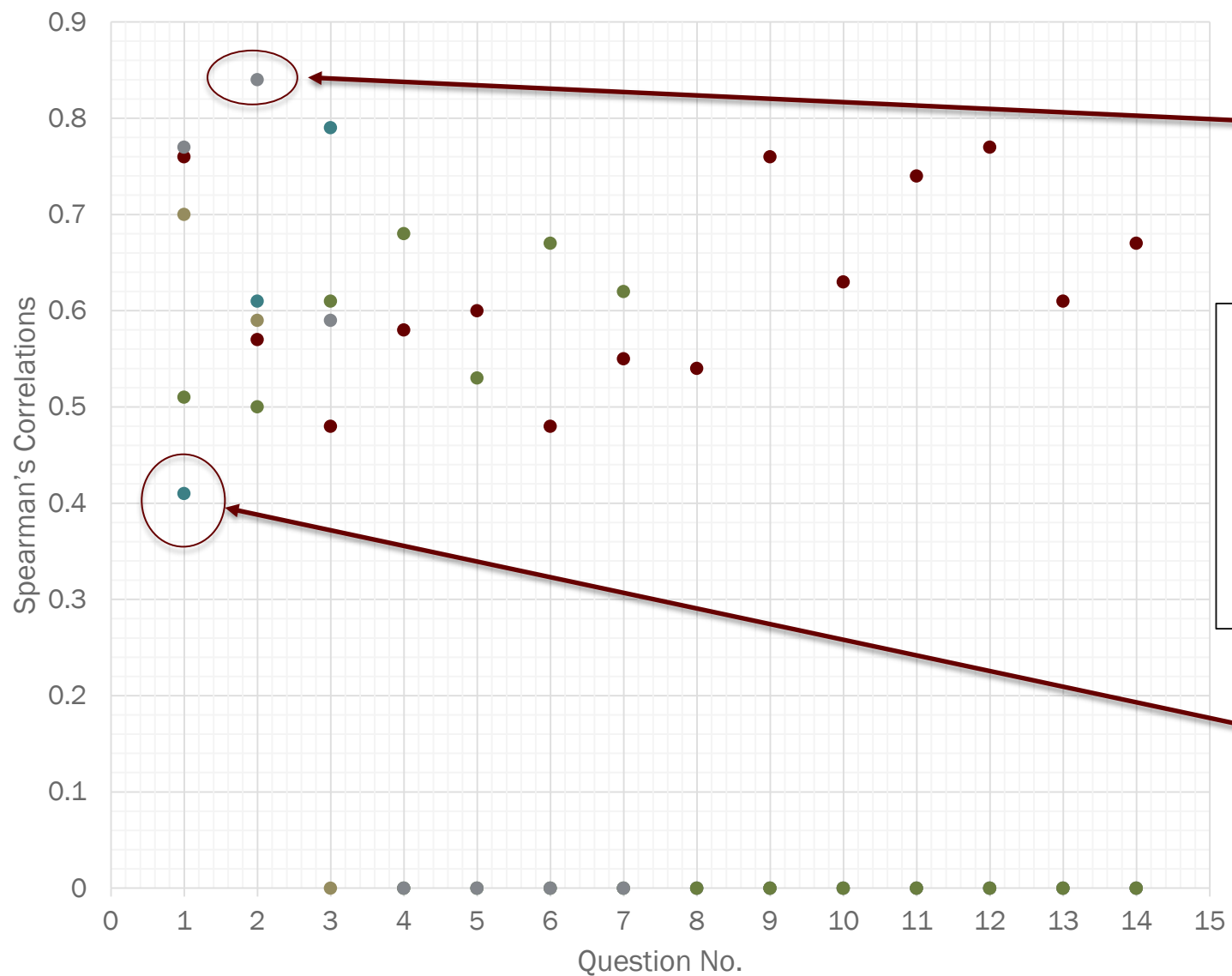
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- 181 matched surveys completed in 7 states for food-related questions; 85 matched surveys from 3 states for the physical activity questions.
- Food insecurity issue (sensitivity)
- Physical activity issue (weather)

# Test-Re-Test Reliability



# Test-Re-Test Reliability



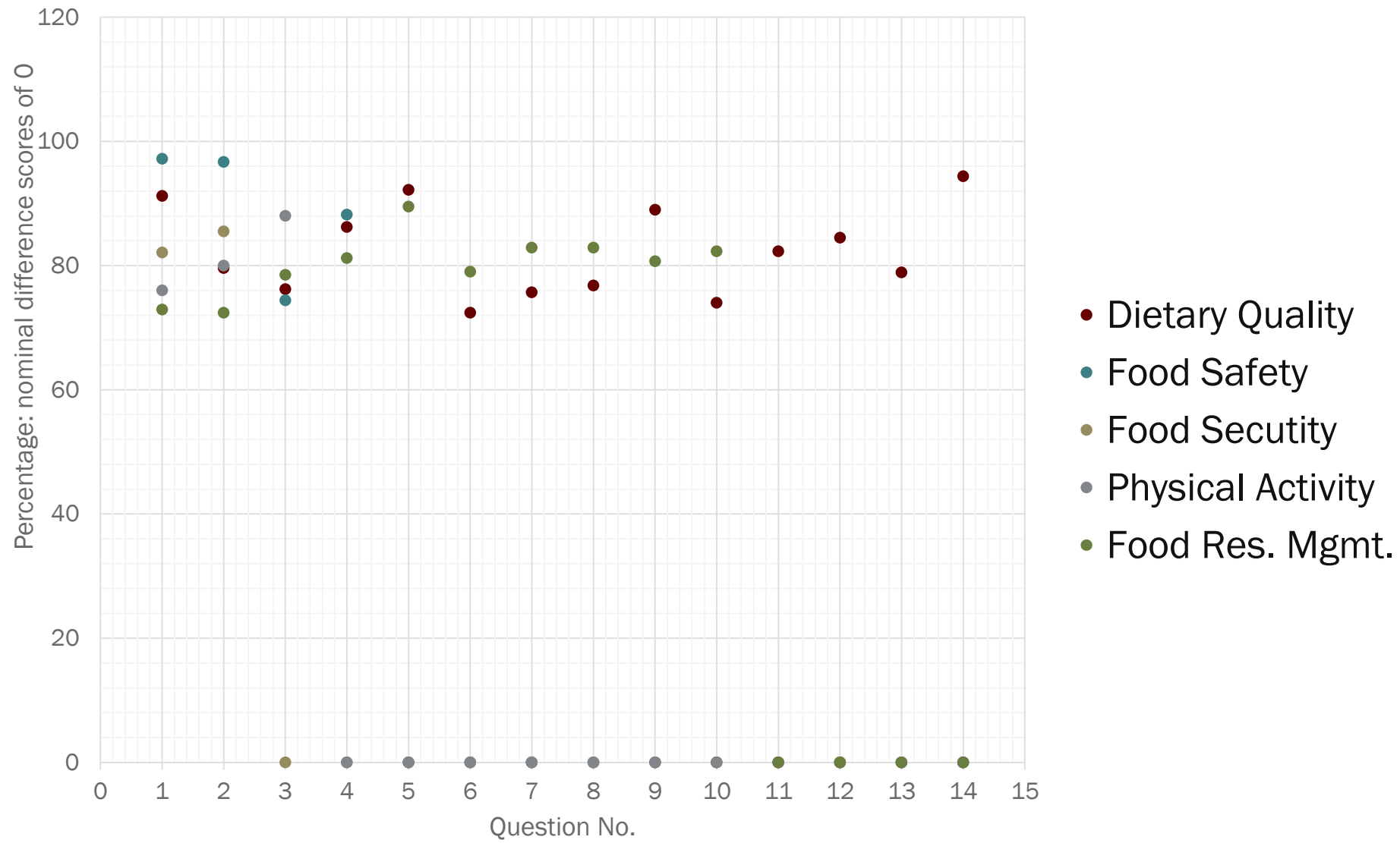
This one did REALLY well!

This one not so much (but it's still pretty good).





# Another Way to Look at the Same Data





# Internal Consistency

	Number of People Tested	Number of Items	Chronbach's Alpha
<b>Dietary Quality</b>	<b>181</b>	<b>14</b>	<b>0.68</b>
<b>Food Safety</b>	<b>181</b>	<b>4</b>	<b>0.40</b>
<b>Food Security</b>	<b>181</b>	<b>2</b>	<b>NA</b>
<b>Physical Activity</b>	<b>85</b>	<b>3</b>	<b>0.58</b>
<b>Food Resource Management</b>	<b>181</b>	<b>10</b>	<b>0.79</b>



# Criterion/Construct Validity

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- Compare to a gold standard (e.g., accelerometer data vs. I exercise 150 minutes per week)
- Gold standard not practical day to day use
  - expensive
  - complex
  - acceptance by target audience



# Criterion/**Construct** Validity

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Theoretical relationships between measures

- Convergent – related to what it “should” be
  - Cooking self-efficacy vs. frequency of meal preparation
  - VO2 max vs endurance
- Divergent – not related to what it shouldn’t be
  - If you eat out a lot you likely aren’t well-versed in cooking.
  - If you perceive you have fewer barriers to activity your activity levels are higher and if you perceive many barriers they are lower.

# Criterion Validity Testing

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- Nutrition = Repeated dietary recalls
- Physical Activity = Accelerometers
- Food Safety = Observations
- Food Security = National Food Security Survey
- Food Resource Management = Interviews



# Sensitivity

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- What is sensitivity?
  - What size of difference or change is detectable?
  - Meaningful?
- What needs to be done?
  - Power calculation
  - Pre/Post with intervention

# 2018 EFNEP Food and Physical Activity Questionnaire

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- 32 Questions tested
- 20 Questions selected for the:

**EFNEP Food and Physical Activity Questionnaire (FPAQ)**  
(previous tool was the EFNEP Behavioral Checklist or BCL)

# 2018 EFNEP Food and Physical Activity Questionnaire

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- Questionnaire to be released to EFNEP Coordinators August 14, 2017
- Questionnaire to be implemented October 1, 2017 in all EFNEP programs



# Questionnaire

## 12. How often do you thaw frozen food on the counter or in the sink?

- Never
- Rarely (about 20% of the time)
- Sometimes (about 40% of the time)
- Often (about 60% of the time)
- Usually (about 80% of the time)
- Always

Please mark the response that **best** describes how you **usually** do things.

### 1. How many **times a day** do you eat fruit?

Examples of **fruits** are apples, bananas, oranges, grapes, raisins, melon and berries. Include fresh, frozen, dried, or canned fruit. *Do not include juice.*

- I rarely eat fruit
- Less than 1 time a day (a couple times a week)
- 1 time a day
- 2 times a day
- 3 times a day
- 4 or more times a day

### 2. How many **times a day** do you eat vegetables?

Examples of **vegetables** are green salad, corn, green beans, carrots, potatoes, greens, and squash. Include fresh, canned and frozen vegetables. *Do not count french fries, potato chips or rice.*

- I rarely eat vegetables
- Less than 1 time a day (a couple times a week)
- 1 time a day
- 2 times a day
- 3 times a day
- 4 or more times a day

### 3. Over the last week, **how many days** did you eat red and orange vegetables?

Examples of **red or orange vegetables** are tomatoes, red peppers, carrots, sweet potatoes, winter squash, and pumpkin.

- I did not eat red and orange vegetables
- 1 day a week
- 2 days a week
- 3 days a week
- 4 days a week
- 5 days a week
- 6 or 7 days a week

### 4. Over the last week, **how many days** did you eat dark green vegetables?

Examples of **dark green vegetables** are broccoli, spinach, dark green lettuce, turnip greens, or mustard greens.

- I did not eat dark green vegetables
- 1 day a week
- 2 days a week
- 3 days a week
- 4 days a week
- 5 days a week
- 6 or 7 days a week

### 5. How often do you drink regular sodas (not diet)?

- Never
- 1- 3 times a week
- 4- 6 times a week
- 1 time a day
- 2 times a day
- 3 times a day
- 4 or more times a day

### 6. How often do you drink fruit punch, fruit drinks, sweet tea or sports drinks?

- Never
- 1- 3 times a week
- 4- 6 times a week
- 1 time a day
- 2 times a day
- 3 times a day
- 4 or more times a day



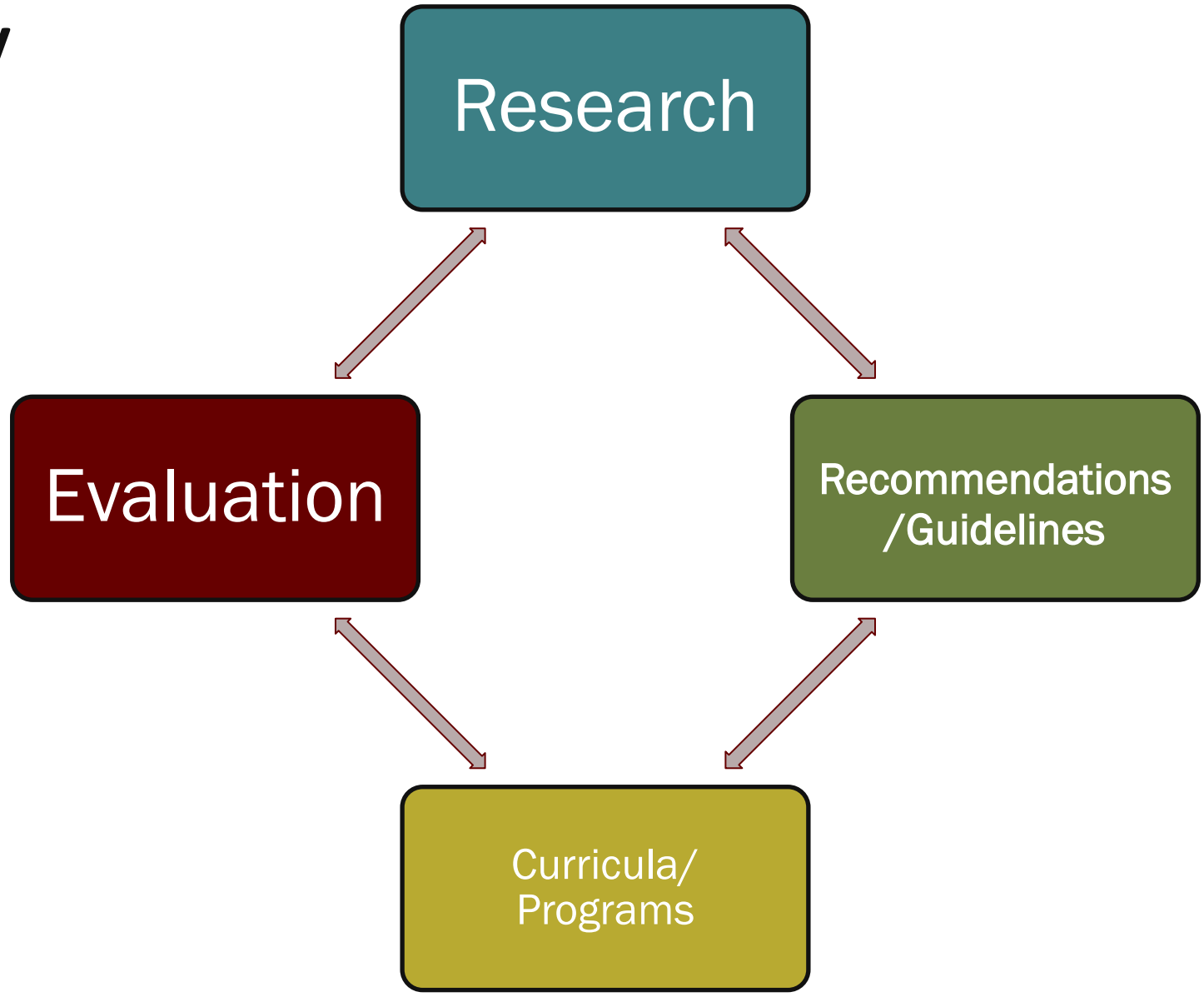
# Future Steps

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- Available in English and Spanish
- Additional testing ongoing
- Continued revisions as the Dietary Guidelines for Americans are revised



# Summary





**Strong program evaluation  
strengthens the evidence base and  
helps sustain successful programs**

# NC2169 Multi-state Project

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# Current Researchers

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*Expanded  
Food and  
Nutrition  
Education  
Program  
(EFNEP)*

Questions?

Thanks for coming!