

Helping students distinguish
NUTRITION SCIENCE from
nutrition FICTION

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SNEB Let's Talk

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Rationale

- Many consumers are illiterate when it comes to science, failing to recognize that nutrition recommendations are based on science.
- For General Education approval for Nutrition 100, we had to make the scientific basis of nutrition very obvious to the University Faculty Gen Ed Committee
 - They rejected our previous proposal to satisfy the Natural Science requirement, because “nutrition wasn’t scientific enough”
 - We developed these activities...
 - Nutrition 100 is an approved Gen Ed option starting in Fall 2015

Overview of our approach

- Supportive materials included in the required course packet
- In-class demonstration & guided practice in reading scientific abstracts
- Homework assignment
- Repetition in class throughout semester as students read & interpret additional abstracts
- Students read & interpret at least one abstract on each exam
- Positive results

Review scientific methodologies

- Required packet reading: brief descriptions of study designs & their rigor
 - Based on USDA Nutrition Evidence Library (NEL)
 - Randomized controlled trials, observational studies
 - Length of studies
 - Number of subjects, their diversity
- Answer students' questions to clarify their understanding
- Go to NEL to show how to find research questions & conclusions

Demonstration

- **NEL Research question**
- “What is the relationship between the intake of milk & milk products & body weight?”
- **Overall conclusion from the NEL based on all relevant research**
- “Strong evidence demonstrates that intake of milk & milk products provides no unique role in weight control.”
- **Read a linked abstract & answer questions**

Abstract for “Skim milk compared with a fruit drink acutely reduces appetite & energy intake in overweight men & women”

Find this information in the abstract

- Research purpose or hypothesis
- Type of study
- Describe the target population
- Number of subjects
- Length of study
- Briefly describe the intervention
- What was the conclusion of the research?
- Does the conclusion in this abstract agree with the NEL overall conclusion? Why or why not?

Guided Practice

- **Two different abstracts**
- “Milk intake is inversely related to obesity in men & in young women: data from the Portuguese Health Interview Survey 1998-1999”
- “Calcium & dairy intakes in relation to long-term weight gain in US men”

- **Discussion**
- 2 of these 3 studies did not support the overall NEL conclusion
- What were the studies’ limitations?

Homework Assignment

- Online template with 2 NEL research question options, including
 - Links to selected abstracts
 - Overall NEL conclusion
- “What are the health effects related to consumption of chocolate?”
 - 4 links (13 total in NEL)
 - Conclusion: Moderate evidence of cardiovascular health benefits linked with modest intake of dark chocolate; Benefits need to be balanced with caloric intake...
- “How do the health outcomes of a vegetarian diet compare to that of a diet which customarily includes animal products?”
 - 6 links (18 total in NEL)
 - Conclusion: Limited evidence of protection against cancer; Suggestive evidence of lower BMI & blood pressure; Vegan diets may increase risk of osteoporotic fractures...

Two additional questions on homework

- Answer this general question about scientific research: “Why is more than one study necessary to establish facts or ‘prove’ a theory?”
 - 100% gave credible answers:
 - Differences in methods, sampled populations (age, gender, race/ethnicity), sample size, variables controlled for, outcomes observed, possibility of errors
- From doing this assignment I learned that:
 - ~25% reported learning specific facts about chocolate or vegetarianism
 - But 100% of these also showed understanding of science in their response to the previous question

Repetition with additional abstracts throughout semester in class & on exams

- Impact of food label calorie information on physical activity preferences
- Satiety of high protein soy- or meat-based diets for weight loss
- Carotenoid absorption related to salad dressing
- Comparing diets for weight loss & cardiac risk factors
- Endurance capacity related to type of beverage
- Safety of consumers' food handling practices
- Comparing nutrients in fresh, frozen, & canned produce
- Parenting styles & overweight status in first grade

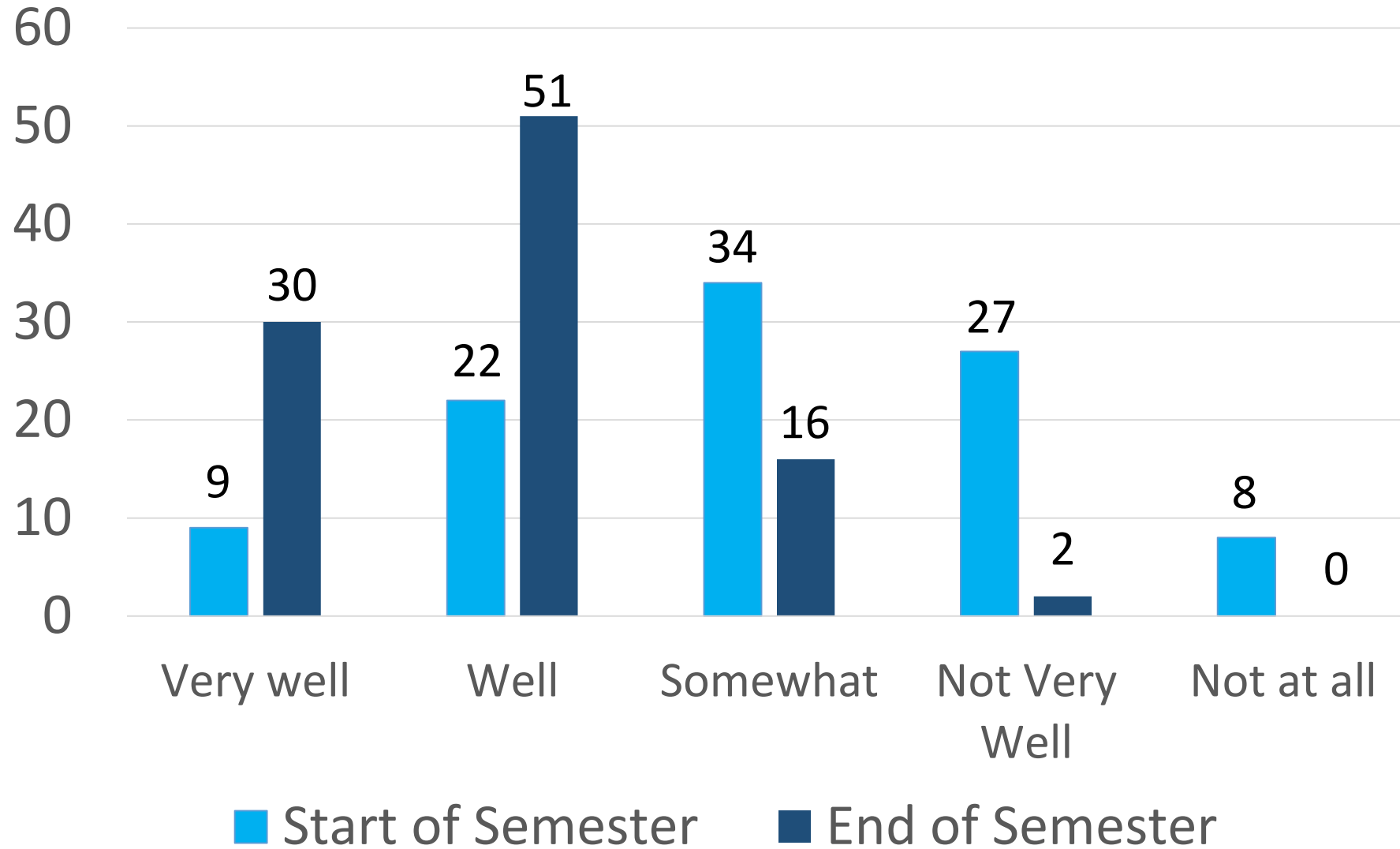
Mean scores on exam questions

- Questions related to scientific processes 84.8%
- Overall exams 84.4%

Outcome: Retrospective Pretest

- “Now that the semester is over, how well can you interpret an abstract describing a scientific research study related to nutrition?”
- “Based on what you know now, how well would you have been able to interpret an abstract describing a scientific research study related to nutrition, before taking Nutrition 100?”

Students' Responses (%)



So...

We are satisfied that we have increased scientific literacy in our students as well as among members of the University Faculty General Education Committee.

In past years nearly half of the students who enrolled in Nutrition 100 took it as an elective that did not satisfy any requirement.

We anticipate that enrollment will increase dramatically now that this course is a Gen Ed option for the Natural Science requirement.

This was a collaboration with colleagues

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