

REAL SCIENCE: CER PRACTICE DATA 1

RESEARCH QUESTION

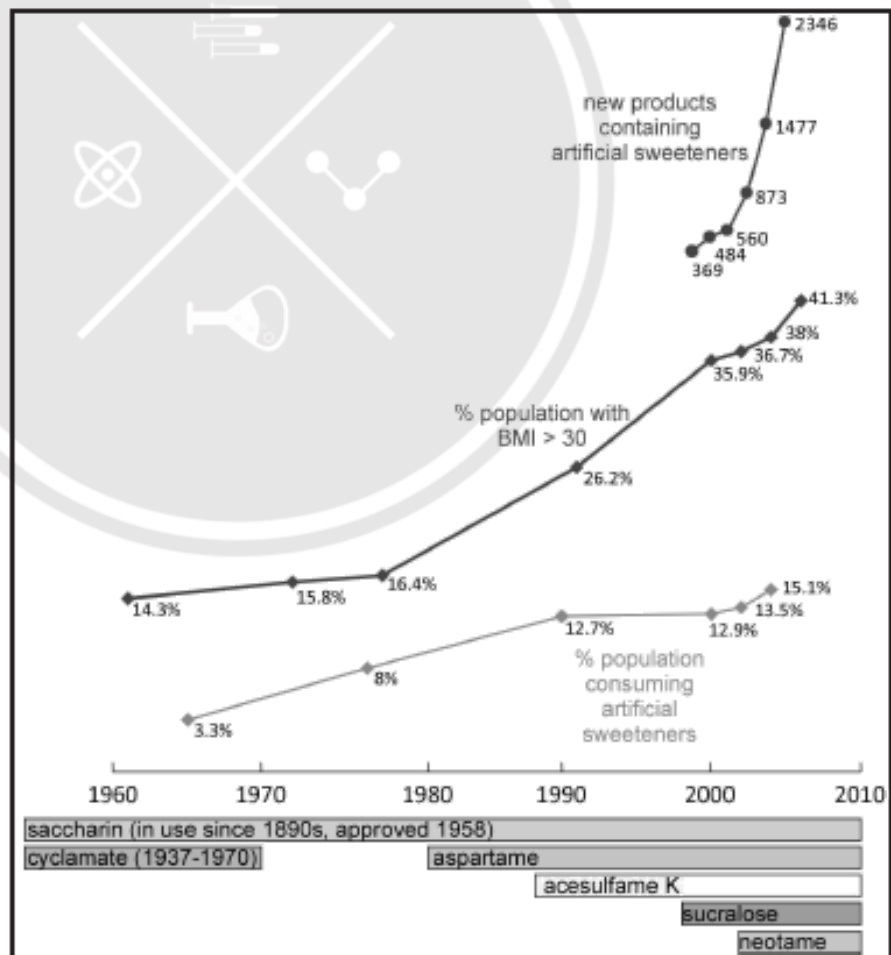
Does artificial sweeteners (ex. Aspartame, Saccharine, Sucralose) affect weight?

METHOD

Using a number of studies already done, the researcher plotted the type and availability of artificial sweeteners in the US over time against changes in artificial sweetener consumption and changes in the percentage of population who are obese over time.

RESULTS

Figure 1. Time line of artificial sweetener use and obesity trends in the United States. Middle line: changes in the percentage of the population who are obese (BMI >30) from 1961 to 2006. Source: National Health and Nutrition Examination Survey [57]. Bottom line: changes in the percentage of the population who are regular artificial sweetener users from 1965 to 2004. Source: National Household Survey [2]. Top line: changes in the number of new artificial sweetener containing food products introduced to the American market from 1999 to 2004. Source: Mintel Market Analysis [14]. Bars below the time axis indicates the type and availability of artificial sweeteners in the United States over time. Source: Kroger et al [9].



REAL SCIENCE: CER PRACTICE DATA 2

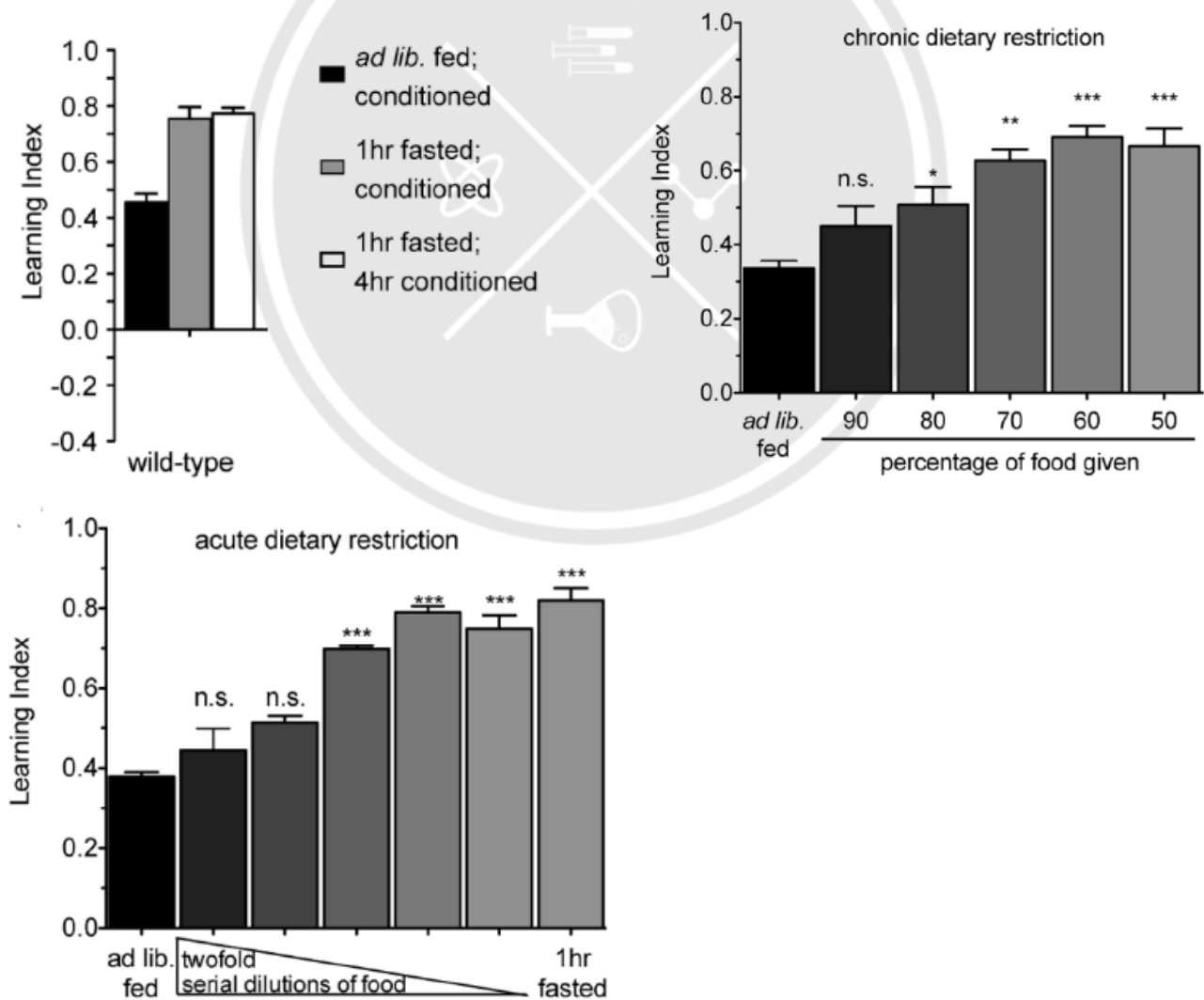
RESEARCH QUESTION

Does dietary restriction (ex. fasting or reduced calorie intake) affect learning?

METHOD

Researchers used roundworms and conditioned them to be attracted to food linked to the chemical butanone (which roundworms are attracted to). Researchers then either fasted for various amounts of time or reduced calorie intake by various degrees in roundworms and measured their learned or conditioned response (via learning index).

RESULTS



REAL SCIENCE: CER PRACTICE DATA 3

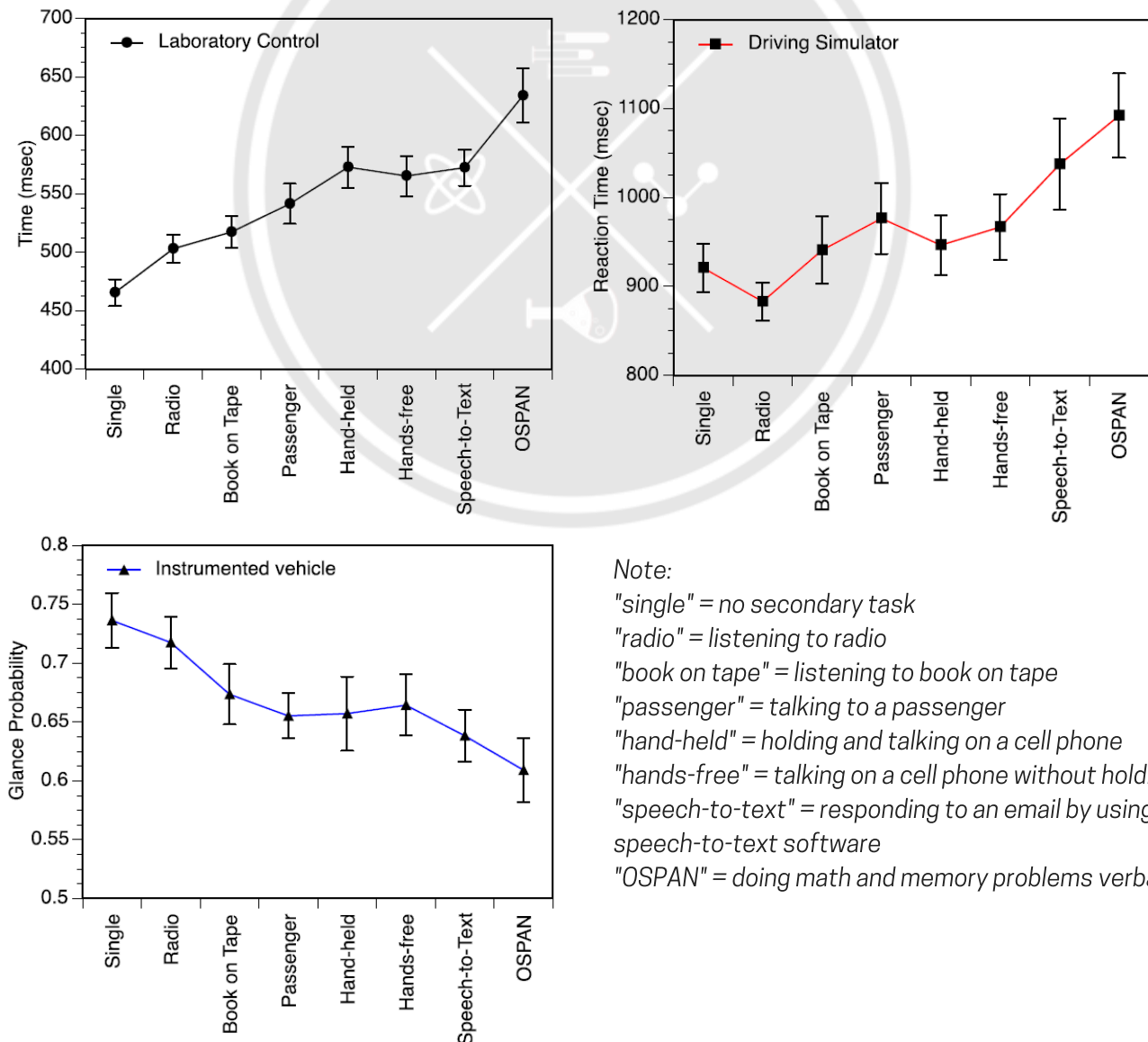
RESEARCH QUESTION

How does cognitive distraction differ between various secondary in-vehicle activities (ex. listening to the radio, talking on the phone, talking to a passenger)?

METHOD

For the first 2 experiments, participants were monitored for their reaction time during lab controlled and driving simulator tasks while engaging in various secondary in-vehicle activities. In the last experiment, participants drove a vehicle on the road and were monitored for their glance probability (ex. how often they glanced during a 4 way stop) while engaging in secondary in-vehicle activities.

RESULTS



REAL SCIENCE: CER PRACTICE RESPONSES

CLAIM:

What is your answer to the research question?

EVIDENCE:

What specific results from your data and graphs support your answer?

REASONING:

Using science principles (ie. things you learned inside or outside of science class), explain your answer (ie. why is this happening?).

REAL SCIENCE: CER PRACTICE

REFERENCES:

Measuring Cognitive Distraction in the Automobile (June, 2013). Retrieved from <https://www.aaafoundation.org/sites/default/files/MeasuringCognitiveDistractions.pdf>

Vohra M, Lemieux GA, Lin L, Ashrafi K (2017) The beneficial effects of dietary restriction on learning are distinct from its effects on longevity and mediated by depletion of a neuroinhibitory metabolite. PLoS Biol 15(8): e2002032. <https://doi.org/10.1371/journal.pbio.2002032>

Yang, Qing. (2010) . "Gain weight by 'going diet?' Artificial Sweeteners and the neurobiology of sugar cravings." Yale Journal of Biology and Medicine. 83. 101-108

