



Meal Planning and Preparation Cooking Intervention for Adults with Autism Spectrum Disorder (ASD)

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Background

- Autism spectrum disorder is a neurodevelopmental disorder that significantly impacts nutritional status, health, and quality of life.
- Individuals with ASD are at an increased risk of weight related co-morbidities and food barriers.

Purpose

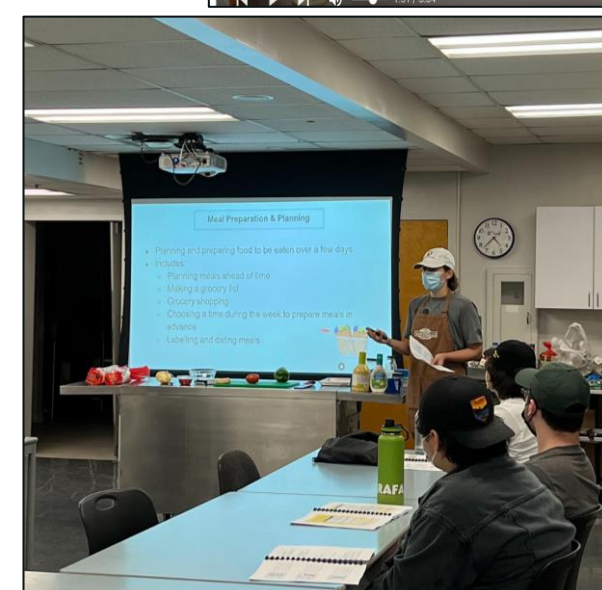
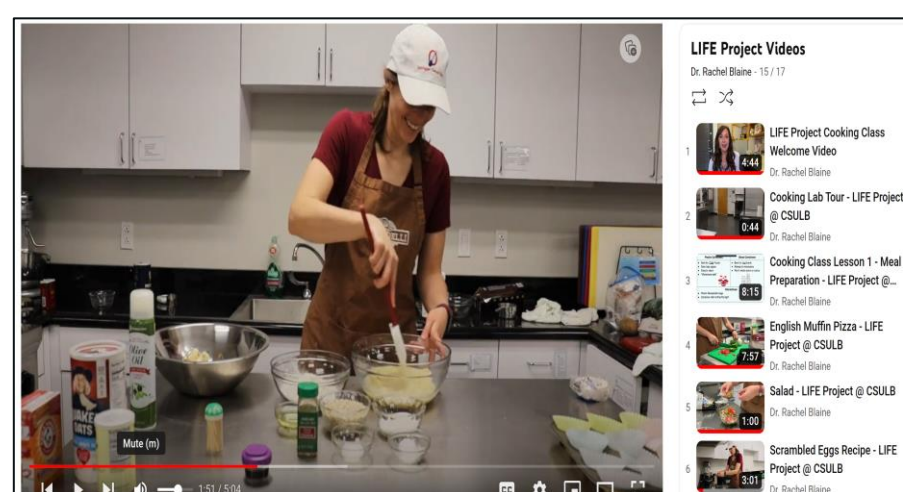
- To develop and implement a curriculum educating adults with ASD on **meal planning and preparation** to increase **nutrition and cooking knowledge**, and **readiness to change** (likelihood and confidence).

Methods

- Convenience sampling was utilized to recruit 7 adults ($n = 5$ male, $n = 2$ female) with ASD enrolled in the Summer Life @ the Beach and LIFE Project programs at CSULB for a **4-day in-person cooking intervention**.
- Meal planning and preparation curriculum and lesson plans were created by **using characteristic ASD traits** (i.e., rigid, repetitive patterns, and strict routines) **positively** to the individual with ASD's **advantage**.
- Online pre-test, post-test, and four lesson assessments, incorporated visual supports (visual images, written words).
- Data analyzed using descriptive statistics, one-sample t -test, and paired-samples t -tests.

Results

- One month after** completing the intervention, participants reported **increased independence, knowledge and confidence in nutrition and cooking skills**, and **continued use of learned skills**.
- Post-intervention assessments found an 18.6% increase in nutrition and cooking knowledge ($t(6) = -3.44, p = .014$).



SCAN ME TO LEARN MORE!

Incorporating visual supports into educational materials positively impacted confidence, learning, understanding, and knowledge retention in adults with autism spectrum disorder (ASD).

Class Schedule, Lesson PowerPoints, and Recipes

Meal Planning and Preparation Class Schedule & Content			
Date & Time	Lesson	Preview Materials	In-Person Materials
7/19/22 Tuesday 4:00-6:30pm	Lesson 1	<ul style="list-style-type: none">Video: Tour of classroomClass orientation packet/binder (emailed)Handout: Dress codeHandout: What to bring on the first dayVideo: Lesson 1 What is Meal Planning and Preparation?Video: English muffin pizza recipe demoVideo: Salad recipe demoOptional Video: Scrambled eggs recipe demoOptional Video: Yogurt parfait recipe demo	<ul style="list-style-type: none">Introduction, dress code, class orientation packet/binder, and cooking lab rules (4:00-4:15pm)Kitchen basics (4:10-4:15pm)Lesson 1 What is Meal Planning and Preparation? (4:15-4:25pm)Lesson 1 Quiz (4:25-4:35pm)Food safety, sanitation, and hygiene (4:35-4:50pm)Demo English muffin pizza and salad recipes (4:50-5:15pm)Students cook and clean kitchen areas (5:15-6:30pm)
7/20/22 Wednesday 12:00-2:30pm	Lesson 2	<ul style="list-style-type: none">Video: Lesson 2 Meat and Alternative Protein StorageVideo: Taco recipe	<ul style="list-style-type: none">Lesson 2 Meat & Alternative Protein Storage (12:00-12:10pm)Lesson 2 Quiz (12:10-12:15pm)Knife skills (12:15-12:20pm)Demo taco recipe (12:20-12:40pm)Students cook and clean kitchen areas (12:40-2:30pm)
7/21/22 Thursday 5:30-8:00pm	Lesson 3	<ul style="list-style-type: none">Video: Lesson 3 Cooking Styles for Meal Preparation & Pre-Made Meals & Storing LeftoversVideo: Baked chicken recipe demoVideo: Microwaved broccoli recipe demoVideo: Baked potato recipe demo	<ul style="list-style-type: none">Lesson 3 Cooking Styles for Meal Preparation & Pre-Made Meals & Storing Leftovers (5:30-5:40pm)Lesson 3 Quiz (5:40-5:48pm)Demo chicken dinner recipes (chicken, broccoli, and baked potato) (5:48-5:58pm)Demo banana bread muffin recipe (12:25-12:40pm)Students cook and clean kitchen areas (5:58-8:00pm)
7/22/22 Friday 12:00-2:30pm	Lesson 4	<ul style="list-style-type: none">Video: Lesson 4 Sweet Freezer Treats & Fruit Storage & BreadVideo: Banana bread muffin recipe demoOptional Video: Peanut butter bites demo	<ul style="list-style-type: none">Lesson 4 Sweet Freezer Treats & Fruit Storage & Bread (12:00-12:10pm)Lesson 4 Quiz (12:10-12:15pm)Harvard Healthy Plate and balanced eating (12:15-12:25pm)Demo banana bread muffin recipe (12:25-12:40pm)Students cook and clean kitchen areas (12:48-1:55pm)Debrief and thank students for participating (1:55-2:00pm)

Refrigerator Meat Storage

Raw Meat

- Store in original packaging until ready to cook
- Store on **bottom shelf** of fridge or in **meat drawer**

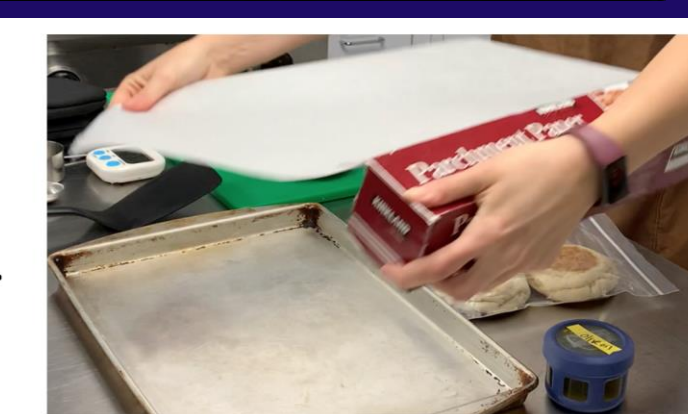


Cooked Meat

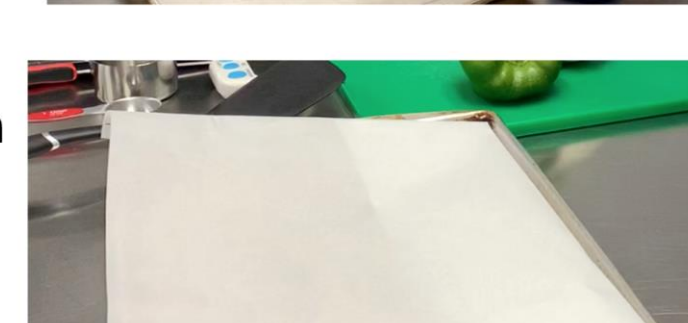
- Let meat cool to room temperature
- Store in airtight container or plastic resealable bag



- Cut or tear a piece of parchment paper the same size as a metal baking sheet.



- Place parchment paper on top of baking sheet.



Cooking and Nutrition Knowledge Question Types

Identify the food that is safe to eat (Select all that apply).



Produce with signs of mold



Bruised apple



Canned food from a dented can



Unsure/Don't know

The "danger zone" is used to describe the expiration dates of meat and dairy foods.

- ☐ Unsure/Don't Know
- ☐ True
- ☐ False

Which kitchen habit is most likely to prevent serious food-borne illness?



Using glass storage containers



Labeling foods



Keeping at least 2 cutting boards, with 1 designated only for raw meat, poultry, or seafood



Using foil to cover food



Unsure/Don't know

Readiness to Change Questions (Confidence and Likelihood)

If you never do these or don't plan to, just choose "1 - not at all likely."

Not at all likely 1 2 3 4 5 6 7 8 9 10 Extremely likely

Plan some meals ahead of time

Use a grocery list to shop

not at all confident (unable to do independently)

somewhat confident (can do with some help)

confident (can usually do independently)

extremely confident (can always do independently)

Fix breakfast for one.

Fix lunch for one.

Fix dinner for one.

Prepare a few meals in advance.

Prepare a balanced diet.

Cook a recipe from basic ingredients.

Participant Demographics (N=7)

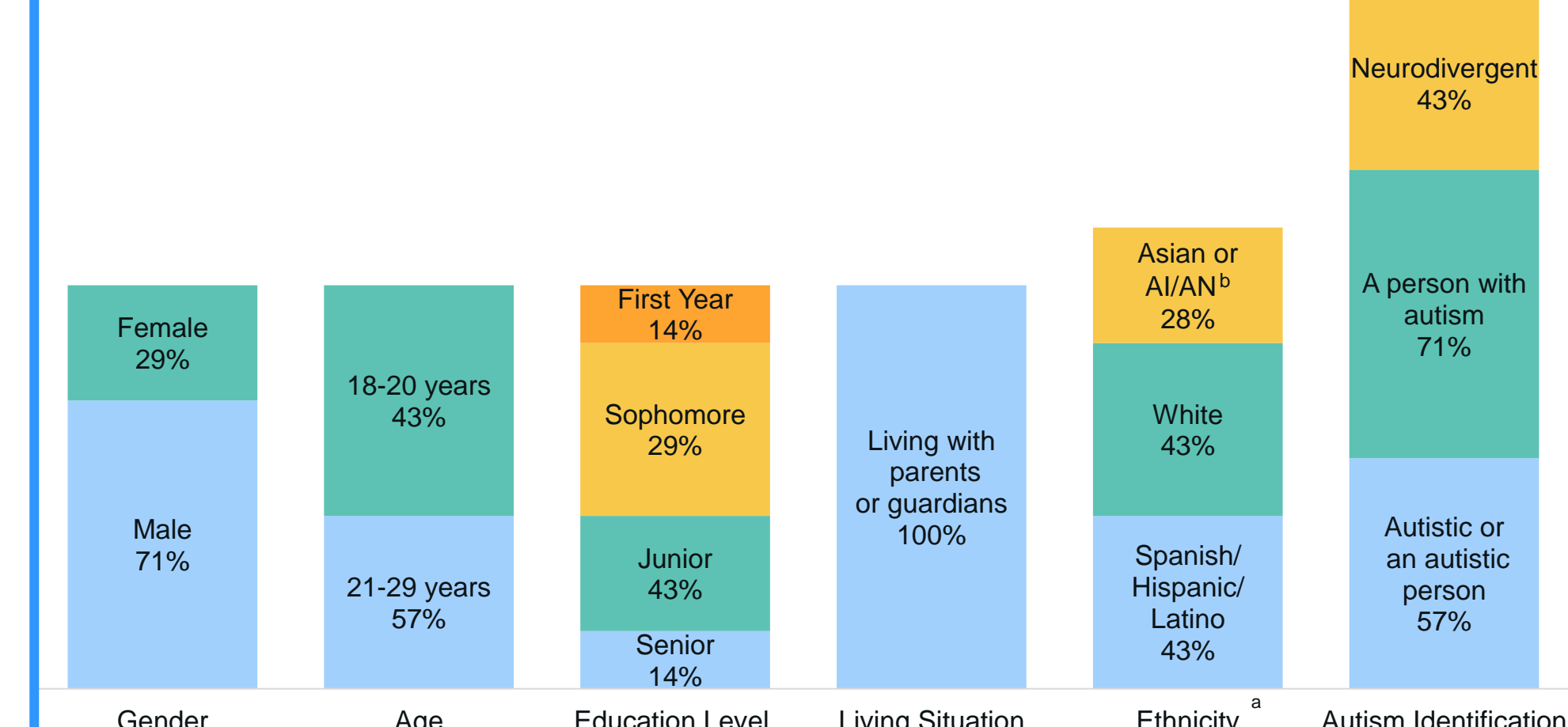


Figure 1. Participant demographics

^a Demographic questions that are 'select all that apply.'

^b AI/AN = American Indian or Alaska Native

^c Other – Unique/Uniquely Different

Average Percentage of Participants That Correctly Answered Nutrition and Cooking Knowledge Questions Before and After the Cooking Intervention (N=7)



Figure 2. Average percentage of participants that correctly answered nutrition and cooking knowledge questions before and after the intervention (N=7).

Note: * $p < .01$, two-tailed

Average Participant Confidence in the Ability to Perform Nutrition and Cooking Tasks Independently (N=7)

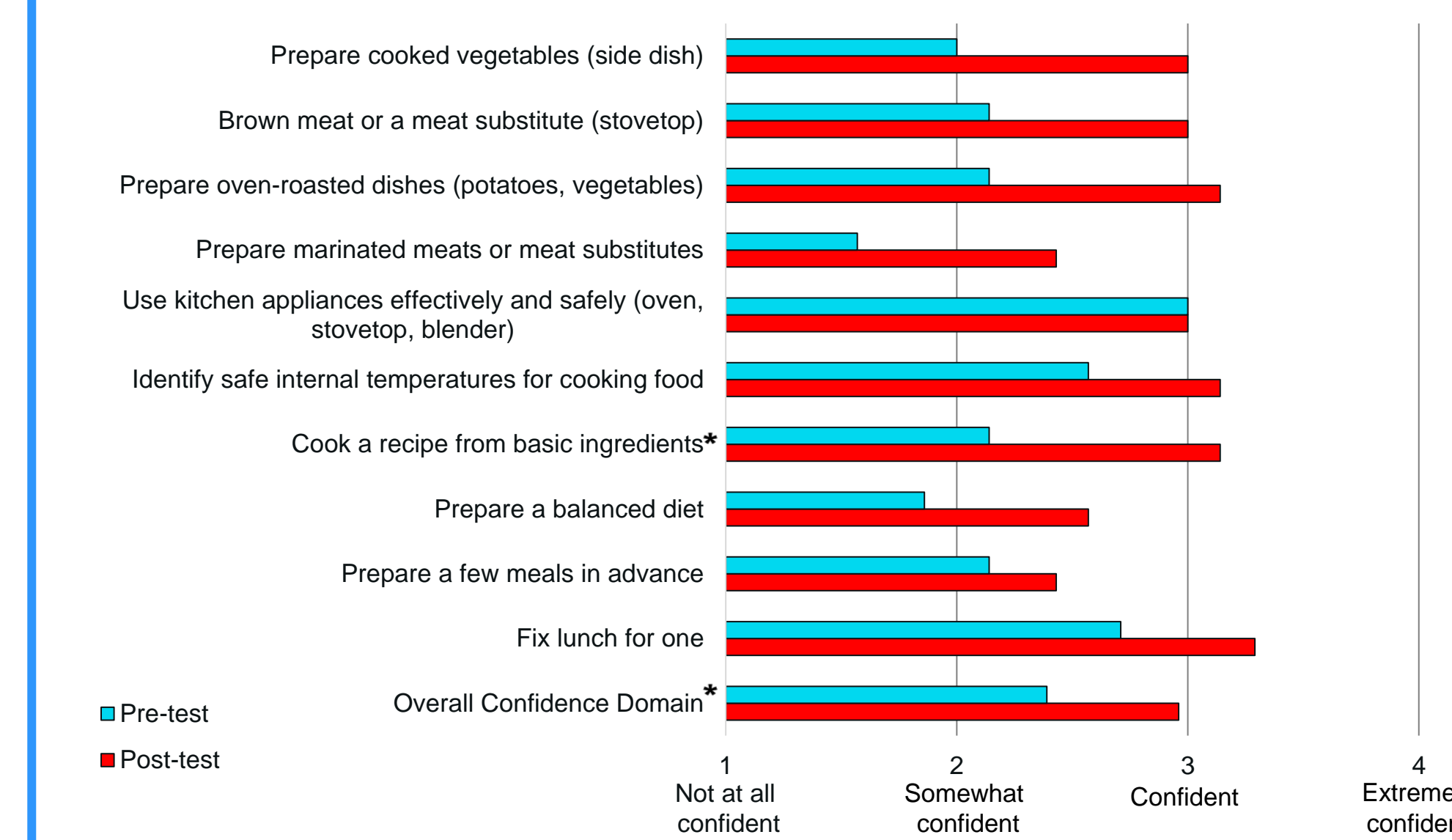


Figure 3. Confidence of adults with autism spectrum disorder (ASD) in the ability to independently perform nutrition and cooking tasks mean scores before and 1 month after completing the LIFE Project nutrition and cooking intervention (N=7). Confidence scores ranged from (1 = Not at all confident (unable to do independently) to 4 = Extremely confident (can always do independently)).

Note: * $p < .01$, two-tailed

Participant reported impact of intervention on their lives

- "It made me more confident in preparing my own meals, and I will apply the information I learned from this course."
- "It boosted my confidence in being independent."
- "I am now able to cook/warm up food on my own but still get help if needed."

Conclusion

- A cooking intervention utilizing **visual supports positively impacted** participants' **knowledge and confidence** in their ability to **perform nutrition and cooking skills independently**.
- This study's findings provide support for future interventions for adults with ASD to **promote nutrition, independence, self-efficacy, and quality of life**.