



BRAZIL  
FEDERAL UNIVERSITY OF SANTA CATARINA  
NUTRITION POST-GRADUATE PROGRAM  
NUTRITION IN FOODSERVICE RESEARCH CENTRE



# Cooking skills intervention increase self-efficacy for consumption and for use of fruits and vegetables among Brazilian university students: a randomized controlled trial

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Funding:



**Transition** from school to **university** is a period of critical **changes in eating habits**<sup>1</sup>



**University Campus**



**Important environment for health promotion**<sup>2</sup>



**Dietary Guidelines for the Brazilian population (2014)**

**Develop, exercise  
and share cooking skills**<sup>4</sup>

**Cooking skills interventions ⇨  
related to improve dietary quality**<sup>5</sup>



<sup>1</sup> BERNARDO et al., 2017 <sup>2</sup>NELSON et al., 2008; HOLT; POWELL, 2017; PEMBER; KNOWLDEN, 2017 <sup>3</sup>BRASIL, 2012 <sup>4</sup>BRASIL, 2014 <sup>5</sup>GARCIA et al., 2014; REICKS et al., 2014; LASKA et al., 2015; WOLFSON; BLEICH, 2015; BERNARDO et al., 2017

## Nutrition and Culinary in the Kitchen (NCK) program



*Adapted from Cooking with a Chef*<sup>2</sup>  
Margaret D. Condrasky (USA)

1<sup>st</sup> Cooking skills intervention model in Brazil<sup>1</sup>

1<sup>st</sup> Cooking intervention program for university students - include a long-term follow-up

- ✓ Improvement of cooking skills and healthy eating practices ⇒ **long-term impact**

**Questionnaire** about cooking skills and healthy eating practices

**Cross-culturally adapted** and **validated** to Brazil<sup>3</sup>



## Aim

Determine the **immediate** and **sustained effects** of the **Nutrition and Culinary in the Kitchen (NCK)** Program on the improvement of self-efficacy for consumption and for use of **fruits and vegetables** of Brazilian **university** students



# Methods



## Characterization

Intervention on cooking skills

Randomized controlled trial with six months follow-up

**Setting:** Public Brazilian university (UFSC)

**Participants:** University students who were enrolled in the first year of an onsite undergraduate course (2015)

**Sample size calculation** = 40 students per group (IG and CG)

## Program: NUTRITION AND CULINARY IN THE KITCHEN (NCK)

- **5** hands-on cooking classes + **1** food selection and purchase workshop to a popular food market
  - 3 hours/week = **18** h of intervention

## Criteria to consider a recipe as healthy

- ✓ Preference for food in its natural form (**fresh**) and **minimally processed foods**
- ✓ Limited use of **salt** and **sugar**
- ✓ Use of **herbs** and **spices**
- ✓ Use of preparation techniques that are considered **healthier** (e.g.: baking, roasting, sautéing)
- ✓ Use of vegetables respecting **seasonality** (**organic**)
- ✓ Elimination of **ultra-processed foods**
- ✓ Elimination of products with **trans fatty** acids ingredients

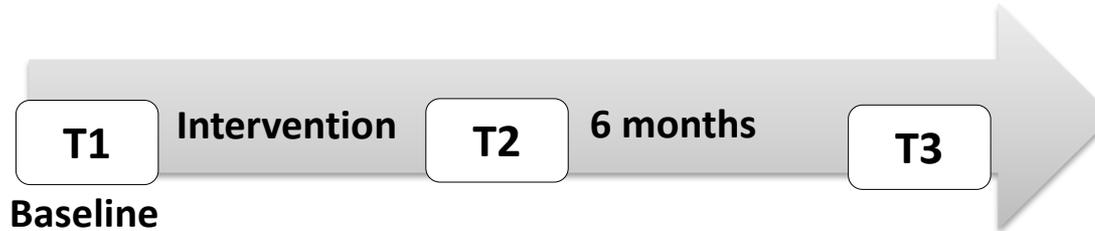


**University students:** preparation time, level of difficulty and the cost of ingredients

# Methods

## Validated questionnaire about cooking skills and healthy eating practices<sup>1</sup>

Self-administered in online form with use of tablet computers



✓ 1) Personal characteristics

✓ 2) Cooking skills and healthy eating measures

1. Accessibility and Availability of Fruits and Vegetables Index (AAFV) - 8 items (yes/no)

2. Self-Efficacy for Using Fruits, Vegetables, and Seasonings (while cooking) (SEFVS) - 9 items (5-point Likert scale)

3. Produce Consumption Self-Efficacy (SEPC) – 3 items (5-point Likert scale)

### Self-Efficacy for Using Fruits, Vegetables, and Seasonings (SEFVS) Scale

**DIRECTIONS:** For each item below, indicate the extent to which you currently feel confident about preparing the following foods. Select ONE box for EACH question.

NOT at  
all  
confident

NOT  
very  
confident

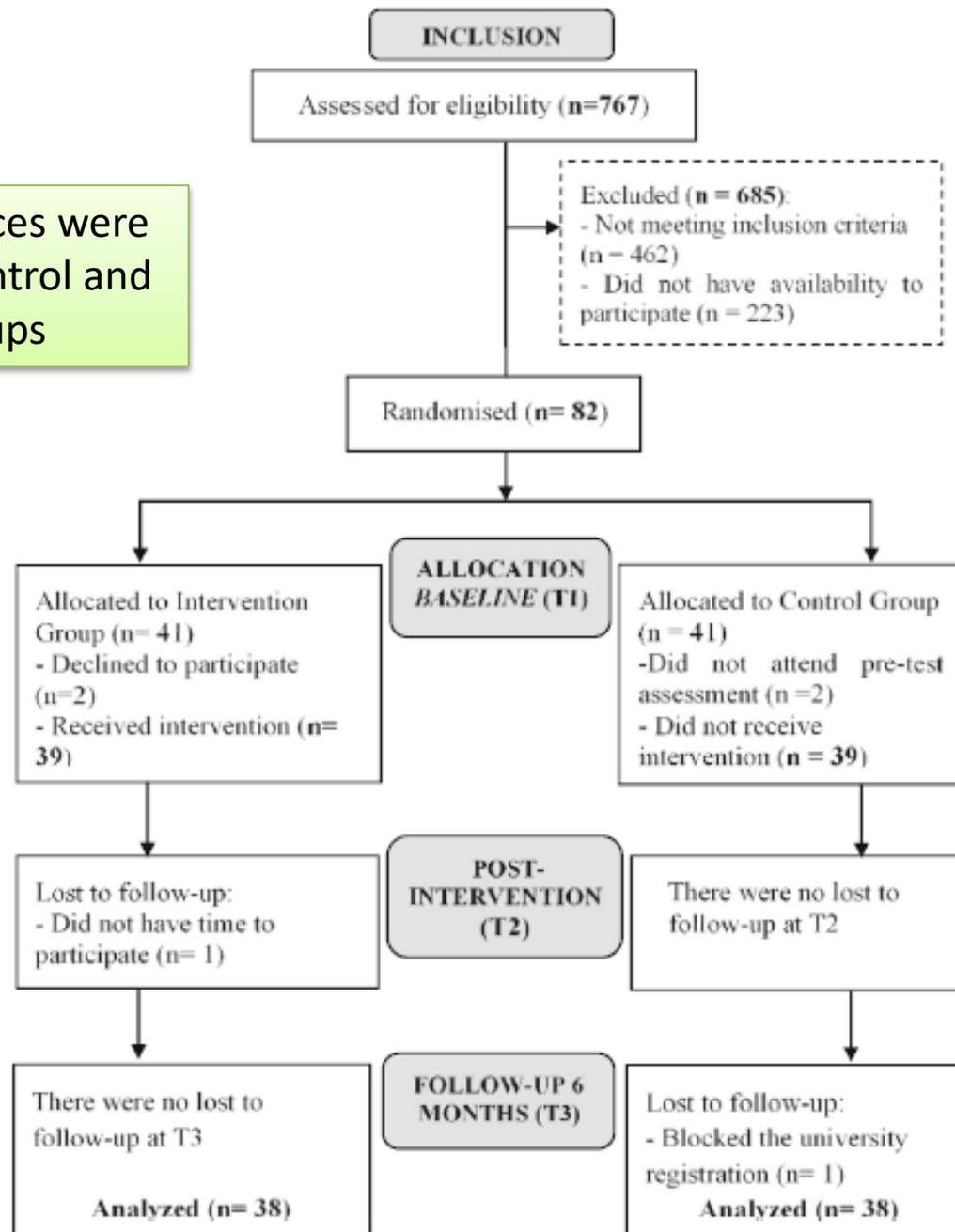
Neither  
confident  
nor  
unconfident

Confident

Extremely  
confident

# Results

No significant differences were found between the control and intervention groups



# Results

Changes from T1 and T2 between groups (IG X CG)  $\Rightarrow$  immediate impacts

The effect of the intervention was positive

↑ Accessibility and Availability of Fruits and Vegetables Index (AAFV)  
( $p=0,027$ )

↑ Self-Efficacy for Using Fruits, Vegetables, and Seasonings (SEFVS)  
( $p<0,001$ )

↑ Produce Consumption Self-Efficacy (SEPC)  
( $p=0,025$ )



↑ **Cooking Skills**  
in the **IG** when compared with the **CG**

# Results

Changes over time (intragroup analyses)  $\Rightarrow$  immediate and sustained impacts

## Intervention group

**↑ Accessibility and Availability of Fruits and Vegetables Index (AAFV)**

T1-T2  $\Rightarrow$   $p=0,006$

T1-T3  $\Rightarrow$   $p=0,006$

T2-T3  $\Rightarrow$   $p=0,249$   $\leftarrow$

**↑ Self-Efficacy for Using Fruits, Vegetables, and Seasonings (SEFVS)**

T1-T2  $\Rightarrow$   $p=0,006$

T1-T3  $\Rightarrow$   $p<0,001$

T2-T3  $\Rightarrow$   $p=0,076$   $\leftarrow$

**Sustained effect**

**↑ Produce Consumption Self-Efficacy (SEPC)**

T1-T2  $\Rightarrow$   $p<0,001$

T1-T3  $\Rightarrow$   $p<0,001$

T2-T3  $\Rightarrow$   $p=0,283$   $\leftarrow$

## Control group

No significant differences in any of the measures

**↑ AAFV, SEFVS, SEPC**  
Only in the IG

# Discussions



Cooking interventions have been used to promote cooking confidence and healthy eating habits<sup>1</sup>

## COOKING SKILLS INTERVENTIONS

Improve **cooking habits** + Encourage **healthier eating practices**



Implementation of **public policies** for **health promotion** by **culinary and nutrition interventions**



# Conclusion

## NCK intervention program



- Promoted healthier eating habits to the university students in short- and long-term
- Can contribute with important information related to long-term effects of cooking skills interventions

Based on that, we are doing research on:

- Developing new food recipes for recycling workshops with university students
- Adapting the recipes for NCK targeting people with type 2 diabetes
- **Diagnosing cooking skills + vegetables intake of university students to plan future interventions**





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## Positive impact of a cooking skills intervention among Brazilian university students: Six months follow-up of a randomized controlled trial



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