

Sweet potato improves defecation and gut microbiota of female university students

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Background

Lack of dietary fiber (DF) intake
women in their 20's in JAPAN

18 g, Requirement,
12 g, Intake
6 g, Lack

↑
Sweet Potato
rich in Dietary Fiber

Purpose

Sweet potato

- easy to find in market
- easy to eat with short heat, less loss of ingredients
- rich in dietary fiber

defecation
gut microbiota

There is insufficient research on
effect of sweet potato on humans
in an amount routinely ingested

The effect of sweet potatoes on defecation
and gut microbiota was examined

Method

Subject

22 female college students (average age 20.9 years)

Sweet potato

Benkoshi
(Popote Katsuta, Co Ltd)



Schedule

| Pre (1 week) | 300g intake (1 week) | Wash out (1 week) | 100g intake (1 week) |
|-----------------|-------------------------|----------------------|-------------------------|
| | ① | ② | ③ |

* record of bowel status diary

* analysis of intestinal indigenous flora on the last day

Record of feces and bowel status

Questionnaire on defecation and weight

*Daily stool frequency

*Amount of stool

Filled for every defecation:
wood chips _ pieces

*Body weight (last day of each period)



Questionnaire on stomach condition etc

| Condition | Bloating | Fart | Stool hardness |
|----------------------|---------------------|--------------------|------------------------|
| 1. Very bad | 1. Do not feel | 1. Less than usual | 1. Clostridia diarrhea |
| 2. Worse than usual | 2. Slightly stretch | 2. Same as usual | 2. Soft |
| 3. Same as usual | 3. Stretch | 3. More than usual | 3. As usual |
| 4. Better than usual | 4. Very tight | 4. So many | 4. Slightly hard |

Component of roasted sweet potato

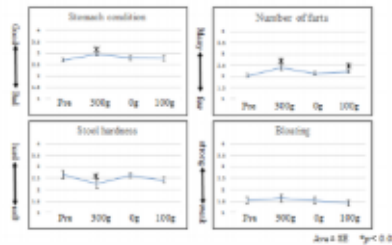
Nutrition component per 100 g edible portion
(peel off the skin and measure after roast)

| Component | Value |
|------------------|-------|
| Energy (kcal) | 135.0 |
| Water (g) | 50.1 |
| Protein (g) | 2.9 |
| Lipid (g) | 0.6 |
| Ash (g) | 1.3 |
| Carbohydrate (g) | 45.1 |

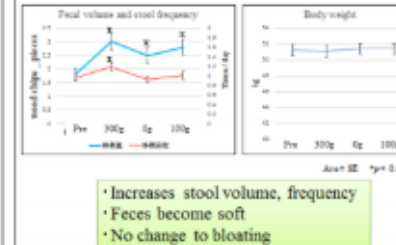
Total Dietary Fiber 2.9g
Soluble 1.2g
Insoluble 1.7g

Subjects intake Sweet potato
100 g (2.9 g of Dietary fiber)
⇒ It's good as breakfast
300 g (8.7 g of Dietary fiber)

Stomach condition and fecal characteristics

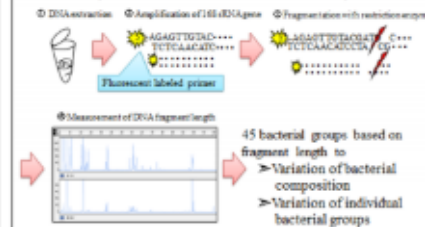


Defecation and body weight



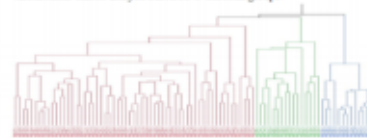
- Increases stool volume, frequency
- Feces become soft
- No change to bloating

Analysis of indigenous bacteria (Terminal-RFLP method)



Changes in indigenous bacteria ①

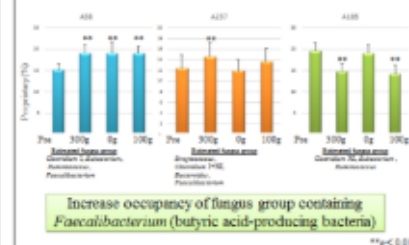
Hierarchical cluster analysis based on 45 bacterial groups



- There was no correspondence to a specific cluster
- 9 Subjects who experienced cluster fluctuation due to intake of sweet potatoes

Intestinal indigenous fungus composition
⇒ There are big differences in individual

Changes in indigenous bacteria ②



Increase occupancy of fungus group containing
Faecalibacterium (butyric acid-producing bacteria)

Summary

Roasted sweet potato has effects on.....

- Increase in defecation amount and frequency, loose stools tendency
- There are individual differences in the influence on the composition of indigenous bacteria in the intestine
- Increase occupancy of fungus group containing *Faecalibacterium* (butyric acid-producing bacteria)

increase intestinal action and useful germs in the gut

Food Texture and Cooking Techniques according to the Chewing Ability of the Elderly

- Korean Traditional Food 'Bibimbap' -

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Objective

The demand for easy food to eat is increasing to improve nutritional quality of diet for elderly with decreased ability to chew. The aim of this study is to distinguish the cooking methods and to evaluate suitability of these according to the ability of chewing for the elderly.

Materials and Methods

Test food : Bibimbap, Korean traditional food

Ingredient : Rice, Eggs, Beef, Carrot, Zucchini

Cooking methods

. Rice : Boiling

*control the amount of water in the rice and cooked rice

. Eggs : Frying(garnished egg), Stir-frying

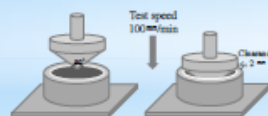
. Beef : Stir-frying and Steaming after tendering process with pineapple Juice(1T/2hrs)

. Carrot & Zucchini : Stir-frying, Simmering, Steaming

*Simmering : Stir until no more water is added

| Step | Shape | Cooking |
|------|---------------------------------|--|
| 1 | Original form used for Bibimbap | Stir-frying |
| 2 | | Simmering, Steaming |
| 3 | Pure form | Pounding, Mashing, Grinding (after steaming) |

Texture analysis



Probe : Cone type
Test speed : 100mm/min
Clearance : 2 mm



















Texture index

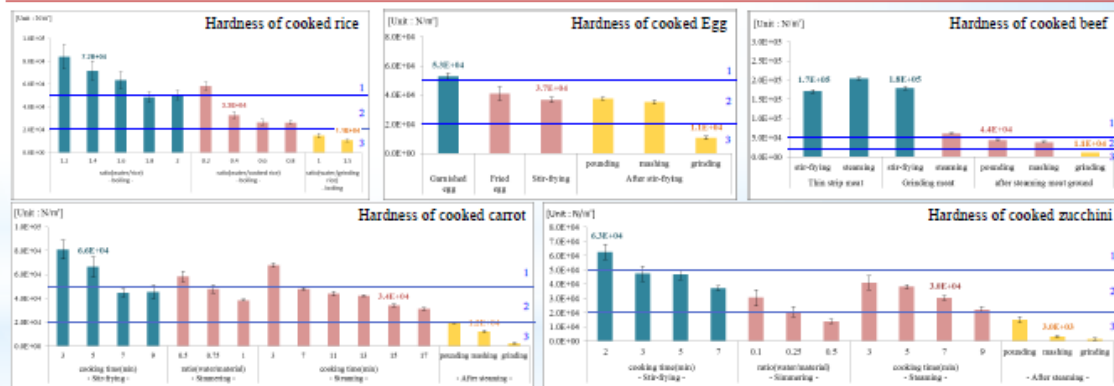
| Step | Hardness(N/m²) |
|------|---------------------------------|
| 1 | Easy to chew |
| 2 | Can be broken up using the gums |
| 3 | Can be broken up by the tongue |

*additional considerations : cooking time, appearance

Results

Shape and hardness of materials used for the Bibimbap according to the cooking method

| Step | 1 | 2 | 3 |
|----------|--|--|--|
| Rice |  . Boiling(water/rice = 1.4) . Original form |  . Boiling(water/cooked rice =0.4) . Moist rich original form |  . Boiling(water/cooked and ground rice =1.5) . Watery and broken form |
| Egg |  . Frying . Thin stripe form(garnished egg/3mm) . Partial cut when pressed by fork |  . Stir-frying(3min) . Irregular mass form . Squashed when pressed by fork |  . Stir-frying(3min) and then grinding . Puree form . Easily separated when pressed by fork |
| Beef |  . Stir-frying(3min) . Irregular mass form(3~4mm) . Deformed when pressed by fork |  . Steaming(10min) . Granular form(1~2mm) . Deformed when pressed by fork |  . Steaming(10min) and then mashing . Puree form . Easily separated when pressed by fork |
| Carrot |  . Stir-frying(5min) . Original thin stripe form(2mm) . Deformed when pressed by fork |  . Steaming(15min) . Original thin stripe form(2mm) . Squashed when pressed by fork |  . Steaming(15min) and then mashing . Puree form . Easily separated when pressed by fork |
| Zucchini |  . Stir-frying(2min) . Original thin stripe form(3mm) . Deformed when pressed by fork |  . Steaming(7min) . Original thin stripe form(3mm) . Squashed when pressed by fork |  . Steaming(7min) and then mashing . Puree form . Easily separated when pressed by fork |
| Bibimbap |  . Bibimbap that can be easily chewed with teeth |  . Bibimbap that can be eaten with gum |  . Bibimbap that can be eaten tongue |



Discussion

The cooking method need to be adjusted according to the ability to chew. The cooking using water such as the steaming is a useful technique for elderly who need soft foods. It is also important for older people with little chewing ability to maintain the shape of the food, so it is necessary to develop a lot of soft food forms while maintaining their shape in the future.

Acknowledgments

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Food Editors Were Always Multi-Tasking: Exploring the Roles of Cooking, Gender and Motherhood

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Summary: Two cookbooks reflect the common struggle that 1960s female newspaper food editors faced as they balanced their careers and their parenting: *Always on Sunday* (St. Paul Pioneer Press) and *Pot au Feu* (Arizona Republic). These editors wrote columns that shared their personal and professional lives as they covered food news for home cooks and fancy foodies. Blended in their food columns were stories about their own fussy children, failed recipes and the weight gain that came with testing recipes. The authors of these columns, Eleanor Ostman and Dorothee Polson, represent the lives of newspaper editors who balanced the joy and challenges of cooking in the professional and private spheres. It draws attention to the roles of home cooks, motherhood and labor in a time prior to the Women's Liberation Movement.

Background: Newspaper Food Editors

For generations, information about food were found in the food sections of newspapers. Until the early 1970s, these sections were housed in the women's pages of newspapers – where women could hold an authoritative voice. The food editors –often a mix of trained journalist and home economist – reported on everything from nutrition news to features on the new chef in town. They wrote recipes and sought ideas from readers. The sections reflected the trends of the time and the cooks of the community. The editors were local celebrities, judging cooking competitions and answering calls at home about preparing a Thanksgiving turkey – a first time for many home cooks each year. They often oversaw several staff members.

Results

Dorothee Polson

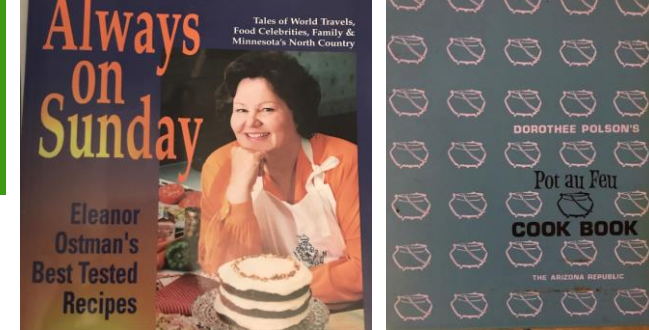
At the *Arizona Republic*, Polson said no one interfered with the material that she wanted to put in her section during her twenty-seven-year career. She said it was largely based on the management style of managing editor J. Edward Murray, who said, "When you hire creative people, just let them alone; you get much better work out of them that way." As the mother of three children, she required flexibility at work. After all, her newspaper column revealed the combination needed for a career and motherhood – especially in the 1960s. In one column, she wrote about the expectation of her life being in the home: "This helps assuage the guilt feelings of the Working Mother, who may feel uncomfortable about enjoying her nether life in the business world. I scoot home scant seconds before the children do, manage to look relaxed as I stand there with a welcoming smile." (She did, however, take issue with the children's schoolwork: "Privately I am of the opinion that homework is the greatest disrupter of family life since the exodus to suburbia.")

In 1971, Polson published her columns and recipes in the cookbook *Pot au Feu*. The title refers to a French term for "pot on the fire," which was a dish that included meats, vegetables, and everything else. A little bit of everything was also the philosophy behind her column, which included recipes, stories about her two children, and local gossip. (It was dedicated to her mother.) "All of the recipes have been family tested," Polson confessed, "the most significant result being that my husband and I gained a combined total of 14 pounds. The children, of course, only grew taller." One of the columns in the book is titled "Working Mother Makes Rules." "I happen to be one of those statistics," she revealed, "the 1-of-every-3 homemakers who hold jobs; the 1-out-of-5 mothers who juggle careers." In the column, she offered advice on her rules for combining family with work: "Forget schedules. Take it one crisis at a time." Her book explains how being a wife and mother intersected with her job as a journalist.

- Dorian's Sour Cream Sugar Cookies: "Our daughter Dorian tasted these cookies at her friend Sue's house and asked for the recipe. When Sue's mother found out about it she was very annoyed. Dorian makes these cookies just about every week. She doesn't tell Sue's mother."
- Breakfast Fish: "For many years my family was on a fish-for-breakfast kick. Six a.m. would find me steaming clams, cracking crab or frying trout. Inwardly I longed for a family fad of ready-to-eat cereal, but such thoughts were banished every time a bright little face would happily proclaim: 'Oh goody, swordfish steaks today.'"
- They visited a ranch and her children saw a whole animal being roasted. Her daughter who regularly ate chops and patties said: "Do you mean to say they eat their OWN lambs?" She ate fruit and cheese for lunch that day.

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Ostman, Eleanor, *Always on Sunday* (St. Paul, MN: Sexton Printing, 1998).
Polson, Dorothee, oral history, July 29, 1994. Arizona State University Archives.
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Research Questions

- How did these women combine food journalism with motherhood?
- How did children impact specific recipes?

Methodology

This research is based on a close reading of their recipes and columns, which had originally run in the newspaper.

Eleanor Ostman

St. Paul Pioneer Press food editor Eleanor Ostman initiated a recipe column in 1968 called "This Sunday" that ran for more than twenty-five years. She wrote about her family's love of a dish or a disaster that she had in the kitchen. Her readers wrote in often, and Ostman quickly learned what they wanted to know about. "Readers, I soon learned, loved my flubs," she wrote. "I didn't promise to be scientific, and I didn't promise to be perfect." Some residents later complained that they missed hearing about her mistakes as she became a more proficient cook over the years." Her columns and recipes were later collected in the cookbook, *Always on Sundays*. They book provides insight to the role of food editor and a working mother.

References to her son Aric:

- May 11, 1969: On April 30, 1969, a future recipe taster entered our lives. Our son, Aric, was born, and the next column I wrote was headlined: "Soup Puts New Dad in a Stew."
- May 3, 1970: "Starting an annual tradition, our son's first chocolate birthday cake. When it comes to chocolate, my philosophy is: "More is never enough."
- May 7, 1972: "Aric graduated from the Terrible Twos, and in honor of his third birthday (and the fact that he hadn't been all that terrible). I baked this cake with a blend of chocolate intensifies that makes it so tempting. We reveled in its three lovely layers."
- May 10, 1987: "It was like returning to the past when we prepared an 18th birthday dinner part for Aric and his buddies. And I felt a momentary stab of nostalgia. This would be the last birthday party of the school-kid ilk. Our empty nest will never again have chocolate frosting on the ceiling."

Conclusion

Despite the incredible contributions of these significant food journalists, their stories have largely been forgotten in the larger culture. Their stories were not on the front pages, but they were serving an important role for their communities. These food journalists reached consumers and cooks. They held local grocers and the greater industry accountable, even at the risk of advertising losses. They documented problems, such as food safety, and promoted change in nutritional expectations. They covered the intersection of food and governmental regulation. These journalists did all of this, never forgetting that while food was important, it was also fun. They also did it as they raised families – combining their public and private roles.