Pilot Study: Can College Students Recognize Whole Grains When Immersed in Virtual Reality?

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Abstract

Background: Knowledge and consumption of a variety of whole grains are limited in the college-age population. Immersion into virtual reality simulates one being transported from their current surroundings to a completely new atmosphere.

Methods: A pilot study was conducted to determine if college students would be able to correctly identify various grains while immersed in virtual reality. Participants (n=39) were asked to sample two similarly shaped grains (pearl couscous and whole grain sorghum) while immersed in a virtual reality on-campus cafe. Participant surveys captured demographics, a sensory analysis on grains tasted, history of grain consumption and grain nutrition knowledge.

Results: Participants (females=34, males=5) were mostly juniors (72%). Common grains the participants had previously been exposed to were, oats (97%), white rice (94%), brown rice (92%), quinoa (92%), wheat (82%), and couscous (69%). The least common grains participants had previously been exposed to were, sorghum (15%), spelt (0.7%), kamut (0.5%), teff (0.5%), amaranth (0.2%), and triticale (0%). Only 28% correctly selected at least one of the samples, and only 0.05% selected both correct samples. Only 44% of participants could correctly identify that the USDA Dietary Guidelines recommends making half of all grains consumed be whole grains.

Conclusions: This preliminary data shows that our participants are mostly exposed to common whole grains, and their perception of food samples can be obstructed while being in a virtual reality setting. Whole grain knowledge and exposure is limited and should be increased in this subgroup.

Background

- Knowledge and consumption of a variety of whole grains are limited in the college-age population.
- Whole grains are the entire seed of the plant, including the bran, the germ, and the endosperm.
- Whole grains are high in fiber and associated with lower risk of heart disease, diabetes, and certain cancers.
- Virtual reality is a three-dimensional, computer generated environment that can be interacted with by a person.

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Materials & Methods

The participants (n=39) were randomly recruited, to blindly taste test two similarly shaped food samples while immersed in a virtual reality setting. After each setting they then completed an associated survey that captured demographics, a sensory analysis, history of grain consumption and grain nutrition knowledge.

A pilot study was conducted to determine if college students would be able to correctly identify various grains while immersed in virtual reality.

Each participants station was set-up with:

- Virtual Reality Glasses
- Tablet with Stylus
- Tactile Plate
- Study Plan

Results

- Only 28% correctly selected at least one of the samples, and only 0.05% selected both correct samples.

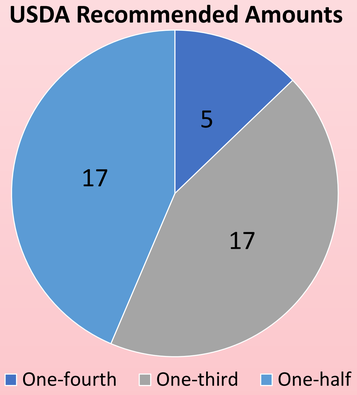
Common Grains:

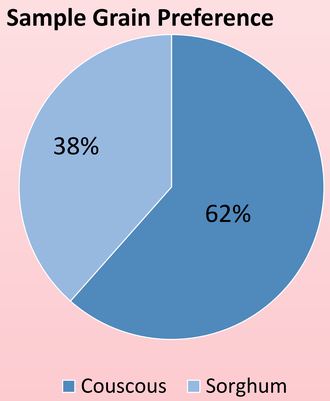
- Oats (97%)
- White Rice (94%)
- Brown Rice (92%)
- Quinoa (92%)
- Wheat (82%)
- Couscous (69%)

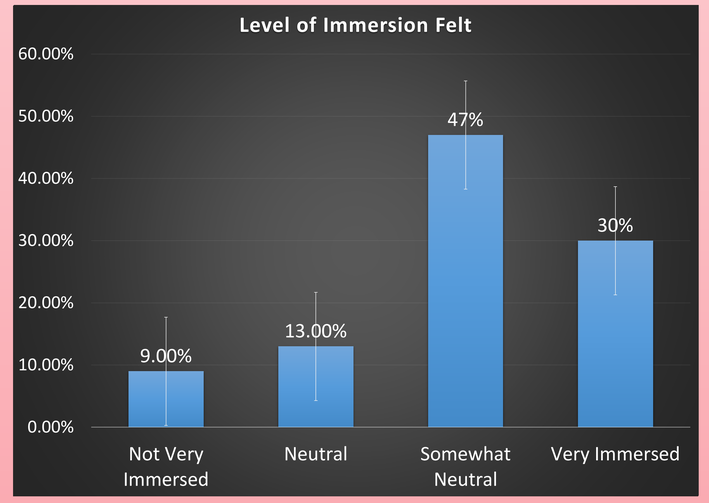
Least Common Grains:

- Sorghum (15%)
- Spelt (0.7%)
- Kamut (0.5%)
- Teff (0.5%)
- Amaranth (0.2%)
- Triticale (0%)

- A majority of the participants (72%) were juniors.
- 44% of participants could correctly identify that the USDA Dietary Guidelines recommends making half of all grains consumed be whole grains.







Conclusion

- This preliminary data shows that our participants are mostly exposed to common whole grains, and their perception of food samples can be obstructed while being in a virtual reality setting.
- Whole grain knowledge and exposure is limited and should be increased in this subgroup.

Sources:

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