

This is the penultimate version of the article that is forthcoming in *The International Journal of Obesity*. The final version can be found at:
<http://www.nature.com/ijo/journal/vaop/ncurrent/abs/ijo201037a.html>

Citation:

Wansink, B and C. S. Wansink (2010), “The Largest Last Supper: Depictions of Portion Size and Plate Size Increased Over the Millennium,” *The International Journal of Obesity*, forthcoming.

The Largest Last Supper: Depictions of Portion Size and Plate Size Increased Over the Millennium

Brian Wansink
Cornell University

Craig S. Wansink
Virginia Wesleyan College

Abstract

Portion sizes of foods have been noticeably increasing in recent years, but when did this trend begin? If art imitates life and if food portions have been generally increasing with time, we might expect to see this have been increasing over a longer period of time, this might be reflected in paintings that depict food. Perhaps the most commonly painted meal has been that of Jesus Christ’s Last Supper, chronicled in the New Testament of the Bible. A CAD–CAM analysis of the relative size of food in 52 representative paintings of the Last Supper showed that the relative sizes of the main dish (entree), bread, and plates have linearly increased over the past millennium.

Introduction

Public health concerns are increasingly being focused upon the downsides of food abundance, portion size and obesity. While this portion size focus is recent, the increasing portion size trend might have been much more gradual. If art imitates life and if food resources have become generally more available over the past millennium, we might expect the size of food the portions and plate sizes that are depicted in these paintings to increase over time.

Perhaps the most commonly painted meal has been that of Jesus Christ's Last Supper.¹ According to the Synoptic gospels (Matthew, Mark and Luke) in the New Testament of the Bible, the dinner takes place during a Passover evening (Matthew 26:20) in 'a large room upstairs, already furnished' (Mark 14:15; Luke 22:12). Although lamb would have normally been served for this particular Seder, the three accounts of the event make no mention of food other than bread and wine.^{2,3} Indeed, what has not been analyzed is how the depiction of food has changed with time.

The prior millennium (1000–2000 AD) witnessed dramatic socio-historical increases in the production, availability, safety, abundance and affordability of food. Perhaps these changes could also be reflected in how food has been depicted in this commonly understood, but uniquely interpreted, meal. This research investigates one link between food portion-size depictions throughout history. It compares the sizes of the food and plates that have been progressively depicted in the paintings of the Last Supper over the last millennium.

Method.

Fifty-two of the most important depictions of the Last Supper (Phidan 2000) over the last Millennium (1000-2000 A.D.) were content analyzed and coded to assess changes with time. The size of the loaves of bread, main dishes, and plates were assessed. To account for the varying sizes across paintings, the size of these items was indexed based on the average size of the heads depicted in each painting. This was aided by the use of a CAD-CAM program that allowed items to be scanned, rotated, and calculated regardless

of their original orientation in the painting. An index of 2.0 for the bread would indicate that the average width of the bread was twice the width of the average disciple's head.

The calculation of relevant ratios of size was confirmed by two independent coders who were blind to the purpose of the study. Analyses were conducted using SPSS (version 12), with $P > 0.05$ being considered as significant.

Results.

The main dishes included fish/eel (18%), lamb (14%), and pork (7%), while the remaining dishes had no main dish (46%) that was discernable (e.g., Varriano 2008). Table 1 illustrates the positive relation between year and "Main Dish by Head" ratio and the "Bread by Head" ratio.

Consistent with expectations, the size of food depicted in these paintings increased with time. The date of the painting explained 9% of the variation in the size of the bread ($P=.04$), 27% of the variation in the size of the main course ($P=.002$), and 21% of the variation in the size of the average plate at the table ($P=.04$). From its depiction circa 1000 A.D. to present, the ratio of this dish has generally increased by 69.2%. Similarly, the size of the ratio of the size of bread has increased 23.1% and the size of the plate by 65.6%.

The results of a nonlinear regression of years to entrée size shows a nonlinear increase in the size of entrees over the years. The year in which a painting was produced accounts for 27% of the variation in the size of the entrée using a linear model. A nonlinear regression accounts for 41% of this variation because of the sharper increase over from 1500 to 2000 A.D.

Discussion.

The Last Supper is perhaps the most famous dinner of all time. Over the past millennium, the relative size of the bread ($r=0.304$, $P=.040$), the main dish ($r=0.523$, $P=.002$), and the plate ($r=0.46$, $P=.02$) have linearly increased when they are depicted in paintings.

Perhaps our culture's seemingly recent discovery of increasing portion sizes and food availability is instead rooted in a general trend that has been artistically depicted for a millennium. Related depictions of food in art and media may parallel their salience in

day-to-day activities. If so, the depiction of how food is longitudinally represented and discussed in TV, films, and social media could allow an opportunity for a deeper meta-analysis of the trends of food in our current culture.

Whereas most of the paintings of the Last Supper included food and plates, most paintings did not depict wine, which precluded its analysis. Notwithstanding its absence, its spirit remains: the contemporary discovery of increasing portion sizes and food availability may be little more than 1000 year old wine in a new bottle.

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Table:
The Size of Food in Depictions of the Last Supper Has Increased With Time

	Mean Values from General Time					Statistical Results		
	Periods							
	(Standard Deviations in Parentheses)					Correlation	R ²	F-value
	1000 - 1300 (n=10)	1300 - 1400 (n=5)	1400 - 1500 (n=15)	1500 - 1600 (n=13)	1600 - 2000 (n=9)			
Relative Size^a								
Main Dish Size	2.53 (0.51)	3.50 (0.84)	2.71 (0.60)	4.44 (0.98)	4.28 (1.38)	0.52**	0.27	11.52**
Bread Size	1.04 (0.29)	0.87 (0.20)	0.89 (0.20)	1.15 (0.54)	1.28 (0.25)	0.30*	0.09	4.40*
Plate Size	1.17 (0.08)	1.33 (1.00)	1.31 (0.46)	1.34 (0.33)	1.94 (0.28)	0.46*	0.21	4.89*

^aRelative size refers to the ratio of the target item compared to the head size in each painting

* P < .05; **P < .01

Figure:
The Relative Size of the Main Dish in Depictions of the Last Supper
Has Increased Over the Millennium

Figure 1: The Relative Size of Main Dish in Depictions of the Last Supper Has Increased With Time After the Tenth Century

