

# The Largest Last Supper

## Abstract

In recent years, public health awareness has shifted from food shortages and insecurity to the downsides of food abundance and obesity. As food resources have become more available, we might expect see it reflected in paintings that depict food. Perhaps the most commonly painted meal has been the painting of Christ's Last Supper, chronicled in the New Testament of the Bible. To examine if the depiction of food has changed with time, 56 representative, notable paintings of the Last Supper (800-200 AD; Paladri 2000), were coded on dimensions such as the size and abundance of the depicted food. The results indicate the relative size of the bread ( $r=0.0000$ ,  $P=.000$ ) and the main dish ( $r=0.0000$ ,  $P=.000$ ) have linearly increased over the past 1300 years, as have the total calories depicted at the table ( $r=0.0000$ ,  $P=.000$ ). Perhaps the seemingly increasing volume of food in our environment has been increasing over a longer time period than generally considered.

## Introduction

If art imitates life, a longitudinal analysis might provide insights as to our view toward food has changed over the last millennium.

By the end of the 20<sup>th</sup> century, food concerns in the developed world had shifted from food shortages and insecurity to the healthy concerns of food abundance and obesity. As food resources have become more available, we might expect see it reflected in popular culture. Over the years, this could include the paintings that depicted food. Perhaps the most commonly painted meal has been the painting of Christ's Last Supper, which is twice described in the New Testament of the Bible.

Increased portions size, and increasing quantities of food have been alleged contributors to obesity in recent years. Perhaps the salience of portion size and quantities parallels the abundance of food in our lives.

To investigate this, the historical dedication of portion size and volume of food was determined by analyzing the way food was depicted in paintings of the Last Supper over a 1400 year period.

## Background

This dramatic gathering of the Last Supper has been a source of inspiration for the visual arts. The first paintings of The Last Supper were static, as can be seen in the works of Duccio (1308-11) and Ghirlandaio (1480). All figures appear to sit calmly, despite having learned of their master's coming betrayal. The historic departure from this time period Leonardo da Vinci's interpretation (approx. 1495-98) – not only are the figures are highly engaged and interactive, but Judas fully included in the group.

What has not before been analyzed is how the depiction of food has changed with time. The recently completed millenium (1000-2000 A.D.) witnessed dramatic socio-historical changes in the production, availability, safety, abundance, and cost of food.

- 1) Is there some socio-historical justification of the time periods used for aggregating these paintings?**
- 2) Is there some rationale for why the size of bread, main dishes, and plate size should increase over time?**
- 3) Can we foreshadow (or at least explain in the discussion) why there seems to be why the number of bread loaves and wine bottles peak in the 1400-1600? We might not need to “predict” this up front, but we will definitely need to explain it in the discussion.**

**Method:** Fifty-six of the most important depictions of the Last Supper (Phidan 2000) over the last Millenium (1000-2000 A.D.) were content analyzed and coded to assess changes with time. The size and the number of loaves of bread, main dishes, and bottles of wine were assessed. To account for the varying size of bread loaves and main dishes across paintings, the size of these items was indexed based on the average size of the heads of those depicted in the painting in which each appeared. 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 numerical counts of all items and the measure and 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.

Paintings were grouped by general time periods so that their means could be summarized. The influence of time period, however, was determined through regression analysis. Table 1 illustrates the positive relation between year and "Bread by Head" ratio as well as year and "Main Dish by Head" ratio. Only those pieces of art that contained at least one loaf of bread (87%) or at least one main dish (64%) are included in these plots. The main dishes observed include fish (18%), lamb (14%), and pork (7%), while those remaining (46%) had no main dish that was discernable.

Consistent with expectations, the size of food depicted in these paintings increased with time. As Table 1 indicates, the date of the painting explained xx% of the variation in the size of the bread ( $P=.xx$ ), xx% of the variation in the size of the main course ( $P=.001$ ), and xx% of the variation in the size of the average plate at the table ( $P=.xx$ ).

Figure 1 depicts how the size of the loaves of bread has steadily increased over time. From its depiction circa 1000 A.D. to present, the ratio of these loaves has increased by xx%. Similarly, the quantity of the number of the loaves depicted at the table has increased by xx% (xx to yy).

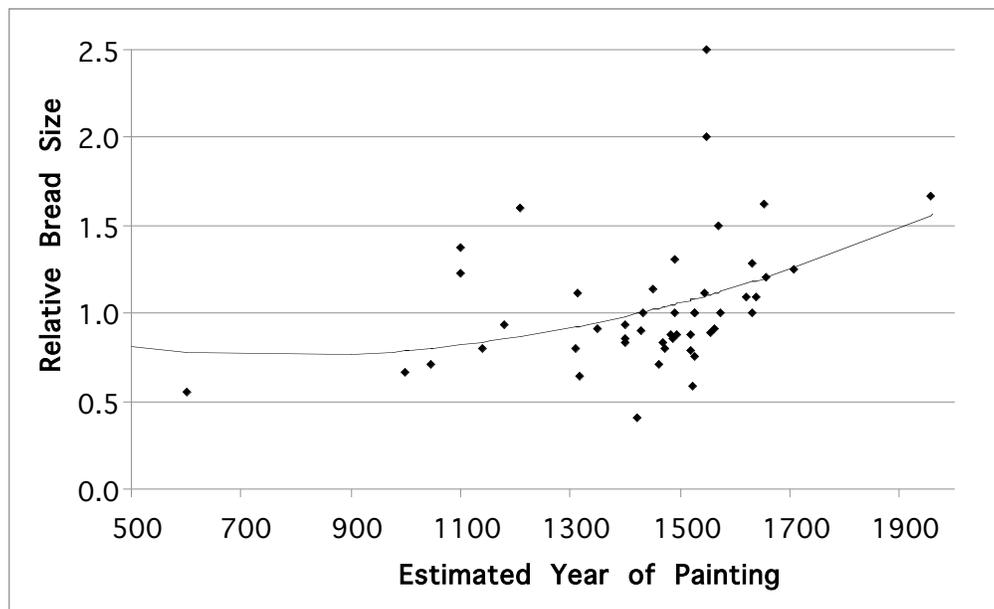
Figure 3 shows how the relative size of the plates has changed over the years.

**Table 1:  
The Size of Food in Depictions of the Last Supper Has Increased With Time**

	Mean Values from General Time Periods					Statistical Results		
	(Standard Deviations in Parentheses)					Correlation with Year	R <sup>2</sup>	F-value
	1000 - 1300 (n=xxx)	1300 - 1400 (n=5)	1400 - 1500 (n=15)	1500 - 1600 (n=13)	1600 - 2000 (n=9)			
<b>Relative Size<sup>a</sup></b>								
Bread Size	0.98 (0.38)	0.87 (0.2)	0.89 (0.2)	1.15 (0.54)	1.28 (0.25)	0.35*	0.14	3.69*

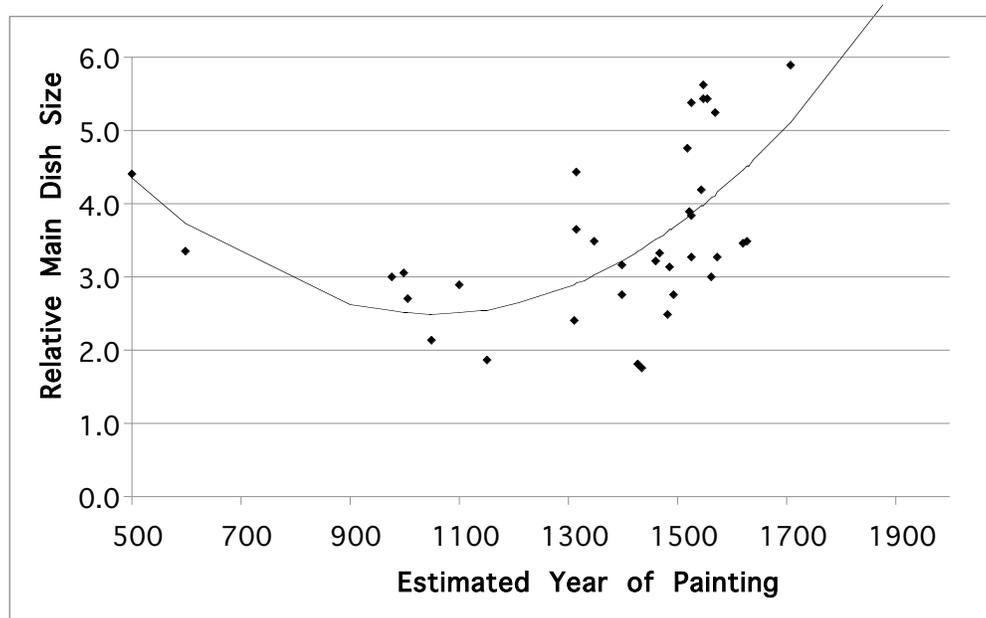
Main Dish Size	2.92 (0.77)	3.50 (0.84)	2.71 (0.6)	4.44 (0.98)	4.28 (1.38)	0.29	0.35	8.80**
Plate Size	1.13 (0.13)	1.33 (N/A)	1.31 (0.46)	1.34 (0.33)	1.94 (0.28)	0.50*	0.26	3.41
<b>Quantities</b>								
Bread Loaves	2.79 (3.87)	7.60 (6.11)	7.40 (7.22)	3.85 (2.85)	1.11 (0.78)	0.03	0.09	2.57
Wine Bottles	0.29 (0.83)	0.60 (0.89)	2.87 (3.78)	1.31 (0.95)	0.67 (1)	0.19	0.04	1.22

**Figure 1:**  
The Relative Size of Bread in Depictions of the Last Supper Has Increased With Time



**Figure 2:**  
**The Relative Size of Main Dish in Depictions of the Last Supper Has Increased With Time After the Tenth Century**

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**Discussion:** This study examined 56 of what are considered the most representative and notable paintings of the Last Supper (1000-2000 AD; xxxx), on dimensions such as the size and abundance of the depicted food. We find that the relative size of the bread ( $r=0.xxxx$ ,  $P=.xxx$ ) and the main dish ( $r=0.xxxx$ ,  $P=.xxx$ ) has linearly increased over the past 1300 years, as has the total calories depicted at the table ( $r=0.xxxx$ ,  $P=.xxx$ ). Perhaps the presumed increased salience of the volume of food in our environment has been increasing over a longer time period than generally considered.

## References

Editors of Phaidon Press (2000) Last Supper. New York: Phaidon Press. 2000.

Janson, H. W. (1974) History of Art: A Survey of the Major Visual Arts from the Dawn of History to the Present Day. Englewood Cliffs: Prentice Hall, 348.