

Modelling Clay

as Portion Size Estimation Aid

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Aim

To assess the validity of **modelling clay** versus **measuring cups** as portion size estimation aids for small and large portions of amorphous food (minced meat, pumpkin, rice) in 16-19 year old girls.

Methods

Female volunteers (n=36) **observed a plate** with three test foods (plus spinach as constant) of known portion size (60-250mL). They then used modelling clay and measuring cups to **estimate the quantities**. Test-retest reliability was checked, as was participants' liking of each food. Statistical analyses included paired t-tests, two-sample t-tests, one-way analysis of variance (Bonferroni) and (intraclass) correlations.

Results

Modelling clay

- **Difference** between actual and estimated quantity was **non-significant** (minced meat: $P=0.5495$; pumpkin: $P=0.7225$; rice $P=0.5710$).
- Test-retest reliability was established (intraclass $r=0.78$ [$P=0.0055$]).
- No significant difference ($P=0.8020$) among the three test foods.

Measuring cups

- **Difference** between actual and estimated quantity was **highly significant** ($P=0.000$ for all three foods).

Portion size

- **Small portions** were systematically **overestimated**.
- For minced **meat** the mean difference between **actual and estimated quantity** for small and large portions was **significant** (clay: $P=0.0013$; measuring cups: $P=0.0108$), yet for pumpkin and rice this was not the case (pumpkin: $P=0.4209$ and $P=0.7774$; rice: $P=0.5335$ and $P=0.1018$ for clay and measuring cups respectively).

Food liking

- **No correlation** between percentage difference between actual and estimated quantity, and liking of food (minced meat: $r=-0.0952$ [$P=0.5808$]; pumpkin $r=-0.1008$ [$P=0.5585$]; rice $r=-0.0458$ [$P=0.7909$]).

Conclusion

Modelling clay, in contrast to measuring cups, appears to be a **valid portion size estimation aid** for amorphous foods in groups of female adolescents. Portion size may play a role, but liking the food was unrelated.

