What’s cooking?

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BAS Initiatives in Aphasia Seed Fund
Background

• Many people with aphasia have word finding difficulties

• Some people exhibit greater difficulties with verbs as compared to nouns.

• Picture naming therapy is a popular form of intervention used for word finding difficulties.

• Gains made in therapy do not always generalise to connected speech tasks and spontaneous conversation.
Studies in aphasia as well as cognitive and educational psychology suggest that language may be learnt more effectively in the following conditions

• producing words in sentences

• ‘learning by doing’

• tasks based on real-life situations

• social groups
Aim of the study

• To explore whether task based group cooking therapy would have a beneficial effect on verb naming in isolation and in connected speech tasks.

• Initially it also intended to compare the effectiveness of an activity orientated programme (cooking therapy) on word retrieval and narrative production with a more traditional task based programme of therapy (cooking related therapy).
Participants

All participants

• LCVA

• marked word finding difficulties in conversation

• passed a pure tone audiometric screening at 40dB HL in at least one ear.

• fluent speakers of English prior to their stroke

• familiar with working in groups.
## Demographic information for participants in the study

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age</th>
<th>Post-onset</th>
<th>Hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>JC</td>
<td>M</td>
<td>58</td>
<td>5 years</td>
<td>right</td>
</tr>
<tr>
<td>YC</td>
<td>M</td>
<td>49.9</td>
<td>4 years</td>
<td><em>right</em></td>
</tr>
<tr>
<td>TC</td>
<td>M</td>
<td>51.8</td>
<td>5.2 years</td>
<td>left</td>
</tr>
<tr>
<td>MT</td>
<td>M</td>
<td>61.6</td>
<td>4.8 years</td>
<td>right</td>
</tr>
<tr>
<td>RT</td>
<td>F</td>
<td>68.3</td>
<td>6.11 years</td>
<td>right</td>
</tr>
<tr>
<td>IT</td>
<td>F</td>
<td>55.6</td>
<td>4.9 years</td>
<td>right</td>
</tr>
<tr>
<td>BT</td>
<td>F</td>
<td>56.3</td>
<td>5 years</td>
<td>right</td>
</tr>
</tbody>
</table>
Methods and procedures

Each treatment block consisted of 6 two hour sessions either involving: i) a range of paper based and discussion activities or ii) cooking.
## Participants performance on selected language and cognitive tasks

<table>
<thead>
<tr>
<th>Participant</th>
<th>WAB Aphasia type</th>
<th>AQ</th>
<th>CLQT (mild)</th>
<th>COAST nouns</th>
<th>OANB actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>JC</td>
<td>Wernicke’s</td>
<td>63</td>
<td>2.6</td>
<td>45</td>
<td>21</td>
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<tr>
<td>YC</td>
<td>Anomic</td>
<td>84.8</td>
<td>3.4</td>
<td>57.5</td>
<td>47</td>
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<tr>
<td>TC</td>
<td>Broca’s</td>
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<td>2.8</td>
<td>43.75</td>
<td><strong>42</strong></td>
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<tr>
<td>MC</td>
<td>Wernicke’s</td>
<td>61.6</td>
<td>2.8</td>
<td>71.25</td>
<td>31</td>
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<tr>
<td>RC</td>
<td>Anomic</td>
<td>87.3</td>
<td>3</td>
<td>53</td>
<td>43</td>
</tr>
<tr>
<td>IC</td>
<td>Anomic</td>
<td>82.2</td>
<td>3.4</td>
<td>80</td>
<td>41</td>
</tr>
<tr>
<td>BC</td>
<td>Conduction</td>
<td>86.2</td>
<td>3</td>
<td>61.25</td>
<td>50</td>
</tr>
</tbody>
</table>
Outcome measures

• Naming accuracy and speed of naming was assessed using 36 photographs of actions (16 target verbs and 16 controls matched for frequency and number of syllables).

• Variety of verbs used and number of events in connected speech was assessed using a range of narrative samples:
  – Describing 3 procedural events:
    • making a jam sandwich
    • making an omelette
    • brushing teeth
  – Recounting the events observed in the cooking scene from the film ‘Mrs Doubtfire’.

• A control measure that was not expected to be affected by treatment was administered before and after therapy - WRAT arithmetic form

• Self perceptions of the cookery programme including identification of key words associated with the programme.
Therapy materials and procedures

Task-based activities
- Written-word to picture matching
- Word search
- Crosswords
- Picture sequencing
- Picture recipes
- Problem solving

Cooking
- Easy to follow photo and text based recipes
- Ingredients, utensils and cooker
1. Grate the cheese onto a plate.

2. Then finely chop the ham.

3. Crack the eggs into a mixing bowl with a pinch of salt and pepper. Beat well with a fork.
Results

• No change in performance on the WRAT for any of the participants

• Two participants showed significant improvement on components of OANB
  – JC: Pairwise comparisons with Bonferroni corrections revealed that **object** naming was significantly better at maintenance than pre therapy
  – TC: Pairwise comparisons with Bonferroni corrections revealed that **action** naming was significantly better at post therapy and maintenance than pre therapy
Verb naming test

• A one-way ANOVA compared accuracy scores for pre1, pre 2 and maintenance. The analysis was significant.

• Post hoc comparisons indicated that
  – pre 1 and pre 2 naming were not significantly different.
  – naming in the maintenance condition was significantly better than in the pre 2 condition.
Mean score for all participants on the verb naming task pre and post therapy
Naming of target verbs in the verb naming test

- JC: Pairwise comparisons: naming was significantly better post-therapy than pre-therapy
- RC: Pairwise comparisons: naming was significantly better at maintenance than pre-therapy
- TC: Pairwise comparisons: naming was significantly better at maintenance than pre-therapy and post-therapy
Narratives

- A wider variety of verbs was used in the cookery narratives by six of the participants post therapy.

- No difference in the number of events produced between any of the test points in any of the narratives.
IC’s narrative pre and post therapy

Tell me how you would make an omelette.

Pre therapy:
‘I'd put the egg um in the bowl and then milk and then pepper and then I don't like salt and then wiks it and then pour it in the frying pan no no oil for it in the frying pan and and then turn it round and then turn around two minutes and then pour it in the plate and then and then that is it.’ (57 secs)

Post therapy:
‘An omelette. I’d go to the fridge and ..get three eggs. I’d break the eggs in the bowl and then put milk and then pepper ..and then whisk it with a a fork..and then pour it in the. hot hot frying pan and then turn it around . four minutes..firm. and then fold it and then put it in the plate and then eat it.’ (58 secs)
Participants' perceptions of therapy

- Valuable
- Fun
- Useful
- Informative
- Communicative
- Easy
- Supported
- Teamwork

Positive:
- Valuable
- Fun
- Useful
- Informative
- Communicative
- Easy
- Supported
- Teamwork

Negative:
- Difficult
- Tiring
- Boring
- Confusing
- Lonely
- Stressful
- Silent
- Physical

Legend:
- Blue: post-cooking
- Red: post traditional
Conclusions

Positive effects were

• \(\uparrow\) accuracy of production for trained verbs
• maintenance of the treatment effect
• \(\uparrow\) in range of verb forms used in narratives related to cooking
• participants perceived themselves as being able to support others
• some participants were helping in the kitchen/cooking more than before

This was achieved with limited financial resources and time.
Several factors may have contributed to the minimal generalization of treatment effects to narrative production:

- small numbers of participants
- insufficient time in therapy
- weaknesses in the methods used to measure change
- verb naming latency - verb production may need to be more automatic before generalization to sentence production will occur
- cooking may be more engaging but possibly less effective for the systematic teaching of compromised language skills