# Disorganized search in stroke patients

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## Background

There is debate regarding whether and how disorganized search at shape cancellation tasks is related to stroke patients in general and to patients with unilateral spatial neglect (USN+) in particular. It is not clear which measures indicate disorganization of search the best.

## Aim

- Investigate whether the organization of search differs between:
  - Stroke patients versus healthy control subjects
  - USN+ versus USN- patients
- Determine which measures depict disorganized search the best

## Method

310 stroke patients and 37 healthy controls were given a computerized shape cancellation task. USN groups were made based on the omission difference score. Measures that were computed:

- General search direction (best r)
- Intersections with paths between previous cancelled targets
- Distance between consecutive cancelled targets
- Perseverations

## Table 1. Demographic and stroke characteristics of patients enrolled in the study

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>USN+ (N = 59)</th>
<th>USN- (N = 251)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (% male)</td>
<td>57.63 %</td>
<td>60.96 %</td>
</tr>
<tr>
<td>Age (mean ± stddev)</td>
<td>58.86 (13.67)</td>
<td>58.75 (11.16)</td>
</tr>
<tr>
<td>Lesion side (% left)</td>
<td>31.48 %</td>
<td>49.55 %</td>
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<tr>
<td>Days post-stroke (mean ± stddev)</td>
<td>42.09 (34.65)</td>
<td>33.06 (28.72)</td>
</tr>
<tr>
<td>MMSE (mean ± stddev)</td>
<td>25.58 (4.00)</td>
<td>26.05 (4.11)</td>
</tr>
<tr>
<td>BI (mean ± stddev)</td>
<td>11.65 (4.97)</td>
<td>12.98 (5.43)</td>
</tr>
<tr>
<td>MI Arm (mean ± stddev)</td>
<td>55.86 (40.77)</td>
<td>65.23 (38.55)</td>
</tr>
<tr>
<td>MI Leg (mean ± stddev)</td>
<td>65.38 (37.86)</td>
<td>71.77 (33.18)</td>
</tr>
<tr>
<td>SAN (mean ± stddev)</td>
<td>5.30 (1.77)</td>
<td>5.37 (1.82)</td>
</tr>
</tbody>
</table>

## Results

**Perseverations**

- Number of perseverations

**Best r**

- Correlation between best r and organizational measures

**Intersections**

- Number of intersections between paths

**Distance**

- Distance between consecutive cancelled targets

Fig. 1 Means for the different organizational measures of the three groups, error bars depict SD's from the mean.

## Conclusions

- **Stroke patients were more disorganized compared to healthy control subjects**
- **USN+ patients were more disorganized compared to USN- patients, but great variety existed between individual patients**
- **The number of intersections depicted search organization the best**