Disrupted Latent Inhibition in Recreational Cocaine Users

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http://www.uel.ac.uk/psychology/research/drugs.htm
Cocaine - Last year prevalence rates

Figure 7: Last year prevalence of cocaine use among young adults (aged 15-34) in Europe, Australia, Canada and the USA

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Chronic Cocaine Use

Is associated with:

- altered dopaminergic functioning
- reduced function in frontal brain regions
- Neuropsychological dysfunction such as impaired inhibitory control and response inhibition
Recreational cocaine use and inhibition

   – recreational cocaine users exhibited a similar response inhibition deficit to chronic users
   – magnitude of the inhibitory deficit was positively correlated with lifetime drug exposure.

2. Colzato and Hommel (2009)
   – recreational cocaine users did not show a reliable inhibition of return (IOR) effect
Aim

• To assess whether recreational cocaine users show deficits in latent inhibition relative to non-cocaine users

• Whilst controlling for:
  – Polydrug use
  – Psychological Health
  – Trait Schizotypy
# Participants

<table>
<thead>
<tr>
<th></th>
<th>Recreational Cocaine Users</th>
<th>Non-cocaine Polydrug Users</th>
<th>Drug-naïve Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>21</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td>24.4</td>
<td>24.1</td>
<td>28.9*</td>
</tr>
<tr>
<td><strong>Male/Female</strong></td>
<td>12/9</td>
<td>8/9</td>
<td>6/12</td>
</tr>
<tr>
<td><strong>Drug Use</strong></td>
<td>Used within the last 6 months, no more than 5 times in last month. Snorting only</td>
<td>Use of other drugs except cocaine within the last 6 months</td>
<td>No drug use within the last year except tobacco and alcohol</td>
</tr>
</tbody>
</table>

* p< 0.05
Latent Inhibition (LI)

- An inhibitory input process that refers to the unconscious cognitive mechanisms that ensures that attentional resources do not become occupied with stimuli which past experience has shown to be irrelevant.
- Measure of delayed learning of an association between 2 stimuli, one of which has been previously exposed to, without any consequence and thus deemed irrelevant.
Latent Inhibition (LI) Task

Stage 1. Masking Task (approx 5 mins)
• Audio recording of a series of nonsense syllables
• Participant counts how many times a particular syllable is repeated. One of 2 conditions:
  – Pre-exposed (PE) - nonsense syllables randomly superimposed with 25 bursts of white noise (CS)
  – Non-pre-exposed (NPE) – identical nonsense syllables but unaccompanied by any sound.

Stage 2. Test (approx 15/20 mins)
• Audio recording of nonsense syllables now presented with a counter display
• Asked to predict counter increment by clicking a button [Increments (UCS) were preceded by the CS (white noise)]
• Measure of conditioning indexed by number of trials taken to detect this rule. Learning criterion = 5 consecutive correct responses
Additional Assessment

- NART (Nelson and Willison, 1991)
- Brief Symptom Inventory (BSI; Derogatis, 1993)
- Schizotypal Personality Questionnaire-Brief (SPQ-B; Raine and Benishay, 1995)
- UEL drug use questionnaire inc. SDS
Results: LI

Graph showing the comparison of PE and NPE across Cocaine, Polydrug, and Controls groups.
Conclusions

• Cocaine users were quicker to learn the association in the PE condition relative to controls and polydrug users
• Not thought to be influenced by other drug use, psychological health or schizotypy
• Even at recreational levels, cocaine may be sufficient to affect inhibitory attentional processes
• IMPACT – sensory overload, not able to filter out what is important from what isn’t which has implications on decision making, risk taking, impulsive behaviours etc.
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• Participants