

Auditory Digit Span: Instructions for Use

The aim of these tasks is to assess the functioning of some of the components of the 'phonological short-term memory system', a system integrally concerned with the comprehension of both written and spoken language and normal fluency of speech production. One of the tasks looks at serial repetition of digits. A selective deficit of repetition span may reflect an impairment of the phonological output buffer. However, as auditory repetition also involves input processing, the deficit may rather reflect impairment of an input buffer (Shallice, T. & Butterworth, B. (1977) *Neuropsychologia*, 15, 729 - 735). As an attempt to test this possibility, we have also included a matching span task, in which no overt repetition is required. This task is therefore useful for patients in whom repetition abilities are abolished or severely impaired.

Special Points:

The matching span task involves a comparison of two sets of spoken digit names. A matching span of 2, for example, involves hearing 4 digits (2 sets of 2). Digit repetition span and matching span should therefore not be compared directly, but should be assessed against a range of 'normal' performance.

Descriptive Statistics:

Norms are not currently available

Suggestions for Where to go next: If the patient has a substantially reduced matching span, test auditory input processing (eg. Minimal Pair Judgement with Nonwords [1]). If minimal pair judgements can be carried out successfully, this suggests that the patient may be able to analyse acoustic information to the phoneme level, though not hold it in memory successfully. Test phoneme segmentation tasks, including rhyme judgement (eg. [14, 15, 16, 17]); there are grounds for expecting that a problem at the level of the phonological input buffer will result in impairment in these tasks.

If the patient is substantially better at matching span than digit repetition span, and can carry out phoneme segmentation tasks, then difficulty may be located at the level of the phonological output buffer. Test nonword reading [8] and homophone matching [28]. Difficulty at this level will be reflected in difficulty with these tasks, together with difficulty with nonword repetition [8]. If the patient can carry out nonword reading and homophone matching successfully, then one may suspect an impairment to the rehearsal loop connecting input and output buffer systems.

Auditory Digit Repetition Span

Presenter's & Marking Form

Name:	Date:
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Instructions to Presenter: Present each digit at a 1 second interval with flat intonation. Write each digit spoken by subject under corresponding target.

Start at left-most column. If subject is correct, move to top of next column and so on, till subject fails. At this point, move back to last correct span and present the next group of digits at that length. If the subject succeeds, move to next span length and so on. This is a stepwise method of assessing digit repetition span. Span is the length at which the majority of digit groups are repeated correctly in the correct order.

Instructions to Subject: I'm going to say some numbers to you, one at a time. Wait till I've finished, then say them back to me, in the correct order.

2	3	4	5	6	7
72	635	4527	62975	784916	2874512
13	298	5691	76813	368254	7286453
54	126	9623	50962	613982	1398724
83	987	1879	94127	173859	4392718
61	543	2498	37514	875463	5831467
79	467	1284	38273	156982	4236187
24	954	5391	27691	294356	9438756
31	269	8297	98456	947685	2541398
89	325	6285	68345	213847	9862134
46	518	8954	98145	859124	3142596
Span					

