University of Michigan
Aphasia Program

Mapping New Directions

A Summary of the Research on Intensive Aphasia Therapy: The Scientific Base for Service Delivery Models Which are Intensive in Nature

The purpose of this paper is to provide a brief overview of the scientific base for the intensive nature of our University of Michigan Aphasia Program (UMAP). UMAP is one of a small number of clinical service programs around the country that offers language therapy to adults with chronic aphasia on an intensive intervention schedule. Founded 60 years ago, UMAP specializes in the treatment of adult aphasia– language loss due to brain injury. Emphasis is placed on total communication, with expressive language being one of the integral components. Adults typically enroll for one or more 6-week sessions, receiving individual, small group, and computer-based therapy, 5 days a week for a total of 138 hours per session. The therapy is state-of-the-art, but unlike most high-quality traditional programs, the UMAP service delivery model is intensive in nature.

Prior to the 1990s, intensive therapy was considered unproven or "experimental" but this is no longer the case. Over the last decade, a strong scientific base has emerged to support the delivery of therapy on an intensive basis.

When therapy schedules are non-intensive, for example offering appointments for only one or two hours per week, outcomes are very mixed, ranging from no progress to very limited progress (Bhogal, Teasell, Speechley, & Albert, 2003; Hinckley & Craig, 1998; Robey, 1998). This has created the false impression in the minds of some individuals that aphasia therapy is not effective. Research studies which failed to find benefits from aphasia therapy were based on non-intensive schedules, only one or two hours of therapy per week (Bhogal et al., 2003).

In contrast, when the schedule for intervention was intensive, research shows that measurable progress was made. And, the more intensive the schedule, the more progress in communication (Bhogal et al., 2003; Robey, 1998). Some of these studies specifically probed whether it was the amount of therapy or the intensity which led to the improvements, by holding the amount of therapy constant and examining performance differences when scheduled over a longer (non-intensive) or shorter (intensive) period of time. It was the intensity of therapy, not the amount that yielded the positive outcomes (Hinckley & Craig, 1998; Meinzer, Djundja, Barthel, Elbert, & Rockstroh, 2005; Pulvermüller, Neininger, Elbert, Mohr, Rockstroh, Koebbel, et al., 2001). Randomized control group studies are the gold standard for clinical efficacy research. Pulvermüller et al. (2001) conducted such a study for adults with chronic aphasia and demonstrated that intensive schedules were superior to more traditional approaches.

Intensive schedules appear to impact brain wave activity, decreasing patterns of slow brain wave activity around lesions (Meinzer, Elbert, Wienbruch, Djundja, Barthel, & Rockstroh, 2004). In addition, Pulvermüller, Hauk, Zohsel, Neininger, & Mohr (2005) recently reported changes in evoked response potentials for words but not for pseudo-words after intensive therapy providing evidence of a specific intervention effect. Increases in cortical activation bilaterally contributed to the changes in neurological activity for word stimuli, providing evidence of therapy-related cortical reorganization for language in both hemispheres.

The positive benefits of intensive aphasia therapy have been reported regardless of the stage of recovery– acute, post-acute, or chronic (Basso & Caporali, 2001; Holland, Fromm, DeRuyter, & Stein, 1996; Poeck, Huber, & Willmes, 1989). It has long been assumed that aphasia therapy was effective only in the earliest phase of recovery, with little hope for improvement when aphasia was chronic. The recent research challenges this assumption and shows that improvements in communication can be expected well into the chronic phase, when the treatment schedule is intensive. The advantages of intensive compared to non-intensive aphasia therapy also have been reported regardless of the type of aphasia, and including global aphasia (Basso & Caporali, 2001; Denes, Perazzolo, Piani, & Piccione, 1996).

Defining how much therapy is necessary to yield the positive benefits of an intensive schedule has varied in the research literature, up to 30 hours per week (Meinzer et al., 2005; Pulvermüller et al., 2005). Considered together, the studies revealed that less than 2 hours per week was

not sufficient to see significant progress (Robey, 1998). Typically, intensive therapy was defined as 9 hours per week or more (Bhogal et al., 2003; Hinckley & Craig, 1998; Poeck, 1989).

Increasingly studies are showing that, within an intensive schedule, the type of therapy matters (Hinckley & Carr, 2005; Meinzer et al., 2005; Pulvermüller et al., 2001). Some studies have mixed schedules and treatment types, so that their findings are more difficult to interpret (Pulvermüller et al., 2001, 2005). However, Hinckley and Carr (2005) separated out schedules from types of therapy, and found that intensive and non-intensive schedules yielded very similar results in communication outcomes when the therapy was focused on a single training context, i.e., catalogue ordering. Only the intensive schedule yielded broader transfer of learning to other language modalities beyond the trained context.

Summary

Intensive aphasia therapy, usually involving more than 9 hours of therapy a week, leads to greater improvements in communication than more traditional schedules of less than 2 hours per week. It is the intensity of the schedule– the number of hours of therapy per week, that is critical. The same amounts of therapy over longer periods of time are not as effective. The more intense the schedule, the greater the gains. Improvements occur for adults with the full range of types of aphasia, and in all stages of recovery.

The last 10 years has been a time of focused scientific inquiry into the benefits of aphasia therapy provided as an intensive service delivery model. This research has clearly demonstrated that intensive approaches to adult aphasia are superior to non-intensive approaches, with particular promise for adults in the chronic stages of recovery.

For more details, see *Research on Intensive Therapy Outcomes: An Annotated Bibliography for the Last Ten Years* on our website, www.aphasiahelp.com.

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