Hippotherapy as a Treatment Tool for Speech/ Language Therapy

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The definition of Hippotherapy as applied in the United States includes..."direct service by a licensed health professional...which uses as its basis the multi-dimensional movement of the horse..." It is recognized that the horse's movement can be used to impact human gait. There is acceptance that the sensory input provided through the multi-dimensional movement of the horse can impact perception, balance and equilibrium as well as various aspects of motor control. There is, however, some confusion as to the applications of Hippotherapy to the field of speech-language therapy and the treatment of communication disorders. The intent of this paper is to present an overview of how the speech and language pathologist can effectively use Hippotherapy as a treatment tool in the remediation of communication disorders.

To understand how Hippotherapy is used as a tool for speech and language remediation, a basic understanding of the human communication system is necessary. Humans have a highly developed symbolic language system that allows us to interact in a complex fashion. Speech is the most commonly used means of conveying language. Other means of conveying language included the written word, graphics, and sign language. In viewing human form and function, it is important to underscore that linguistic skills are among the highest level cortical skills exhibited by humans. There is a complex relationship between our symbolic language and our thought processes or cognition (Snyder, 1984; Rice and Kemper, 1984; Slobin, 1979). Cognition as well as speech and language systems are influenced by the integrity of our motoric, perceptual and behavioral systems. In the overall neural arrangement of the central nervous system, convergent neural pathways that can deal with intersensory information are among the most important neuromechanisms (Carpenter, 1978; Luria, 1986; Fisher, et al., 1991).

Although there are centers in the brain that appear to dominate speech and language functioning, there is a complex network of neurologic pathways throughout the central nervous system that is involved in communication. The symbolic representations that we convert to language are intrinsically related to a broad range of cortical functions including but not limited to arousal levels, sensory integration, information processing, memory and retrieval skills. Normal language use is dependent upon these cortical skills being intact. Of particular note is the importance of arousal to normal information processing (Adamovich, et.al., 1982). Neuroattentional Models postulate that arousal, sensory-attentional, cognitive-intentional, and motor activation are all essential components of functional performance (Voeller, 1991). These arousal systems include the brainstem (reticular activating system), the midbrain structures (diencephalons, limbic system, and basal ganglia) and the cortical structures (cingulated gurus, frontal cortex, and right parietal cortex (Posner, 1994; Luria, 1986; van Zomeren, et.al., 1994). The prefrontal and frontal structures have been found to be activated in all types of language perception and production tasks (Ingvar, 1993). Sensory Integration Theory states that there is a sophisticated process of self-actualization that involves intricate interactions among sensory input, integration and interpretation of that input, and the ensuring adaptive responses. The process of language development and use can be negatively effected by sensory integration deficits (Windeck and Laurel, 1989; Fisher, 1991). Dynamic Systems Theory supports the notion that the human mechanism functions through cooperation and interaction of multiple subsystems such as nervous, muscular, skeletal, sensory, and cognitive, and that the central nervous system is arranged in a heterarchicial fashion (Ulrich, et.al..., 1995; Stuberg, et.al...1994). In any of these theoretical constructs, it becomes clear that speech and language are not "systems" that operate in isolation. They are influenced by what is happening in the entire human mechanism.

Speech production is a sophisticated motor activity. Normal speech production requires normal postural tone, postural stability, normal movement patterns, normal timing, normal respiratory control, and