

## VISUAL EVOKED RESPONSES: YELLEN-SCHWELLER EFFECT

Andrew Yellen, Ph.D, a psychologist in private practice, and Thomas Schweller, M.D., a board certified neurologist and professor of neurology at UC San Diego have closely examined the effects of Irlen Syndrome (IS) utilizing state-of-the-art Visual Evoked Responses (VER), a portion of their comprehensive neuroelectrical evaluation of patients called DESAR.

There is enough objective neuroelectrical evidence of Irlen Syndrome and the presence of the Yellen-Schweller Effect to warrant sharing the information with other professionals. Further investigation and research is necessary before any conclusive results can be drawn. It is noteworthy that the technology used in the DESAR and the results drawn meet the Daubert Standards of Scientific Evidence in legal proceedings.

In an **individual without Irlen Syndrome (IS)** visual stimuli is processed by the brain usually between 130-150 milliseconds. Once the brain has processed the information, it returns to a **readiness state by approximately 200 milliseconds and awaits the next stimulus.**

**Individuals with Irlen Syndrome (IS)** the Yellen-Schweller Effect appears. There is an early hyperreactivity to visual stimuli somewhere between 30-60 milliseconds, and it is 3-9 standard deviations above normal. If one were to visualize a graph, rather than a smooth bell-shaped curve of processing, there is an extreme spike at the beginning, followed by a latency period occurring when the brain would normally be processing the information producing performance 3-6 standard deviations below normal. The brain "comes back on line" and begins to reprocess the information, delaying complete processing well into the 400-500 millisecond range when the normal brain would be awaiting the next stimulus. It is even possible to have a second stimulus occur while the brain is still processing the first. Much like the effects of a flashbulb, the brain is stunned, taking several moments to clear itself. However, in IS this phenomenon occurs every waking moment, giving the brain no time to recover and producing the now well-documented effects of IS. Traditional evaluations of VER's failed to identify the Yellen-Schweller Effect because they looked at averages rather than millisecond-by-millisecond behavior.

While somewhat reducing the height of the early spike, Irlen Lenses appear to shift the processing to the left of the graph, resulting in a lessening of the delay of the brain coming back "online" and allowing it to clear sooner.

**QEEG BRAIN SCAN OF A SUBJECT WITH IRLLEN SYNDROME SHOWING "FLASH BULB EFFECT" AND SCAN OF A SUBJECT WITHOUT IRLLEN SYNDROME SHOWING NORMAL VISUAL PROCESSING.**

