



AB066. Duration dependent visual plasticity via monocular deprivation

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Background: Short-term monocular deprivation has been recently shown to temporarily increase the sensitivity of the patched eye. Many studies have patched subjects for an arbitrary period of 2.5 hours, but for no principled reason. Our goal is to show a relationship, if any, between the length of patching duration and the strength of its effect.

Methods: We tested nine subjects with three different patching durations: 1-, 2-, 3-hour. Four of the nine subjects were patched for 5-hour. Monocular deprivation was achieved by the use of a translucent eyepatch. A session included two rounds of baseline testing of interocular eye balance, patching, and post-patching tests. Each post-patching test occurred at 0, 3, 6, 12, 24, 48, 60 and 96 minutes after patching to track the patching effect over time. Every subject performed two sessions per condition.

Results: One-hour patching produced a small shift in ocular dominance. A larger shift occurred from 2-hour patching, but 3-hour patching produced a comparable effect to the one measured after 2-hour patching.

Conclusions: These results show a saturation of the patching effect beyond 2-hour patching. Hence, we believe that 2-hour patching duration is the optimal duration for eye dominance changes induced by monocular deprivation.

Keywords: Neuroplasticity; ocular dominance; monocular deprivation

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