

# The Effect of Visual Stimulation on Standing Posture in Children Diagnosed with Cerebral Palsy

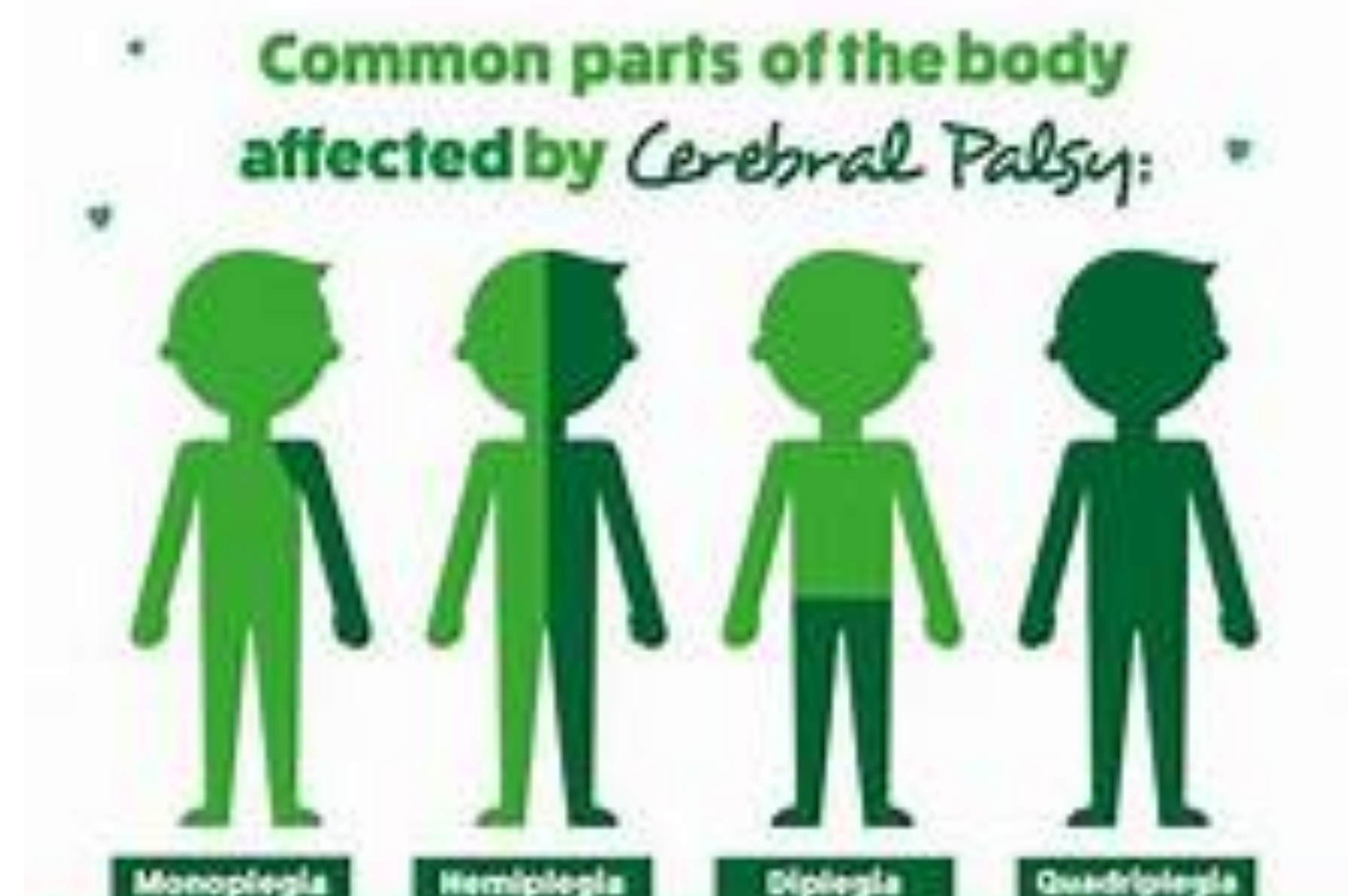
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## Abstract

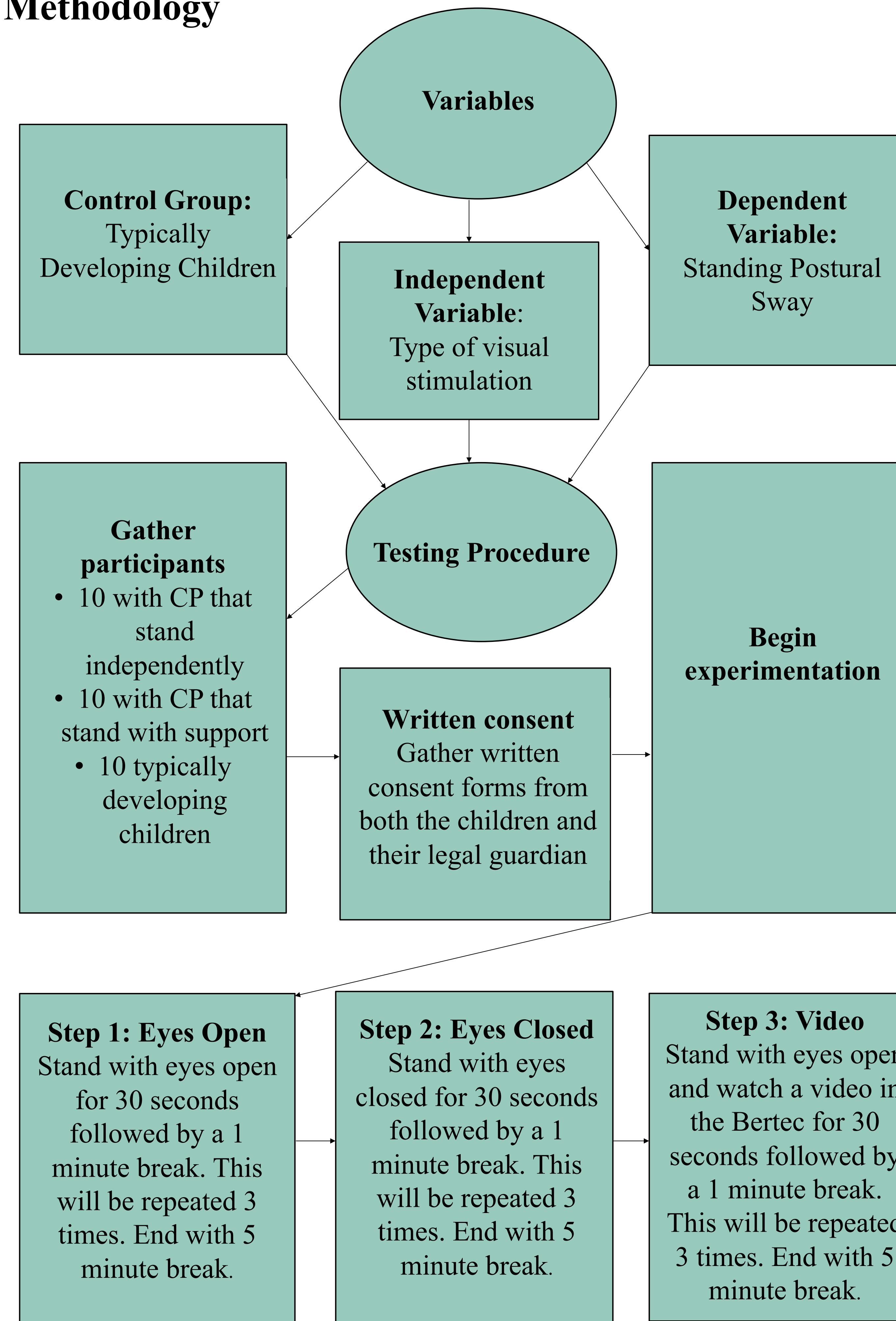
Cerebral palsy (CP) is a neuromuscular disorder caused by brain damage, which leads to disruptions in an individual's ability to complete gross motor movements, to function independently, and to maintain a long mortality rate. The **purpose** of this study is to determine if children diagnosed with CP will exhibit postural changes when exposed to visual stimulation during quiet standing. Similarly, the **hypothesis** was that children with CP would have better posture when watching a video than without. Children stood barefoot on force plates, and the Bertec Balance Advantage CDP device was used to determine variances in posture while simultaneously displaying a video for the participants. Some limitations to this study include a small sample size and using complex equipment that may be confusing or intimidating for the children. This study will aid in future treatment regimen for children with CP, allowing for increased independence.

## Introduction

- ▶ **Gap in the literature:** While many studies have been conducted regarding CP and postural changes, the gold standard of using the Bertec machine has not been present in testing children.
- ▶ Past studies...
  - ▶ Lidbeck et al. (2016) → Visual stimulation types, which were eyes open, eyes closed, and a video, were used. Did not use a gold standard.
  - ▶ Lidbeck et al. (2014) → Confirmed that children with CP exhibited postural differences when compared to typically developing children.
  - ▶ Donker et al. (2008) → Different types of visual stimulation, and no gold standard. Shows continuity in literature.



## Methodology



## Results

- Lidbeck et al. (2016) → No significant differences in postural sway in children with CP. Decreased head bobble and increased body flexion when standing.
- Lidbeck et al. (2014) → Increased flexion and anterior tilt while standing in children with CP. No statistical changes in postural sway.
- Donker et al. (2008) → Significant changes in regularity of postural sway between the group that received feedback, and the eyes open and eyes closed group of children with CP.

## Conclusion

- ▶ Children with CP have greater variances in standing posture than that of typically developing children.
- ▶ Postural sway did not disappear as a result of the prevalence of visual stimulation.
- ▶ Videos and feedback led to improvements in head movements while standing.
- ▶ More research should be conducted in order to further understand how advancements can be made for treatments of children with CP.

## References

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