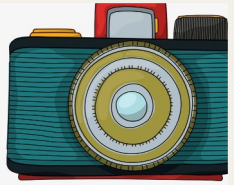
PROFESSIONALS & RESEARCHERS IN EARLY CHILDHOOD INTERVENTION



March 2025

Research Snapshot No.13

"Determining associations between intervention amount and outcomes for young autistic children: A meta-analysis".

A paper published in 2024 in JAMA Pediatrics (Sandbank et.al).

In the spirit of reconciliation PRECI acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

Presented by Paula Buttigieg, Occupational Therapist

What you need to know

- Intensive interventions (20-40 hours per week) often recommended for autistic children. E.g. EIBI – Early Intensive Behavioural Analysis
- Often implied that higher intervention amounts lead to greater improvements.
- Primary research backing recommendations such as these is sparse and methodologically flawed.
- Intensive interventions have potential for harm due to negative impact on child's ability to participate in activities that lead to social interaction and inclusion.
- Updated meta-analysis needed inclusive of a broader variety of intervention approaches and focussing specifically on intervention amount.

What is this research about?

+ This meta-analysis examined whether different metrics of intervention amount were associated with intervention effects for young children with autism.

+ 3 dimensions of intervention amount
  1) Intensity = hours/day
  2) Duration = number of days
  3) Cumulative Intensity = total number of hours (hrs/day x no. days)

+ 4 intervention approaches
  1) NDBIs
  2) Behavioural
  3) Technology-based
  4) Developmental

What did the researchers do?

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+ Meta-analysis – statistical analysis of combined results from multiple studies on a specific topic.
+ Built upon a previous meta-analysis of all controlled group studies that tested the effects of any nonpharmacological intervention on any outcome for autistic children up to 8 years old.
+ Followed PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)

What did the researchers do?

- Data Coding
  - Participant characteristics
  - Intervention characteristics
  - Identifying information
  - Potential bias risks
  - Outcome domain
  - Outcome proximity (proximal or distal to intervention target)
- Statistical Analysis to look for effect size in relation to outcomes for the 3 metrics of intervention amount (intensity, duration, cumulative intensity).

What did the researchers find?

+ Total 144 studies
+ 9038 children (mean age 49.3 months)
+ ***No significant, positive association between any of the intervention amount metrics (intensity, duration, cumulative intensity) and intervention effect size, regardless of intervention approach or outcome type.***

What did the researchers find?

- Longer duration interventions had statistically significant association with reduction in effectiveness for technology-based interventions (statistical analysis was not straightforward nor strong).

- Limitation - noted difficulty with discerning difference between clinician and caregiver-mediated interventions.

How can you use this research?

- Provides sound evidence that greater amounts of intervention are not associated with statistically significant positive effects. ie, more intervention does not guarantee better outcomes for young autistic children.
- Important when weighing up the potential benefits of intervention amount against the possible negative impacts.
- Researchers investigating the effect of intervention amount on outcomes should detail all aspects of intervention amount across both clinicians and caregivers.
- Further research needed into how certain participant characteristics, like age, might influence intervention effects when the amount of intervention is considered.

Where to from here?

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+ The Australian Autism CRC guidelines can be found at https://www.autismcrc.com.au/best-practice/supporting-children

+ Podcast from the Journal of the American Medical Association (JAMA) on "Intervention Amount and Outcomes for Young Autistic Children." https://edhub.ama-assn.org/jn-learning/audio-player/18890311?utm_source=silverchair&utm_medium=email&utm_campaign=article_alert-jama&utm_content=olf&utm_term=021725&adv=000002739273

Other related articles

+ Sandbank, M.et al. (2023). Autism Intervention Meta-Analysis of Early Childhood Studies (Project AIM) 2: updated systematic review and secondary analysis. BMJ.2023;383: e076733. doi:10.1136/bmj-2023-076733

+ Letter to the Editor (Comment and Response). (2025). Frazier, T.W, Chetcuti, L., Uljarevic, M. Evidence That Intervention Dosage is Associated With Better Outcomes in Autism. JAMA Pediatrics,179(1):101-102. doi:10.1001/ jamapediatrics. 2024.4710

About the researchers

- The authors of this paper are based in the US across various tertiary institutions.
- Drs Sandbank and Pustejovsky had full access to all the data in the study and take responsibility for integrity of the data and accuracy of the data analysis.
- Dr Sandbank is from the Department of Health Sciences, University of North Carolina, Chapel Hill. Dr Pustejovsky is from the Department of Educational Psychology, University of Wisconsin-Madison.

Citation

- Sandbank, M; Pustejovsky, J.E; Bottema-Beutel, K; Caldwell, N; Feldman, J.I; Crowley LaPoint, S; Woynaroski, T (2024). Determining associations between intervention amount and outcomes for young autistic children: A meta-analysis. ***JAMA Pediatrics 178(****8)*:763-773.

THANK YOU FOR LISTENING!