



Journal Review

KPJ journal watch

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Source: Hollywood L, Issartel J, Gaul D, McCloat A, Mooney E, Collins CE, & Lavelle F. (2022). Cook like a Boss Online: an adapted intervention during the COVID-19 pandemic that effectively improved children's perceived cooking competence, movement competence, and well-being. *The International Journal of Behavioral Nutrition and Physical Activity*, 19(1), 146. <https://doi.org/10.1186/s12966-022-01378-x>

Over the past 3 years, the COVID-19 pandemic has caused a decline in physical activity and dietary intake in children. To address this issue, a study was conducted to assess the effectiveness of an online cooking camp, 'Cook Like a Boss', on well-being and various perceived competencies in children. Two hundred and ten children aged 9–12 from Ireland were included in the prospective cohort study, with the exclusion of siblings within the same household. The intervention consisted of five daily videos designed to introduce children to a range of food and skills. Results showed an improvement in perceived cooking competence, perceived movement competence and well-being following the program. Pre-intervention perceived cooking competence, perceived movement competence, well-being and age were all significant predictors of perceived cooking competence following the intervention. Although this study lacked a control group, it highlighted a potential strategy for improving cooking competencies and diet quality in children.

Source: Rodriguez-Wallberg KA, Palomares AR, Nilsson HP, Oberg AS, & Lundberg F. (2023). Obstetric and Perinatal Outcomes of Singleton Births Following Single - versus Double-Embryo Transfer in Sweden. *Jama Pediatrics*, 177(2), 149–159. <https://doi.org/10.1001/jamapediatrics.2022.4787>

This study looked at the potential risks of multiple embryo transfers compared to single embryo transfers in assisted reproductive technology. Out of approximately 36,000 births, single embryo transfer was associated with a lower risk of neonatal death (0.1%) compared to double embryo transfer (0.3%). Low birth weight was more common in frozen embryo transfers and blastocyst transfers, while both single and double embryo transfers were associated with higher risks of congenital malformations than non-assisted conceptions. The findings suggest that double embryo transfers may have an increased risk of neonatal death and morbidity, although other factors such as frozen or fresh embryo status can affect this risk. Residual confounding due to differences in fertility potential may also play a role in the differences between the two groups.

Source: Owen MJ, Wright MS, Batalov S, Kwon Y, Ding Y, Chau KK, Chowdhury S, Sweeney NM, Kiernan E, Richardson A, Batton E, Baer RJ., Bandoli G, Gleeson JG, Bainbridge M, Chambers, CD, & Kingsmore SF. (2023). Reclassification of the Aetiology of Infant Mortality with Whole-Genome Sequencing. *JAMA Network Open*, 6(2), e2254069. <https://doi.org/10.1001/jamanetworkopen.2022.54069>

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This study aimed to understand the relationship between single-locus (Mendelian) genetic diseases and infant mortality. It was conducted at a large paediatric hospital system in San Diego County, California, from January 2015 to December 2020, and included 546 infants, with 112 of them having died (20.5%). Whole Genome Sequencing was performed on the infants, both pre-and post-mortem, and the data were analysed from 2015 to 2022. The results of the study indicate that among 112 infant deaths in San Diego County between 2015 and 2020, genetic diseases were the most commonly identified cause, with 47 genetic diseases being identified in 46 infants (41%). Of these, 39 (83%) had previously been associated with childhood mortality. Twenty-eight death certificates (62%) for 45 of the 46 infants did not mention genetic aetiology. Treatments for 14 (30%) genetic diseases that could have potentially improved outcomes were available. In five of seven infants in whom genetic diseases were identified post-mortem, rapid diagnostic WGS at the time of symptom onset or ICU admission could have possibly prevented the death.

To sum up, this research of 112 infant deaths has uncovered that the occurrence of genetic diseases is linked to a greater number of infant deaths than previously thought. Approaches to improve the diagnosis of genetic diseases in newborns and initiate treatment quickly may reduce the number of infant deaths. Further, research is necessary to determine whether these findings apply to other cases and to evaluate the decrease in infant mortality. The results of this study will help to shape public health, surveillance, and research investments related to infant mortality.

Source: Recchia F, Bernal JDK, Fong DY, Wong SHS, Chung PK, Chan DKC, Capiro CM, Yu CCW, Wong SWS, Sit CHP, Chen YJ, Thompson WR, & Siu PM. (2023). Physical Activity Interventions to Alleviate Depressive Symptoms in Children and Adolescents: A Systematic Review and Meta-analysis. *JAMA Pediatrics*, 177(2), 132–140. <https://doi.org/10.1001/jamapediatrics.2022.5090>

Depressive symptoms are not uncommon in children and adolescents and can have significant consequences for their social functioning, suicide risk, and the likelihood of developing mood disorders in adulthood. Although physical activity interventions are recommended as an alternative or adjunct to pharmacologic and cognitive behavioral therapy interventions for adults, the evidence is limited for children and adolescents.

To address this gap, the researchers conducted a systematic review and meta-analysis of 21 studies involving 2441 participants. The study found that physical activity interventions can help to alleviate depressive symptoms in children and adolescents, but the benefits may not persist over time. Nonetheless, it is recommended that physical activity be considered as a treatment option for depression in children

and adolescents, in addition to existing pharmacological and psychotherapy-based treatments. However, the review is limited by the lack of significant follow-up periods in the included studies, so the long-term effects of physical activity interventions remain unclear.

Source: Raman S, Gibbons KS, Mattke A, Schibler A, Trnka P, Kennedy M, Le Marsney R, & Schlapbach LJ. (2023). Effect of Saline versus Gluconate/Acetate-Buffered Solution versus Lactate-Buffered Solution on Serum Chloride Among Children in the Paediatric Intensive Care Unit: The SPLYT-P Randomised Clinical Trial. *JAMA pediatrics*, 177(2), 122–131. <https://doi.org/10.1001/jamapediatrics.2022.4912>

The objective of this randomised trial was to evaluate the potential benefits of using balanced solutions (either gluconate/acetate-buffered solution or lactate-buffered solution) in preventing an increase in serum chloride levels compared to the use of saline (0.9% sodium chloride). The study involved 516 critically ill paediatric patients who were randomly assigned to receive either gluconate/acetate-buffered solution, lactate-buffered solution, or saline. The incidence of an increase in serum chloride by at least 5 mEq/L was found to be 25.2% in the gluconate/acetate-buffered solution group, 23.9% in the lactate-buffered solution group and 40.0% in the saline group. The odds of an increase in serum chloride were significantly lower in both the buffered solution groups compared to the saline group. However, no significant differences were observed in secondary outcomes such as acute kidney injury, organ-dysfunction-free survival or length of stay in the Paediatric Intensive Care Unit (PICU).

The study provides compelling evidence that the use of a buffered solution as opposed to 0.9% sodium chloride for intravenous fluid therapy can significantly reduce the risk of a rise in serum chloride levels. However, the interpretation of these findings is limited by the fact that patients had already received a median of 26.2 mL/kg of intravenous fluid before randomisation, which makes it difficult to draw conclusions about the effects of initial fluid resuscitation. In addition, the clinical significance of hyperchloremia is not entirely clear, although a previous study has shown that a 5 mEq/L increase in serum chloride levels in critically ill children is associated with an increased risk of mortality.

Although further research using clinical outcomes is necessary, this study supports the use of buffered solutions over saline in the PICU setting.

Source: de Souza AF, Máximo RO, de Oliveira DC, Ramirez PC, Luiz MM, Delinocente MLB, Santos JLF, Steptoe A, de Oliveira C, & Alexandre TDS. (2022). Gender differences in the association between adverse events in childhood or adolescence and the risk of premature mortality. *Scientific Reports*, 12(1), 19118. <https://doi.org/10.1038/s41598-022-23443-y>

This study published in Scientific Reports suggests that men who had an overprotective father and little autonomy during their childhood have a 12% higher risk of dying before their eightieth birthday, while women who experienced the same have a 22% higher risk. However, women who were well-cared for by their mothers during childhood have a 14% lower risk. The study analysed data from 941 participants born in the 1950s and 1960s, who died between 2007 and 2018, and found that men who lived with only one parent in childhood had a 179% higher risk of premature death. The study suggests that parental relationships during childhood have significant repercussions on longevity. The researchers analysed various aspects of participants' lives, including family structure, housing, infectious diseases and relationships with parents, to estimate the impact of parental relationships on longevity. The study suggests that caring and loving relationships with parents during childhood have positive effects on longevity, while authoritarianism, permissiveness and negligence can be negative. According to the study, maternal care is more crucial than paternal relationships. The researchers believe that society's changes have led to different parenting styles that also have their fragilities. The study highlights the importance of public policy to support better conditions during childhood to promote better health and longevity.

Source: Tolppola O, Renko M, Sankilampi U, Kiviranta P, Hintikka L, & Kuitunen I. (2022). Pacifier use and breastfeeding in term and preterm newborns—a systematic review and meta-analysis. *European Journal of Pediatrics*, 181(9), 3421–3428. <https://doi.org/10.1007/s00431-022-04559-9>

This research aimed to evaluate whether pacifier usage affects breastfeeding success in both full-term and preterm newborns, as well as whether it influences the length of hospital stay for preterm newborns. The researchers conducted a systematic review and meta-analysis of randomised controlled trials, assessing the risk of bias and evidence quality. They used risk ratios with 95% confidence intervals for dichotomous outcomes and mean differences for continuous outcomes, using a random effect model if heterogeneity was high. The researchers reviewed 772 abstracts and included ten studies in their analysis, with five focusing on full-term newborns and five on preterm newborns. The results showed no difference in breastfeeding success rates between the groups that used pacifiers and those that did not for full-term newborns. In preterm newborns, pacifier use shortened the duration of hospitalisation and the transition time from gavage to total oral feeding. Based on these findings, the researchers recommend that pacifier use should not be restricted to full-term newborns and that introducing pacifiers to preterm newborns may have benefits. They suggest that caregivers should make the decision regarding pacifier use rather than hospital policy

or staff recommendations. This study provides new evidence that contradicts previous observational studies, indicating that pacifier usage does not harm breastfeeding outcomes in newborns.

Source: Kato T, Miura M, Kobayashi T, Kaneko T, Fukushima N, Suda K, Maeda J, Shimoyama S, Shiono J, Hirono K, Ikeda K, Sato S, Numano F, Mitani Y, Waki K, Ayusawa M, Fukazawa R, Fuse S, & Z-Score Project 2nd Stage Study Group * (2023). Analysis of Coronary Arterial Aneurysm Regression in Patients With Kawasaki Disease by Aneurysm Severity: Factors Associated With Regression. *Journal of the American Heart Association*, 12(3), e022417. <https://doi.org/10.1161/JAHA.121.022417>

Coronary arterial aneurysms (CAAs) in Kawasaki disease can have a big impact on prognosis. However, not much has been studied about the clinical course of CAAs or the factors that contribute to their regression in enough detail.

A large-scale and retrospective study was conducted involving 44 Japanese institutions and 1006 patients with Kawasaki Disease. The internal diameter of the coronary artery aneurysms (CAA) was classified in three categories based on the Z score: Small ($z < 5$), medium ($5 \leq z < 10$), and large ($z \geq 10$). After 10 years, the regression rate of small CAAs in the right coronary artery was 95.5%, in the medium CAAs, it was 83.2%, and in the large CAAs, it was 36.3%. The regression rate in the proximal left anterior descending artery was 95.3%, 80.1% and 28.8% for small, medium and large CAAs, respectively. Cox regression analysis showed that diagnosis under the age of 1 year, onset of Kawasaki Disease between 2010 and 2012 for the right coronary artery and the left anterior descending artery, and being female for the right coronary artery were associated with higher regression rates, while large CAAs for the right coronary artery and the left anterior descending artery was associated with lower regression rates.

The present research, the most extensive of its kind conducted in Japan, revealed that small aneurysms, recently diagnosed and detected in individuals under 1 year of age are likely to regress, even for giant aneurysms. These data may help in the long-term management of coronary aneurysms.

Source: Law EC, Han MX, Lai Z, Lim S, Ong ZY, Ng V, Gabard-Durnam LJ, Wilkinson CL, Levin AR, Rifkin-Graboi A, Daniel LM, Gluckman PD, Chong YS, Meaney MJ, & Nelson CA. (2023). Associations Between Infant Screen Use, Electroencephalography Markers, and Cognitive Outcomes. *JAMA pediatrics*, e225674. *Advance Online Publication*. <https://doi.org/10.1001/jamapediatrics.2022.5674>

The research suggests that there may be a link between infant screen use and negative cognitive outcomes related to attention and executive functions. However, it is currently unclear how screen time exposure affects neural functions

and whether these effects persist over time. To investigate this, a cohort study was conducted using data from the Growing Up in Singapore Towards Healthy Outcomes study.

The study examined the associations between infant screen time, electroencephalogram (EEG) markers and school-age cognitive outcomes using mediation analysis with structural equation modelling. The results suggest that infant screen use is associated with altered cortical EEG activity before age 2 years, and that the identified EEG markers mediated the association between infant screen time and executive functions. EEG relative theta power and theta/beta ratio at the frontocentral and parietal regions showed a graded correlation with 12-month screen use. A structural equation model indicated that EEG markers partially mediated the association between infant screen use and executive functioning at school age, accounting for 39.4% of the association. These findings suggest that infant screen use may be associated with altered cortical EEG activity before the age of two and that this may in turn be linked to executive function impairments.

However, further research is needed to distinguish the direct association of infant screen use compared with family factors that predispose early screen use on executive function impairments.

Source: Rogers NT, Cummins S, Forde H, Jones CP, Mytton O, Rutter H, Sharp SJ, Theis D, White M, & Adams J. (2023). Associations between trajectories of obesity

prevalence in English primary school children and the UK soft drinks industry levy: An interrupted time series analysis of surveillance data. *PLoS Medicine*, 20(1), e1004160. <https://doi.org/10.1371/journal.pmed.1004160>

Following the implementation of a two-tier soft drinks industry levy (SDIL) in the UK in April 2018, there was a decrease in the prevalence of obesity among children. The primary source of dietary added sugars in children comes from sugar-sweetened beverages (SSBs), which are commonly consumed in more deprived areas where obesity rates are also higher. This study analysed data from over 1 million children in state-maintained English primary schools, using interrupted time series analysis to estimate changes in obesity prevalence after the SDIL was introduced. Analysis of data from the National Child Measurement Programme revealed a 1.6% point decrease in obesity prevalence among girls aged 10–11, with the greatest reductions occurring in the two most deprived quintiles. There was no overall change in obesity prevalence among boys of the same age, though the least deprived quintile experienced an increase of 1.6% points. In younger children aged 4–5, there was no overall change in either boys or girls. These results suggest that the SSB tax was effective in reducing obesity prevalence among older girls in the most deprived areas, but additional strategies will be needed to reduce obesity overall.

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