

Online Supplemental Materials

Neonatal Care and Developmental Outcomes Following Preterm Birth: A Systematic Review and Meta-Analysis

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Table S1. Search strategy for MEDLINE via PubMed (2,719 records identified on 3 Feb, 2021)

#	Searches
#1	premature birth [mh]
#2	premature [all]
#3	preterm [all]
#4	preterms [all]
#5	prematurely [all]
#6	prematures [all]
#7	prematurities [all]
#8	prematurity [all]
#9	pre-term [all]
#10	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
#11	Kaufman [all]
#12	KABC [all]
#13	K-ABC [all]
#14	Bayley [all]
#15	BSID [all]
#16	mental development index [all]
#17	MDI [all]
#18	psychomotor development index [all]
#19	PDI [all]
#20	Griffiths [all]
#21	Griffith [all]
#22	GMDS [all]
#23	Wechsler preschool [all]
#24	WPPSI [all]
#25	Stanford Binet [all]
#26	differential ability scales [all]
#27	DAS [all]
#28	Woodcock Johnson [all]
#29	Battelle [all]
#30	Brigance [all]
#31	comprehensive developmental inventory for infants and toddlers [all]
#32	CDIIT [all]
#33	Kyoto scale [all]
#34	KSPD [all]
#35	#11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34
#36	"1970" [Date - Publication] : "2021/02/02" [Date - Publication]
#37	humans [mh]
#38	infant [mh]
#39	preschool child [mh]
#40	child [mh]
#41	#38 OR #39 OR #40
#42	#10 AND #35 AND #36 AND #37 AND #41

Table S2. Search strategy for PsycInfo (1,343 records identified on 3 Feb, 2021)

#	Searches
1	preterm.af
2	pre-term.af
3	premature.af
4	prematurity.af
5	1 or 2 or 3 or 4
6	Kaufman.af
7	KABC.af
8	K-ABC.af
9	Bayley.af
10	BSID.af
11	mental development index.af
12	MDI.af
13	psychomotor development index.af
14	PDI.af
15	Griffiths.af
16	Griffith.af
17	GMDS.af
18	Wechsler preschool.af
19	WPPSI.af
20	Stanford Binet.af
21	differential ability scales.af
22	DAS.af
23	Woodcock Johnson.af
24	Battelle.af
25	Brigance.af
26	comprehensive developmental inventory for infants and toddlers.af
27	CDIT.af
28	Kyoto scale.af
29	KSPD.af
30	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29
31	childhood birth 12 yrs.ag.
32	5 and 30 and 31
33	limit 32 to yr = "1970-2021"

Table S3. Search strategy for EBSCO (1,973 records identified on 19 Sep, 2022)

#	Searches
1	SU preterm
2	SU premature
3	SU prematurity
4	1 or 2 or 3
5	SU intelligence
6	SU iq
7	SU cognitive ability
8	SU bayley scales of infant development
9	SU kaufman assessment battery for children
10	SU griffiths
11	SU wppsi
12	SU stanford binet
13	SU differential ability scales
14	5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15	SU neonate
16	SU neonatal
17	SU infant
18	SU infants
19	SU infancy
20	SU toddler
21	SU toddlers
22	SU child
23	SU children
24	SU childhood
25	15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24
26	4 and 14 and 25
27	Limit to Academic Journals
28	Limit to Date Published: 19700101-20221231

Table S4. Criteria for coding the quality of the two domains of neonatal care in the NICU

Domain	Coding	Criteria
Medical care	Non-contemporary	Either one of the following was not available during hospitalization for the entire sample: (1) Mechanical ventilation (2) continuous positive airway pressure (CPAP) or intermittent positive pressure ventilation (IPPV) (3) ante- or post-natal steroids (4) surfactants (5) NICU level < III (6) brain scans (e.g., ultrasound, MRI, CT, EEG) (7) Medical care providers include: pediatricians, neonatal nurses, neonatologists, pediatric surgeons, pediatric medical subspecialists, pediatric anesthesiologists, pediatric ophthalmologists.
	Contemporary	All the criteria mentioned above were available for the entire sample.
Developmental care	Non-contemporary	Either one of the following was not available during hospitalization for the entire sample: (1) Restricted NICU access for parents. (2) No implementation of any developmental, emotional, or psychosocial care program (e.g., Kangaroo Care [KC], Newborn Individualized Developmental Care and Assessment Program [NIDCAP], breastfeeding promotion and support protocols, developmental psychoeducation for parents, family-centered care, adjustment of external stimulation [e.g., noise, light, day-night cycles, promotion of soothing stimulation] other program for supporting parents and parent-child bonding). (3) No multidisciplinary team (including most of the following: social worker, psychologist, lactation consultant, developmental care specialists).
	Contemporary	(1) Unrestricted and convenient NICU access for parents. (2) Implementation of one of the programs delineated in the previous column. (3) Multidisciplinary team.

Note. We coded each domain with a '0' (i.e., non-contemporary) or '1' (i.e., contemporary). The coding was based on the data provided in the articles. When data was not provided, we searched for publications from the same NICU during the same timeframe. For studies from the recent decade, we also browsed the hospital's website.

Table S5. Modified Newcastle-Ottawa Scale (NOS)¹ for assessing studies' quality and risk of bias.

Domain / item	Score	Description
Selection		Truly or somewhat representative of the average characteristics of preterm-born infants in the community (e.g., all [or almost all] cases in a defined hospital or clinic or group of hospitals, appropriate/ random sample of those cases).
		Selected group of preterm-born infants (e.g., specific hospital/clinic); no description of the derivation of the cohort.
		The full-term cohort was drawn from the same population (e.g., city, hospital, neighborhood, schools, birth years, etc.).
		The full-term cohort was drawn from a different source; no description of the cohort's derivation.
		Secure medical records from the neonatal unit; independent validation of prematurity (e.g., hospital records, ultrasounds to determine gestational age, report of more than one person, delineation of the process to ascertain prematurity).
Comparability		Parental self-report; no description in a study that a hospital research group did not conduct.
		Comparable age
		Study controls for age (corrected age until 24 months and either corrected or uncorrected age after 24 months) and cases and controls were matched according to age.
		No description of group ages or merely presenting a statistical test for comparing group ages with no statistical difference.
Outcome		Other comparable factors
		Study controls at least two of the following factors: gender, socioeconomic status, ethnicity, parental education, and parental age.
		Significant differences between the cohorts in these factors.
		Independent or reliable assessment
		Independent examiners with an excellent inter-rater reliability statistic (i.e., above 0.80); a psychologist conducted the assessment, or a professional with specific qualifications and expertise in administering and coding the specific test, or the examiner was supervised by such a professional.
Outcome		No description; non-excellent inter-rater reliability; no description of examiners' qualifications regarding the specific test; merely stating that the examiner was trained without explaining the training or qualification.
		Blind assessment
		Examiners were blind to the infant's birth group (preterm/full-term).
		No description; examiners were aware of the infant's birth group.
Outcome		Data loss
		Complete data from all subjects accounted for; subjects' data loss is unlikely to introduce a bias (i.e., loss of less than 25% of the data); adequate reason for data loss is provided; statistical analyses ascertain no differences between lost and obtained cases.
Outcome		More than 25% of the data was lost, and no description of reasons for data loss or differences between lost and obtained cases; no statement.

Note. Each item was coded either 0 (i.e., minus sign) or 1 (i.e., plus sign).

Table S6. Modified Newcastle-Ottawa Scale (NOS) ratings for studies quality and risk of bias

Study	Selection			Comparability		Outcome			Overall
	Representative	Control sample	Ascertainment of prematurity	Age controlled	Other factors controlled	Assessment reliability	Blind assessment	Data loss	
Aarnoudse-Moens et al. 2009 ²	▲	▲	▲	▲	▲	▲	▲	▲	5
Adams et al. 2018 ³	▲	▲	▲	▲	▲	▲	▲	▲	3
Agarwal et al. 2021 ⁴	▲	▲	▲	▲	▲	▲	▲	▲	5
Agostini et al. 2014 ⁵	▲	▲	▲	▲	▲	▲	▲	▲	4
Anderson et al. 1996 ⁶	▲	▲	▲	▲	▲	▲	▲	▲	3
Anderson et al. 2010 ⁷	▲	▲	▲	▲	▲	▲	▲	▲	8
Arpón et al. 2018 ⁸	▲	▲	▲	▲	▲	▲	▲	▲	3
APP 1998 ⁹	▲	▲	▲	▲	▲	▲	▲	▲	7
Bakeman & Brown 1980 ¹⁰	▲	▲	▲	▲	▲	▲	▲	▲	5
Baldoli et al. 2015 ¹¹	▲	▲	▲	▲	▲	▲	▲	▲	3
Baron et al. 2011 ¹²	▲	▲	▲	▲	▲	▲	▲	▲	3
Blasco et al. 2020 ¹³	▲	▲	▲	▲	▲	▲	▲	▲	5
Bode et al. 2009 ¹⁴	▲	▲	▲	▲	▲	▲	▲	▲	8
Bonin et al. 1998 ¹⁵	▲	▲	▲	▲	▲	▲	▲	▲	5
Boo et al. 1996 ¹⁶	▲	▲	▲	▲	▲	▲	▲	▲	8
Brösch-Fohraheim et al. 2019 ¹⁷	▲	▲	▲	▲	▲	▲	▲	▲	4
Burguet et al. 2000 ¹⁸	▲	▲	▲	▲	▲	▲	▲	▲	6
Caravale et al. 2005 ¹⁹	▲	▲	▲	▲	▲	▲	▲	▲	5
Censullo 1994 ²⁰	▲	▲	▲	▲	▲	▲	▲	▲	4
Chaudhari et al. 1991 ²¹	▲	▲	▲	▲	▲	▲	▲	▲	4
Chaudhary et al. 2013 ²²	▲	▲	▲	▲	▲	▲	▲	▲	5
Cheatham et al. 2006 ²³	▲	▲	▲	▲	▲	▲	▲	▲	3
Cheong et al. 2017 ²⁴	▲	▲	▲	▲	▲	▲	▲	▲	8
Cherkes-Julkowski 1998 ²⁵	▲	▲	▲	▲	▲	▲	▲	▲	0
Cho et al. 2022 ²⁶	▲	▲	▲	▲	▲	▲	▲	▲	5
Coles et al. 1999 ²⁷	▲	▲	▲	▲	▲	▲	▲	▲	7
Crotty et al. 2012 ²⁸	▲	▲	▲	▲	▲	▲	▲	▲	7
Cserjesi et al. 2012 ²⁹	▲	▲	▲	▲	▲	▲	▲	▲	8
Dall'Oglio et al. 2010 ³⁰	▲	▲	▲	▲	▲	▲	▲	▲	6
Damm et al. 2015 ³¹	▲	▲	▲	▲	▲	▲	▲	▲	4
Darlow et al. 2009 ³²	▲	▲	▲	▲	▲	▲	▲	▲	3
de Jong et al. 2015 ³³	▲	▲	▲	▲	▲	▲	▲	▲	7
de Paula Machado et al. 2019 ³⁴	▲	▲	▲	▲	▲	▲	▲	▲	5
DiPietro et al. 1992 ³⁵	▲	▲	▲	▲	▲	▲	▲	▲	4
Do et al. 2020 ³⁶	▲	▲	▲	▲	▲	▲	▲	▲	5
Easterbrooks 1989 ³⁷	▲	▲	▲	▲	▲	▲	▲	▲	3
Eickmann et al. 2012 ³⁸	▲	▲	▲	▲	▲	▲	▲	▲	5
Esbjörn et al. 2006 ³⁹	▲	▲	▲	▲	▲	▲	▲	▲	6
Esteban et al. 2010 ⁴⁰	▲	▲	▲	▲	▲	▲	▲	▲	6
Feng et al. 2010 ⁴¹	▲	▲	▲	▲	▲	▲	▲	▲	6

Study	Selection			Comparability		Outcome			Overall
	Representative	Control sample	Ascertainment of prematurity	Age controlled	Other factors controlled	Assessment reliability	Blind assessment	Data loss	
Feng et al. 2013 ⁴²	△	△	△	△	△	△	△	△	3
Forcada-Guex et al. 2006 ⁴³	△	△	△	△	△	△	△	△	4
Ford et al. 1986 ⁴⁴	△	△	△	△	△	△	△	△	7
Forslund & Bjerre 1990 ⁴⁵	△	△	△	△	△	△	△	△	6
Fox & Porges 1985 ⁴⁶	△	△	△	△	△	△	△	△	3
Frisk & Whyte 1994 ⁴⁷	△	△	△	△	△	△	△	△	4
Gasparini et al. 2017 ⁴⁸	△	△	△	△	△	△	△	△	5
Geldof et al. 2013 ⁴⁹	△	△	△	△	△	△	△	△	5
Georgsdóttir et al. 2004 ⁵⁰	△	△	△	△	△	△	△	△	7
Gemer et al. 1997 ⁵¹	△	△	△	△	△	△	△	△	7
Goldenberg et al. 1996 ⁵²	△	△	△	△	△	△	△	△	4
Gorga et al. 1985 ⁵³	△	△	△	△	△	△	△	△	3
Gray et al. 2006 ⁵⁴	△	△	△	△	△	△	△	△	6
Gray et al. 2015 ⁵⁵	△	△	△	△	△	△	△	△	5
Greenberg & Cmic 1988 ⁵⁶	△	△	△	△	△	△	△	△	3
Gross et al. 1992 ⁵⁷	△	△	△	△	△	△	△	△	7
Grunau et al. 1990 ⁵⁸	△	△	△	△	△	△	△	△	6
Grunau et al. 2009 ⁵⁹	△	△	△	△	△	△	△	△	5
Guarini et al. 2014 ⁶⁰	△	△	△	△	△	△	△	△	6
Gucuyener et al. 2011 ⁶¹	△	△	△	△	△	△	△	△	5
Hack et al. 1994 ⁶²	△	△	△	△	△	△	△	△	6
Hasler et al. 2020 ⁶³	△	△	△	△	△	△	△	△	5
Hodel et al. 2019 ⁶⁴	△	△	△	△	△	△	△	△	4
Howe et al. 2011 ⁶⁵	△	△	△	△	△	△	△	△	5
Huang et al. 2012 ⁶⁶	△	△	△	△	△	△	△	△	4
Hunt et al. 2004 ⁶⁷	△	△	△	△	△	△	△	△	1
Ionio et al. 2016 ⁶⁸	△	△	△	△	△	△	△	△	2
Jakobson et al. 2006 ⁶⁹	△	△	△	△	△	△	△	△	3
Kilbride et al. 2004 ⁷⁰	△	△	△	△	△	△	△	△	5
Kissgen et al. 2021 ⁷¹	△	△	△	△	△	△	△	△	5
Kitchen et al. 1986 ⁷²	△	△	△	△	△	△	△	△	6
Künz et al. 2019 ⁷³	△	△	△	△	△	△	△	△	2
Landry & Chapieski 1988 ⁷⁴	△	△	△	△	△	△	△	△	3
Landry et al. 1985 ⁷⁵	△	△	△	△	△	△	△	△	5
Landry et al. 1997 ⁷⁶	△	△	△	△	△	△	△	△	2
Largo et al. 1990 ⁷⁷	△	△	△	△	△	△	△	△	6
Larroque et al. 2008 ⁷⁸	△	△	△	△	△	△	△	△	7
Lejeune et al. 2019 ⁷⁹	△	△	△	△	△	△	△	△	3
Louthrenoo 2001 ⁸⁰	△	△	△	△	△	△	△	△	4
Lowe et al. 2010 ⁸¹	△	△	△	△	△	△	△	△	4

Study	Selection			Comparability		Outcome			Overall
	Representative	Control sample	Ascertainment of prematurity	Age controlled	Other factors controlled	Assessment reliability	Blind assessment	Data loss	
Lowe et al. 2012 ⁸²	△	△	△	△	△	△	△	△	4
Luoma et al. 1998 ⁸³	△	△	△	△	△	△	△	△	8
Magill-Evans & Harrison 1999 ⁸⁴	△	△	△	△	△	△	△	△	5
Månsson & Stjernqvist 2014 ⁸⁵	△	△	△	△	△	△	△	△	7
Marlow et al. 1989 ⁸⁶	△	△	△	△	△	△	△	△	6
Marlow et al. 2007 ⁸⁷	△	△	△	△	△	△	△	△	7
McDonald et al. 1989 ⁸⁸	△	△	△	△	△	△	△	△	3
McGrew et al. 1985 ⁸⁹	△	△	△	△	△	△	△	△	3
Méio et al. 2004 ⁹⁰	△	△	△	△	△	△	△	△	6
Morsan et al. 2018 ⁹¹	△	△	△	△	△	△	△	△	4
Munck et al. 2010 ⁹²	△	△	△	△	△	△	△	△	6
Neri et al. 2020 ⁹³	△	△	△	△	△	△	△	△	3
Nomura et al. 2009 ⁹⁴	△	△	△	△	△	△	△	△	6
Nurcombe et al. 1984 ⁹⁵	△	△	△	△	△	△	△	△	4
O'Connor et al. 1984 ⁹⁶	△	△	△	△	△	△	△	△	5
Ohls et al. 2016 ⁹⁷	△	△	△	△	△	△	△	△	4
Ortiz-Mantilla et al. 2008 ⁹⁸	△	△	△	△	△	△	△	△	5
Paquette et al. 2015 ⁹⁹	△	△	△	△	△	△	△	△	4
Pearl & Donahue 1995 ¹⁰⁰	△	△	△	△	△	△	△	△	4
Pérez-López et al. 2012 ¹⁰¹	△	△	△	△	△	△	△	△	2
Pierat et al. 2021 ¹⁰²	△	△	△	△	△	△	△	△	5
Poehlmann & Fiese 2001 ¹⁰³	△	△	△	△	△	△	△	△	3
Pogribna et al. 2014 ¹⁰⁴	△	△	△	△	△	△	△	△	7
Potharst et al. 2013 ¹⁰⁵	△	△	△	△	△	△	△	△	5
Rahkonen et al. 2013 ¹⁰⁶	△	△	△	△	△	△	△	△	5
Reuner et al. 2015 ¹⁰⁷	△	△	△	△	△	△	△	△	3
Ribiczey et al. 2010 ¹⁰⁸	△	△	△	△	△	△	△	△	1
Roberts et al. 2011 ¹⁰⁹	△	△	△	△	△	△	△	△	8
Romeo et al. 2010 ¹¹⁰	△	△	△	△	△	△	△	△	4
Romeo et al. 2016 ¹¹¹	△	△	△	△	△	△	△	△	6
Rose & Wallace 1985 ¹¹²	△	△	△	△	△	△	△	△	3
Rose et al. 1991 ¹¹³	△	△	△	△	△	△	△	△	6
Rose et al. 2005 ¹¹⁴	△	△	△	△	△	△	△	△	5
Ross 1985 ¹¹⁵	△	△	△	△	△	△	△	△	8
Ross et al. 1992 ¹¹⁶	△	△	△	△	△	△	△	△	6
Ruff et al. 1990 ¹¹⁷	△	△	△	△	△	△	△	△	3
Ruiz et al. 2018 ¹¹⁸	△	△	△	△	△	△	△	△	4
Sajaniemi et al. 1998 ¹¹⁹	△	△	△	△	△	△	△	△	4
Salvatori et al. 2015 ¹²⁰	△	△	△	△	△	△	△	△	5
Sanchez et al. 2019 ¹²¹	△	△	△	△	△	△	△	△	7

Table S6. (Continuation)

Study	Selection			Comparability		Outcome			Overall
	Representative	Control sample	Ascertainment of prematurity	Age controlled	Other factors controlled	Assessment reliability	Blind assessment	Data loss	
Sansavini et al. 1996 ¹²²	△	△	△	△	△	△	△	△	2
Sansavini et al. 2011 ¹²³	△	△	△	△	△	△	△	△	4
Sansavini et al. 2014 ¹²⁴	△	△	△	△	△	△	△	△	4
Scher et al. 1996 ¹²⁵	△	△	△	△	△	△	△	△	5
Scheurer et al. 2018 ¹²⁶	△	△	△	△	△	△	△	△	5
Schonhaut et al. 2012 ¹²⁷	△	△	△	△	△	△	△	△	5
Sejer et al. 2019 ¹²⁸	△	△	△	△	△	△	△	△	6
Shim et al. 2014 ¹²⁹	△	△	△	△	△	△	△	△	4
Silva et al. 1984 ¹³⁰	△	△	△	△	△	△	△	△	5
Simões et al. 2017 ¹³¹	△	△	△	△	△	△	△	△	5
Sobotková et al. 1986 ¹³²	△	△	△	△	△	△	△	△	2
Sommerfelt et al. 1995 ¹³³	△	△	△	△	△	△	△	△	6
Stave & Ruvalo 1980 ¹³⁴	△	△	△	△	△	△	△	△	4
Strahle et al. 2019 ¹³⁵	△	△	△	△	△	△	△	△	5
Stroganova et al. 2005 ¹³⁶	△	△	△	△	△	△	△	△	2
Sun et al. 2009 ¹³⁷	△	△	△	△	△	△	△	△	5
Tavasoli et al. 2014 ¹³⁸	△	△	△	△	△	△	△	△	4
Teplin et al. 1991 ¹³⁹	△	△	△	△	△	△	△	△	6
Thompson et al. 2008 ¹⁴⁰	△	△	△	△	△	△	△	△	6
Tomniska et al. 2003 ¹⁴¹	△	△	△	△	△	△	△	△	7
Toome et al. 2013 ¹⁴²	△	△	△	△	△	△	△	△	7
Van Lierde et al. 2009 ¹⁴³	△	△	△	△	△	△	△	△	6
Van Veen et al. 2019 ¹⁴⁴	△	△	△	△	△	△	△	△	1
VICSG 1997 ¹⁴⁵	△	△	△	△	△	△	△	△	8
Vohr et al. 1989 ¹⁴⁶	△	△	△	△	△	△	△	△	5
Voigt et al. 2012 ¹⁴⁷	△	△	△	△	△	△	△	△	4
Wang et al. 2014 ¹⁴⁸	△	△	△	△	△	△	△	△	4
Wang et al. 2018 ¹⁴⁹	△	△	△	△	△	△	△	△	5
Watt & Strongman 1985 ¹⁵⁰	△	△	△	△	△	△	△	△	5
Weber et al. 2016 ¹⁵¹	△	△	△	△	△	△	△	△	2
Witt et al. 2018 ¹⁵²	△	△	△	△	△	△	△	△	4
Wolf et al. 2002 ¹⁵³	△	△	△	△	△	△	△	△	4
Wolke et al. 1994 ¹⁵⁴	△	△	△	△	△	△	△	△	8
Wolke et al. 2014 ¹⁵⁵	△	△	△	△	△	△	△	△	6
Woythaler et al. 2011 ¹⁵⁶	△	△	△	△	△	△	△	△	6
Youngblut et al. 2001 ¹⁵⁷	△	△	△	△	△	△	△	△	7
Yu et al. 2013 ¹⁵⁸	△	△	△	△	△	△	△	△	6
Zelkowitz et al. 1995 ¹⁵⁹	△	△	△	△	△	△	△	△	6
Zuccarini et al. 2017 ¹⁶⁰	△	△	△	△	△	△	△	△	4
Zuccarino et al. 1983 ¹⁶¹	△	△	△	△	△	△	△	△	2

Table S7. List of studies that were excluded in the full-text screening phase

No	Study	Reason for exclusion	Elaboration
1	Ahn 2019 ¹⁶²	Methodology	The mean age of the control group during the WPPSI test was significantly older than the preterm group (4.3 months older).
2	Aisa 2021 ¹⁶³	Outcomes	Only a binary measure for developmental delay is reported.
3	Aisa 2021 ¹⁶⁴	Outcomes	Only a binary measure for developmental delay is reported.
4	Åkerman 1992 ¹⁶⁵	Methodology	A Significant portion of the children in the control group was born with medical conditions.
5	Al-Haddad 2017 ¹⁶⁶	Data	No sufficient data to calculate the effect sizes for the differences between the preterm and full-term groups on the WPPSI test.
6	Alin 2001 ¹⁶⁷	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age).
7	Altman 1988 ¹⁶⁸	Control	The term infants were with hypoxic-ischemic encephalopathy or previous extracorporeal membrane oxygenation.
8	Anand 2007 ¹⁶⁹	Preterm group	Report on the sub-cohort with lower birthweight, but they were not necessarily born preterm (GA < 37 weeks).
9	Andrews 2010 ¹⁷⁰	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age).
10	Bakeman 1981 ¹⁷¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
11	Bao 1999 ¹⁷²	Outcomes	No data regarding which developmental test was utilized.
12	Bapat 2014 ¹⁷³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
13	Barrera 1987 ¹⁷⁴	Data	No report on SDs of the Bayley test outcomes for the preterm and full-term groups (only means are presented in the figures).
14	Begega 2010 ¹⁷⁵	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age).
15	Berry 2007 ¹⁷⁶	Peer-review	Not peer-reviewed (thesis).
16	Blond 2003 ¹⁷⁷	Data	No sufficient data to calculate the effect size (only means were reported).
17	Bode 2014 ¹⁷⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
18	Bogičević 2019 ¹⁷⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
19	Böhm 2002 ¹⁸⁰	Multiple report	Multiple report (outcomes for these cohorts have already been included).
20	Böhm 2010 ¹⁸¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
21	Bornstein 1985 ¹⁸²	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age).
22	Bortolus 2002 ¹⁸³	Outcomes	No neurocognitive developmental test was administered.
23	Bradley 1998 ¹⁸⁴	Peer-review	Not peer-reviewed (thesis).
24	Brandt 2003 ¹⁸⁵	Control	No outcomes in the Griffiths and Stanford-Binet tests for the full-term group.
25	Breeman 2015 ¹⁸⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
26	Breslau 2006 ¹⁸⁷	Preterm group	Low birthweight sample but not necessarily born before 37 weeks of gestation.
27	Briscoe 1998 ¹⁸⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
28	Brooks-Gunn 2003 ¹⁸⁹	Control	The Stanford-Binet and Wechsler tests were not administered to the control group.
29	Broström 2018 ¹⁹⁰	Multiple report	Multiple report (outcomes for these cohorts have already been included).
30	Brummelte 2011 ¹⁹¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
31	Brustein 2003 ¹⁹²	Outcomes	Only selected items from the Bayley test were administered; neither the MDI nor the PDI was assessed.
32	Cahill-Rowley 2016a ¹⁹³	Data	No sufficient data to calculate the effect size.
33	Cahill-Rowley 2016b ¹⁹⁴	Data	No sufficient data to calculate the effect size.
34	Cahill-Rowley 2018 ¹⁹⁵	Outcomes	Only selected items from the Bayley 3 test were administered.
35	Carlson 1999 ¹⁹⁶	Outcomes	Review study.
36	Case-Smith 1992 ¹⁹⁷	Data	No report on the means and SDs of the PDI for the preterm and full-term groups.
37	Case-Smith 1998 ¹⁹⁸	Control	The Bayley test was not administered to the control group.
38	Cheatham 2005 ¹⁹⁹	Peer-review	Not peer-reviewed (thesis).
39	Chen 2004 ²⁰⁰	Access	Unable to trace the manuscript.
40	Chemego 2018 ²⁰¹	Outcomes	Utilized the Battelle Development Inventory test, which was not included in the analysis.
41	Clandinin 2005 ²⁰²	Data	No sufficient data to calculate the effect size.
42	da Costa Ribeiro 2016 ²⁰³	Data	The outcomes of the Stanford-Binet test were not reported.
43	Dale 1989 ²⁰⁴	Data	No sufficient data to calculate the effect size.
44	Dall'Oglio 2010 ²⁰⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
45	Danzer 2016 ²⁰⁶	Control	The term-born participants had congenital diaphragmatic hernia.
46	de Jong 2018 ²⁰⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
47	De Stasio 2018 ²⁰⁸	Data	No sufficient data to calculate the effect sizes for the differences between the preterm and full-term groups on the Bayley 3 test.
48	de Vries 2002 ²⁰⁹	Outcomes	Only two items from the Bayley test were administered (not sufficient for a composite score).
49	Deforge 2006 ²¹⁰	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age).
50	Deforge 2007 ²¹¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
51	Deforge 2009 ²¹²	Multiple report	Multiple report (outcomes for these cohorts have already been included).

Table S7. (Continuation)

No	Study	Reason for exclusion	Elaboration
52	DeGangi 1982 ²¹³	Preterm group	Only 53% of the high-risk group were born preterm.
53	DeJonis 2017 ²¹⁴	Major health condition	More than 30% of the preterm sample had a severe neurological condition (54.5% with neonatal white matter damage).
54	Di Rosa 2016 ²¹⁵	Outcomes	Only a binary measure of normal vs. abnormal ability is reported.
55	Di Rosa 2019 ²¹⁶	Outcomes	Only a binary measure of normal vs. abnormal ability is reported.
56	Donahue 1997 ²¹⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
57	Dooley 2005 ²¹⁸	Peer-review	Not peer-reviewed (thesis).
58	Downes 2018 ²¹⁹	Major health condition	More than 30% of the preterm sample had a severe neurological condition (50% with white matter damage).
59	Dukovska 2009 ²²⁰	Data	No sufficient data to calculate the effect size.
60	Dupin 2000 ²²¹	Control	Participants were matched based on the outcomes of the Kaufman test (this outcome was controlled).
61	Eaves 1970 ²²²	Data	Only means are reported; not sufficient to calculate effect sizes.
62	Elgen 2003 ²²³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
63	Erdei 2020 ²²⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
64	Erwin 1995 ²²⁵	Peer-review	Not peer-reviewed (thesis).
65	Eves 2020 ²²⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
66	Fallang 2003 ²²⁷	Data	No sufficient data to calculate the effect sizes for the differences between the preterm and full-term groups on the MDI.
67	Fedrizzi 1986 ²²⁸	Access	Unable to trace the manuscript.
68	Fedrizzi 1998 ²²⁹	Preterm group	The test group consists of children with spastic diplegia, not all of them were born preterm.
69	Feldmann 2015 ²³⁰	Control	The term born children were born with fetal alcohol syndrome.
70	Fellman 2004 ²³¹	Control	The Bayley test was not administered to the control group.
71	Field 1978a ²³²	Data	No report on the SDs of the MDI and PDI for the preterm and full-term groups.
72	Field 1978b ²³³	Data	No sufficient data to calculate the effect size.
73	Field 1979 ²³⁴	Methodology	Age of assessment not corrected in preterm infants under 24 months.
74	Field 1980 ²³⁵	Data	No sufficient data to calculate the effect size.
75	Frye 2009 ²³⁶	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age).
76	Gadin 2012 ²³⁷	Control	The control group consists of infants that were admitted to the NICU.
77	Garity 1982 ²³⁸	Methodology	Age of assessment not corrected in preterm infants under 24 months.
78	George 2015 ²³⁹	Outcomes	Study protocol.
79	Gemer 1999 ²⁴⁰	Multiple report	Multiple report (outcomes for these cohorts have already been included).
80	Girault 2018 ²⁴¹	Data	No sufficient data to calculate the effect size.
81	Gogate 2020 ²⁴²	Methodology	Age of assessment not corrected in preterm infants under 24 months.
82	González-Valenzuela 2019 ²⁴³	Preterm group	Twins study. Several participants were born preterm, but there is no report on this specific sub-group.
83	Goyen 2009 ²⁴⁴	Control	No IQ outcomes for the control group.
84	Gray 2018 ²⁴⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
85	Grunau 2004 ²⁴⁶	Data	No sufficient data to calculate the effect sizes in the Bayley test.
86	Gurka 2010 ²⁴⁷	Outcomes	Utilized the Woodcock-Johnson test, which was not included in the analysis.
87	Halling 2016 ²⁴⁸	Data	No SDs for the Cognitive scale in the Bayley 3 test (only means of the preterm and full-term groups are expressed in the figure).
88	Hancock 1994 ²⁴⁹	Peer-review	Not peer-reviewed (thesis).
89	Hedderich 2020 ²⁵⁰	Multiple report	Multiple report (outcomes for these cohorts have already been included).
90	Heidt-Kozisek 1997 ²⁵¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
91	Herold 2008 ²⁵²	Multiple report	Multiple report (outcomes for these cohorts have already been included).
92	Holm 2010 ²⁵³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
93	Hreinsdóttir 2018 ²⁵⁴	Control	The Bayley test was not administered to the control group.
94	Huang 2019 ²⁵⁵	Data	No available data to calculate the effect size for the differences between the preterm and full-term groups on the Bayley test; only binary measure for developmental delay is reported.
95	Hubatch 1985 ²⁵⁶	Control	The Bayley test was not administered to the control group.
96	Hughes 2014 ²⁵⁷	Control	The control group included only babies from high-risk pregnancies.
97	Hüning 2017 ²⁵⁸	Outcomes	No assessment of developmental quotients.
98	Hwang 2009 ²⁵⁹	Outcomes	Utilized the Comprehensive Developmental Inventory for Infants and Toddlers (CDIIT) test, which was not included in the analysis.
99	Ishaik 2000 ²⁶⁰	Access	Unable to trace the manuscript.
100	Janssens 2009 ²⁶¹	Outcomes	Only a binary measure for a developmental disorder is reported.
101	Kaul 2021 ²⁶²	Multiple report	Multiple report (outcomes for these cohorts have already been included).
102	Kherkheulidze 2018 ²⁶³	Data	Standard deviations were not reported.
103	Kiselev 2016 ²⁶⁴	Methodology	Corrected age was not used for assessments in preterm infants at the ages of 5 to 10 months; control group was significantly older.
104	Klamer 2005 ²⁶⁵	Preterm group	The WPPSI was not administered to the preterm group.
105	Lademann 2021 ²⁶⁶	Control	The Bayley test was not administered to the full-term without therapeutic hypothermia group.
106	Lasky 1983a ²⁶⁷	Data	No report on SDs of the Bayley test outcomes for the preterm and full-term groups (only means are presented in the text).

Table S7. (Continuation)

No	Study	Reason for exclusion	Elaboration
107	Lasky 1983 ^{b268}	Data	No sufficient data to calculate the effect sizes for the differences between the preterm and full-term groups on the Bayley test.
108	Lean 2018 ²⁶⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
109	Lean 2019 ²⁷⁰	Control	The Bayley test was not administered to the control group.
110	Leiderman 1975 ²⁷¹	Methodology	Age of assessment not corrected in preterm infants under 24 months.
111	Lejeune 2016 ²⁷²	Control	The Kaufman test was not administered to the control group.
112	Lems 1993 ²⁷³	Data	Not enough data to calculate the effect sizes of the differences between the preterm and full-term groups in the MDI and PDI.
113	Lester 1987 ²⁷⁴	Data	No available data to calculate the effect sizes of the differences between the preterm and full-term groups in the MDI and PDI.
114	Liao 2005 ²⁷⁵	Outcomes	Utilized the Comprehensive Developmental Inventory for Infants and Toddlers (CDIIT) test, which was not included in the analysis.
115	Lind 2011 ²⁷⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
116	Linsell 2018 ²⁷⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
117	Liu 2014 ²⁷⁸	Data	No report on means and SDs for the preterm and full-term groups (the only report is for the comparison between the small- and appropriate-for-gestational-age groups).
118	Liu 2019 ²⁷⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
119	Lobo 2013 ²⁸⁰	Data	No sufficient data to calculate the effect size of the Cognitive scale in the Bayley 3 test.
120	Lobo 2014 ²⁸¹	Data	No sufficient data to calculate the effect size for the Bayley 3 outcomes.
121	Loi 2017 ²⁸²	Multiple report	Multiple report (outcomes for these cohorts have already been included).
122	Lönnberg 2018 ²⁸³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
123	Luciano 2007 ²⁸⁴	Control	Full-term group consisted of infants diagnosed with ventricular dilatation.
124	Mahram 2009 ²⁸⁵	Preterm group	Low birthweight sample but not necessarily born before 37 weeks of gestation.
125	Majnemer 1994 ²⁸⁶	Preterm group	The high-risk group includes preterm infants along with infants with other medical conditions that required admission to the NICU.
126	Mangin 2017 ²⁸⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
127	Månsson 2014 ²⁸⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
128	Marini 2003 ²⁸⁹	Control	No full-term control group.
129	Martinez-Cruz 2006 ²⁹⁰	Control	The full-term group included high-risk infants.
130	Maupin 2014 ²⁹¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
131	McKeown 1970 ²⁹²	Data	No sufficient data to calculate the effect size.
132	Meisels 1987 ²⁹³	Data	No sufficient data to calculate the effect size.
133	Morag 2013 ²⁹⁴	Methodology	Age of assessment not corrected in preterm infants under 24 months.
134	Morsing 2011 ²⁹⁵	Age	Neurocognitive assessments for a significant portion of the participants were not conducted within the predefined age range (more than 7 years of age).
135	Moura 2010 ²⁹⁶	Outcomes	Utilized the Battelle Development Inventory test, which was not included in the analysis.
136	Muhamedrahimov 2018 ²⁹⁷	Methodology	Utilized the Battelle Development Inventory test, which was not included in the analysis.
137	Munck 2012a ²⁹⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
138	Munck 2012b ²⁹⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
139	Nepomnyaschy 2012 ³⁰⁰	Multiple report	Multiple report (outcomes for these cohorts have already been included).
140	Neri 2015 ³⁰¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
141	Neri 2017 ³⁰²	Multiple report	Multiple report (outcomes for these cohorts have already been included).
142	Newman 1997 ³⁰³	Preterm group	The test group consists of small-for-gestational-age toddlers; most of them (83%) were born full-term.
143	Ni 2011 ³⁰⁴	Control	The WPPSI and Bayley tests were not administered to the control group.
144	Niu 2014 ³⁰⁵	Access	Unable to trace the manuscript.
145	O'Connor 1980 ³⁰⁶	Data	No report on the means and SDs of the MDI for the preterm and full-term groups.
146	O'Connor 1995 ³⁰⁷	Peer-review	Not peer-reviewed (thesis).
147	O'Meagher 2019 ³⁰⁸	Methodology	The mean age of the control group during the WPPSI test was significantly older (5.5 months older).
148	Padilla 2011 ³⁰⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
149	Pagliano 2007 ³¹⁰	Control	The control-term group had spastic diplegia and PVL.
150	Palisano 1986 ³¹¹	Methodology	Age of assessment not corrected in preterm infants under 24 months.
151	Perumal 2021 ³¹²	Data	No sufficient data to calculate the effect size.
152	Peterson 2006 ³¹³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
153	Petrie Thomas 2012 ³¹⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
154	Petrou 2010 ³¹⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
155	Piteo 2012 ³¹⁶	Data	No report on means and SDs for the preterm and full-term groups.
156	Pritchard 2014 ³¹⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
157	Rahkonen 2014 ³¹⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
158	Rautava 2007 ³¹⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
159	Reyes 2021 ³²⁰	Multiple report	Multiple report (outcomes for these cohorts have already been included).
160	Richards 2016 ³²¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
161	Rider 2016 ³²²	Multiple report	Multiple report (outcomes for these cohorts have already been included).
162	Rimdekienė 2008 ³²³	Outcomes	Raw or standardized scores/means are not reported; report is only regarding delayed psychomotor development.

Table S7. (Continuation)

No	Study	Reason for exclusion	Elaboration
163	Rose 1988 ³²⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
164	Rose 1989 ³²⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
165	Rose 2009 ³²⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
166	Rose 2014 ³²⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
167	Ross 1987 ³²⁸	Control	The Bayley test was not administered to the control group.
168	Ross 1996 ³²⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
169	Roth 1984 ³³⁰	Methodology	Age of assessment not corrected in preterm infants under 24 months.
170	Rothman 2015 ³³¹	Control	No eligible control group (only 2 term born participants).
171	Roussounis 1993 ³³²	Control	The control group included only boys.
172	Rubin 1973 ³³³	Data	No sufficient data to calculate the effect size.
173	Rubio-Codina 2020 ³³⁴	Preterm group	No preterm group; several participants were born preterm but there is no report on their specific outcomes.
174	Saigal 2005 ³³⁵	Data	No available data to calculate the effect sizes of the differences between the groups in the MDI and PDI.
175	Salvatori 2016 ³³⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
176	Sanchez-Joya 2017 ³³⁷	Outcomes	Only selected items from the Kaufman test were administered.
177	Sansavini 2011 ³³⁸	Control	The Griffiths test was not administered to the control group.
178	Sansavini 2015 ³³⁹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
179	Schemann 2004 ³⁴⁰	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age)
180	Schonhaut 2020 ³⁴¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
181	Sell 1985 ³⁴²	Methodology	Age of assessment not corrected in preterm infants under 24 months.
182	Sentenac 2021 ³⁴³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
183	Serenius 2013 ³⁴⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
184	Shah 2016 ³⁴⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
185	Siegel 1979 ³⁴⁶	Data	No report on means and SDs for the preterm and full-term groups.
186	Siegel 1981 ³⁴⁷	Data	No report on means and SDs for the preterm and full-term groups.
187	Siegel 1982a ³⁴⁸	Methodology	Age of assessment not corrected in preterm infants under 24 months.
188	Siegel 1982b ³⁴⁹	Data	No report on means and SDs for the preterm and full-term groups.
189	Siegel 1982c ³⁵⁰	Data	No sufficient data to calculate the effect size.
190	Siegel 1983 ³⁵¹	Data	No sufficient data to calculate the effect sizes of the differences between the groups in both the Bayley and the Stanford-Binet measures (only means were presented).
191	Siegel 1992 ³⁵²	Access	Unable to trace the manuscript.
192	Sigman 1980 ³⁵³	Data	No report on the means and SDs of the Bayley test outcomes for the preterm and full-term groups.
193	Sipos 2014 ³⁵⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
194	Sobotková 1986 ³⁵⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
195	Sobotková 1994 ³⁵⁶	Access	Unable to trace the manuscript.
196	Sobotková 1996 ³⁵⁷	Data	No report on the means and SDs of the Bayley test outcomes for the preterm and full-term groups.
197	Sommerfelt 1998 ³⁵⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
198	Spittle 2016a ³⁵⁹	Outcomes	Trial protocol.
199	Spittle 2016b ³⁶⁰	Outcomes	Study protocol.
200	Stanzi 2018 ³⁶¹	Major health condition	All participants were infants of mothers with HIV.
201	Stelmach 2019 ³⁶²	Data	10% of the cohort were born preterm, but there is no separate report on the Bayley outcomes for the preterm infants.
202	Stroganova 2006 ³⁶³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
203	Sun 2012 ³⁶⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
204	Tanis 2015 ³⁶⁵	Data	The outcomes are arranged by small- vs. appropriate-for-gestational-age and not by prematurity status.
205	Taylor 2016 ³⁶⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
206	Tessier 1992 ³⁶⁷	Data	No report on SDs for the preterm and full-term groups.
207	Thun-Hohenstein 1992 ³⁶⁸	Multiple report	Multiple report (outcomes for these cohorts have already been included).
208	Tilford 1976 ³⁶⁹	Methodology	Age of assessment not corrected in preterm infants under 24 months.
209	Tong 2014 ³⁷⁰	Control	The Bayley test was not administered to the control group.
210	Treyvaud 2011 ³⁷¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
211	Valvano 1986 ³⁷²	Preterm group	The study excluded preterm infants that showed typical neuro-developmental functioning, thus including only preterm infants with poorer outcomes in the Bayley test.
212	Van Haastert 2012 ³⁷³	Methodology	Age of assessment is not comparable between the preterm (mean: 15.6 or 24.0 months; corrected age) and full-term (mean: 19.0 months; corrected age) groups.
213	Van Hus 2014 ³⁷⁴	Multiple report	Multiple report (outcomes for these cohorts have already been included).
214	Vinall 2013 ³⁷⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
215	von Ehrenstein 2012 ³⁷⁶	Data	No report on the means and SDs of the WPPSI outcomes for the preterm and full term groups.

Table S7. (Continuation)

No	Study	Reason for exclusion	Elaboration
216	Wall 1996 ³⁷⁷	Peer-review	Not peer-reviewed (thesis).
217	Wang 1998 ³⁷⁸	Outcomes	Only a binary measure for developmental delay is reported.
218	Wang 2020 ³⁷⁹	Control	The full-term group included infants who were born with perinatal conditions.
219	Wasserman 1985a ³⁸⁰	Data	No sufficient data to calculate the effect size.
220	Wasserman 1985b ³⁸¹	Data	No sufficient data to calculate the effect size.
221	Watt 1986 ³⁸²	Multiple report	Multiple report (outcomes for these cohorts have already been included).
222	Wildin 1995 ³⁸³	Multiple report	Multiple report (outcomes for these cohorts have already been included).
223	Wintgens 1998 ³⁸⁴	Outcomes	Utilized the McCarthy Scale for Children's Abilities test, which was not included in the analysis.
224	Wolke 1999 ³⁸⁵	Multiple report	Multiple report (outcomes for these cohorts have already been included).
225	Wolke 2015 ³⁸⁶	Multiple report	Multiple report (outcomes for these cohorts have already been included).
226	Woythaler 2015 ³⁸⁷	Multiple report	Multiple report (outcomes for these cohorts have already been included).
227	Younesian 2021 ³⁸⁸	Control	Participants were matched based on the outcomes of the Bayley 3 test.
228	Zavadenko 2018 ³⁸⁹	Age	Neurocognitive assessments were not conducted within the predefined age range (more than 7 years of age)
229	Zuazo 1999 ³⁹⁰	Access	Unable to trace the manuscript.
230	Zuccarini 2016 ³⁹¹	Multiple report	Multiple report (outcomes for these cohorts have already been included).
231	Zuccarini 2018 ³⁹²	Multiple report	Multiple report (outcomes for these cohorts have already been included).

Note. Overall, 231 studies were excluded during the full-text screening phase. Reasons for exclusion: Multiple report ($n = 77$); Missing data ($n = 48$); No control group ($n = 28$); No relevant neurodevelopmental outcome ($n = 24$); Methodological concerns ($n = 16$); No preterm group ($n = 11$); Not within the 0 to 7 years age range ($n = 9$); Not peer-reviewed ($n = 8$); No access to the manuscript ($n = 7$); Major health conditions ($n = 3$).

Table S8. Overall characteristics of the included studies

Characteristic	Median (range), or No (%)
Continent (<i>n</i> = 161)	
Asia	18 (11.2)
Europe	65 (40.4)
North America	60 (37.3)
Oceania	14 (8.7)
South America	4 (2.5)
Test [†] (<i>n</i> = 161)	
Bayley	100
Wechsler	41
Griffiths	16
Stanford-Binet	14
Kaufman	8
Differential Ability Scales	2
Mean GA at birth (weeks; <i>n</i> = 150)	29.9 (25.0-36.3)
Mean birthweight (grams; <i>n</i> = 148)	1271 (702-2633)
Females from preterm cohort (% <i>n</i> = 132)	48.6 (32.5-81.2)
NOS score (<i>n</i> = 161)	5 (0-8)
Blind assessment (% <i>n</i> = 161)	56 (34.8)
Contemporary neonatal medical care (% <i>n</i> = 135)	98 (72.6)
Contemporary neonatal developmental care (% <i>n</i> = 76)	62 (81.6)

Note. GA = Gestational age; NOS = Newcastle-Ottawa Scale (modified).

[†] Some studies used more than one test.

Table S9. Association between cohorts' mean age (continuous) and differences between preterm and full-term cohorts in each GA group

Domain / GA group	<i>n</i>	<i>Q_M</i>	β	95%CI (β)	<i>p</i>	<i>R</i> ²	<i>f</i> ²
Global development							
Extreme (GA $\leq$ 28 weeks)***	53	15.6	-0.006	-0.010 to -0.003	< 0.0001	36.8%	56.0%
Very (28 < GA < 32 weeks)**	99	7.91	-0.004	-0.007 to -0.001	0.005	11.7%	63.3%
Moderate-to-late (32 $\leq$ GA < 37 weeks)	45	2.12	-0.003	-0.006 to 0.001	0.15	0.5%	51.3%
Language/communication							
Extreme (GA $\leq$ 28 weeks)***	31	21.5	-0.009	-0.013 to -0.005	< 0.0001	55.3%	48.8%
Very (28 < GA < 32 weeks)**	43	7.01	-0.006	-0.010 to -0.001	0.008	14.2%	64.0%
Moderate-to-late (32 $\leq$ GA < 37 weeks)	19	0.05	0.001	-0.004 to 0.005	0.82	0%	50.1%
Visuospatial							
Extreme (GA $\leq$ 28 weeks)***	30	14.3	-0.008	-0.012 to -0.004	0.0002	56.4%	40.7%
Very (28 < GA < 32 weeks)**	40	8.24	-0.007	-0.012 to -0.002	0.004	24.3%	63.0%
Moderate-to-late (32 $\leq$ GA < 37 weeks)	21	0.83	-0.003	-0.009 to 0.003	0.36	0%	77.1%
Motor							
Extreme (GA $\leq$ 28 weeks)*	23	6.30	-0.16	-0.29 to -0.004	0.012	31.9%	41.5%
Very (28 < GA < 32 weeks)	54	0.23	-0.003	-0.013 to 0.008	0.63	0%	54.6%
Moderate-to-late (32 $\leq$ GA < 37 weeks) [#]	26	3.61	-0.011	-0.022 to 0.001	0.057	0%	53.8%

Note. GA = Gestational age; SMD = Standardized mean difference. In extremely and very preterm cohorts, the gap between preterm and full-term cohorts became more severe as the cohort's age was older in all developmental domains (except for very preterm cohorts in the motor domain). However, no similar increased age-dependent susceptibility was found in children born after 32 weeks of gestation.

[#] $p < .06$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table S10. Association between age group and differences between preterm and full-term cohorts in each GA group

Domain / GA group	Age group	<i>n</i>	SMD	95%CI	<i>p</i>	β
Global development						
Extreme (GA $\leq$ 28 weeks)	Infants	9	-0.59	-0.83 to -0.36	< 0.0001	<i>Ref</i>
	Toddlers	20	-0.72	-0.86 to -0.59	< 0.0001	-0.13
	Children	24	-0.95	-1.07 to -0.83	< 0.0001	-0.36**
Very (28 < GA < 32 weeks)	Infants	24	-0.41	-0.56 to -0.26	< 0.0001	<i>Ref</i>
	Toddlers	43	-0.55	-0.65 to -0.44	< 0.0001	-0.13
	Children	32	-0.65	-0.76 to -0.54	< 0.0001	-0.24*
Moderate-to-late (32 $\leq$ GA < 37 weeks)	Infants	11	-0.15	-0.34 to 0.04	0.12	<i>Ref</i>
	Toddlers	20	-0.33	-0.46 to -0.21	< 0.0001	-0.18
	Children	14	-0.38	-0.50 to -0.25	< 0.0001	-0.23*
Language/communication						
Extreme (GA $\leq$ 28 weeks)	Infants	5	-0.10	-0.41 to 0.21	0.52	<i>Ref</i>
	Toddlers	12	-0.57	-0.73 to -0.42	< 0.0001	-0.47**
	Children	14	-0.92	-1.06 to -0.78	< 0.0001	-0.82***
Very (28 < GA < 32 weeks)	Infants	8	-0.11	-0.38 to 0.16	0.43	<i>Ref</i>
	Toddlers	13	-0.40	-0.59 to -0.21	< 0.0001	-0.29
	Children	22	-0.54	-0.68 to -0.41	< 0.0001	-0.44**
Moderate-to-late (32 $\leq$ GA < 37 weeks)	Infants	3	-0.25	-0.56 to 0.07	0.13	<i>Ref</i>
	Toddlers	7	-0.43	-0.61 to -0.26	< 0.0001	-0.19
	Children	9	-0.29	-0.44 to -0.14	0.0001	-0.05
Visuospatial						
Extreme (GA $\leq$ 28 weeks)	Infants	5	-0.67	-0.98 to -0.35	< 0.0001	<i>Ref</i>
	Toddlers	13	-0.67	-0.81 to -0.52	< 0.0001	0.00
	Children	12	-1.09	-1.25 to -0.93	< 0.0001	-0.42*
Very (28 < GA < 32 weeks)	Infants	8	-0.46	-0.75 to -0.17	0.002	<i>Ref</i>
	Toddlers	12	-0.41	-0.63 to -0.20	0.0002	0.04
	Children	20	-0.70	-0.86 to -0.54	< 0.0001	-0.24
Moderate-to-late (32 $\leq$ GA < 37 weeks)	Infants	4	-0.04	-0.38 to 0.30	0.81	<i>Ref</i>
	Toddlers	8	-0.50	-0.74 to -0.27	< 0.0001	-0.46*
	Children	9	-0.41	-0.62 to -0.19	0.0002	-0.37
Motor						
Extreme (GA $\leq$ 28 weeks)	Infants	7	-0.48	-0.71 to -0.25	< 0.0001	<i>Ref</i>
	Toddlers	16	-0.78	-0.90 to -0.66	< 0.0001	-0.30*
	Children	0	-	-	-	-
Very (28 < GA < 32 weeks)	Infants	19	-0.36	-0.53 to -0.19	< 0.0001	<i>Ref</i>
	Toddlers	33	-0.58	-0.70 to -0.47	< 0.0001	-0.23*
	Children	2	-0.41	-0.90 to 0.07	0.096	-0.05
Moderate-to-late (32 $\leq$ GA < 37 weeks)	Infants	9	-0.18	-0.39 to 0.03	0.086	<i>Ref</i>
	Toddlers	16	-0.28	-0.42 to -0.13	0.0001	-0.10
	Children	1	-0.58	-1.21 to 0.04	0.068	-0.40

Note. GA = Gestational age; SMD = Standardized mean difference. Age groups: Infants = 0 $\leq$ 12 months, Toddlers = 12 < 36 months, Children = 36 $\leq$ 84 months. In most analyses, there is a significant age group effect, indicating the gap between preterm and full-term children becomes larger in the later stages of childhood. However, in many cases, the number of observations in each cell is too small; therefore, we suggest that the analysis of age as a continuous variable (Table S9) is more accurate.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table S11. Association between contemporary neonatal care and global cognitive outcomes in each GA group

GA group / domain		<i>n</i>	SMD	95%CI	<i>p</i>	β	<i>p</i> (β)
Extreme (GA $\leq$ 28 weeks)							
Medical care	Non-contemporary	7	-0.96	-1.23 to -0.70	< 0.0001	<i>Ref</i>	
	Contemporary	45	-0.79	-0.59 to -0.45	< 0.0001	0.17	0.24
Developmental care	Non-contemporary	3	-0.92	-1.24 to -0.59	< 0.0001	<i>Ref</i>	
	Contemporary	28	-0.69	-0.81 to -0.57	< 0.0001	0.22	0.20
Very (28 < GA < 32 weeks)							
Medical care	Non-contemporary	32	-0.67	-0.78 to -0.55	< 0.0001	<i>Ref</i>	
	Contemporary	53	-0.47	-0.56 to -0.38	< 0.0001	0.20**	0.01
Developmental care	Non-contemporary	9	-0.73	-0.92 to -0.54	< 0.0001	<i>Ref</i>	
	Contemporary	36	-0.44	-0.55 to -0.34	< 0.0001	0.28*	0.01
Moderate-to-late (32 $\leq$ GA < 37 weeks)							
Medical care	Non-contemporary	9	-0.46	-0.64 to -0.28	< 0.0001	<i>Ref</i>	
	Contemporary	23	-0.27	-0.37 to -0.17	< 0.0001	0.19 [#]	0.066
Developmental care	Non-contemporary	2	-0.48	-0.82 to -0.13	0.007	<i>Ref</i>	
	Contemporary	15	-0.22	-0.36 to -0.09	0.001	0.25	0.18

Note. GA = Gestational age; SMD = Standardized mean difference. In all GA groups, the descriptive statistics indicate a difference of approximately 0.20 SMDs (i.e., 0.16 to 0.29) between the care conditions. However, the results are statistically significant only in the very preterm meta-analysis, plausibly due to a larger dataset of available effect sizes.

[#] $p < .07$ * $p < .01$ ** $p < 0.01$

Table S12. Sensitivity analyses: categorical variables

Factor		<i>n</i>	SMD	95%CI	<i>p</i>	<i>f</i> ²	β
Global development		197	-0.57	-0.63 to -0.52	< 0.0001	76.7%	
Risk of bias	Low risk of bias (NOS > 5)	74	-0.64	-0.73 to -0.56	< 0.0001	83.0%	<i>Ref</i>
	High risk of bias (NOS ≤ 5)	123	-0.52	-0.59 to -0.45	< 0.0001	70.5%	0.12*
Sample size	Large sample (<i>n</i> > 200)	55	-0.61	-0.71 to -0.52	< 0.0001	87.9%	<i>Ref</i>
	Small sample (<i>n</i> ≤ 200)	142	-0.54	-0.62 to -0.48	< 0.0001	64.4%	0.07
Data availability	Neonatal medical care (yes)	169	-0.58	-0.64 to -0.52	< 0.0001	78.2%	<i>Ref</i>
	Neonatal medical care (no)	28	-0.53	-0.68 to -0.37	< 0.0001	61.5%	0.05
Data availability	Neonatal developmental care (yes)	93	-0.52	-0.60 to -0.44	< 0.0001	72.1%	<i>Ref</i>
	Neonatal developmental care (no)	104	-0.62	-0.70 to -0.55	< 0.0001	79.9%	-0.10
Outliers	Without outliers	183	-0.53	-0.58 to -0.48	< 0.0001	64.2%	<i>Ref</i>
	Only outliers	14	-1.13	-1.30 to -0.95	< 0.0001	88.9%	-0.60***
Language/communication		93	-0.49	-0.56 to -0.42	< 0.0001	72.0%	
Risk of bias	Low risk of bias (NOS > 5)	39	-0.52	-0.63 to -0.41	< 0.0001	66.6%	<i>Ref</i>
	High risk of bias (NOS ≤ 5)	54	-0.46	-0.57 to -0.36	< 0.0001	75.3%	0.06
Sample size	Large sample (<i>n</i> > 200)	25	-0.58	-0.70 to -0.46	< 0.0001	84.9%	<i>Ref</i>
	Small sample (<i>n</i> ≤ 200)	68	-0.44	-0.53 to -0.34	< 0.0001	53.0%	0.14
Data availability	Neonatal medical care (yes)	83	-0.48	-0.56 to -0.40	< 0.0001	70.2%	<i>Ref</i>
	Neonatal medical care (no)	10	-0.57	-0.82 to -0.31	< 0.0001	83.1%	-0.09
Data availability	Neonatal developmental care (yes)	56	-0.42	-0.51 to -0.32	< 0.0001	63.8%	<i>Ref</i>
	Neonatal developmental care (no)	37	-0.60	-0.71 to -0.48	< 0.0001	76.5%	-0.18*
Outliers	Without outliers	86	-0.47	-0.54 to -0.40	< 0.0001	57.6%	<i>Ref</i>
	Only outliers	7	-0.81	-1.08 to -0.54	< 0.0001	94.2%	-0.34*
Visuospatial		91	-0.62	-0.70 to -0.53	< 0.0001	76.5%	
Risk of bias	Low risk of bias (NOS > 5)	35	-0.68	-0.81 to -0.55	< 0.0001	76.9%	<i>Ref</i>
	High risk of bias (NOS ≤ 5)	56	-0.57	-0.68 to -0.45	< 0.0001	76.5%	0.11
Sample size	Large sample (<i>n</i> > 200)	24	-0.64	-0.78 to -0.49	< 0.0001	85.6%	<i>Ref</i>
	Small sample (<i>n</i> ≤ 200)	67	-0.60	-0.71 to -0.50	< 0.0001	70.4%	0.03
Data availability	Neonatal medical care (yes)	81	-0.67	-0.95 to -0.39	< 0.0001	76.9%	<i>Ref</i>
	Neonatal medical care (no)	10	-0.61	-0.70 to -0.52	< 0.0001	72.6%	-0.06
Data availability	Neonatal developmental care (yes)	56	-0.50	-0.60 to -0.40	< 0.0001	64.8%	<i>Ref</i>
	Neonatal developmental care (no)	35	-0.79	-0.92 to -0.67	< 0.0001	78.9%	-0.29***
Outliers	Without outliers	81	-0.60	-0.69 to -0.51	< 0.0001	65.7%	<i>Ref</i>
	Only outliers	10	-0.75	-1.00 to -0.49	< 0.0001	93.6%	-0.15
Motor		103	-0.49	-0.57 to -0.41	< 0.0001	74.6%	
Risk of bias	Low risk of bias (NOS > 5)	29	-0.62	-0.76 to -0.48	< 0.0001	87.7%	<i>Ref</i>
	High risk of bias (NOS ≤ 5)	74	-0.42	-0.52 to -0.33	< 0.0001	57.9%	0.20*
Sample size	Large sample (<i>n</i> > 200)	21	-0.54	-0.69 to -0.39	< 0.0001	90.6%	<i>Ref</i>
	Small sample (<i>n</i> ≤ 200)	82	-0.47	-0.56 to -0.38	< 0.0001	56.0%	0.07
Data availability	Neonatal medical care (yes)	89	-0.49	-0.57 to -0.41	< 0.0001	74.8%	<i>Ref</i>
	Neonatal medical care (no)	14	-0.48	-0.70 to -0.26	< 0.0001	75.1%	0.01
Data availability	Neonatal developmental care (yes)	53	-0.50	-0.61 to -0.40	< 0.0001	63.0%	<i>Ref</i>
	Neonatal developmental care (no)	50	-0.47	-0.59 to -0.36	< 0.0001	78.4%	0.03
Outliers	Without outliers	98	-0.47	-0.55 to -0.39	< 0.0001	70.9%	<i>Ref</i>
	Only outliers	5	-1.04	-1.45 to -0.64	0.019	94.0%	-0.57**

Note. NOS = Newcastle-Ottawa Scale; SMD = Standardized mean difference. P-values are based on the χ^2 statistics for the subgroup analyses between the two conditions of each factor. The sensitivity analyses demonstrated that more considerable differences between the preterm and the full-term groups were found in studies with (1) a lower risk of bias in both the global development and motor domains; and (2) no availability of neonatal developmental care data in both the language/communication and visuospatial domains. (1) putatively implies that less rigorous studies may underestimate the extent of cognitive difficulties experienced by preschool children born preterm. We conjecture that the principal interpretation for (2) is that most of the studies with missing data for the quality of neonatal developmental care were from earlier eras, with a mean cohort birth year of 1991 for studies with missing data and 2003 for studies with data available ($t_{(159)} = -7.40$, $p < 0.0001$). During earlier eras, developmental care protocols were less likely to be implemented in NICUs, and in more cases, parental access to the NICUs was restricted for longer durations. Hence, we conjecture that this finding may strengthen the direction of the results and suggest that implementing neonatal developmental care protocols may be associated with more positive outcomes in the language/communication and visuospatial domains.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table S13. Sensitivity analyses: continuous variables

Factor	<i>n</i>	<i>Q_M</i>	β	95%CI (β)	<i>z</i>	<i>p</i>	<i>R</i> ²	<i>f</i> ²
Global development								
Publication year	197	0.01	0.001	-0.005 to 0.005	0.08	0.936	0.00%	76.8%
NOS score	197	2.89	-0.028	-0.061 to 0.004	-1.70	0.089	0.02%	76.7%
Language/communication								
Publication year	93	0.21	-0.002	-0.011 to 0.007	-0.46	0.648	0.00%	72.2%
NOS score	93	1.74	-0.031	-0.076 to 0.015	-1.32	0.188	0.72%	71.8%
Visuospatial								
Publication year	91	0.29	0.005	-0.005 to 0.016	1.05	0.292	0.00%	76.6%
NOS score	91	0.75	-0.024	-0.077 to 0.030	-0.87	0.386	0.00%	76.7%
Motor								
Publication year	103	0.01	0.001	-0.007 to 0.007	0.05	0.961	0.00%	74.7%
NOS score	103	2.27	-0.035	-0.081 to 0.011	-1.51	0.132	0.97%	74.2%

Note. NOS = Newcastle-Ottawa Scale (modified).

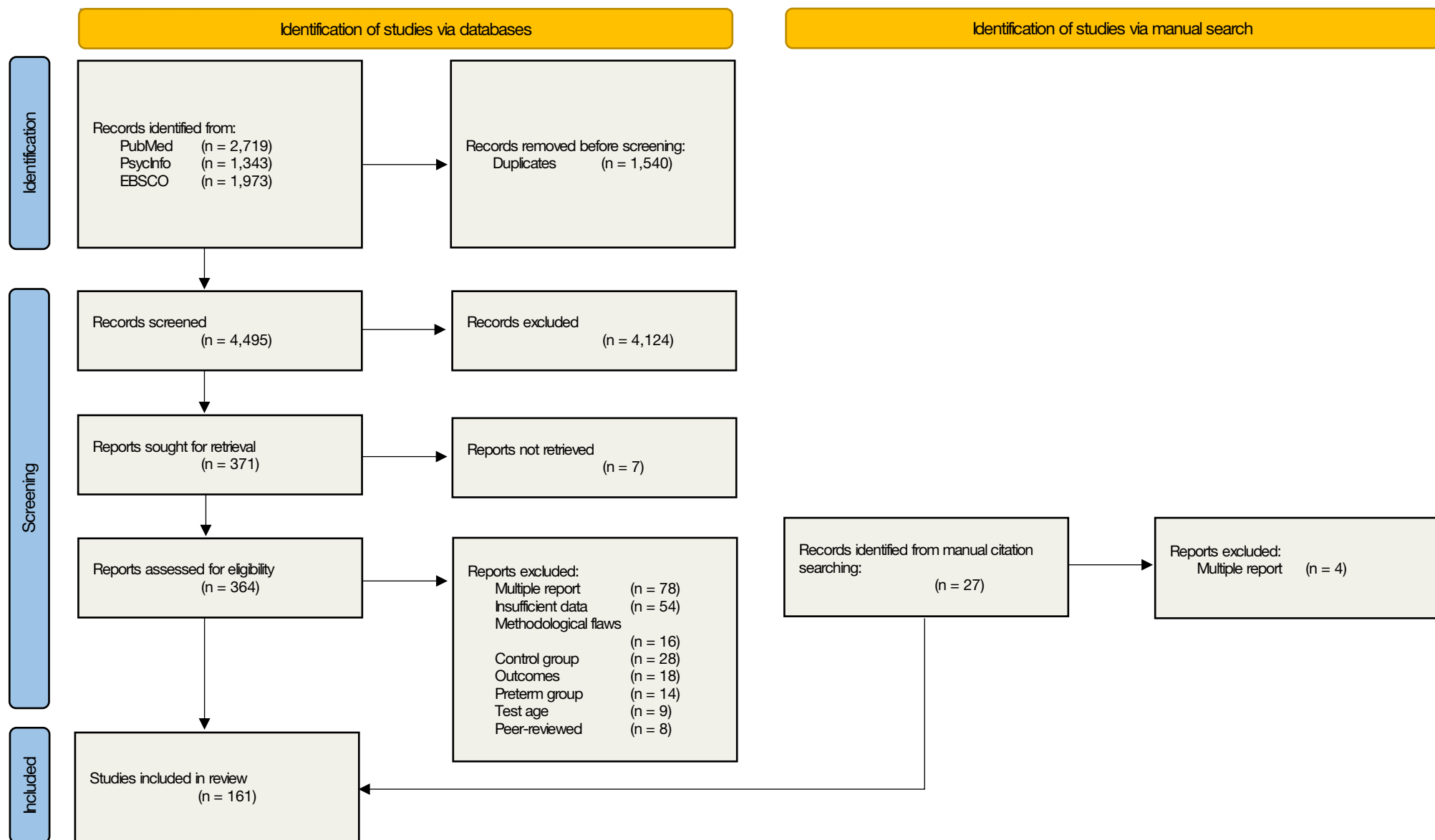
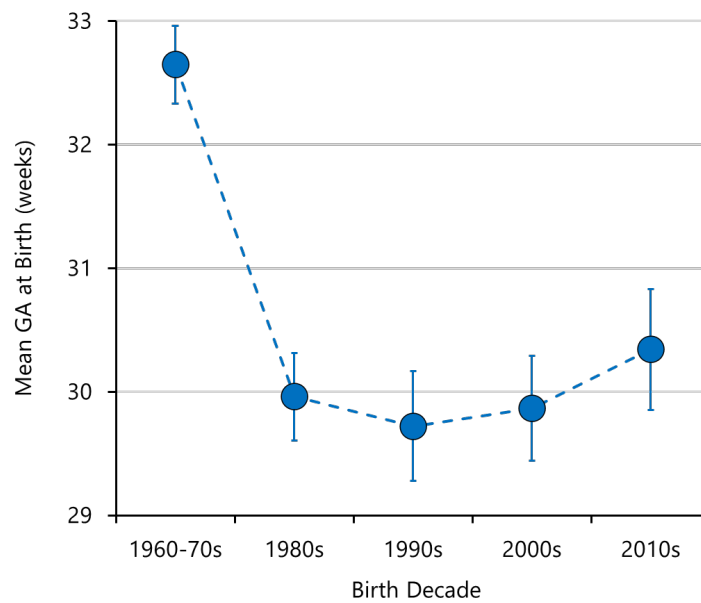


Figure S1. Flowchart for the study selection process. Adapted from the PRISMA 2000 diagram.³⁹³

Figure S2

Differences in preterm cohorts' mean gestational age (GA) at birth between birth decades



Note. Significant differences in mean GA at birth were found between preterm cohorts born in different decades ($F_{(4,145)} = 3.51, p = .009$). A Bonferroni post hoc analysis demonstrated that the mean GA age at birth was older in cohorts born before 1980 when compared to cohorts born in the 1980s ($p = 0.018$), 1990s ($p = .006$), and 2000s ($p = .007$). The youngest mean GA at birth of an included study's cohort for each decade was 30.6 (1960-70s), 26.0 (1980s), 25.1 (1990s), 25.0 (2000s), and 26.7 (for 2010s). Observations for each decade: '1960-70s', $n = 12$; '1980s', $n = 31$; '1990s', $n = 34$; '2000s', $n = 48$; '2010s', $n = 25$. $N = 150$. Results are expressed as means $\pm$ 1 standard error.

Figure S3

Forest plot for the differences in global developmental/intelligence quotients (DQ/IQs) between infants, toddlers, and children born preterm and full-term

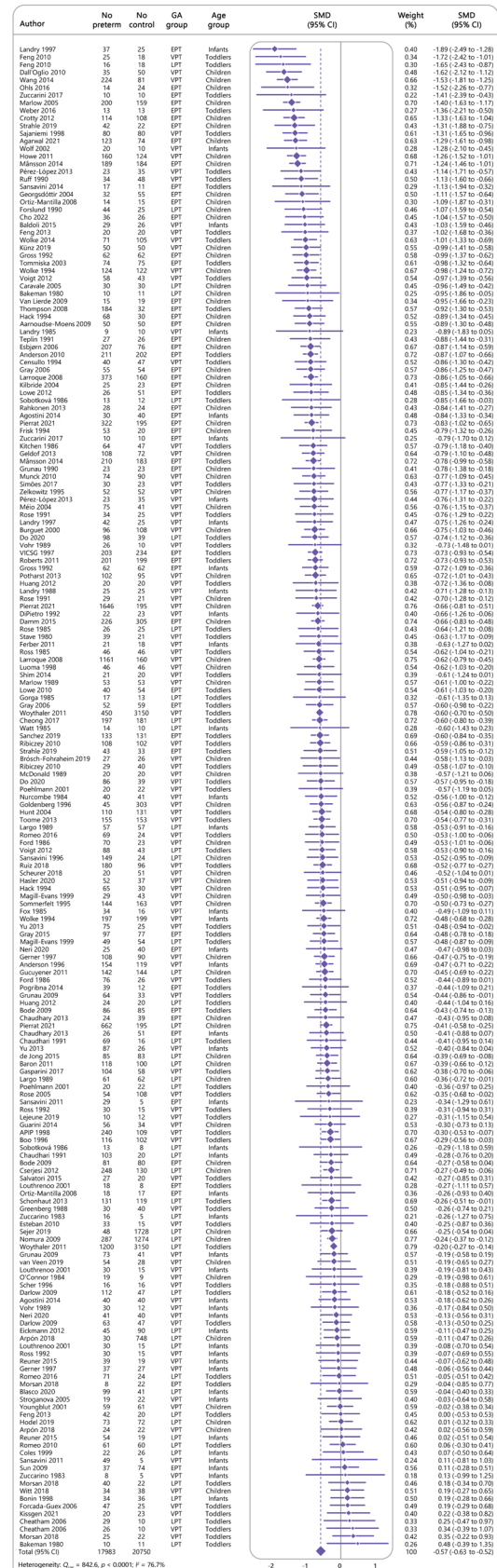
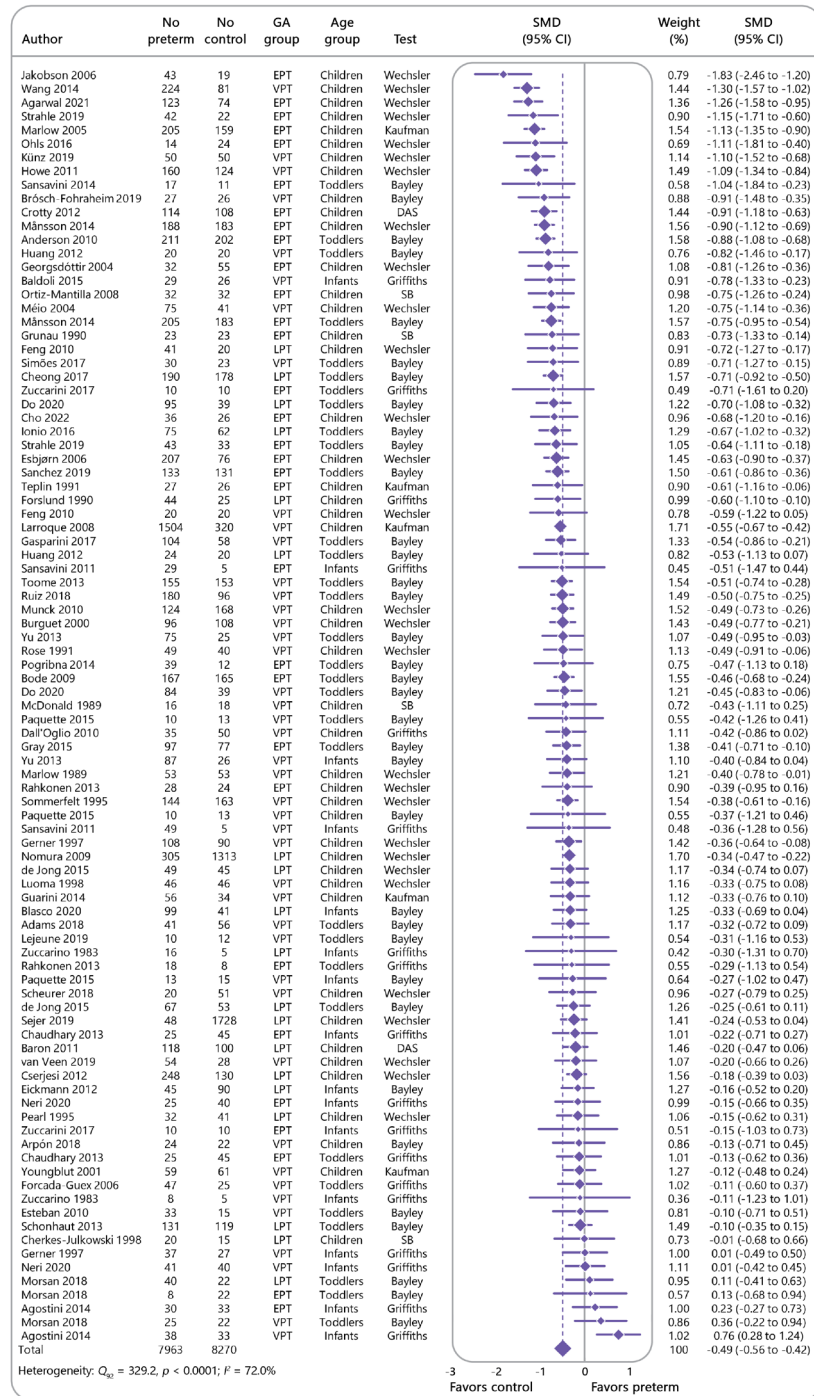


Figure S4

Forest plot for the differences in language/communication developmental/intelligence quotients (DQ/IQs) between infants, toddlers, and children born preterm and full-term

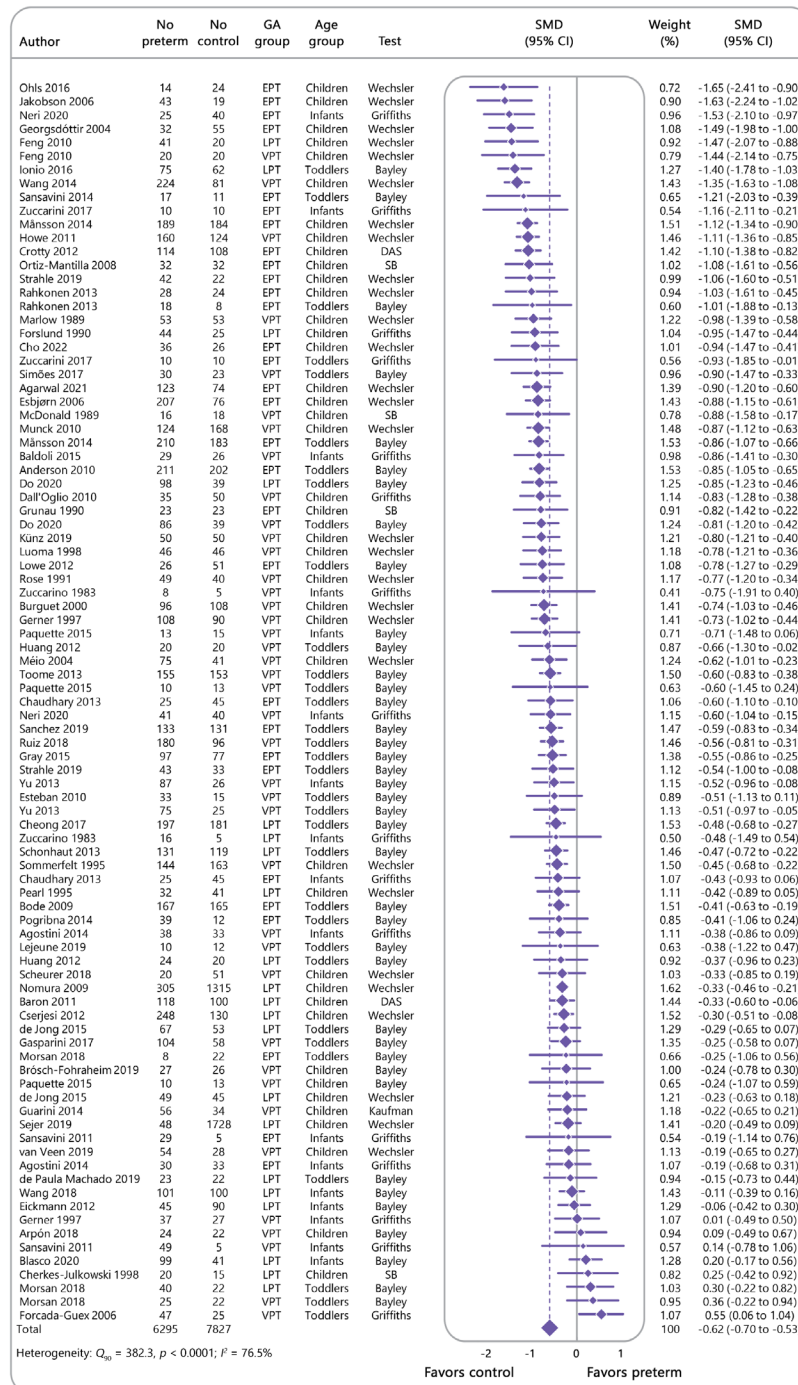


Note. The meta-analysis of findings from 16,233 children revealed a significant association between preterm birth and lower language/communication DQ/IQ scores ($z = -12.9$, $p < 0.0001$). Diamonds represent SMDs, with the marker size indicating weight, and the horizontal lines representing 95% CIs.

GA groups: EPT = extreme (GA ≤ 28 weeks); VPT = very (28 < GA < 32 weeks); LPT = moderate-to-late (32 $\leq$ GA < 37 weeks); **Age groups:** Infants = 0 ≤ 12 months; Toddlers = 12 < 36 months; Children = 36 ≤ 84 months; Bayley = Bayley Scales of Infant Development; CI = confidence interval; DAS = Differential Ability Scales; GA = gestational age; Griffiths = Griffith Mental Development Scales; Kaufman = Kaufman Assessment Battery for Children or Kaufman Brief Intelligence Test; SB = Stanford-Binet; SMD = standardized mean difference; Wechsler = Wechsler Preschool and Primary Scale of Intelligence or Wechsler Intelligence Scale for Children.

Figure S5

Forest plot for the differences in visuospatial developmental/intelligence quotients (DQ/IQs) between infants, toddlers, and children born preterm and full-term

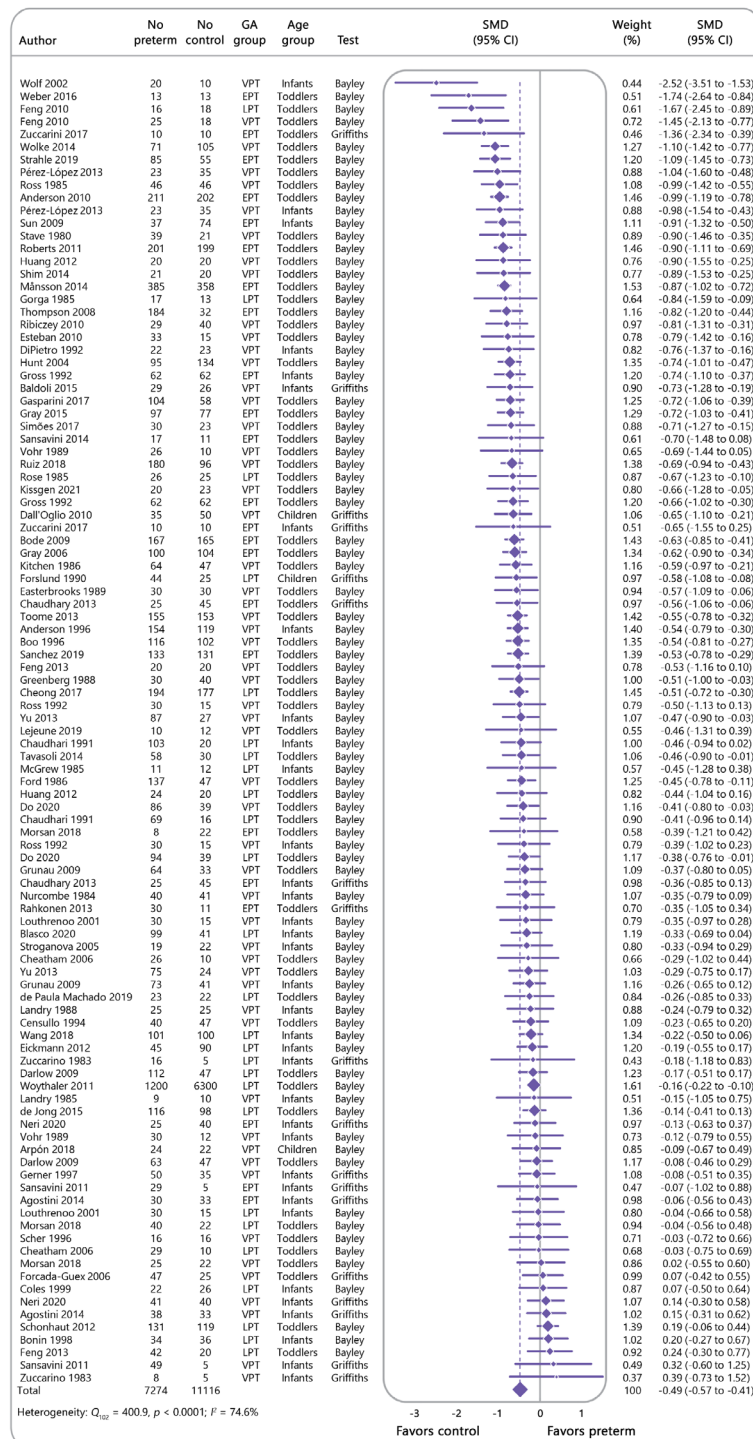


Note. The meta-analysis of findings from 14,122 children revealed a significant association between preterm birth and lower visuospatial DQ/IQ scores ($z = -14.2$, $p < 0.0001$). Diamonds represent SMDs, with the marker size indicating weight, and the horizontal lines representing 95% CIs.

GA groups: EPT = extreme (GA ≤ 28 weeks); VPT = very (28 < GA < 32 weeks); LPT = moderate-to-late (32 $\leq$ GA < 37 weeks); **Age groups:** Infants = 0 $\leq$ 12 months; Toddlers = 12 < 36 months; Children = 36 $\leq$ 84 months; Bayley = Bayley Scales of Infant Development; CI = confidence interval; DAS = Differential Ability Scales; GA = gestational age; Griffiths = Griffith Mental Development Scales; Kaufman = Kaufman Assessment Battery for Children or Kaufman Brief Intelligence Test; SB = Stanford-Binet; SMD = standardized mean difference; Wechsler = Wechsler Preschool and Primary Scale of Intelligence or Wechsler Intelligence Scale for Children

Figure S6

Forest plot for the differences in motor developmental/intelligence quotients (DQ/IQs) between infants, toddlers, and children born preterm and full-term

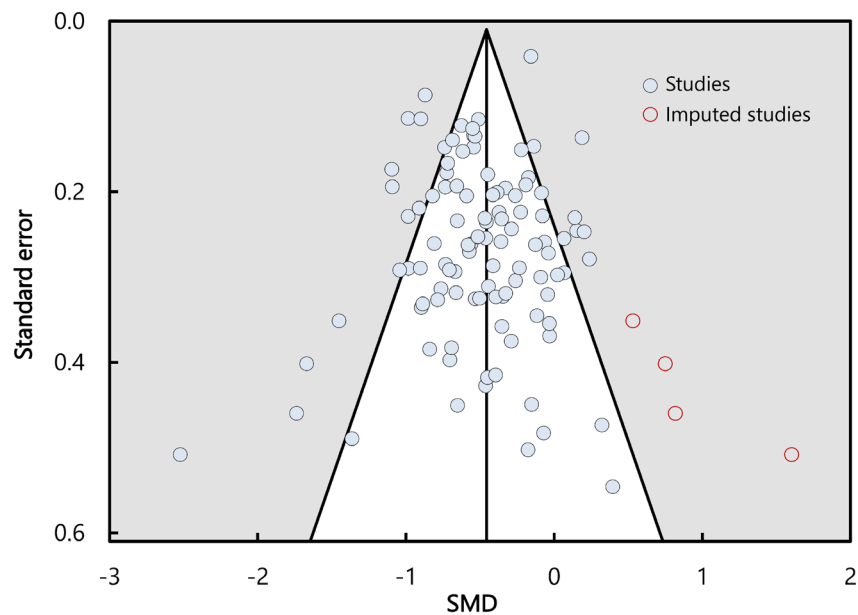


Note. The meta-analysis of findings from 18,390 children found a significant association between preterm birth and lower motor DQ/IQ scores ($z = -11.9$, $p < 0.0001$). Diamonds represent SMDs, with the marker size indicating weight, and the horizontal lines representing 95% CIs.

GA groups: EPT = extreme (GA ≤ 28 weeks); VPT = very (28 < GA ≤ 32 weeks); LPT = moderate-to-late (32 $\leq$ GA < 37 weeks); **Age groups:** Infants = 0 $\leq$ 12 months; Toddlers = 12 < 36 months; Children = 36 $\leq$ 84 months; Bayley = Bayley Scales of Infant Development; CI = confidence interval; GA = gestational age; Griffiths = Griffith Mental Development Scales; SMD = standardized mean difference.

Figure S7

Funnel plot of standardized mean differences (SMDs) and standard errors for the motor developmental / intelligence quotients (DQ/IQs) meta-analysis



Note. The Egger test was significant ($t_{101} = -2.49$, $p = 0.015$), suggesting a possibility of a publication bias of negative results. We, therefore, conducted a post hoc trim-and-fill analysis, which led to the imputation of four additional studies. The effect of the adjustment was negligible and only slightly decreased the total effect size (Adj. SMD = -0.46 [Adj. 95% CI -0.54 to -0.38]; $p < 0.0001$; while the non-adjusted SMD was -0.49 with a 95% CI of -0.57 to -0.41). This suggests that publication bias could not better explain the observed differences between the groups.

Text S1

Outlier analyses

We inspected the externally standardized residuals in each meta-analysis, with values exceeding ± 1.96 considered outliers.³⁹⁴ In the Global development domain meta-analysis, we identified 14 potential outliers with externally standardized residuals of -2.10,⁴ 1.96,¹⁵ -2.67,²⁸ -2.65,³⁰ -2.14,⁴¹ -2.42,⁴¹ -2.11,⁶⁵ -3.03,⁷⁶ -2.07,⁸⁵ -2.60,⁸⁷ 2.18,⁹¹ -2.10,¹¹⁹ -2.89,¹⁴⁸ and 1.97.¹⁵² Removal of the outliers was associated with a slight reduction in the differences between the groups (although the differences remained robust with a total SMD of -0.53), suggesting that deviant effect sizes were more frequent in studies with relatively poorer outcomes of the preterm groups (**Table S9**). In the Language/communication domain meta-analysis, we identified 7 potential outliers with externally standardized residuals of -2.46,⁴ 3.45,⁵ -1.99,⁶⁵ -3.18,⁶⁹ -2.18,⁸⁷ 2.10,⁹¹ and -2.69.¹⁴⁸ Removal of the outliers was associated with a slight reduction in the differences between the groups (although the differences remained robust with a total SMD of -0.47), suggesting that deviant effect sizes were more frequent in studies with relatively poorer outcomes of the preterm groups (**Table S9**). In the Visuospatial domain meta-analysis, we identified 10 potential outliers with externally standardized residuals of 2.18,¹³ 2.85,⁴³ -2.12,⁵⁰ -2.08,⁶⁸ -2.25,⁶⁹ 2.17,⁹¹ 2.21,⁹¹ -2.10,⁹³ -2.04,⁹⁷ and -2.12.¹⁴⁸ Removal of the outliers had no impact on the robustness of the results (**Table S9**). In the Motor domain meta-analysis, we identified 5 potential outliers with externally standardized residuals of -2.35,⁴¹ -2.08,⁴¹ 2.09,¹²⁷ -2.26,¹⁵¹ and -3.46.¹⁵³ Removal of the outliers had a marginal impact on the robustness of the results (**Table S9**).

Text S2

Analyses of interaction effects of neonatal pulmonary morbidities and medical care conditions on neurocognitive outcomes

To assess whether there were changes in the associations between respiratory distress syndrome (RDS) and bronchopulmonary dysplasia (BPD) and neurocognitive outcomes of preterm infants as a function of improvements in neonatal medical care, we conducted post hoc interaction analyses which considered the following factors as moderators: cohorts' birth year (CBY) and neonatal medical care score (NMCS; *i.e.*, non-contemporary vs. contemporary). We hypothesized that advancements in care (reflected in CBY and NMCS) would partially restrain the negative association between neonatal pulmonary morbidities and neurocognitive outcomes. However, the results did not support this conjecture, as delineated below.

In the global development domain meta-analysis, the RDS $\times$ CBY ($\chi^2_{(1)} = 0.71$, $p = 0.40$; $n = 73$ studies), RDS $\times$ NMCS ($\chi^2_{(1)} = 0.53$, $p = 0.47$; $n = 67$ studies), BPD $\times$ CBY ($\chi^2_{(1)} = 1.00$, $p = 0.32$; $n = 100$ studies), and BPD $\times$ NMCS ($\chi^2_{(1)} = 0.03$, $p = 0.87$; $n = 93$ studies) were not statistically significant.

In the language/communication domain meta-analysis, the RDS $\times$ CBY ($\chi^2_{(1)} = 0.19$, $p = 0.66$; $n = 40$ studies), RDS $\times$ NMCS ($\chi^2_{(1)} = 0.78$, $p = 0.38$; $n = 36$ studies), BPD $\times$ CBY ($\chi^2_{(1)} = 0.77$, $p = 0.38$; $n = 58$ studies), and BPD $\times$ NMCS ($\chi^2_{(1)} = 0.04$, $p = 0.84$; $n = 56$ studies) were not statistically significant.

In the visuospatial domain meta-analysis, the RDS $\times$ CBY ($\chi^2_{(1)} = 0.59$, $p = 0.44$; $n = 37$ studies), RDS $\times$ NMCS ($\chi^2_{(1)} = 1.14$, $p = 0.29$; $n = 33$ studies), BPD $\times$ CBY ($\chi^2_{(1)} = 2.21$, $p = 0.14$; $n = 55$ studies), and BPD $\times$ NMCS ($\chi^2_{(1)} = 1.91$, $p = 0.17$; $n = 53$ studies) were not statistically significant.

In the motor domain meta-analysis, the RDS $\times$ CBY ($\chi^2_{(1)} = 1.31$, $p = 0.25$; $n = 44$ studies), RDS $\times$ NMCS ($\chi^2_{(1)} = 0.99$, $p = 0.32$; $n = 38$ studies), BPD $\times$ CBY ($\chi^2_{(1)} = 1.99$, $p = 0.16$; $n = 56$ studies), and BPD $\times$ NMCS ($\chi^2_{(1)} = 0.63$, $p = 0.43$; $n = 53$ studies) were not statistically significant.

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