

APPENDIX (for ADC website)

The search strategy used the following combination of text words, with no limits of publication type

(prematu*
or preemies
or preemie
or preterm
or (pre adj term)
or growth retard*
or IUGR
or growth restrict*
or LBW
or (small for gest*)
or (light for gest*)
or (low birth weight)
or ((small or light) near3 (date or gestational age))
or VLBW
or SGA)

and

((pasteuri?ed and (breast milk or breastmilk or human milk))
or (donor* and (breast milk or breastmilk or human milk))
or (donat* and (breast milk or breastmilk or human milk))
or ((heat adj treat*) and (breast milk or breastmilk or human milk))
or (fortified and (breast milk or breastmilk or human milk))
or (expressed and (breast milk or breastmilk or human milk))
or (bank* and (breast milk or breastmilk or human milk))
or (frozen and (breast milk or breastmilk or human milk))
or (milk bank or milkbank or milk-bank)
or (heat-treat* and (breast milk or breastmilk or human milk))
or (pool* and (breast milk or breastmilk or human milk)))
or (human adj milk))

Table A Summary of study characteristics

Authors	Study design	Setting	Population & Participants	Comparison groups	Outcomes
Davies 1976[9]	RCT	Hospital: St David's Hospital, and Cardiff Maternity Hospital, Cardiff Country: Wales, UK Year/Time Period: 1972-1973	Number: 68 Inclusion criteria: preterm babies (28-36 weeks gestation) admitted to the neonatal unit. Exclusion criteria: multiple births, congenital abnormalities, chromosome abnormalities, congenital infection.	Formula group: (n=34) Ostermilk1 (Glaxo Laboratories) DBM group: (n=34) Term, pooled, Holder pasteurised, frozen, human milk	Growth
Raiha 1976[10]	RCT	Hospital: Helsinki University Children's Hospital Country: Finland Year/ Time period: 1972-1975	Number: 106 Inclusion criteria: babies which were preterm (28-36 weeks gestation) and LBW (<2100g). Exclusion criteria: growth restricted infants or those with physical abnormality or obvious disease	Formula group: (n=84) Four types of especially manufactured formula with varying concentrations of protein (Wyeth Laboratory) DBM group: (n=22) Term, pooled, pasteurised, banked, human milk (pasteurisation was not mentioned in the text but was confirmed by communication with author)	Growth
Schultz 1980[11]	RCT	Hospital: Peccs University Medical School Country: Hungary Year/ Time period: 1980	Number: 20 Inclusion criteria: LBW, physically normal, no signs of disease. Exclusion criteria: none stated	Formula group: (n=10) standard formula (Robolact) DBM group: (n=10) Pooled Pasteurised mature milk (pasteurisation was confirmed by communication with author).	Growth, Diarrhoea
Gross 1983[12]	RCT	Hospital: Duke University Medical Centre Country: USA Year/ Time period: 1980-1982	Number: 67 (7 withdrawn) Inclusion criteria: preterm (27-33 weeks gestation), and LBW (<1600g) babies, able to obtain enteral feeds by 6 days, and had received no maternal milk. Exclusion criteria: congenital abnormality or major disease.	Formula group: (n=20) Pre-Term Formula (Enfamil Premature Formula) DBM group: (n=40). i) Preterm (corresponding to the infants dates), pooled, holder pasteurised, frozen human milk (n=20) ii) Term, pooled, holder pasteurised, frozen human milk (n=20)	Growth NEC Feeding intolerance
Lucas 1984-2000 [13-22]	RCT	Hospital: Multicentre trial in Anglia region. Country: UK Year/Time period: 1982-1984	Number: trial A: 159 trial B: 343 Inclusion criteria: all infants admitted to SCBU<1850g: Trial A: mothers elected not to feed their baby. Trial B: mothers elected to feed their baby Exclusion criteria: infants with severe congenital abnormalities known to influence growth or neurological development, or lack of parental consent.	Trial A: Formula group: (n=76) Pre-Term Formula (Osterprem, Farely Health Products, PLC) as sole diet DBM group: (n=83) Banked, pooled, holder pasteurised, donor, mainly drip milk, as sole diet Trial B: Formula group: (n=173) Pre-Term Formula (Osterprem, Farely Health Products, PLC) as a supplement to mothers milk. DBM group: (n=170) Banked, pooled, holder pasteurised, donor, mainly drip milk, as a supplement to mothers milk. Nb. In trial B median intake of maternal milk was 53% (lower and upper quartiles: 17%, 91%) with no significant difference in intake between the groups.	Early growth.[13] Sensitisation to cows milk protein[14] Jaundice.[15] Time to establish enteral feeds, vomiting and gastric stasis.[16] Mortality and Developmental status at 9 months and 18 months[17][19] Neonatal NEC.[18] Blood pressure age 7.5-8 years.[20] Growth performance age 5 years.[21] Growth performance age 7.5-8 years. [22]
Cooper 1984 [23]	Initially a Quasi-RCT which became observational due to a change in selection criteria and population.	Hospital: Baragwanath Hospital, serving a peri-urban black population near Johannesburg. Nb Formula group recruitment stopped in this hospital due to 2 cases of NEC, and 10 infants were recruited to the Formula group from another hospital. Since this selection procedure is likely to have introduced bias, we have only used data from the first hospital (Baragwanath). Country: South Africa Year/Time period: early 1980s.	Number: 39 Inclusion criteria: , <36 weeks gestation, and BW: 1,200-1,500g. Exclusion criteria: infants who required ventilating.	Formula group: (n=15) Pre-Term Formula (Enfalac Premature Formula, Mead Johnson.) DBM group: (n=24) Pooled, Holder pasteurised, preterm (32-35 week), human milk.	NEC and respiratory symptoms.
Putet 1984 [24]	Unclear whether experimental or observational	Hospital: E. Herriot, Lyon. Country: France Year/ Time period: 1984	Number: 12 Inclusion criteria: VLBW boys Exclusion criteria: Medical problems	Formula group: (n=6) preterm formula (Pregallia, France) DBM group: (n=6) pasteurised banked human milk	Growth

RCT randomised control trial
DBM donor milk
LBW low birth weight
VLBW very low birth weight

Table B Measures of early post natal weight change

Outcome and studies	Sole diet comparison									Supplementary diet comparison								
	DBM			Formula			MD	(95% CI)	p-value	DBM			Formula			MD	(95% CI)	p-value
	N	Mean	SD	N	Mean	SD				N	Mean	SD	N	Mean	SD			
Days taken to reach 2400g <i>Raiha[10]</i>	22	55.6	12.8	84	44.7	12.7	10.8	(4.8, 16.9)	p<0.001									
Days from regaining birth weight to 2400g <i>Raiha[10]</i>	22	39.3	13.7	84	30.7	12.9	8.6	(2.4, 14.7)	p=0.007									
Initial weight change (g/week) <i>Raiha[10]</i>	22	145.2	71.5	84	144.7	72.2	0.5	(-33.7, 34.7)	p=0.98									
Weight change for at least 2 weeks after regaining birth weight (g/kg/week) <i>Lucas[19][22]</i>	83	88.2	25.5	76	120.4	36.6	-32.2	(-42.0, -22.4)	p<0.001	142	97.3	25.2	144	108.5	27.3	-11.2	(-17.3, -5.1)	p<0.001
Weight change from regained birth weight to 1800g (g/week) <i>Gross[12]</i>	40	165.9	34.4	20	189.0	25.1	-23.1	(-17.4, -5.6)	p=0.010									
Weight change from regaining birth weight to 2400g (g/week) <i>Raiha[10]</i>	22	152.2	23.4	84	166.1	12.9	-13.8	(-21.2, -6.4)	p<0.001									
Weight change between established feeds and 36 weeks gestation (g/cm/week) <i>Putet[24]</i>	6	94.5	1.9	6	160.3	16.8	-65.8	(-85.3, -46.3)	p<0.001									

DBM Donor breast milk
MD mean difference, CI confidence interval, SD standard deviation
MD<0 favours DBM.

Table C Measures of early post natal length and skinfold thickness change

Outcome and studies	Sole diet comparison									Supplementary diet comparison								
	DBM			Formula			MD	95% CI	p-value	DBM			Formula			MD	95% CI	p-value
	N	Mean	SD	N	Mean	SD				N	Mean	SD	N	Mean	SD			
LENGTH:																		
Change in crown heal length:																		
for at least 2 weeks after regaining birth weight (mm/week) <i>Lucas[22]</i>	70	7.7	4.2	67	9.1	4.2	-1.4	(-2.8, -0.0)	p=0.053	142	9.1	4.2	144	9.1	4.2	0	(-0.98, 0.98)	p=1.0
Time not stated (mm/week) <i>Gross[12]</i>	40	7.5	1.3	20	7.2	1.8	0.3	(-0.5, 1.1)	p=0.46									
birth-1 month (mm/week) <i>Davies[9]</i>	34	7.9	2.2	34	9.2	1.8	-1.3	(-2.3, -0.3)	p=0.010									
1-2 months (mm/week) <i>Davies[9]</i>	34	4.7	2.8	34	9.2	2.3	-4.5	(-5.7, -3.3)	p<0.001									
Change in crown to rump length (mm/week)																		
<i>Raiha[10]</i>	22	4.75	0.81	84	5.34	1.81	-0.6	(-1.4, -0.20)	p=0.14									
Change in length between feeding and 36 weeks gestation (mm/week)																		
<i>Putet[24]</i>	6	10	3	6	14	2	-4	(-7.3, -0.7)	p=0.022									
Change in femoral length (mm/week)																		
<i>Raiha[10]</i>	22	1.63	0.44	84	1.97	0.46	-0.3	(-0.56, -0.12)	p=0.002									
SKINFOLD THICKNESS:																		
Early postnatal measures of skinfold thickness																		
Change in subscapular skinfold thickness (mm/week)																		
<i>Lucas[22]</i>	70	0.30	0.14	67	0.48	0.42	-0.2	(-0.31, -0.08)	p<0.001	142	0.29	0.28	144	0.39	0.28	-0.11	(-0.17, -0.04)	p=0.001
Change in triceps skinfold thickness (mm/week)																		
<i>Lucas[22]</i>	70	0.18	0.14	67	0.40	0.28	-0.2	(-0.30, -0.1)	p<0.001	142	0.20	0.21	144	0.32	0.21	-0.13	(-0.18, -0.08)	p<0.001

DBM Donor breast milk
MD mean difference, CI confidence interval, SD standard deviation
MD<0 favours DBM.

Table D Growth comparison at age 9 and 18 months

Outcome and studies	Sole diet comparison									Supplementary diet comparison								
	DBM			Formula			MD	95% CI	p-value	DBM			Formula			MD	95% CI	p-value
	N	Mean	SD	N	Mean	SD				N	Mean	SD	N	Mean	SD			
9 MONTHS:																		
Weight (kg)																		
<i>Lucas[22]</i>	62	7.7	1.2	48	7.9	1.3	-0.2	(-0.67, 0.27)	p=0.41	133	8.0	1.1	126	7.9	1.1	0.1	(-0.17, 0.37)	p=0.46
Length (cm)																		
<i>Lucas[22]</i>	62	68.8	3.3	48	69.2	3.7	-0.4	(-1.73, 0.93)	p=0.55	133	69.5	3.2	126	69.4	3.2	0.1	(-0.68, 0.88)	p=0.80
Head circumference (cm)																		
<i>Lucas[22]</i>	62	45.1	1.6	48	45.3	1.8	-0.2	(-0.84, 0.44)	p=0.54	133	45.5	1.5	126	45.7	1.6	-0.2	(0.58, 0.18)	p=0.30
Subscapular skinfold thickness (mm)																		
<i>Lucas[22]</i>	62	5.9	1.5	48	5.7	1.4	0.2	(-0.36, 0.76)	p=0.48	133	5.9	1.4	126	5.9	1.4	0	(-0.34, 0.34)	p=1.00
Triceps skinfold thickness (mm)																		
<i>Lucas[22]</i>	62	7.3	1.4	48	7.6	1.6	-0.3	(-0.87, 0.27)	p=0.30	133	7.3	1.8	126	7.5	1.6	-0.2	(-0.62, 0.22)	p=0.35
BMI																		
<i>Lucas[22]</i>	62	16.3	1.6	48	16.5	1.7	-0.2	(-0.83, 0.43)	p=0.53	133	16.4	1.5	126	16.4	1.4	0	(-0.36, 0.36)	p=1
18 MONTHS:																		
Weight (kg)																		
<i>Lucas[22]</i>	72	9.9	1.5	64	10.0	1.3	-0.1	(-0.58, 0.38)	p=0.68	149	10.0	1.3	153	10.1	1.3	-0.1	(-0.39, 0.19)	p=0.50
Length (cm)																		
<i>Lucas[22]</i>	72	78.7	3.9	64	79.3	3.7	-0.6	(-1.89, 0.69)	p=0.36	149	79.0	3.2	153	79.5	3.8	-0.5	(-1.30, 0.30)	p=0.22
Head circumference (cm)																		
<i>Lucas[22]</i>	72	47.6	1.7	64	47.7	1.5	-0.1	(-0.65, 0.45)	p=0.72	149	48.1	1.5	153	48.2	1.6	-0.1	(-0.45, 0.25)	p=0.58
Subscapular skinfold thickness (mm)																		
<i>Lucas[22]</i>	72	5.6	1.2	64	5.4	1.2	0.2	(-0.21, 0.61)	p=0.33	149	5.5	1.3	153	5.5	1.2	0	(-0.28, 0.28)	p=1.0
Triceps skinfold thickness (mm)																		
<i>Lucas[22]</i>	72	7.8	1.8	64	7.7	1.7	0.1	(-0.50, 0.70)	p=0.74	149	7.7	1.9	153	8.0	1.8	-0.3	(-0.72, 0.12)	p=0.16
BMI																		
<i>Lucas[22]</i>	72	15.9	1.7	64	15.8	1.4	0.1	(-0.43, 0.63)	p=0.71	149	15.7	2.5	153	15.1	1.7	0.6	(-0.12,-1.08)	p=0.015

DBM Donor breast milk
MD mean difference, CI confidence interval, SD standard deviation
MD<0 favours DBM.

Table E Growth comparison at 5 years and 7.5-8 years

Outcome and studies	Sole diet comparison						Supplementary diet comparison											
	DBM			Formula			MD	95% CI	p-value	DBM			Formula			MD	95% CI	p-value
	N	Mean	SD	N	Mean	SD				N	Mean	SD	N	Mean	SD			
AGE 5 YEARS:																		
Weight (kg) <i>Lucas[21]</i>																		
										30	16.4	2.5	24	17.4	2.7	-0.97	(-2.38, 0.45)	p=0.16
Height (cm) <i>Lucas[21]</i>																		
										30	105.1	5.8	24	107.7	7.3	-2.63	(-6.20, 0.95)	p=0.15
Bone mineral content at (g/cm) <i>Lucas[21]</i>																		
										30	0.300	0.053	24	0.302	0.066	-0.002	(-0.034, 0.031)	p=0.90
Bone width (cm) <i>Lucas[21]</i>																		
										30	0.817	0.088	24	0.843	0.104	-0.026	(-0.079, 0.026)	p=0.32
AGE 7.5-8 YEARS																		
Weight (kg) <i>Lucas[22]</i>	68	21.8	5.0	62	22.3	5.1	-0.5	(-2.25, 1.25)	p=0.57	139	23.2	4.8	151	22.3	3.6	0.9	(-0.08, -1.88)	p=0.070
Length (cm) <i>Lucas[22]</i>	68	119.4	6.5	62	120.4	6.6	-1.0	(-3.27, 1.28)	p=0.39	139	121.6	5.6	151	121.3	6.4	0.3	(-1.1, 1.69)	p=0.67
Head circumference (cm) <i>Lucas[22]</i>	68	51.8	2.3	62	51.9	1.5	-0.1	(-0.78, 0.58)	p=0.77	139	52.5	1.7	151	52.2	1.9	0.3	(-0.12, 0.72)	p=0.16
Subscapular skinfold thickness (mm) <i>Lucas[22]</i>	68	5.3	2.3	62	5.9	3.0	-0.6	(-1.52, 0.32)	p=0.20	139	6.2	3.9	151	5.5	2.0	0.7	(-0.01, 1.41)	p=0.053
Triceps skinfold thickness (mm) <i>Lucas[22]</i>	68	8.7	3.2	62	9.0	3.3	-0.3	(-1.43, 0.82)	p=0.60	139	9.5	3.4	151	9.3	2.9	0.2	(-0.53, 0.93)	p=0.59
BMI <i>Lucas[22]</i>	68	15.2	3.2	62	15.2	2.1	0	(-0.95, 0.95)	p=0.99	139	15.7	2.5	151	15.1	1.7	0.6	(-0.11, 1.09)	p=0.25
Waist to hip ratio (kg) <i>Lucas[22]</i>	68	0.86	0.05	62	0.87	0.10	-0.01	(-0.04, 0.02)	p=0.47	139	0.87	0.05	151	15.1	1.7	0.01	(0.00, 0.02)	p=0.060

DBM Donor breast milk
MD mean difference, CI confidence interval, SD standard deviation
MD<0 favours DBM.

Table F Blood pressure at age 7.5-8years

Outcome and studies	Sole diet comparison						MD	95% CI	p-value	Supplementary diet comparison										
	DBM			Formula						DBM			Formula			MD	95% CI	p-value		
	N	Mean	SD	N	Mean	SD				N	Mean	SD	N	Mean	SD					
Systolic BP (mmHg) <i>Lucas[20]</i>	66	98.7	7.9	60	98.6	9.5	0.1	(-2.97, 3.17) p=0.95			133	99.3	9.6	146	99.2	9.8	0.1	(-2.2, 2.4) p=0.93		
Diastolic BP <i>Lucas[20]</i>	66	61.0	7.5	60	61.7	7.3	-0.7	(-3.31, 1.91) p=0.60			133	61.4	7.2	146	61.8	7.3	-0.4	(-2.2, 1.3) p=0.65		

DBM Donor breast milk
MD mean difference, CI confidence interval, SD standard deviation
MD<0 favours DBM.

Table G In vitro sensitization to cows milk protein at the time of discharge from neonatal intensive care unit

Outcome and studies	Sole diet comparison						RR	95% CI	p-value	Supplementary diet comparison										
	DBM			Formula						DBM			Formula			RR	95% CI	p-value		
	N	No	%	N	No	%				N	No	%	N	No	%					
Any histamine release in blood basophils in response to cows milk <i>Lucas[14]</i>	10	2	(20%)	11	8	(72.7%)	0.34	(0.12, 0.94) p=0.030			19	5	(26.3%)	21	11	(52.4%)	0.50	(0.21, 1.18) p=0.093		
Positive (>9%) histamine release in blood basophils in response to cows milk <i>Lucas[14]</i>	10	0	(0%)	11	4	(36.4%)	0	p=0.090												
Positive (>15%) response to challenge with anti IgE <i>Lucas[14]</i>	10	0	(0%)	11	4	(36.4%)	0	p=0.090			19	1	(5.3%)	20	3	(15.0%)	0.35	(0.04, 3.09) p=0.32		

DBM Donor breast milk
RR Risk ratio, CI confidence interval, N total, No number of cases
RR<1 favours DBM.