

# Lactation & Breastfeeding

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## EDITORIAL

# Dear members, dear colleagues,

## first of all, I wish you a very happy 2018!

Wintertime, time to sit inside. Time for cosy cuddling with your beloved ones on the couch, maybe with a little warmth from the fireplace. Candle-lighted Christmas lies behind you and a new year full of expectations and hopes lies ahead of you.

I have eaten a lot. Maybe too much in the pre-Christmas period. Marzipan at "Sinterklaas" (a special day celebrated on 5<sup>th</sup> December), chocolates and self-made pastries at Christmas, family meals consisting of several courses. You could call it cluster feeding.

For mothers of newborns a new invention of her baby's every-day behaviour. In order to give you some hands-on advice for your daily practice, we have compiled the information in a new handout on cluster feeding.

Talking about food, you cannot neglect one particular substance: carbon hydrates. Excessive maternal cluster feeding seems to lead to an increasing health problem in our society. In this edition of Lactation & Breastfeeding we have focused mainly on the topic of gestational diabetes.

We all are aware that above all obese women tend to develop diabetes and should be encouraged to breastfeed their babies. This is why IBCLCs play such an important role in the prevention of obesity, which can trigger gestational diabetes. The appraisal of the INSIGHT study by Maria Berrozpe Martinez et al. is a highlight you should not miss to read.

Last but not least you will find reports and contributions of the ELACTA Board.

I hope you enjoy reading this magazine!

*Karin Tiktak, IBCLC  
President of ELACTA*

Note: Would you like to receive a personal newsletter in German about the upcoming conference in Rotterdam? Please send an e-mail to [President@elacta.eu](mailto:President@elacta.eu), please include "Ohne Grenzen in Rotterdam" in the subject of your e-mail.

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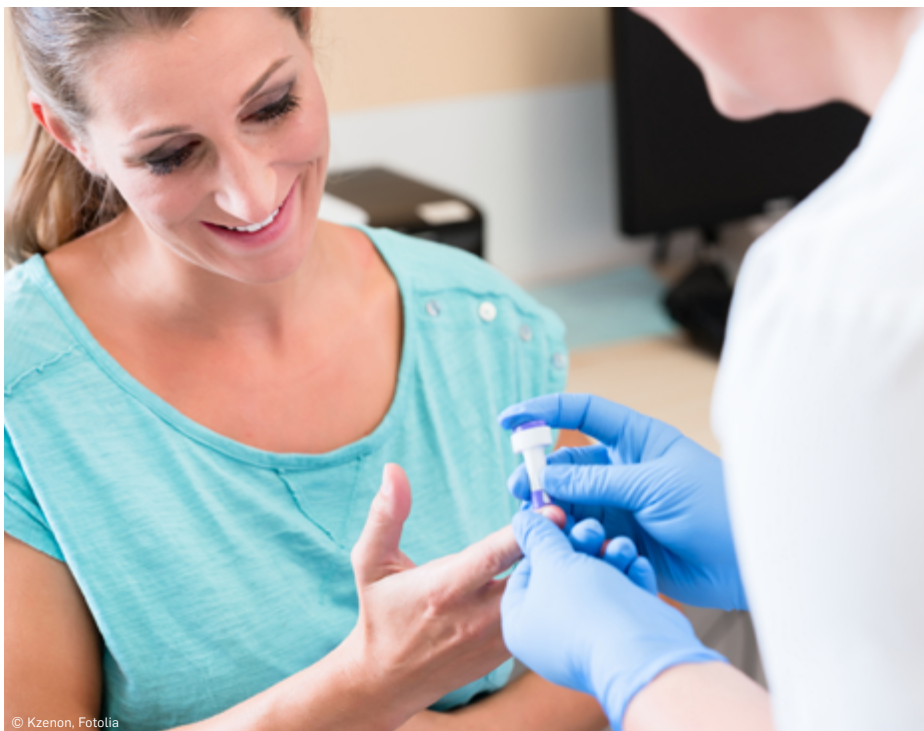
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# Breastfeeding by Women With Gestational Diabetes – a Contribution to Maternal Health Promotion?

Sandra Hummel, Daniela Much, Anette-G. Ziegler



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## Gestational diabetes: Prevalence and long-term risk for type-2 diabetes postpartum

The condition of gestational diabetes is defined as a glucose tolerance disorder which first occurs during pregnancy and is diagnosed under standardized conditions with a 75 g oral glucose tolerance test (oGTT).<sup>[10]</sup> A manifest type-1 or type-2 diabetes, which is diagnosed for the first time during a pregnancy, as well as a pre-conceptional unrecognized type-2 diabetes have, since 2011, no longer fallen under the diagnosis category of GDM. According to a current evaluation of nationwide accounting data from 2014-2015, involving all statutory health insurances, the prevalence of GDM in Germany is 13.2%.<sup>[11]</sup>

The diagnosis of GDM is associated not only with acute complications during the pregnancy and delivery. Women with GDM also have about a 7-fold increased risk of developing diabetes after the birth<sup>[12]</sup>. The prospective German gestational diabetes study has looked at women with GDM and their children at regular intervals since 1989, with the goal of identifying factors, which promote the illness long-term or protect against it. Interestingly, in 10% of the mothers studied, islet autoantibodies were detectable. These mothers had an extremely high risk of developing diabetes within a few years after the delivery: among the 32 mothers with islet autoantibodies, all of the women, with the exception of one mother, developed manifest diabetes shortly after delivery. Among the mothers who were islet antibody negative, the women who were treated with insulin during the pregnancy, showed the greatest risk for type-2 diabetes:

Within 15 years, type-2 diabetes was diagnosed in more than 90% of the moth-

**M**other's milk represents the most natural nutrition for full-term infants and countless studies indicate that breastfeeding positively influences the baby's health status both short- and long-term. But it is not only the development of the infant's health that is promoted by a longer duration of breastfeeding. The health of mothers also seems to profit from it long-term. Thus, there are some studies that show a connection between breastfeeding and later development of breast cancer<sup>[1]</sup>, ovarian cancer<sup>[2]</sup> and osteoporosis<sup>[3]</sup> in the mother.

Furthermore, over the last several years, research teams world-wide, have reported that children who breastfeed over a longer period of time, less often become ill

with type-2 diabetes<sup>[4-6]</sup> and metabolic syndrome.<sup>[7]</sup>

Considering the constantly increasing prevalence of type-2 diabetes and the individual impairments due to the acute and late complications as well as the costs for the health care system, this finding that breastfeeding could protect against type-2 diabetes has particular relevance.<sup>[8,9]</sup>

However, there are indications that women with gestational diabetes (GDM) breastfeed their babies less often and for shorter durations.

In this review, the currently available evidence on the breastfeeding behavior of women with GDM and the influence on the later health development of these women will be discussed.

ers although their blood sugar levels after the birth were initially normalized again.<sup>[13]</sup>

### Breastfeeding protects women with GDM from type-2 diabetes long-term

Short-term positive effects of breastfeeding on the mother's metabolism have been known up to now. What's new, however, is the recognition that breastfeeding also prevents type-2 diabetes in the mother long-term. Thereby, the duration of breastfeeding appears to be decisive for the protective effect: Only mothers who breastfed longer than three months had a reduced 15-year risk for type-2 diabetes (42% versus 72% for women who did not breastfeed or breastfed less than 3 months<sup>[13]</sup> (Figure 1). The risk of developing the disease was reduced even more significantly if they exclusively breastfed the baby (15-year risk of 34.8%). By breastfeeding, the participants were able to delay the development of type-2 diabetes by ten years on average. However, this applies exclusively for gestational diabetics in whom no islet autoantibodies associated with type-1 diabetes could be associated.

However, up until now the mechanisms which determine the protective effect of breastfeeding have been unclear. It can be shown that mothers with GDM who breastfeed their babies over a longer period of time are, on average, rarely obese<sup>[14]</sup>. Furthermore, exclusively breastfeeding mothers have an additional daily energy need of about 500 kcal, whereby breastfeeding mothers can more easily and more quickly reach their pre-conceptual weight. Since obesity represents an established risk factor for type-2 diabetes, the postpartum BMI course of the mother was included in the statistical analysis. Interestingly, a protective effect of breastfeeding on the postpartum development of diabetes could also be observed after considering the mother's BMI.

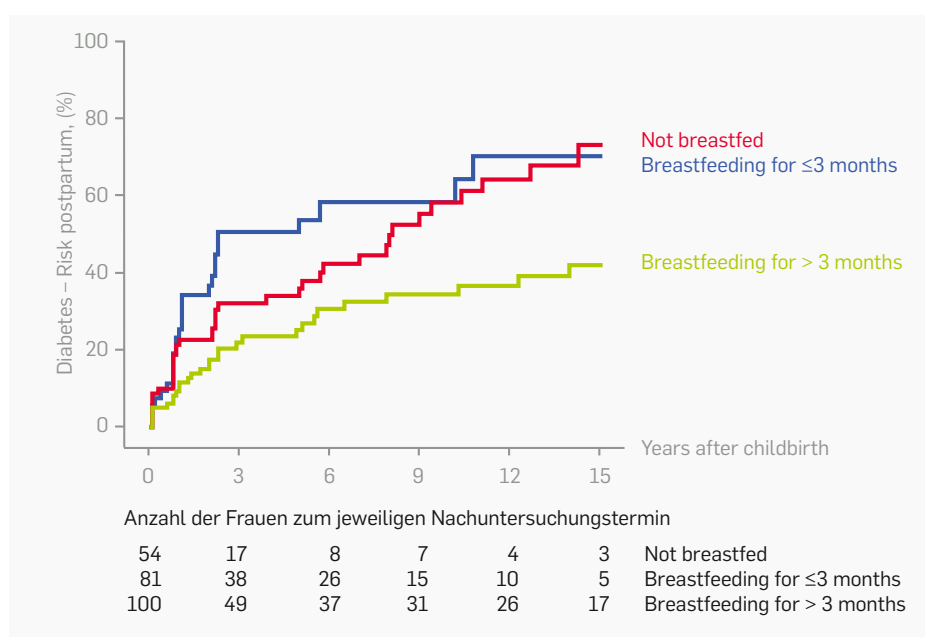
The protective effect of breastfeeding also seems to be independent of eating habits and physical activity as well as the socioeconomic status of the mother, as reported by the European Prospective Investigation into Cancer and Nutrition (EPIC) study, which looked at more than 1000 mothers.<sup>[5]</sup>

### Short-term effects of breastfeeding on the maternal metabolism

A larger number of studies has already been able to confirm the short-term positive effects of breastfeeding on the maternal metabolism, among them improved glucose

homeostasis and insulin sensitivity, as well as improved lipid metabolism.<sup>[15-18]</sup> This observation could be explained by the milk production. Mammary gland cells take in more blood glucose to make milk. Thereby, the mammary gland tissue represents a particularly insulin-sensitive tissue<sup>[19]</sup> through which the lowering of the plasma insulin level, described in breastfeeding mothers, could be explained. Summarizing, the relief of insulin-producing beta cells probably comes about through the milk production.

ucts were analyzed<sup>[22]</sup>. Thereby, with women who had breastfed their babies longer than three months, there was a long-time change in the concentration of individual metabolic products, which were already known, from earlier studies, to be associated with insulin resistance and type-2 diabetes. Thus, there are now initial indications about which metabolic pathways could be responsible for the protective effect of breastfeeding. Furthermore, breastfeeding mothers differ from non-breastfeeding mothers, particularly in their hormonal profile, characterized by a higher prolactin



**Figure 1: Cumulative risk of postpartum diabetes in islet antibody-negative women with gestational diabetes who have breastfed their infants for > 3 months (blue line) compared with women who have breastfed for ≤3 months (red line,  $p=0.029$ ) or have not breastfed at all (black line,  $p=0.002$ ). The numbers below the graph show the number of women at the respective follow-up appointment [modified according to<sup>13</sup>].**

For successful milk production, fat reserves must also be mobilized from the tissues stores in the direction of the mammary gland cells. During the breastfeeding period, the lipids are mobilized primarily from the femoral region<sup>[20, 21]</sup>. One hypothesis is that lipids, which are increasingly stored in the muscle tissue and liver of non-breastfeeding women, are transported directly into the mother's milk of breastfeeding women. As a result of this redistribution, the extent of the insulin resistance could be reduced.

In a study that one of us conducted with 196 women with GDM, blood samples were taken for an average of three years after the birth and the 156 known metabolic prod-

ucts were analyzed. From experimental animal studies, but also from human studies, it is known that prolactin, via the prolactin receptors, acts on the insulin producing  $\beta$ -cells and, among other things, stimulates the growth and reproduction of these cells.<sup>[23-25]</sup> This effect could lead to breastfeeding mothers also having a greater capacity of insulin producing  $\beta$ -cells long-term.

Summarizing, the active breastfeeding process seems to be positioned on two points: the improvement of the insulin sensitivity and the insulin resistance on the one hand – which, in consequence, leads to the relief of the  $\beta$ -cells – and on the other hand, a direct influence on the  $\beta$ -cells also seems to be conceivable. >

### › **Breastfeeding behavior of mothers with GDM**

The current recommendations on breastfeeding behavior, formulated by the National Breastfeeding Commission, say that exclusive breastfeeding for the majority of infants is sufficient nutrition for the first six months of life. Furthermore, the Breastfeeding Commission emphasizes that introducing complementary feeding does not mean weaning, but feeding complementary foods under the protection of mother's milk. However, mothers with diabetes, in particular also mothers with GDM, seem to have difficulties complying with these recommendations. So only a very few of these mothers breastfeed exclusively and do it for a shorter duration.<sup>[14, 26-27]</sup> Thereby, breastfeeding behavior is influenced through the therapy modality and by the BMI of the mother before the pregnancy.<sup>[13,14, 29]</sup> So the percentage of breastfeeding mothers was the lowest and its duration the shortest if treatment for the GDM took place with insulin, by comparison to women who were only treated with dietary measures. Furthermore, women with GDM and a BMI >30 kg/m<sup>2</sup> breastfed less seldom and for significantly shorter periods than women with a BMI <30 kg/m<sup>2</sup>. A mother's lower level of education was also associated with a shorter duration of breastfeeding.<sup>[26-28]</sup>

Results of an international study indicate that perinatal factors, which accompany maternal diabetes (delivery by Casarean Section, premature birth, diabetes, higher birth weight, lower APGAR score), influence the mother's breastfeeding behavior<sup>[29]</sup>. A further study from the USA (SWIFT-Study) reported on delayed lactogenesis II in women with GDM. Particularly affected were women who had been treated with insulin during the pregnancy, were obese and were insufficiently supported in the hospital on breastfeeding questions.<sup>[30]</sup> Mothers with GDM breastfed more successfully if they had already had a breastfeeding consult before the birth and, postnatally, had taken advantage of non-physician medical care in addition to the physician care.<sup>[26]</sup>

However, besides the physiological determinants of breastfeeding behavior, the intention of the mother to exclusively breastfeed her baby also plays a large role. Thus, a recently published study from the USA showed that women with GDM exhibit a more limited intention to breastfeed their newborn and, for this reason, more

often already supplement with infant formula in the hospital.<sup>[31]</sup> Moreover, a study, which was also conducted in the USA, reported that the breastfeeding practice in some hospitals markedly differed between women with GDM and non-diabetic women: Thus, the newborns of women with GDM were rarely put to breast in the first hour of life, the women were less often instructed during the hospital stay to breastfeed exclusively and on demand and more frequently received infant formula as a sample gift package.<sup>[32]</sup>

### **Expression of mother's milk before delivery – a possibility to promote breastfeeding behavior in mothers with GDM?**

Expression of mother's milk before the delivery represents a possibility for having a sufficient amount of mother's milk available, should supplementation be necessary shortly after the delivery. This method is increasingly recommended to diabetic women whose newborns have an increased risk for hypoglycemia and, for this reason, more frequently receive supplementary nutrition during the first 24 hours. A research group from Australia has now looked at 635 women in a randomized clinical study to see whether the expression of mother's milk before the delivery is associated with side effects and whether the breastfeeding behavior of diabetic mothers can be improved thereby.<sup>[33]</sup> The women in the intervention group were instructed to express their mother's milk twice a day from the 36<sup>th</sup> week of pregnancy. The results of this study indicate that the expression of mother's milk before delivery is a safe method that does not lead to babies being born earlier or their having to be moved to the neonatal intensive care unit. The expression of antenatal mother's milk leads to the babies of diabetic mothers being breastfed more frequently in the first few days in the hospital and, on the whole, being exclusively breastfed for a longer duration

### **Conclusion**

Breastfeeding is healthy – that applies not only for the baby, but clearly also for the mother. If GDM occurs during the pregnancy, through breastfeeding, she can reduce her risk of developing type-2 diabetes long-term by up to 40%. Thereby, the duration of breastfeeding is decisive: The protective effect is particularly pronounced

in those women who have breastfed their children for longer than three months. The health-promoting effects of breastfeeding should be pointed out to women with GDM before the delivery and in the hospital. In the weeks following the delivery, they should receive professional counseling and support in order to promote successful breastfeeding behavior.

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## LITERATURE:

- > [1] Scoccianti, C., et al., European Code against Cancer 4<sup>th</sup> Edition: **Breastfeeding and cancer. Cancer Epidemiology**, 2015. 39 (Suppl1): p. 101-6.
- > [2] Feng, L.P., H.L. Chen, and M.Y. Shen, **Breastfeeding and the risk of ovarian cancer: a meta-analysis. J Midwifery Womens Health**, 2014. 59(4): p. 428-37.
- > [3] Grimes, J.P. and S.J. Wimalawansa, **Breastfeeding and postmenopausal osteoporosis. Curr Womens Health Rep**, 2003. 3(3): p. 193-8.
- > [4] Stuebe, A.M., et al., **Duration of lactation and incidence of type 2 diabetes. JAMA**, 2005. 294(20): p. 2601-10.
- > [5] Jager, S., et al., **Breast-feeding and maternal risk of type 2 diabetes: a prospective study and meta-analysis. Diabetologia**, 2014. 57(7): p. 1355-65.
- > [6] Villegas, R., et al., **Duration of breast-feeding and the incidence of type 2 diabetes mellitus in the Shanghai Women's Health Study. Diabetologia**, 2008. 51(2): p. 258-66.
- > [7] Gunderson, E.P., et al., **Duration of lactation and incidence of the metabolic syndrome in women of reproductive age according to gestational diabetes mellitus status: a 20-Year prospective study in CARDIA (Coronary Artery Risk Development in Young Adults). Diabetes**, 2010. 59(2): p. 495-504.
- > [8] Zhuo, X., P. Zhang, and T.J. Hoerger, **Lifetime direct medical costs of treating type 2 diabetes and diabetic complications. Am J Prev Med**, 2013. 45(3): p. 253-61.
- > [9] The, L., **The global challenge of diabetes. The Lancet**, 2008. 371(9626): p. 1723.
- > [10] Kleinwechter, H., Schäfer-Graf, U., Bühner, C., Hoesli, I., Kainer, F., Kautzky-Willer, A., Pawlowski, B., Schunck, K., Somville, T., Sorger, M., **Gestationsdiabetes mellitus (GDM)-Evidenzbasierte Leitlinie zu Diagnostik, Therapie u. Nachsorge der Deutschen Diabetes-Gesellschaft (DDG) und der Deutschen Gesellschaft für Gynäkologie und Geburtshilfe (DGGG) Herausgeber DDG: M.Kellerer, S.Matthaei; Herausgeber DGGG: R.Kreienberg., 2011.**
- > [11] Melchior, H., et al., **Prävalenz des Gestationsdiabetes. Dtsch Arztebl Int** 2017; 114: p. 412-8.
- > [12] Bellamy, L., et al., **Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. Lancet**, 2009. 373(9677): p. 1773-9.
- > [13] Ziegler, A.G., et al., **Long-term protective effect of lactation on the development of type 2 diabetes in women with recent gestational diabetes mellitus. Diabetes**, 2012. 61(12): p. 3167-71.
- > [14] Hummel, S., **Stillverhalten bei Frauen mit Gestationsdiabetes. Deutsche Medizinische Wochenschrift - DMW**, 2008. 133(5): p. 180.
- > [15] Kjos, S.L., et al., **The effect of lactation on glucose and lipid metabolism in women with recent gestational diabetes. Obstet Gynecol**, 1993. 82(3): p. 451-5.
- > [16] O'Reilly, M., et al., **Breast-feeding is associated with reduced postpartum maternal glucose intolerance after gestational diabetes. Ir Med J**, 2012. 105(5 Suppl): p. 31-6.
- > [17] O'Reilly, M.W., et al., **Atlantic DIP: high prevalence of abnormal glucose tolerance post partum is reduced by breast-feeding in women with prior gestational diabetes mellitus. Eur J Endocrinol**, 2011. 165(6): p. 953-9.
- > [18] Gunderson, E.P., et al., **Lactation intensity and postpartum maternal glucose tolerance and insulin resistance in women with recent GDM: the SWIFT cohort. Diabetes Care**, 2012. 35(1): p. 50-6.
- > [19] Burnol, A.F., M. Loizeau, and J. Girard, **Insulin receptor activity and insulin sensitivity in mammary gland of lactating rats. Am J Physiol**, 1990. 259(6 Pt 1): p. E828-34.
- > [20] Stoneham, S., et al., **Adenosine and the regional differences in adipose tissue metabolism in women. Acta Endocrinol (Copenh)**, 1988. 118(3): p. 327-31.
- > [21] Rebuffe-Scrive, M., et al., **Fat cell metabolism in different regions in women. Effect of menstrual cycle, pregnancy, and lactation. J Clin Invest**, 1985. 75(6): p. 1973-6.
- > [22] Much D., et al., **Lactation is associated with altered metabolomic signatures in women with gestational diabetes. Diabetologia**, 2016. 59: p. 2193-2202
- > [23] Xu, Y., et al., **Prolactin-stimulated survivin induction is required for beta cell mass expansion during pregnancy in mice. Diabetologia**, 2015. 58: p. 2064-73
- > [24] Parsons JA, B.T., Sorenson RL **Adaptation of islets of Langerhans to pregnancy: increased islet cell proliferation and insulin secretion correlates with the onset of placental lactogen secretion. Endocrinology** 1992. 130: p. 1459-1466.
- > [25] Butler, A.E., et al., **Adaptive changes in pancreatic beta cell fractional area and beta cell turnover in human pregnancy. Diabetologia**, 2010. 53(10): p. 2167-76.
- > [26] Finkelstein, S.A., et al., **Breastfeeding in women with diabetes: lower rates despite greater rewards. A population-based study. Diabet Med**, 2013. 30(9): p. 1094-101.
- > [27] Cordero L, Gabbe SG, Landon MB, et al. **Breastfeeding initiation in women with gestational diabetes mellitus. J Neonatal Perinatal Med** 2013; 6(4): p. 303-10
- > [28] Morrison MK, Collins CE, Lowe JM, et al. **Factors associated with early cessation of breastfeeding in women with gestational diabetes mellitus. Women Birth** 2015; 28(2): p. 143-7
- > [29] Hummel, S., et al., **Infant feeding patterns in families with a diabetes history – observations from The Environmental Determinants of Diabetes in the Young (TEDDY) birth cohort study. Public Health Nutr**, 2014. 17(12): p. 2853-62.
- > [30] Matias SL et al., **Maternal prepregnancy obesity and insulin treatment during pregnancy are independently associated with delayed lactogenesis in women with recent gestational diabetes mellitus. Am J Clin Nutr** 2014; 99(1): p. 115-21
- > [31] Loewenberg Weisband Y et al., **Hospital Supplementation Differentially impacts the association between breastfeeding intention and duration among women with and without gestational diabetes mellitus history. Breastfeed Med** 2017; 12: p. 338-344
- > [32] Oza-Frank R et al., **In-Hospital Breastfeeding Experiences among Women with Gestational Diabetes. Breastfeed Med** 2017; 12: p. 261-268
- > [33] Forster DA et al, **Advising women with diabetes in pregnancy to express breastmilk in late pregnancy (Diabetes and Antenatal Milk Expressing [DAME]): a multicenter, unblinded, randomised controlled trial. Lancet** 2017;389: p. 2204-13

# Breastfeeding With Gestational Diabetes in Clinical Practice

Ingrid Zittera, Department for Gynecology and Obstetrics, BKH Lienz



**The updated guidelines for caring for pregnant women with GDM and their newborns emphasize the importance of breastfeeding for mother and baby and the need for breastfeeding promotion. This should be taken into account during pregnancy and postpartum care. Unfortunately, concrete recommendations are lacking for women with GDM, not only “to emphatically encourage them to breastfeed their babies” but also, in view of the frequently complicated start to breastfeeding after the birth, to be enabled in clinical practice to do so.**

## Definition

Gestational diabetes mellitus (GDM, ICD-10: O24.4G) is defined as a glucose tolerance disorder, which is first diagnosed in a pregnancy with a 75g oral glucose tolerance test (oGTT) under standardized conditions and quality assured measurement of glucose from venous plasma. The diagnosis is already possible with **one** elevated glucose value. The definition of manifest diabetes corresponds to that outside of a pregnancy. It does not belong in the category of GDM.

## Epidemiology

According to references in the literature over the last few years, the prevalence of GDM worldwide varies between 1.9% and 25%. In Germany, the GDM prevalence in the 2015 perinatal statistics is 4.95% and had, thereby, increased somewhat by comparison to 2014. In Austria in 2015 as well, the diagnosis of GDM has been determined more frequently since the introduction of stricter diagnosis criteria and the scheduled screening which, since 2010, has been required in the Mother-Child Pass.<sup>[1]</sup>

According to the report of the 2015 Austrian Birth Register, the question about gestational diabetes has turned out to be a central quality parameter and demonstrates a strong connection with the total obstetrical situation in Austria, including the frequency of Caesarean Section, morbidity and mortality with unrecognized gestational diabetes.<sup>[2]</sup>

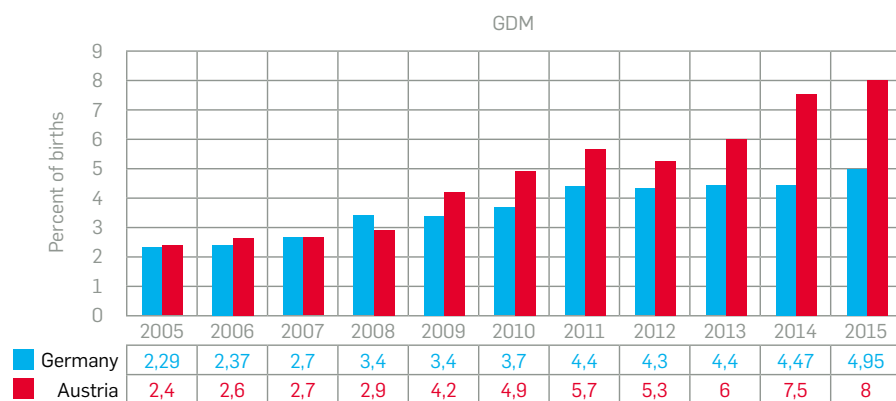
Figure 1 shows the development of the GDM percentages in Germany and Austria during the period of time between 2005 and 2015.

## Pathophysiology

Pregnancy presents an exceptionally stressful situation for the female metabolism: Beginning in the second half of pregnancy, the insulin sensitivity of the mother decreases by up to 60%. If this process cannot be sufficiently compensated for, GDM manifests itself.<sup>[3,4]</sup> To a great extent, the pathophysiology of GDM corresponds to that of type-2 diabetes. GDM represents a variant of the pre-type-2 diabetes and is described as a chronic functional disorder, characterized by increasing insulin resistance with declining  $\beta$ -cell compensation.

Depending on the level of the blood glucose values during pregnancy, unrecognized GDM leads to elevated fetal, neonatal and maternal morbidity. Among these for the pregnant woman with GDM are increased risks of hypertensive illnesses, infections, premature birth, Caesarean Section, birth injuries, postpartum bleeding and depression. For obese pregnant women with GDM, the increased risk for maternal complications must also be considered.

Due to the increased intrauterine glucose supply, the fetus has elevated insulin



**Figure 1: Relative Frequency of Gestational Diabetes in Germany and Austria 2005–2015**

secretion (fetal hyperinsulinism, accumulation of glycogen in the heart muscle, formation of white fatty tissue, as well as reduced fetal development of surfactant). An elevated intrauterine erythropoietin level leads to an increase in the fetal hematocrit. Perinatally, this results, to various degrees, in diabetic fetopathy with hypoglycemia, respiratory disturbances, polycythemia, hypocalcemia, hypomagnesemia and hyperbilirubinemia.

The risk, however, stretches beyond the birth because GDM is known to increase the long-term probability of the mother as well as the baby becoming ill with diabetes later on. Thus, after GDM, 35–60% of the women develop diabetes within 10 years (Risk 7- to 8-fold compared to glucose tolerant pregnant women). The incidence of type-1 diabetes in risk groups 5–10 years after GDM is 2.3–10%. Furthermore, women have a higher risk of developing a metabolic syndrome after GDM, along with an increased risk for cardiovascular illnesses (coronary heart disease with myocardial infarction, a coronary bypass, coronary angioplasty, stent placement, stroke, peripheral arterial occlusive disease) even at an early age.

But for the children from pregnancies with GDM, there are also long-term metabolic consequences with an increased risk for childhood obesity and the development of impaired glucose tolerance. Thereby, it is still unclear if GDM as such is connected with long-term metabolic consequences or whether the factors associated with GDM (maternal, but also paternal obesity, family nutritional and exercise habits) increase the long-term risk.

### Diagnosis of GDM

Unfavorable results of pregnancies in women with GDM can be moderated by timely diagnosis and intensive treatment.

Even as early as the first appointment in early pregnancy (before the 24<sup>th</sup> WG), pregnant women with an increased risk of having a glucose tolerance disturbance or a pre-existing (unknown up until then) diabetes mellitus (type-1 or -2 should be examined).

### Screening for GDM from 24+0 until 27+6 WG

According to the available evidence, for a GDM diagnosis, a 75g-oGTT should be carried out under standardized conditions from venous plasma between the 24+0 and 27+6 WG, preferably as a one-stage procedure.<sup>[5]</sup>

Since 2012, in accordance with the German maternity guidelines, a screening, primarily for GDM, is carried out with a 50g Glucose Challenge Test (GCT). If the screening is remarkable, a 75g Glucose Challenge Test (oGTT) must be carried out in a timely manner for a period of two hours under fasting conditions. In Austria, since 2010, provision for a 75g-oGTT is required to be included in the Mother-Baby-Pass

Meanwhile, as a study published in 2016 in *Diabetologie und Stoffwechsel (Diabetology and Metabolism)* showed, a metabolic imbalance is, thereby, recognized earlier in Germany and the screening for gestational diabetes (GDM) in pregnancy evidently appears to be effective. Thus, a significant increase in the diagnosis of GDM has come about, according to the study of the data base of the pregnancy register GestDiab, based on the evaluation of nationwide patient data from the prac-

tices with a focus on diabetes (DSP) since 2008. The comparison to 2009/2010 – the year before the reformed maternity guidelines – with 2013/2014 showed an increase in the diagnosis of GDM from 27% to 33% between the 24<sup>th</sup> and the 28<sup>th</sup> week of pregnancy ( $p < 0,001$ ).<sup>[6]</sup>

### Therapy for GDM

Pregnant women in whom GDM has been diagnosed, belong to the group of pregnant women at risk and receive intensive and interdisciplinary care. The recommendations for the care of these pregnant women can be found in the “S3-Guidelines for Gestational Diabetes Mellitus (GDM), Diagnosis, Therapy and After-Care” AWMF-Register number: 057-008. The draft of the updated guidelines was retrievable for comments until August 14 2017 on the homepage of the German Diabetes Association (DDG). They replace the 2011 recommendations of the DDG and the German Association for Gynecology and Obstetrics (DGGG) on the diagnosis of and therapy for gestational diabetes and are complemented by practice guidelines on gestational diabetes (an action-oriented summary of the evidence-based S3 guidelines, which can be seen on the internet) and by patient guidelines.

According to this, the content of the therapy, apart from a comprehensive, structured initial discussion after a GDM diagnosis and, subsequently, physical activity, nutritional counselling, attention to weight gain, blood glucose control and, if necessary, insulin therapy. In relation to the obstetrical care, monitoring of the fetus through sonography, Doppler sonography, cardiotocography (CTG) and prenatal monitoring of the mother (risk of pre-eclampsia) are foreseen. With GDM, ➤

along with nutritional therapy, giving birth in an obstetrical hospital with diabetological experience and an attached neonatological unit, are advised. In the case of GDM with insulin therapy, the delivery must – in accordance with the guidelines – take place in an obstetrical unit with an attached neonatological unit (perinatal center Level 1 or 2) in order to ensure optimal primary care for the baby.

Due to the long-term risks for the mother after GDM, the mother's after-care takes on particular significance. After the pregnancy, the glucose tolerance disorder does not normalize in about 13–40% of cases. After GDM, there is a 7–8-fold increased risk of diabetes for women. 6–12 weeks after the birth, a 75-g-oGTT is recommended, independent of breastfeeding.

The significance of breastfeeding for mothers and babies after a pregnancy with GDM and the necessary promotion of breastfeeding are explicitly emphasized and the guidelines also have concrete recommendations:



#### RECOMMENDATION ON BREASTFEEDING IN ACCORDANCE WITH THE S-3-GUIDELINES (AWMF-REG. NR: 057-008)

- ▶ The advantages of breastfeeding for mother and child and strategies for a successful start to breastfeeding should be pointed out to all pregnant women with GDM during a breastfeeding consultation even before the birth.
- ▶ A period of at least 4–6 months exclusive breastfeeding should be recommended for all women with GDM.
- ▶ Also, after the introduction of complementary foods – at the beginning of the 5<sup>th</sup> month, at the earliest, and at the latest with the beginning of the 7<sup>th</sup> and at the beginning of the 7<sup>th</sup> month at the latest – all infants should continue to be breastfed for as long as possible
- ▶ Obese pregnant women with GDM should be particularly motivated and supported to breastfeed.

At the same time, it should be pointed out that women after GDM breastfeed their children less often and for shorter periods than women without diabetes, particularly if they are overweight or obese, have had insulin treatment for the GDM and have a lower level of education. Fortunately, the importance of a skilled breastfeeding consultation is emphasized and it is pointed out that mothers with GDM breastfeed more successfully if they have already had a breastfeeding consult before the birth and, postnatally, have had non-physician medical care in addition to physician care.<sup>[5]</sup>

#### Monitoring of Newborns after GDM

The S-3 guidelines for caring for newborns of diabetic mothers have also currently been revised. Here, the recommendations have been made relating to the care of newborns of mothers with pre-pregnancy and gestational diabetes. They can be found as AWMF-Guidelines-Register Nr. 024/006 “Care of Newborns of diabetic Mothers” in accordance with Prof. Dr. Christoph

Bührer, the Guidelines Commissioner for the GNPI under the following link: <http://www.awmf.org/leitlinien/detail/ll/024-006.html>

In these guidelines, it is also recommended that both women with pre-pregnancy diabetes as well as women with gestational diabetes be strongly encouraged – if possible even before the birth – to breastfeed their babies.

The procedure conforming to the guidelines, envisions that newborns should be monitored in the delivery room, in accordance with a written scheme, and afterwards on the maternity unit, particularly for symptoms of hypoglycaemia, accompanied by pre-prandial blood sugar measurements after the first hour of life. The monitoring should be documented and carried out with appropriate measuring methods.

Fig. 2 shows an appropriate monitoring and therapy algorithm

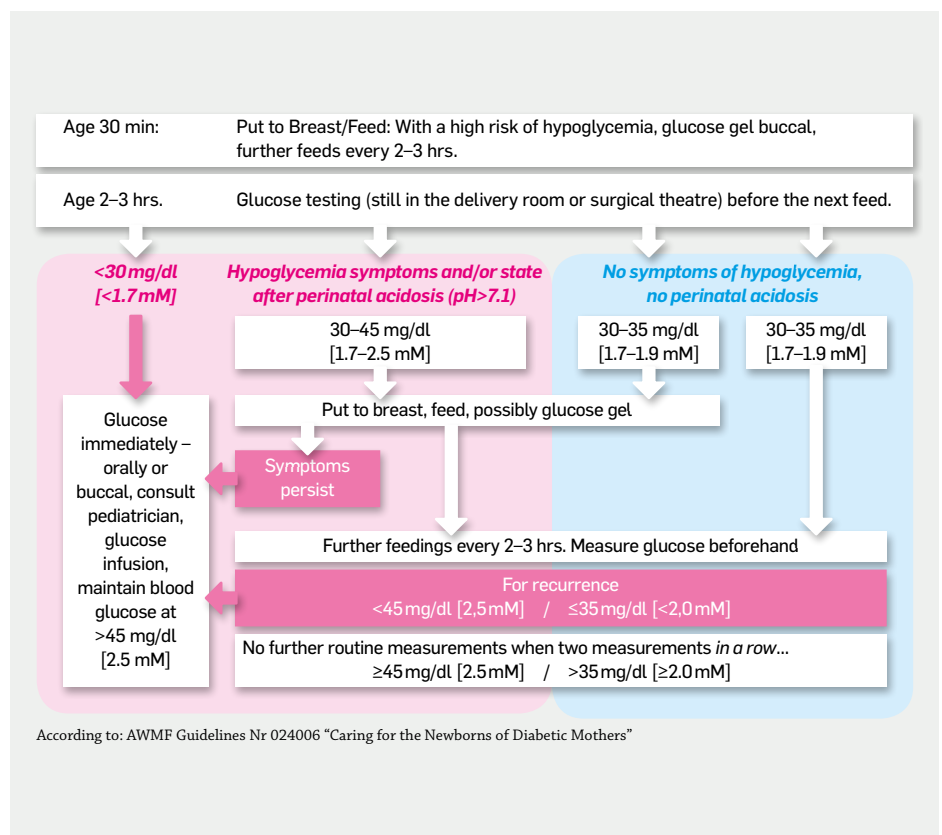


Figure 2: Monitoring and Therapy Algorithm of Newborns of Diabetic Mothers

Thereby, it should be firmly stated that the process aims to avoid lowering the blood glucose concentration below 30 mg/dl [1.7 mM] after the first hour of life, without separating mother and baby from each other.

The guidelines envision that the newborn should receive food within the first 30 minutes, in order to prevent a decline in the blood sugar concentration to a dangerous depth during the physiological nadir after the birth. That mother's milk is the first choice here is made clear through the recommendation for "direct, prolonged attachment to the breast". Happily, there is an indication that this attachment is also possible at the age of 30 minutes, even after a Caesarean Section, that it sustainably stabilizes the baby's blood glucose concentrations and that the rate of hypoglycaemia declines. Only if it is not possible to put the baby to breast (i.e. due to a surgical procedure under general anesthesia for the mother) should the baby receive the expressed mother's milk (3–5 ml/kg) or, (if this is not available) hydrolyzed infant formula. .

There is also the possibility of a one-time buccal administration of 40% glucose gel, 45–60 minutes after the birth, in case of a high risk of hypoglycaemia (long-standing, insulin-dependent maternal diabetes, additional risk factors, failure of feeding after perinatal acidosis [pH <7.1]).<sup>[7]</sup>

Unfortunately, an essential prerequisite for metabolic stability and the readiness of newborns and mothers to breastfeed after birth – namely uninterrupted, extensive skin-to-skin contact – is not mentioned. This is all the more astonishing because it has been known since the 1970s that early skin-to-skin contact between mother and baby shortly after the birth has both short- and long-term effects on breastfeeding and the mother-baby relationship. As is generally known, newborns, who were not exposed to any medication during the birth, follow an instinctive behavioral pattern if they are placed in skin contact on the mother's chest immediately after the birth. If they are not disturbed, they are able to find the mamille and to suckle without outside help. According to studies by Widström, this instinctive behavior is divided

into nine steps and lasts, on average, 60 to 90 minutes.<sup>[8]</sup>

Countless publications, including the 2012 Cochrane Review by Moore, show the positive effects on the health of babies and mothers when newborns are placed in skin-to-skin contact with the mother in the first hour postpartum. In skin-to-skin contact, newborns are physiologically more stable and display fewer vocalizations indicating distress. This avoidance of energy losses through crying and stress reactions and the minimization of the risk of hypothermia are of great significance, especially in infants of diabetic mothers.<sup>[9]</sup>

Because, even under these optimal conditions, many newborns are not yet ready to breastfeed within 30 minutes, the pre-partum expression of colostrum for so-called "early feeding" with a spoon or a syringe has an even greater significance.



#### **ERECOMMENDATION ON BREASTFEEDING ACCORDING TO LS3-GUIDELINES (AWMF-REGISTER NUMBER: NR. 024- 006)**

- › Both women with pre-pregnancy diabetes as well as women with gestational diabetes should, therefore, be clearly encouraged – even before the birth – to breastfeed their babies.
- › A newborn of a diabetic mother should be observed in accordance with a written scheme in the delivery room and afterwards, on the maternity unit, be observed in particular for the aforementioned hypoglycemic symptoms, accompanied by pre-prandial blood glucose measurements after the first hour of life. This process aims to prevent a fall of the blood glucose concentration below 30 mg/dl [1.7 mM] without separating mother and baby from each other.
- › In order to prevent the fall of the blood glucose concentration to a dangerously low level during the physiological nadir after the birth, newborns of diabetic mothers should receive a feeding within the first 30 minutes after birth, ideally through direct, prolonged suckling. Putting the baby to breast at the age of around 30 minutes is also possible after a Caesarean Section. It effectively stabilizes the infant's blood glucose concentration and lowers the rate of hypoglycaemia.
- › If putting the baby to breast is not possible (i.e., due to surgery for the mother under general anesthesia) the baby should receive hydrolysed infant formula or expressed mother's milk (3.5 ml/kg) insofar as it is available (with multiple births, possibly some mother's milk can be expressed before the birth.).
- › Hospitals should ensure, via relevant organizational measures (rooming-in on the newborn unit, giving intravenous glucose supplements on the mother-child unit) that the decision to begin an intravenous glucose supplement does not entail a separation of mother and baby.

There is also an indication in the guidelines mentioned above of the "possibility of pumping mother's milk by multiparas". It is known that hand-expression of colostrum at the end of pregnancy is possible and safe from the 36<sup>th</sup> week of pregnancy, not only for multiparas but surely by primiparas as well.<sup>[10]</sup>

The instructions on expressing colostrum in order to bring it frozen to the birth or, in case of an induction or a Caesarean Section, to express it before the birth in the hospital, has, thereby, great potential for a guideline-compliant procedure, with simultaneous promotion of breastfeeding. Comprehensive information on expressing colostrum can be found on the website of the European Institute for Breastfeeding and Lactation under the following link:

[www.stillen-institut.com/media/Praepartale-Kolostrum-Gewinnung-2017.pdf](http://www.stillen-institut.com/media/Praepartale-Kolostrum-Gewinnung-2017.pdf)

A handout for women on expressing colostrum can be found under:

[www.elacta.eu/wp-content/uploads/2017/04/Handout-2017-1-DE-Kolostrum-Web.pdf](http://www.elacta.eu/wp-content/uploads/2017/04/Handout-2017-1-DE-Kolostrum-Web.pdf)

*Comment by the Editor: Read Gina Weissmann on this as well: "AME (Antenatal Manual Expression) A possibility for increasing mother's milk production in difficult cases", Lactation & Breastfeeding, Issue 4/2016, pp. 12–14*

With symptoms of suspected hypoglycemia in the newborn, an immediate blood glucose determination and calling in the pediatrician are indicated. Remarkable in the guidelines here is the remark that "Hospitals should take care, through appropriate organizational measures (rooming-in on the newborn unit, giving intravenous glucose on the maternity unit)", that the decision to start giving intravenous glucose does not entail the spatial separation of mother and baby."<sup>[7]</sup>

Thus, women with GDM need good care and support for breastfeeding management, not only during pregnancy and around the birth, but also in the early postpartum and during the breastfeeding period. Beginning in the delivery room, – in addition to frequent breastfeeding *ad libitum* (8–12x in 24 hours from the first day) – the women should be shown how to empty the breast by hand in the first few days in order to support lactogenesis II and stimulate sufficient milk production through the increased stimulation. Ensuring support for correct attachment to the breast, 24-hour rooming-in, supplementation only in the presence of medical indications – if possible, with methods which secure the establishment and maintenance of lactation – are also bases for good breastfeeding management.

At discharge, ensuring adequate after-care through midwifery care, for example, or a skilled breastfeeding consultation by an IBCLC should there be breastfeeding problems.

Baby-friendly hospitals fulfill this requirement through the implementation of the Ten Steps to Successful Breastfeeding, particularly if their guidelines go into staff training and information on GDM, especially for pregnant women



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#### SUMMARY OF RECOMMENDATIONS FOR BREASTFEEDING WITH GDM

- › Information for all pregnant women with GDM – even before delivery – via a breastfeeding consultation with information about the importance of breastfeeding for mother and baby and strategies for a successful breastfeeding start.
- › Information and guidance for all pregnant women with GDM about expressing colostrum at the end of the pregnancy, at the latest when arriving at the hospital.
- › Guidelines-compliant indications for inductions or Caesarean Section. Standardized expression of colostrum at hospital admission in the context of an induction or preparation for a Caesarean Section.
- › Continual skin-to-skin-contact between the mother and the newborn after the birth for at least 60 minutes or more. No separation of mother and baby.
- › Give food to the newborn at around 30 minutes after birth through prolonged time at the breast – also after a Caesarean Section. Only when it is not possible to put the baby to breast, give freshly expressed colostrum or the colostrum expressed during pregnancy (3–5 ml/kg) by spoon or syringe. Only when this or donor human milk is not available, give hydrolyzed infant formula, also with a spoon or a syringe.
- › Guidelines-compliant monitoring of the newborn in the delivery room in accordance with a written scheme and afterwards on the mother-baby unit. There, pay particular attention to symptoms of hypoglycemia, accompanied by pre-prandial blood glucose measurements after the first hour of life.
- › With symptoms of suspected hypoglycaemia in the newborn, immediate blood glucose determination and a consultation with the pediatrician. Thereby, ensure through appropriate organizational measures (rooming-in on the newborn unit, intravenous administration of glucose on the mother-child unit), that the decision to begin with intravenous administration of glucose does not involve any spatial separation for mother and baby.
- › Encouragement of all women with GDM, starting in the delivery room, to breastfeed frequently and effectively (8–12x in 24 hrs from the first day) and subsequently, to hand express colostrum in the first few days for the establishment of optimal milk production.
- › 24 hour rooming-in on the newborn on the newborn unit. If intravenous administration of glucose is necessary, this should be carried out on the mother-baby unit.
- › Supplementation only for medical indications – if possible only the mother's colostrum and with methods that promote milk production and do not influence the sucking behavior.
- › Ensuring after-care and support of/for the breastfeeding management for all women with GDM. Also in the early post-partum and during the breastfeeding period, through midwifery care or professional counselling by IBCLCs, in case of problems.
- › All pregnant women with GDM should be advised to have a period of exclusive breastfeeding of at least 4 to 6 months. The support of breastfeeding is an active part of the regular pediatric check-ups in the pediatric practice.
- › Also after the introduction of complementary foods – at the earliest at the beginning of the 5<sup>th</sup> month and latest at the beginning of the 7<sup>th</sup> month – should continue to be breastfed for as long as possible
- › Obese pregnant women with GDM should be particularly motivated for and supported in breastfeeding.

# Cluster Feeding

Author: Isolde Seiriniger, IBCLC



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**N**ot a few parents are surprised when the baby – instead of falling asleep after breastfeeding, relaxed and peaceful – is restless and, for a few hours, wants to be breastfed over and over again. Babies display this behaviour most frequently in the evening hours, just when the mother is also tired from her long day with the baby. Because this behaviour occurs so often, it also has a name: cluster feeding. The term “cluster” means “accumulation” or “concentration”. And breastfeeding presents itself in just this way. The baby announces his needs at very short intervals and scarcely allows himself to be calmed with something other than breastfeeding. Other terms are “campfire-breastfeeding” or “multi-course-breastfeeding”. The normal behaviour of the baby can be explained well with these apt expressions. This is important because, otherwise, mothers often experience this as worrying and frustrating. The baby’s stomach does not have a large capacity. That’s why frequent, small breast feeds are better.

Large amounts, which are given less often, mean more stress or even pain for the baby.<sup>[1]</sup> Timely information – if possible, during the pregnancy – and good support ease the pressure, calm the parents and often safeguard undisturbed continued breastfeeding.

In the ILCA “Clinical Guidelines for Establishing Exclusive Breastfeeding“, Standard Nr. 19<sup>[2]</sup> reads: “Confirm that mothers understand normal breastfed infant behaviour and have realistic expectations regarding infant care and breastfeeding”. Under frequency and duration of breastfeeding, cluster feeding, by which many infants feed hourly over a period of two to six hours and then sleep for a longer period of time, is mentioned.

Cluster feeding often begins in the early days in the hospital, although sensory overload is frequently added to normal cluster feeding behaviour. In the hospital, the baby is only a few hours or days old, but mother and baby have many appointments to keep (doctors’ rounds, the paediatrician, post-natal exercises, pho-

tographer etc.). In addition, there may be many visitors – everyone wants to see the baby and mostly would like to hold him in their arms. For the majority of newborns, this is overload in the first few days – even if it seems that they sleep through it all. That is also a reason why they often react with constant breastfeeding and crying in the evening and the first half of the night. This quickly leads to the mother becoming overwhelmed and experiencing breastfeeding as very stressful. At the latest, this is when the phenomenon of “cluster feeding” should be explained to her.

Cluster feeding is associated with the hormone cholecystokinin (CCKI). This is a gastrointestinal hormone which triggers feelings of being satiated and of well-being. During suckling, this hormone is released in both mother and baby which, in time, makes both of them sleepy and the baby finally signals that he is satiated. The first CCK- increase is directly triggered by the suckling and breastfeeding. For the baby, a second increase comes about via the milk in his digestive tract after 30–60 minutes. There seems to be a window >

- › when the baby wakes again about 10 minutes after breastfeeding and either demands the second side or a continuation of the breastfeeding. And this can even be repeated several times in a row for hours<sup>[3]</sup>. The good news here is that the baby usually falls into a deep, long sleep after such phases.

As recommended in the ABM Clinical Protocol Nr. 3. “Supplementary Feedings in the Healthy Term Breastfed Neonate”<sup>[4]</sup>, the mother should be informed that cluster feeding is a normal behaviour, especially in the evening. In the hospital, this can be taken as an occasion to stay a little while longer while she is breastfeeding, to help the mother to a more comfortable position in which she can also remain for a while and in which the baby has the opportunity to drink repeatedly, taking deep effective sucks. At home, brief carrying of the baby can also help. Another caretaker can take this over. Thus the mother can be given a brief break to recover.

A bit of reassuring information can also be that, with cluster feeding, the baby is ensuring the milk production for the next day. Although prolactin is already verifiable in the receptors of the lactocytes within 5 minutes and reaches its highest level within 20–30 minutes, its full effect on the cells and the milk production, is, however, achieved only after 8–16 hours. If additional food is given, this interesting interaction is seriously disturbed and can lead to milk insufficiency. In the first three months, the release of prolactin through frequent breastfeeding, secures the amount of milk. After about three months, the mother has a basic prolactin level that is only 3–5 times higher than that of a menstruating, non-breastfeeding woman. If breastfeeding continues and the prolactin release is stimulated thereby, this level still remains about twice as high as in non-breastfeeding women for about 24 months (Lawrence 1999). A higher prolactin level is no longer necessary for the milk production.

Cluster feeding is a normal behaviour in the first 2–3 months. If parents don’t know this, they frequently begin

to supplement with infant formula in the evening because they think that there is too little milk. At home, the breast soon feels soft. If it is well-filled, this is mostly only after a long break since the last breastfeed. It seems especially “empty” in the evening. And on top of that, a restless, fussy, constantly breastfeeding baby! So, it is not surprising that particularly those women who know little about breastfeeding, think that their milk is no longer sufficient. And then there is frequently the “good” advice of the family, friends and even people you don’t know, who all have an opinion about breastfeeding.

The ABM Clinical Protocol Nr. 2, the “Going Home Protocol”<sup>[5]</sup>, recommends not only explaining the normal behaviour of the baby to mothers, but also including fathers, grandparents and other caretakers. All of them should be aware of breastfeeding cues, excretions from which it can be recognized that a baby is taking in enough mother’s milk, about sleeping behaviour and a safe sleeping place, about the influence of medications, nicotine and alcohol and also about the feeding patterns that babies display. Evening cluster feeding is among them

Enlightened, well-informed parents can better adapt themselves to this behaviour of the baby and, therefore, can support their baby peacefully and patiently. Knowing about this gives a mother security and serenity, especially with the prospect that it will come to an end in about three months.



#### LITERATURE:

- › <sup>[1]</sup> Bergmann NJ: **Neonatal stomach volume and physiology suggest feeding at 1-h intervals**. *Acta Paediatr.* 2013 Aug; 102(8): 773-7
- › <sup>[2]</sup> ILCA : **Clinical Guidelines for the Establishment of Exclusive Breastfeeding**, Standard Nr. 19
- › <sup>[3]</sup> Riordan, Jan; Wambach, Karen: **Breastfeeding and Human Lactation**. 5<sup>th</sup> edition. Sudbury, MA (USA) Jones and Bartlett, 2016, p. 155
- › <sup>[4]</sup> ABM Clinical Protocol Nr. 3: **Supplementary feedings in the Healthy Term Breastfed Neonate**, Revised 2017
- › <sup>[5]</sup> ABM Clinical Protocol Nr. 2: **Guidelines for Hospital Discharge of the Breastfeeding Term Newborn and Mother “The Going Home Protocol”**, Revised 2014



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# Cluster Feeding – Multi-Course Menu for Babies



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**A** well-known phenomenon in the first few days or perhaps weeks, is so-called “cluster feeding”. Here, the intervals between the individual breastfeeds are often very short so that you perhaps have the impression that you are breastfeeding for hours on end. On the other hand, during the period of normal cluster feeding, there are certainly also many hours when your baby is sleeping. Such “breastfeeding binges” occur particularly often during the evening hours (but not only then). Even though this breastfeeding behavior can be exhausting or even worrying, its effect is especially long-lasting: the development of the milk production.

**There are many reasonable explanations for these breastfeeding marathons:**

- › **Small babies have only a very small stomach capacity.** During the pregnancy they were constantly supplied with food via the placenta and the umbilical cord. Thus, frequent small meals better correspond to the prenatal conditions than do less frequent large meals.
- › **Sucking and breastfeeding require a great deal of strength and energy,** particularly in the early days, and need practice; for this reason, newborns like to have short rests and brief naps during their meal.

- › The frequent short breastfeeding episodes stimulate particularly well the release in the mother's body of the hormone prolactin, essential for milk production. However, prolactin develops its full effect on milk production after 8 to 16 hours. Thus, it could be said that **the baby who continually breastfeeds in the evening places an "order" for the milk for the next day**. If, out of an abundance of caution, additional fluid or food is given, this interesting interaction can be significantly disrupted.
- › **The baby's hormones also play an important role in cluster feeding.** During the extensive breastfeeding period, the hormone cholecystokinin is released. If the hormone level is sufficiently elevated after a certain amount of time, this conveys to the baby a feeling of being full. The cholecystokinin level sinks again relatively quickly so that after 10 to 20 minutes, the baby can again develop a feeling of hunger and, in turn, begins to suck once more. This loop can be repeated several times before the baby falls into a deep, longer-lasting sleep. In this case, it is the act of sucking which triggers the feeling of being full. If the baby sucks on a pacifier instead of the breast, this can considerably affect the weight gain.
- › **During these frequent breastfeeding periods, the newborn could presumably fill up the entire gastrointestinal tract** so that he can allow himself to sleep longer without risking too much hunger.

**Whatever other explanations for the baby's behavior might also be considered – it is completely normal and makes sense!**




#### IBCLC


International Board Certified Lactation Consultants are the only internationally approved breastfeeding and lactation specialists having a medical background.


The decision to breastfeed or not to breastfeed has short- and long-term impact on the health of child and mother. However, breastfeeding sometimes turns out to be difficult and perhaps professional, competent assistance is needed.


#### **What you should be aware of during the time of cluster feeding:**

Even when cluster feeding represents a normal and healthy behavior, it must be ensured that the baby actually receives sufficient calories.

 In between the times of cluster feeding, there are normally also sleeping and resting times, which you yourself should also use as such.

 A baby who is being breastfed well has mother's milk bowel movements several times a day from the 5<sup>th</sup> day of life until the 4<sup>th</sup> to 6<sup>th</sup> week of life.

 After an initial weight loss of about 5-7% (max 10%) the baby is growing approximately along his weight percentile.

 Alarm signals which require a closer look at the frequent breastfeeds are sore nipples, an excessively robust let-down, repeated plugged ducts, serious jaundice, particular sleepiness or the baby's discontent over the course of the whole day. In these cases, please contact a professional.

Trust your baby, trust your body! The more you meet the needs of the baby for these frequent breastfeeds, the better and more rapidly the milk production will be established.



#### SOURCES:

- › VSLÖ-News March 2011
- › Dr. Diane Wiessinger 2006, How Babies Eat; [www.normalfed.com](http://www.normalfed.com)
- › Bergmann NJ: Neonatal stomach volume and physiology suggest feeding at 1-h intervals. Acta Paediatr. 2013 Aug;102(8):773-7

Contact your IBCLC

# 7<sup>th</sup> ABM European Regional Meeting on Breastfeeding Medicine May 18<sup>th</sup>–20<sup>th</sup>, 2018 Rotterdam, Netherlands

**Call for Abstracts – submission  
accepted until February 28, 2018**



The Academy of Breastfeeding Medicine invites you to attend the **7<sup>th</sup> European Regional Meeting for Physicians** on May 18–20<sup>th</sup>, 2018, in Rotterdam, Netherlands. We will discuss the newest research on Breastfeeding Medicine with such excellent speakers like Dr. Julie Taylor (President Academy of Breastfeeding Medicine), Dr. Urszula Bernatowicz-Lojko (ABM), Dr. Evelyn Jain (FABM), Catherine Watson-Genna (IBCLC) and Dr. Jane Hawdon.

**If you would like to present your research and submit an abstract for the Meeting, please send submissions until February 28, 2018 to [Michal.Mansovsky@abm-europe.org](mailto:Michal.Mansovsky@abm-europe.org). You will find a submission form on our website [www.abm-europe.org](http://www.abm-europe.org)**

In the attached conference brochure you will find all details about the meeting. *Early bird registration* ends on **January 18, 2018**. Registration is possible with the attached registration form in the conference brochure or on our website.

We look forward to seeing you in Rotterdam

Sincerely,

Michal Mansovsky, MD, ABM (Israel)  
Monica Pina, MD, ABM (Portugal)  
Reet Raukas, MD, ABM (Estonia)  
Elien Rouw MD, FABM (Germany)  
Lara Tauritz Bakker, ABM (Netherlands)

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# Report of the ELACTA Presidents' Visit to the ILCA Conference, Toronto Canada. 17–22 July 2017

**Mirjam Pot (Vice President ELACTA) and I (Karin Tiktak, President ELACTA) felt warmly welcomed by the ILCA Board. ILCA succeeded to provide a wide range of interesting presentations and excellent international speakers, enabling us to meet colleagues from all over the world.**

**A**lready before the conference, rumours about IBLCE circulated. IBLCE has the intention to create a new credential: A second “lower” level for non-IBCLCs to support breastfeeding mothers. During the conference, the IBLCE Board was available to answer questions and explain the background of this decision, which can be seen at [https://iblce.org/wp-content/uploads/2017/07/2017\\_July\\_9\\_QA.pdf](https://iblce.org/wp-content/uploads/2017/07/2017_July_9_QA.pdf). However, this ended up in emotional discussions. Participants with adverse opinions expressed their indignation: in the past, LLL had founded the IBCLC credential, which was followed by their exclusion from taking the IBCLC exam. IBLCE defended their attitude by stating that the organization is not the owner of the lactation support profession. In their opinion, IBCLCs are the Gold Standard for the Lactation profession, but not the only standard.

The conference itself accommodated a diverse program featuring excellent speakers and highly interesting presentations,

including the presentation of Alice Farrow on gender diversity and the mindful use of language, which met a lot of interest among the audience. Another important issue of the conference is the World Breastfeeding Trends Initiative WBTi, as already mentioned in the L&B article of the Second World Breastfeeding Conference, reported by Stefanie Rosin (ELACTA secretary), where a print version of the results of participating countries up-to-date was launched.

The WBTi is an assessment tool for countries to gather breastfeeding data, including statistics, policies, programs, healthcare systems, BFHI, Code application, and employment of breastfeeding women. The goal is to chart these data during a certain time period for every single country, in order to reach the 6 feeding goals in 2025, as projected by WHO in 2012. This project called “Comprehensive Implementation plan on maternal infant and young child nutrition” targets an increase of the percentage of exclusive

breastfeeding up to 6 months to a minimum of 50% (!)

When visiting their website <http://worldbreastfeedingtrends.org/> you will see that a majority of European countries has not yet started with WBTi. Although each country has to take part individually, I feel responsible to stimulate our members in participating.

A conference is not only about acquiring knowledge. It is an ultimate place to meet colleagues from other countries and have an enjoyable time together in new surroundings, facilitating networking and future collaboration. We met presidents of the national IBCLC Associations of Japan, Brazil, Mexico, Aruba, Singapore, Australia, UK, Ireland, India and more. We were invited to the Global Partners reception. We reached out to the Irish lactation support association ALCI, and the organization for Australia and New Zealand LCANZ, preparing a plan for ELACTA membership.

In the near future, ELACTA will possibly join a Task Force Committee on the Global Program and Conferences. Delegates were



alle Fotos: © Karin Tiktak

Karin and Mirjam representing elacta at the parade of flags



Mirjam and Karin with former ilca president Decalie Brown from Australia.

# Report BSS Conference

Olten, Switzerland, 15–16 September 2017

very interested in our conference, and I think together we will stand strong in promoting our professional potential.

To conclude, we have strengthened our partnership with ILCA, while ELACTA has also gained new partners globally.

Karin Tiktak  
ELACTA President



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Read also an interview about WBTI with Irena Zakarija on page 30.

**Karin Tiktak & Stefanie Rosin were invited by board of the Swiss Association of Lactation Consultants, the BSS. About 200 visitors came. 16 booths were located in another room. Among them were a few code-violating companies. ELACTA got a free standing table together with Swilacta (the second Swiss Association and member of ELACTA).**

At the start of the conference, the president of BSS, Sabrina Ramsauer, welcomed ELACTA. There were interesting presentations in German language about mastitis, the first 1000 days, music therapy, prematurity, tongue tie in a broader view, and many more.

The ELACTA representatives were invited for dinner by the kind board of BSS. We talked a lot about the role of the IBCLC in Switzerland and abroad. Unfortunately, the amount of BFHI

hospitals is decreasing in Switzerland. Furthermore, the IBCLC path is not the only path to work as lactation consultant. The Swiss have also the CAS certification: health care workers who also perform lactation consulting, and gain E-LOG points in a similar way than CERPS.

Christa Müller-Aregger is leaving BSS as conference organizer. Manuela Egli is taking over this task. The new board consists of 6 nice and fresh women. On 25 November they will hold their next BSS GA.

Nicole Toffol from Swilacta has succeeded to increase the amount of Swilacta members by promoting the advantages of the ELACTA membership included.

Karin Tiktak  
ELACTA president



ILCA president Michele Griswold with president Karin Tiktak from ELACTA.

# Latte & Coccole 2<sup>nd</sup> Italian Workshop in Rome, Italy,

**Welcoming Birth – The First Days, A Welcome of Life Long Importance.**

Author: Martina Carabetta, IBCLC – president of Latte & Coccole



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**I**n May 2017, the Italian Association **LATTE & COCCOLE (Milk & Cuddles)** held its 2nd Italian Conference and Workshop with the keynote speaker Catherine Watson-Genna in Rome.

After its 1st 2013 Conference featuring Dr. Michel Odent and focusing on pregnancy and birth, we focused this time on the time period directly following birth. Only in the last few years have we begun to understand the importance of the early postpartum for the rest of our entire life and well-being with regard to various aspects: physical, psychological, emotional, relational...

The conference and workshop had about 100 attendees, including diverse professions: IBCLCs, midwives, nurses and doctors; and many mothers and volunteers, too. The ELACTA representative Dr. Stefanie Rosin gave a little introductory presentation on the ELACTA board and upcoming international conferences, including the Rotterdam conference on a ship from 17-19 May 2018.

In the opening session, the President Martina Carabetta, IBCLC, showed a video to make all attendants reflect about the substantial differences between the calm, warm and comfortable environment of the foetus in utero, and the noisy, dazzling and irritating situation in the delivery room, where the newborn arrives right after being born.

Then Dr. C. Watson Genna opened our mind when describing various evidence-based newborn patterns supporting the mother-baby-dyad to latch and nurse without difficulties. She enlightened us with the how-to of letting the mother-baby dyad find their own path individually, even without following “the handbook”, allowing moms to find their own way to breastfeed.

In her presentation “Evidence Based Lactation Support: Anatomy, Physiology and Function” she showed us that we have a wide array of most recent evidence, to distinguish the effectiveness of interventions in breastfeeding support in case of

breastfeeding difficulties. Further Catherine Watson-Genna provided many evidence-based practices to support LCs in their daily work.

Angela Giusti, midwife and IBCLC, presented a video on “Microbiome: a treasure to protect”, and spoke about how we can help to maintain the microbiome in our work.

Antonella Sagone, psychologist and IBCLC, explained how to empower mothers and lower medicalization and interventions at the same time.

Alessandro Volta, pediatrician, elaborated on the history and development of the Apgar score. He further suggested to add another Apgar score value on baby comfort.

Michele Grandolfo, epidemiologist and former Director of mothers’ health for the Italian NHI, explained what “appropriate assistance” means and why health services have to actively offer it to mothers. Moreover he explained how to teach guidelines, and how much support mothers need to reinforce their competences. He further

# Conference and 12–13 May 2017



© Martina Carabetta

explained the role of midwives and described obstetric violence, with the main goal being to RESPECT mothers throughout the birthing process.

During the workshop, attendees were invited to think about first small steps to implement in their daily practice, in order to develop a welcome culture for both mother and baby following delivery.

We hope that the Workshop and Conference made us really change our hearts and minds, and gave us concrete ideas to change our ways to help mothers. We thank Elacta and AICPAM for their support.

Martina Carabetta, IBCLC –  
Latte & Coccole President  
[www.latteecoccole.it](http://www.latteecoccole.it)

## In Fond Memory of Ersilia Armeni



The Italian IBCLC Association AICPAM is mourning the loss of one of their founding members: Ersilia Armeni, who had dedicated herself to this association, and above all to the families who turned to her seeking help. She had been sick for some time, but was determined to fight to the very end, as usual. We thank her deeply for all the work she has done. Please find personal obituaries on the AICPAM website:

<http://translate.google.com/translate?hl=auto&langpair=autolen&u=http%3A%2F%2Fus12.campaign-archive2.com%2F%3Fu%3D766eb3ccb1eee1a8d-023e466d%26id%3Da6d-4acd046%26e%3Da03be59e82>

We will miss you Silia and we will do our best to follow your example!

**THANK YOU SILIA!**

The ELACTA Board has conducted a survey on the professional status of IBCLCs in the member associations.

Survey	Austria	Belgium	Croatia	Denmark	Germany	Greece
Association	VSLÖ	BVL	HUSD	DALC	BDL	GALAXIS
Number of members	296	128	30	200	858	70
How many of them IBCLC	90%	62%	26	200	630	66
Number of IBCLCs in your country	427	about 62 in Flanders	26	300	1428	79
What are the most frequent problems regarding lactation in your country for you as an IBCLC?						
1 explanation breastfeeding principles		1			1	
2 uncertainty/positioning	2	2			2	
3 breastfeeding multiples		3				
4 oversupply of milk		4			5	
5 growth problems/supplementation	5	5			6	
6 medical breast problems/mastitis		6		6	7	
7 latching problems, sore nipples	7	7	7	7		7
What are the most frequent problems regarding lactation for your organization in your country?						
8 recognition of IBCLC profession	8	8			8	8
9 promotion		9				
10 education		10	10	10		
How do IBCLCs work?						
11 privately	11	11				11
12 as doctors/as midwives	12	12	12			
13 other	13			13	13	
Does an IBCLC have higher salary when she/he remains recertified?	no	I do not know	no	no	yes	no
Is IBCLC recognized as a profession and by whom?	no	I do not know	no	no	no	no
Can you have a private practice and work independently?	yes, but it's hard to live from	only as a midwife with LC qualification	yes	no	yes	no
Where do IBCLCs work?						
14 midwifery	14	14	14	14	14	
15 research/university	15	15	15		15	
16 primary healthcare	16	16	16	16	16	
17 hospital	17	17	17	17	17	
18 private practice	18	18	18	18	18	as part of their original professions
Does your country have insurance companies that cover any costs of an IBCLC?	no	no	no	no	partly, most clients pay the costs themselves	no
Is it important that ELACTA complies with all aspects of the WHO code?	yes	I do not know	yes	yes	yes	yes



# What Happens When Culture Designs Paediatric Research

## Critical appraisal of a US research project on obesity prevention in babies.

Authors: María Berrozpe Martínez, PhD; Zsuzsa Bauer, PhD; Sibylle Lüpold, IBCLC

14 member associations have answered the questions from ELACTA; The questions about IBLCE are summarized here.

### Feedback from member associations about quality of exam questions:

- › An official list of issues for the educational institutes is missing. So how to prepare exam candidates? Questions seem to be American; there are complaints about quality of pictures and confusing questions. There is also the statement that multiple choice questions are assurance of quality.
- › Nine of our member associations think that the level of exam is OK – A high level is thought to be necessary for keeping good quality.
- › Five member associations think that the level of the exam is too high.

### Feedback about exam and recertification costs:

- › 12 out of 13 countries think the costs for the IBCLC exam are too or far too high!
- › The IBCLC profession demands a lot of time and commitment, educational activities either from meetings or online conferences seem to be expensive for colleagues. On top of these costs the costs for recertification with CERP's by IBCLCE seem far too expensive. IBCLCE earns money from CERP's providers and additionally from each IBCLC while recertification process. The fee should be symbolic. Also one opinion says the costs seem to be justified.

### Do our members think that there is enough quality research and data about breastfeeding that you need for exam that is acceptable for EU?

- › 4 members answered with no, 5 with yes and 5 with we don't know.
- › 7 of our members are interested in a European certification (EBLCE) and 6 members are not interested.



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**W**hat happens when paediatric researchers design their studies, blinded by the cultural determinants of an industrialized occidental society, ignoring the human infant's nature? In the USA, in 2010–2017, a large scientific project (INSIGHT) on obesity prevention in children was approved and published, despite its cultural bias and the authors' ignorance about basic principles of human breastfeeding and infant sleep. According to them, obesity can be prevented by, among other things, promoting solo-sleeping as soon as possible and eliminating baby's night feeding, even in exclusively breastfed infants. But scientific evidence about breastfeeding tells us the contrary: breastfeeding, to be successful, must be on demand day and night, especially during the first six months of life when it should be exclusive. In fact, the authors of these recommendations could produce exactly what they are trying to prevent – obesity – by causing the failure of breastfeeding and, thereby, introducing the introduction of formula or supplementary food too early.

### Background and methodology of the INSIGHT study

The *Intervention Nurses Starting Infants Growing on Healthy Trajectories (INSIGHT)* study is a longitudinal, randomized, controlled trial evaluating what they identify as a responsive parenting intervention designed for the primary prevention of obesity. INSIGHT's central hypothesis is that this so-called *responsive parenting*, and, specifically, *responsive feeding*, promotes self-regulation and shared parent-child responsibility for feeding, reducing the subsequent risk for overeating and overweight. For this purpose, 291 primiparous mother-newborn dyads were randomized after childbirth and research nurses delivered intervention content during home visits at infant ages of 3, 16, 28, and 40 weeks and at a research cen-

tre visit at 1 year. The INSIGHT curriculum included messages about infant feeding, “sleep hygiene”, active social play, emotion regulation, and growth record education. The control group received a home safety intervention also delivered by nurse home visitors. The *Responsive Parenting sleep* component included what the authors considered to be developmentally appropriate messages about bedtime routines, sleep location and behaviours, and responses to waking. Conditional weight gain (children’s weight gain deviation from the expected one) from birth to 28 weeks was calculated. Logistic regression compared the odds of overweight status (weight for length  $\geq 95^{\text{th}}$  percentile) at 1 year as a function of conditional weight gain. Infant sleep was evaluated by portions of the Brief Infant Sleep Questionnaire.

Up to now this project has produced four publications (Savage, et al., 2016; Paul, et al., 2016; Paul, et al., 2017; Hohman, et al., 2017) in which the authors arrive to the following conclusions:

1. Their *Responsive Parenting Intervention* is associated with reduced rapid weight gain during the first six months after birth and reduced overweight status at age one year.
2. Their *Responsive Parenting Intervention* positively influenced developmentally appropriate bedtime routines, sleep-related behaviours, and sleep duration for infants.
3. Their *Responsive Parenting Intervention* was associated with healthier dietary patterns.
4. Room-sharing at ages of four and nine months was associated with less night time sleep in both the short- and long-term, reduced sleep consolidation, and unsafe sleep practices previously associated with sleep-related death.

Considering that, in our industrialized societies, childhood obesity rates have reached epidemic proportions, and that rapid infant weight gain is considered to be associated with later obesity, it is evident that the objectives of the INSIGHT study

are of great importance for public health. But, after carefully reading the four publications and the pilot study (Paul, et al., 2011), we can only express our surprise and disappointment at the ethical and scientific approval of this project, because its own design shows critical knowledge gaps in two fundamental areas of infant and children health: infant sleep and breast-feeding.

Below we will outline the most critical limitations of the three publications that force us to view the whole project as inappropriate for approval and unable to meet its objectives.

### **First Limitation: Their application of so-called *Responsive Parenting*.**

*Responsive Parenting* is defined as “*the use of warm and accepting behaviors to respond to children’s needs and signals*” (Susan Landry, et al., 2012). One of the key features of healthy care giving behaviour is responsiveness. That is described as “*parenting that is prompt, contingent on the child’s behavior and appropriate to a child’s needs and developmental state*”, and its main characteristic is that the action of the caregiver is always initiated and directed by the child (Eshel, et al., 2006).

The INSIGHT study gives the following rules to the parents in the intervention group: “*Feeding not the last step before bed*”, “*Pacifier use*”, “*Transition to own room by 3 months*”, “*Consistently put to bed drowsy but still awake by 4 months*”, “*Avoid rocking, feeding to sleep*”, “*Allow infant some time to self-soothe when put down for night and after the night wakings*” (which clearly means: let him cry for a while), “*Feed before parent’s bedtime: “dream feed” or “Avoid overnight feeds; infants can sleep 8–12 h without eating”* (after age 4 months). They also consider that there are *unnecessary parental responses to infant night wakings* (Paul, et al., 2017) in which the baby would self soothe to sleep if parents did not intervene.

In our opinion, these rules do not belong to *Responsive Parenting* – at least not for infants under six months, and definitely not for breastfed infants. On the

contrary, they arise from the cultural pool of the western industrialized societies, and are not based on any scientific evidence at all. Nowadays, drawing upon cross-species, cross-cultural, historical, and physiological evidence (McKenna, et al., 2007), evolutionary paediatrics makes it clear that they do not fit with what *Responsive Parenting* should be because they clearly do not meet the needs of human infants.

**Human infants need to be close to their mothers and be able to breastfed on demand, 24 hours a day** (Ball, et al., 2004; Nelson, et al., 2000; McKenna, et al., 1993; Blunden, et al., 2011; Blair, 2008; Ohgi, et al., 2002). So, allowing the baby to fall asleep at the breast, feeding her at night as much as she asks for or offering physical closeness to the mother’s body during sleep, would belong to anything characterized as “*Responsive Parenting*”. Up to now, scientific evidence cannot provide a given age when all babies should be able to stop feeding at night or how much they should drink. The information provided to the effect that “*after age 4 months the infant can sleep 8–12 h without feeding*” is not evidence-based and is, in our opinion, most questionable. The only available evidence shows enormous variability between babies about how much and how long they sleep (night and day), and how many times they wake up to feed (Owens, 2008; Jenni, 2013). **Parenting that is really responsive will meet the needs of the individual baby, following the cues of this baby, and will not follow general rules based on questionable standards.**

Therefore, the so-called *Responsive Parenting* of Paul and Co. is not at all responsive with its rules on infant sleep. But in some other aspects of parenting actions, such as “*to recognize infant hunger and satiety*” or “*to provide children appropriate portions of healthy foods and allow children to determine the amount consumed*”, INSIGHT practices are quite responsive, clearly related to healthy habits that might prevent future obesity.

Even if Paul and Co.’s sleep intervention has a significant effect on ▶

lowering infant weight gain in breastfed infants (Paul, et al., 2011), from an anthropological and evolutionary point of view it is reasonable to think that this decrease is not optimal for infant health, because it is a consequence of forcing the baby to consolidate nocturnal sleep and to sleep too long at night, contrary to her natural behaviour. Furthermore, it ignores its own recommendation “to recognize infant hunger and satiety”. Human milk is not only “calories”, but it is full of nutrients that are essential for healthy infant development (Indrio, et al., 2017; Ballard & Morrow, 2013). The baby needs to receive them in the appropriate amount, and this will happen only when she can breastfeed on demand day and night (Lacovou & Sevilla, 2013).

In summary, the project of Paul and colleagues is based on a questionable cultural construction about what is *responsive parenting*, because it completely ignores the natural and healthy behaviour of breastfed babies.

### **Second Limitation: Breastfeeding is not just any feeding**

Other big limitation of the Paul and Co. study is the fact that they do not distinguish between breast milk, formula and complementary feeding in giving advice not to feed the baby before or during night sleep after four months of age, demonstrating the authors’ lack of knowledge about the physiology of breastfeeding.

Nowadays it is very well known that **co-sleeping has a strong positive and bi-directional relation to breastfeeding duration** (Brown & Arnott, 2014; Horsley, et al., 2007; Ball, et al., 2016; Blair, et al., 2010; Huang, et al., 2013; Sencan, et al., 2013). In addition, **breastfeeding should be on demand if the baby’s needs are to be met successfully** (World Health Organization., 2016). This is essential to producing enough milk. We must remember that one of the main reasons for the failure of breastfeeding is that the mother (or a health professional) thinks that she does not have enough milk (Li, et al., 2008; Yaqub & S, 2013). **Solo-sleeping and too early consolidated night sleep**

**are obstacles for healthy breastfeeding** and when breastfeeding has too many obstacles in its way, babies do not grow and gain weight well enough. Usually it forces healthcare professionals to advise mothers to introduce supplementary food too early, or to give the baby a supplement of infant formula. Under these conditions, mothers tend to wean too early (McCarthy, 2012). There is evidence that, among other important positive effects on a baby’s and a mother’s health, breastfeeding is moderately, but consistently, protective against later obesity and modulates the impact of excessive weight gain on the risk of childhood obesity (Anzman, et al., 2010; World Health Organization., 2016; Young, et al., 2012).

In our Western societies, we are far away from meeting WHO recommendations on optimal breastfeeding. Worldwide, only about 36% of infants aged 0–6 months were exclusively breastfed in the period between 2007–2014 (World Health Organization., 2016). That is why it is so important to promote parenting habits that help and facilitate the initiation and maintenance of breastfeeding from birth. The INSIGHT study does not do so.

### **Third Limitation: The Sleeping Measurements are based on the Parents’ Answers**

In the last publication of the INSIGHT project, the authors (Paul, et al., 2017) concluded that room-sharing at ages four and nine months was associated with less night time sleep, reduced sleep consolidation, and unsafe sleep practices previously associated with sleep-related deaths. These conclusions are completely based on the answers of parents to the *Brief Infant Sleep Questionnaire*, and there is no objective measurement of the quality and the quantity of infant sleep, such as actigraphy or video recording. In a study designed to compare sleep between infants who room-share and infants who solo-sleep, the lack of objective measurements almost invalidates all of its conclusions. Nowadays, there is plenty of evidence that **parents who do not sleep**

**with their babies, unlike parents who room-share, do not report all awakenings or sleep disturbances** (Volkovich, et al., 2015; teti, et al., 2016). In fact, the authors admit this limitation, but ignore its real importance.

Evidently, the focus of their message is the parents’ perception, not the real quality and quantity of infant sleep, as if what is really happening to the baby in the darkness of her solitary bedroom were irrelevant for her health and well being. The fact that parents who sleep without their babies have a different perception of their infants’ sleep than do parents who room-share, completely invalidates questionnaires as an acceptable methodology for the studies whose objective is to make official recommendations on infant sleep location. These studies must focus on what is really happening to infant sleep, not on what parents perceive to be happening.

### **Fourth Limitation: Cultural Bias and Normalization of Solo-sleeping**

The fourth strong limitation of the INSIGHT study is the enormous cultural bias that affects both its design and its conclusions. Not only in the treatment of breastfeeding, as we have already commented upon, but also **the whole project is based on the normalization of solo-sleeping** and it is clear from the beginning that the authors have a significant bias against co-sleeping. It also implies that the authors accept as true that the longer and more consolidated night sleep of solo-sleeping babies is healthier than the more fragmented and shorter night sleep of co-sleepers, without any real scientific evidence to support it. Unfortunately, this attitude is not new or exceptional in sleep paediatrics, which started to normalize solo-sleeping from the beginning of its research on infant sleep in the 1930s when solo-sleeping was already the norm, although there was no scientific evidence supporting it. But nowadays, thanks to the incorporation into infant sleep research of sciences, such as anthropology and evolutionary biology, we know that the natural sleeping habitat of the human baby is in close proximity with

her mother (Thoman, 2006; McKenna, et al., 2007; Ball & Russell, 2013; Sadeh, et al., 2010; Blair, 2008). That's why **the scientific model of healthy sleep should be the baby who sleeps with her mother, and not the baby who sleeps isolated in her own room.**

This situation has already been described by McKenna and Gettler (McKenna, et al., 2007), and is the reason why both authors recently proposed a new concept, "breast sleeping". In their own words, it defines this:

*...as a way to acknowledge that normal, healthy, human (species wide) infant sleep is not accurately measurable outside of the breast sleeping context as maternal infant sensory exchanges involved in the elicitation and delivery of breastfeeding, and the ingestion of breast milk significantly change infant metabolism, maternal and infant sleep architecture including arousal patterns, as well as breastfeeding frequency, reflecting a highly integrated adaptive system.* (McKenna & Gettler, 2016)

One of the main reasons for babies waking up at night is to breastfeed. Paul *et al.* observed that solo-sleeping babies breastfeed less at night, and they even considered it something positive. But there are multiple reasons why, in infancy, babies need to breastfeed during the night, and, nowadays, we have good evidence of the circadian variations of human milk, especially adapted to the 24 hour cycle of feedings (Cassels, et al., 2013; Sánchez, et al., 2009; Sánchez, et al., 2013). For breastfeeding mothers co-sleeping is related to more and better sleep (Quillin & Glenn, 2004), and between co-sleeping and breastfeeding there is a positive and bidirectional feedback that should never have been ignored in the recommendations about where and how babies must sleep. Breastfeeding mothers co-sleep more than bottle-feeding mothers (Buswell & Spatz, 2007), and mothers who co-sleep breastfeed more frequently and longer than mothers who do not (Blair, et al., 2010; Huang, et al., 2013). Even room-sharing is significantly related to more breastfeeding (Sencan, et al., 2013).

These reasons alone are strong enough to question the INSIGHT study. But, in fact, there are multiple reasons other than breastfeeding for why a baby needs to wake and be close to her mother at night during her first months of life (Galbally, et al., 2013; Ball, 2003; McKenna, et al., 1993; Bergman, 2013; Morgan, et al., 2011). It would be interesting to know the scientific basis of the authors' assumption of the so-called "unnecessary parental responses to infant night wakings" (Paul, et al., 2017) that we have already mentioned. Who decides what is an unnecessary and what is a necessary parental response to babies' signals? What are the scientific reasons for making this distinction? Many experts consider that this theoretical *self-soothed back to sleep* is pure resignation, and that to force it while ignoring babies' signals has harmful effects on their mental and physical development (Gonzalez, 2010; Jové, 2006; Sunderland, 2006; Waynforth, 2007; Blunden, et al., 2011). In addition, unlike Paul and Co.'s paper, other studies have demonstrated that parents' and babies' total night sleep is not affected by co-sleeping even when it is associated with more awakenings, because these awakenings are shorter (Mosko, et al., 1997; Mao, et al., 2004). Considering that these studies used video recordings instead of questionnaires, we can consider that their results are more reliable. All these facts (and many others that cannot be described here) are the reasons why room-sharing is almost universally considered obligatory the first year of life (or at least the first six months) (Eidelman & Gartner, 2006; Gessner & Porter, 2006; Bartick, 2006; Pelayo, et al., 2006; Ball, et al., 2012; Bartick & Smith, 2014; Fleming, et al., 2015; Moon & Hauck, 2017).

### Conclusion

The INSIGHT study takes a big step backwards and comes back to the darkest times of Emmet Holt's (Holt, 1907) mothering rules. Ignoring the most fundamental knowledge about our babies' nature and breastfeeding and infant sleep physiology – extensively documented through numerous studies of the most varied scientific

disciplines, the results of which have been published in high impact factor peer review journals – and on the pretext of preventing future obesity – they promote parenting practices that, far from being *responsive*, constitute a big obstacle for the initiation and maintenance of breastfeeding and the promotion of bonding, which, in fact, could *increase* the risk that they claim to prevent, in addition to increasing the likelihood of many other health problems for mother and baby.



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## QUELLENANGABEN

- › Anzman, S. L., Y, R. B. & L, B. L., 2010. **Parental influence on children's early eating environments and obesity risk: implications for prevention.** International Journal of Obesity, Volume 34, pp. 1116-1124.
- › Ball, H. & Russell, C. K., 2013. **Nighttime nurturing: An evolutionary perspective on breastfeeding and sleep.** In: Evolution, early experience and human development. Oxford: Oxford University Press, pp. 241-261.
- › Ballard, O. & Morrow, A. L., 2013. **Human Milk Composition. Nutrients and Bioactive Factors.** Pediatr Clin N Am, Volume 60, pp. 49-74.
- › Ball, H. L., 2003. **Breast-feeding, bed-sharing and infant sleep.** Birth, Volume 30, pp. 181-188.
- › Ball, H. L. et al., 2016. **Bed-sharing by breastfeeding mothers: who bed-shares and what is the relationship with breastfeeding duration?** Acta Paediatrica. In press.
- › Ball, H. L. et al., 2012. **Infant care practices related to sudden infant death syndrome in South Asian and White British families in the UK.** Paediatr Perinat Epidemiol, 26(1), pp. 3-12.
- › Ball, K. L., Blair, P. S. & Ward-Platt, M. P., 2004. **"New" practice of bedsharing and risk of SIDS.** The Lancet, 363(9420), pp. 1558.
- › Bartick, M., 2006. **Bed Sharing With Unimpaired Parents Is Not an Important Risk for Sudden Infant Death Syndrome: To the Editor.** Pediatrics, Volume 117, p. 992.
- › Bartick, M. & Smith, L. J., 2014. **Speaking Out on Safe Sleep: Evidence-Based Infant Sleep Recommendations.** Breastfeed Med. 2014 Sep 4., 9(9), pp. 417-422.
- › Bergman, N. J., 2013. **Neonatal stomach volume and physiology suggest feeding at 1-h intervals.** Acta Paediatr, 102(8), pp. 773-777.
- › Blair, P. S., 2008. **Putting cosleeping into perspective.** Journal de Pediatria, 84(2), pp. 99-101.
- › Blair, P. S., Heron, J. & Fleming, P. J., 2010. **Relationship between bed sharing and breastfeeding: longitudinal, population-based analysis.** Pediatrics, 126(5), pp. e1119-1126.
- › Blunden, S. L., Thompson, K. R. & Dawson, D., 2011. **Behavioural sleep treatments and night time crying in infants: challenging the status quo.** Sleep Med Rev, Volume 15, pp. 327-334.
- › Brown, A. & Arnott, B., 2014. **Breastfeeding Duration and Early Parenting Behaviour: The Importance of an Infant-Led, Responsive Style.** PLoS ONE, 9(2), p. e83893.
- › Buswell, S. D. & Spatz, D. L., 2007. **Parent-infant co-sleeping and its relationship to breastfeeding.** J Pediatr Health Care, 21(1), pp. 22-28.
- › Cassels, T. et al., 2013. **Is your baby's sleep a problem? Or is it just normal? Mother-Baby sleep experts weigh in on normal infant sleep.** A Praeclarus press white paper 2013; August 22., 22 Agosto.
- › Eidelman, A. I. & Gartner, L. M., 2006. **Bed Sharing With Unimpaired Parents Is Not an Important Risk for Sudden Infant Death Syndrome: To the Editor.** Pediatrics, Volume 117, pp. 991-992.
- › Eshel, N., Daelmans, B., Cabral de Mello, M. & J, M., 2006. **Responsive parenting: interventions and outcomes.** Bulletin of the World Health Organization, 84(12), pp. 991-998.
- › Fleming, P., Pease, A. & Blair, P., 2015. **Bed-sharing and unexpected infant deaths: what is the relationship?** Paediatr Respir Rev, 16(1), pp. 62-67.
- › Galbally, M. et al., 2013. **Breastfeeding and infant sleep patterns: an Australian population study.** J Paediatr Child Health, 49(2), pp. E147-E152.
- › Gessner, B. D. & Porter, T. J., 2006. **Bed Sharing With Unimpaired Parents Is Not an Important Risk for Sudden Infant Death Syndrome.** Pediatrics, Volume 117, pp. 990-991.
- › Gonzalez, C., 2010. **Comer, Amar, Mamar. Guía de crianza natural.** s.l.:Ed Temas de Hoy.
- › Hohman, E. E., Paul, I. M., Birch, L. L. & Savage, J. S., 2017. **INSIGHT responsive parenting intervention is associated with healthier patterns of dietary exposures in infants.** Obesity (Silver Spring), Jan, 25(1), pp. 185-191.
- › Holt, E., 1907. **The care and feeding of children.** A catechism for the use of mothers and children's nurses. Fourth Edition, Revised and Enlarged. New York and London: Appleton and company.
- › Horsley, T. et al., 2007. **Benefits and harms associated with the practice of bed sharing: a systematic review.** Arch Pediatr Adolesc Med, 161(3), pp. 237-245.
- › Huang, Y. et al., 2013. **Influence of Bedsharing Activity on Breastfeeding Duration Among US Mothers.** JAMA Pediatr, 167(11), pp. 1038-1044.
- › Indrio, F. et al., 2017. **Epigenetic Matters: The Link between Early Nutrition, Microbiome, and Long-term Health Development.** Frontiers in Pediatrics, August.5(178).
- › Jenni, O., 2013. **How much sleep is "normal" in children and adolescents?** JAMA Pediatr, 167(1), pp. 91-92.
- › Jové, R., 2006. **Dormir sin lágrimas.** 1ª ed. s.l.:La esfera de los libros.
- › Lacovou, M. & Sevilla, S., 2013. **Infant feeding: the effects of scheduled vs. on-demand feeding on mothers' wellbeing and children's cognitive development.** Eur J Public Health, 23(1), pp. 13-10.
- › Li, R., Fein, S. B., Chen, J. & Grummer-Strawn, L. M., 2008. **Why Mothers Stop Breastfeeding: Mothers' Self-reported Reasons for Stopping During the first year.** Pediatrics, Volume 122, pp. S69-S76.
- › Mao, A. et al., 2004. **A comparison of the sleep-wake patterns of cosleeping and solitary-sleeping infants.** Child Psychiatry Hum dev, 35(2), pp. 95-105.
- › McCarthy, C., 2012. **The top four reasons moms stop breastfeeding--and what we can do about them.** [Online] Available at: [http://archive.boston.com/lifestyle/health/mdmama/2012/06/the\\_top\\_four\\_reasons\\_moms\\_stop\\_breastfeeding--and\\_what\\_we\\_can\\_do\\_about\\_them.html](http://archive.boston.com/lifestyle/health/mdmama/2012/06/the_top_four_reasons_moms_stop_breastfeeding--and_what_we_can_do_about_them.html) [Accessed 30 June 2017].
- › McKenna, J. J. et al., 1993. **Infant-parent co-sleeping in an evolutionary perspective: implications for understanding infant sleep development and the sudden infant death syndrome.** Sleep, 16(3), pp. 263-282.
- › McKenna, J. J., Ball, H. & Gettler, L. T., 2007. **Mother infant cosleeping, breastfeeding and sudden infant death syndrome: what biological anthropology has discovered about normal infant sleep and pediatric sleep medicine.** Yearbook of physical anthropology, Volume 50, pp. 133-161.

- › McKenna, J. J. & Gettler, L. T., 2016. **There is no such thing as infant sleep, there is no such thing as breastfeeding, there is only breastfeeding.** *Acta Paediatr*, 105(1), pp. 17-21.
- › Moon, R. Y. & Hauck, F. R., 2017. **Are There Long-term Consequences of Room-Sharing During Infancy?** *PEDIATRICS*, July, 140(1), p. e20171323.
- › Morgan, B. E., Horn, A. R. & Bergman, N. J., 2011. **Should neonates sleep alone?** *Biol Psychiatry*, 70(9), pp. 817-825.
- › Mosko, S., Richard, C. & McKenna, J., 1997. **Maternal sleep and arousals during bedsharing with infants.** *J Sleep res Sleep Med*, Volume 20, pp. 142-150.
- › Nelson, E. A., Schiefelhoevel, W. & Haimlerl, F., 2000. **Child care practices in nonindustrialized societies.** *Pediatrics*, 105(6), p. E75.
- › Ohgi, S. et al., 2002. **Comparison of kangaroo care and standard care: behavioral organization, development, and temperament in healthy, low-birth-weight infants through 1 year.** *J Perinatol*. 2002 Jul-Aug;22(5):374-9, 22(5), pp. 374-379.
- › Owens, J. A., 2008. **Classification and epidemiology of childhood sleep disorders.** *Prim Care*, 35(3), pp. 533-546.
- › Paul, I. M. et al., 2017. **Mother-Infant Room-Sharing and Sleep Outcomes in the INSIGHT Study.** *Pediatrics*, July, 140(1), p. e20170122.
- › Paul, I. M. et al., 2016. **INSIGHT Responsive Parenting Intervention and Infant Sleep.** *Pediatrics*, Jul.138(1).
- › Paul, I. M. et al., 2011. **Preventing Obesity during Infancy: A Pilot Study. Obesity (Silver Spring)**, February, 19(2), p. 353-361.
- › Pelayo, R., Owens, J., Mindell, J. & Sheldon, S., 2006. **Bed Sharing With Unimpaired Parents Is Not an Important Risk for Sudden Infant Death Syndrome: To the Editor.** *Pediatrics*, Volume 117, p. 993.
- › Quillin, S. I. & Glenn, L. L., 2004. **Interaction between feeding method and co-sleeping on maternal-newborn sleep.** *J Obstet Gynecol Neonatal Nurs*, 33(5), pp. 580-588.
- › Sadeh, A., Tikotzky, L. & Scher, A., 2010. **Parenting and infant sleep.** *Sleep Med Rev*, 14(2), pp. 89-96.
- › Sánchez, C. L. et al., 2009. **The possible role of human milk nucleotides as sleep inducers.** *Nutr Neurosci*, 12(1), pp. 2-8.
- › Sánchez, C. L. et al., 2013. **Evolution of the circadian profile of human milk amino acids during breastfeeding.** *J Appl Biomed*, Volume 11, pp. 59-70.
- › Savage, J. I. et al., 2016. **Effect of the INSIGHT Responsive Parenting Intervention on Rapid Infant Weight Gain and Overweight Status at Age 1 Year: A Randomized Clinical Trial.** *JAMA Pediatr*, 1 Aug, 170(8), pp. 742-749.
- › Sencan, I., Tekin, O. & Tatli, M. M., 2013. **Factors influencing breastfeeding duration: a survey in a Turkish population.** *Eur J Pediatr*, 172(11), pp. 1459-1466.
- › Sunderland, M., 2006. **The science of parenting.** How today's brain research can help you raise happy, emotionally balanced children. s.l.:DK.
- › Susan Landry, S. et al., 2012. **The Effects of a Responsive Parenting Intervention on Parent-Child Interactions during Shared Book Reading.** [Online] Available at: [www.hfrp.org/family-involvement/publications-resources/the-effects-of-a-responsive-parenting-intervention-on-parent-child-interactions-during-shared-book-reading](http://www.hfrp.org/family-involvement/publications-resources/the-effects-of-a-responsive-parenting-intervention-on-parent-child-interactions-during-shared-book-reading)
- › teti, D. M., Shimizu, M., Crosby, B. & Kim, B., 2016. **Sleep arrangements, parent-infant sleep during the first year, and family functioning.** *Dev Psychol*, 52(8), pp. 1169-1181.
- › Thoman, E. B., 2006. **Co-sleeping, an ancient practice: issues of the past and present, and possibilities for the future.** *Sleep Med Rev*, 19(6), pp. 407-417.
- › Volkovich, E. et al., 2015. **Sleep patterns of co-sleeping and solitary sleeping infants and mothers: a longitudinal study.** *Sleep Medicine*, Volume 16, pp. 1305-1312.
- › Waynforth, D., 2007. **The influence of parent-infant cosleeping, nursing and child care on cortisol and SIgA immunity in a sample of British children.** *Dev Psychobiol*, Volume 10, p. 1002.
- › World Health Organization., 2016. **Infant and young child feeding.** [Online] Available at: [www.who.int/mediacentre/factsheets/fs342/en/](http://www.who.int/mediacentre/factsheets/fs342/en/) [Accessed 27 June 2017].
- › Yaqub, A. & S, G., 2013. **Reasons for failure of exclusive breastfeeding in children less than six months of age.** *J Ayub Med Coll Abbottabad*, Jan-Jun, 25(1-2), pp. 165-167.
- › Young, B. E., Johnson, S. L. & F, K. N., 2012. **Biological Determinants Linking Infant Weight Gain and Child Obesity: Current Knowledge and Future Directions.** *Adv Nutr*, Sep, 3(5), pp. 675-686.

# World Breastfeeding Trends Initiative (WBTi)

Interview of Stefanie Rosin with Irena Zakarija-Grkovic from Split, Croatia



## Who runs the WBT initiative, how was it launched and what is the status quo?

IBFAN Asia and Breastfeeding Promotion Network of India; launched in 2003; currently 84 countries have published reports on the state of infant feeding in their country.

## Who can participate?

Anyone with the will and capacity to complete the training, conduct the analysis and write the report.

## What is the goal of the initiative?

To assess the status and benchmark the progress of the implementation of the Global Strategy for Infant and Young Child Feeding in individual countries

## Who is supposed to benefit from it?

The whole of society

## How can the status quo of breastfeeding protection, promotion and support in a certain country be determined?

By assessing the situation using the WBTi's 15 indicators, based on the Global Strategy. The first part of the WBTi tool has ten indicators linked to policies and programs while the second part has five indicators, which deal with infant feeding practices.

## What can be done to bring across change?

The WBTi is a great opportunity to raise awareness of the importance of appropriate IYCF, create partnerships with relevant

organizations, recognize and highlight gaps in the implementation of the Global Strategy and work together towards addressing these issues, i.e., bringing about change.

## How is the training funded?

Thanks to funding provided by the Swedish International Development Agency and the Norwegian Agency for Development Cooperation, training and support is provided to all involved, giving the initiative greater weight and feasibility. A win-win situation for all!

For more information please see WBTi website: <http://worldbreastfeeding-trends.org/> and attend my talk at next year's ELACTA conference. See you in Rotterdam!

**Irena Zakarija-Grkovic**  
MD, IBCLC, PhD, Ethical  
committee member of  
breastfeeding academy

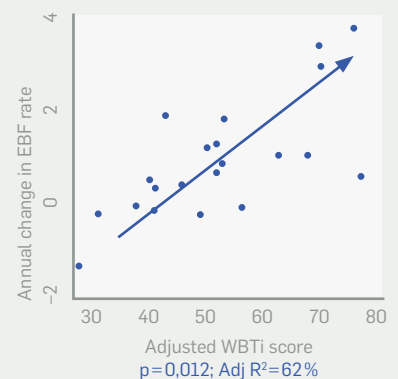


## WHO RECOMMENDATIONS FOR OPTIMAL INFANT FEEDING

1. Initiation of breastfeeding within the first hour after birth;
2. Exclusive breastfeeding for the first 6 months;
3. Continued breastfeeding for 2 years and more;
4. Safe, nutritionally adequate, age-appropriate complementary feeding, starting around 6 months.

## WBTi POLICIES AND PROGRAMS

1. National policy, program and coordination
2. Baby Friendly Initiative (BFI)
3. Implementation of the Code
4. Maternity protection
5. Healthcare and nutrition systems
6. Support for breastfeeding mothers
7. Information support
8. Infant feeding and HIV
9. IYCF during emergencies
10. Mechanisms of monitoring and evaluation



# The gentle breastpump – quiet and powerful



## Happy Mothers for Happy Babies

The Calypso double electric breastpump makes it easier for mothers to balance motherhood, leisure time, and professional life when they go back to work. This high-quality and extremely reliable breastfeeding product is easy to use and exceptionally quiet. After all, from many years of experience, Ardo knows:

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- **Individually and independently adjustable suction strength and frequency to express breast milk efficiently**
- **Complies with the most stringent hygiene standards, providing maximum protection against contamination**
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