

SUBMISSION TO THE STANDING COMMITTEE ON HEALTH AND AGEING

INQUIRY INTO THE HEALTH BENEFITS OF BREASTFEEDING

SUCCESSFUL BREASTFEEDING – THE KEY

A basic understanding of the simple biology of milk production and composition combined with the empowerment to make instinctive interactive decisions that recognise the feelings of the mother and responses of the baby leads to successful breastfeeding. The Commonwealth Government can play a leading role in both these arenas by balancing the necessary financial incentives of health workers and commercial interests against the real needs of the mother and infant. (1)

BREASTFEEDING is the origin of push-button technology. In all mammals it is the gentle pressure on the nipple that stimulates the nerve endings under the skin, sending the message to the brain to make milk, and to deliver it. These small pink buttons are visually prominent in Man with his upright position of standing and walking.

The optimal growth and development of mammalian young during their breast feeding phase can be divided into three main sections:

- a. The manufacture and composition of the milk
- b. The physical developments that take place as breastfeeding is learned and practiced.
- c. The physical and chemical benefits gained by the mother which supports the concept of a healthy mother raising a healthy child.

A detailed consideration of these aspects of breast feeding presents an insight into the extent of the health benefits of breastfeeding (2).

Mammary Tissue

In each human menstrual cycle there is an increase in the passage of fluid up the sides of the body as the blood's circulatory pattern to the uterus changes in preparation for development of placenta and foetus should fertilisation have occurred. The breasts accommodate some of this fluid on its way up to the glands around the shoulders and neck, from whence it returns to the blood stream. Their swelling and tenderness can be defined as a premenstrual tension or a first symptom of pregnancy and are

2.

the initiating phase of the development of the mammary tissue which produces milk for the newborn.

Should fertilisation not take place then menstruation occurs, accompanied by fluid loss which may occur through any of the other excretory processes of the body ie, exhalation, perspiration, urination or expulsion of faeces. The loss of blood in menstruation stimulates the bone marrow to increase production of fresh blood and is a body strengthening function to facilitate optimal foetal development when pregnancy occurs.

The growth and development of mammary tissue is commensurate with the growth and development of the foetus so that the milk supply to the newborn is matched in composition and incipient volume to the need.

Birth Process

In the third trimester the foetus accumulates protein to facilitate muscle bulking and increase in size prior to birth. When this process ceases, birth is imminent. Then the excess of protein from maternal diet, when excreted via maternal kidneys, causes relaxin to be absorbed into the maternal abdomen through the walls of the bladder, and softening of the symphysis pubis, thus giving the pelvic girdle a little flexibility to accommodate the passage of the foetal head during the birth process. When this protein provision is again taken up, through the establishment of lactation, the relaxin level reaching the bladder again decreases and the symphysis pubis firms up.

A continuing excretion of excess or inappropriate protein will maintain a high relaxin concentration seeping into the abdomen from the bladder and core body cartilage and ligaments will soften, resulting in osteitis pubis. The purpose of this core body weakness postpartum is to maintain relative maternal inactivity to facilitate the physical and emotional connections necessary between newborn and mother for successful lactation. It also enables the maternal body organs displaced by pregnancy to return to their normal positions without moving lower in the abdomen as may occur with premature maternal ambulatory activity.

On passage down the birth canal the foetus adopts a position that applies gentle pressure to the vagus nerve in the neck, suppressing smooth muscle function such that the heart beat is slowed, the pumping action of smooth muscle lining the blood vessels is diminished and the voluntary muscles become flaccid. The upper uterine muscles pushing against the

3.

foetus can then expel it in this semi comatose state without impediment from movement of arms and legs.

As well as pressure, vagus function is subject to influences of hot and cold, and the active support of the adjacent organs, thyroid, parathyroid, thymus and vocal cords.

Breathing stimulates vagus function which in turn stimulates heart muscle function as well as blood flow, breathing and peristalsis, through activity of the smooth muscles which line the airways, blood vessels and digestive tract. The activity of crying, vibrating the vocal cords, provides additional vagus stimulus.

Being laid in the natural cavity on the mother's abdomen, still with umbilical cord attached, the newborn infant senses the nipple by smell with the olfactory nerves whose roots lie directly in the brain. Flexing of the neck and upper body, as well as the legs if the feet feel purchase, stimulates the flow of electrical impulses from the brain through the spinal column to re-establish the connections that were suppressed during the birth journey.

Initiating feeding

The touch of lips and tongue onto the nipple inoculates the newborn with bacteria and moulds that make up the essential flora of the gut. These actively manage the pH and salt concentrations to enable optimal absorption of nutrients by the chemical processes of osmosis and electrophoresis. Such inoculation is intrinsic to the inherited immune properties from the mother, and the environment, with obvious differences to be found between, say, arctic circle births and tropical births, between births at sea level and at high altitudes.

Protruding movements of the tongue stimulate the mouth and throat functions and prepare for the chemical introduction of colostrum which initiates the digestive processes. A sufficient intake of colostrum to stimulate active management of digestive juice production enables development of comfortable feeding patterns without the anxiety-producing experiences of colicky crying. In field animals whose initial environment is less sterile than that of current social birth practices, colostrum is considered essential for the survival of the young and its provision in powdered form is a normal part of animal husbandry.

4.

It is the protruding tongue movements which gently stroke the underside of the nipple and stimulate the nerve endings under the skin, sending their message to the base of the brain, resulting in initiation of the processes that enable milk production and excretion.

Milk composition

Elements of the colostrum, absorbed through tongue, mouth lining and throat, proceed to the brain, stimulating smooth muscle activity of those blood vessels to increase blood flow, and also providing essential mixing of the electrolyte solutions through which the pathways instantaneously form and reform, creating Hebbian learning patterns in this wireless medium.

This is an early step in the development of the physical survival pathway. Protruding tongue movements lead to electrical and muscular development of lips and mouth that enable pressure to be applied to the sinuses behind the nipple to encourage extraction of the milk after the initial smooth muscle pumping of let down reflex has ceased. Movement of lips and mouth stimulates the trigeminal nerve that leads to opening of the hands, which leads to their raising to the mouth and face, and self-feeding of solids, which leads to shoulder movements which lead to leg movements and the ability to search for food.

Elements of the colostrum chemically activate the important glands in the throat and the three days of its average high production is the body's optimal time to develop new chemical pathways of absorption, storage and excretion for newly introduced substances.

The parathyroid learns to react especially to the calcium content of foods and thus adjust absorption to the functional and storage requirements of the body at any time. Calcium is an essential ingredient in every living cell and the natural food choices of any mammal ensure delivery of this element in its appropriate forms with absorption taking place via a healthy small intestine and free passage in and out of a healthy bone structure catering for optimal function of all body organs.

The thyroid similarly learns to react especially to the iodine content of food, ensuring correct absorption of levels that will optimise the senses of smell, sight, hearing and touch, which are so important to the emotional connection of the infant with its carers, without permitting their oversensitivity that leads to a level of internal communication pathways which impairs their interactions and subsequent care.

The thymus responds to input of organisms that make up the symbiotic flora of the digestive tract and enable the physical and chemical interactions for digestion, sorting and absorption of nutrients according to the physical and environmental needs of the growing infant. The nurturing of the newborn infant in a limited environment restricts demands on the thymus so that it can grow and develop strength and flexibility of function within the parameters of the nutrients it receives in the breast milk. Early thymus exposure to inappropriate organisms or their extracts, or affectors of the symbiotic balance in the small intestine, challenges its growth and development and its ability to support the adjacent thyroid, parathyroid, vagus and vocal cords, as well as brain function.

The vocal cords of an infant deliver their message in no uncertain terms to the mother and her evolved instinctive reaction to that noise is to pick up her baby and offer the breast. The prolactin then produced from nipple stimulus addresses the anxiety in the mother which has been provoked by the noise and the suckling action of the baby and receipt of milk evokes both brain and body function that addresses its cause.

The delivery of milk into the baby's digestive system is the primary step in its nutrition. However it is the absorption of nutrients that controls the growth and development and this is controlled by the infant digestive processes through the amounts of digestive juices produced for that intake of milk and the permeability of the mucous membranes of the digestive tract, controlling not only what goes in but also the excesses that are excreted back into the digestive tract and flushed from the body in faeces. Other excesses such as sugars and proteins are combined with salts and water and excreted in the urine.

Working brain, working body

All muscle function, both voluntary and involuntary, depends upon receipt of electrical stimulus from the brain. First colostrum and then mature milk, provide sugars and salts, absorbed through the membrane of tongue, mouth and throat, to fuel the smooth muscle in the brain and optimise electrical function that then supports digestion and absorption of nutrients for necessary growth and development to take place. When the colostrum or milk are swallowed they proceed to the stomach. There a similar absorptive process takes place to provide the sugars and salts for heart, lung and other central body organ function.

6.

These processes are the same for all mammals and continue as a basic part of nutrition intake for the whole of life.

Absorption and recycling of nutrients

Once the appropriate sugars and salts have been absorbed for brain and central body organs, the residue of the milk proceeds from the stomach into the small intestine where carbohydrates are treated by pancreatic juices for cell storage and fats are emulsified and saponified by bile. Some of these fats form a coating on the walls of the blood vessels to give them greater structural integrity, to provide an immediate source of fuel for smooth muscle activity and, when contaminants are present, to store these until such time as they can be filtered by the liver and excreted into the faeces. The fats also provide physical protection and insulation for other organs, with excess to what has been emulsified and saponified by the bile just passing directly out in the faeces.

The self-digesting entities in the early milk provide templates for the development of the digestive juices of the gut, appropriate for the maturation of the infant to gain its optimal; nutrition from the involuntary and available food choices of the mother.

When saliva, stomach juices, bile and pancreatic juices mix with the food to enable conversion of components to absorbable form, these digestive juices are reabsorbed, along with the chosen nutrients, during passage through the intestines, and recycled to salivary glands, stomach lining, pancreas and liver, for re-use. By this means can breast feeding provide complete nutrition to the infant without drain upon the maternal resources. With mammals that choose their foods through application of senses of smell, sight, taste and touch without civilising education and commercial promotion and the development of nutritional belief structures, this recycling chemistry is largely maintained through life with the body's storage and excretory functions focussing on survival and replication of the species.

Substitutes

The marketing of breast milk substitutes, or any processed food products for that matter, can play an essential role in survival of the infant, or child, or adult, when the natural foods are unavailable. However the scientific production and development and marketing of such substances takes on a life of its own when commercial investment is a necessary underpinning and sales and marketing information on its benefits overlook the imbalances that it introduces to normal living function.

From such imbalances can develop symptoms that may be addressed by further interventions and so major industries of chemical applications and compassionate attentions may develop without reference to originating conditions.

Historical considerations

In the early years of Australia's settlement many new arrivals benefited from the knowledge and guidance of Indigenous Australians in matters of childbirth and breastfeeding, with an awareness of the need for healthy drinking water being an important underpinning of the rearing of healthy children. (3) Breast milk addresses not only the optimal conditions for the control of types and levels of bacteria and moulds within the body. It also addresses conditions that minimise the invasion of parasites of which *Cryptosporidium* and *Giardia* would seem to be the most prevalent, in the south and north of the country respectively. These parasites occur randomly in surface water, with increasing incidence when such water is stationary. Thus drinking water was always sought from swift flowing sources, or was filtered by digging soaks. Another country where such parasites occur is southern China, where drinking water was mainly sourced from wells, or was boiled, not an option for a nation without vessels and fire-control to carry this out.

The invasion of parasites depends upon their "eggs" taking up residence between the waving villi in the small intestine and, on hatching, unbalancing the absorptive propensities of the area to ensure their own optimal nutrition and survival. Lactose and gluten intolerance develop and thus it can be seen that countries with parasitic presence developed adult diets that did not include milk or wheat. The presence of pepper, chilli and other "hot" spices in the diet stimulates the vagus, the smooth muscle of the small intestine and the villi such that parasitic invasion is reduced and normal nutrient absorption enhanced. The role of milk products in religious food observances addresses repair and maintenance of this health initiative, and so also the use of breast milk as an adult health restorative in uncivilised communities.

Natural progress

Human infants feed approximately six times in 24 hours and also do foals, with the composition of mammalian milks correlating with infant feeding patterns. Spacing and duration of feedings are individual matters and may depend upon the work/rest patterns of the mother, the climate, the activity and growth patterns of the infant.

Laying down of myelin sheath promotes the physical capabilities of the infant until such time, about the sixth month, when the fuel requirements for vigorous voluntary muscular activity are no longer easily met from the available milk. At the same time dentition, digestive juice production and the hand to mouth reflex suggest an interest in any food that is being consumed by the mother. This leads by natural progression to consumption of the normal family menu with ingestion of some breast milk still playing a major role in maintenance of gut health and nutrient balance for as long as mother and child are interested to participate in breastfeeding. (7)

The loss of “milk teeth” whose health is promoted by the regular application of breastmilk, is the natural parameter for a cessation of feeding, but frequently it stops from the advent of another pregnancy, the arrival of a sibling or social mores in developed countries.

Conclusion

Strength of physical and chemical development of the human body depends upon support and maintenance of normal functional pathways. Education that is based upon commercial and political financial outcomes can unwittingly deflect these pathways, especially in civilised communities where advertising and promotion play a large role in the acquisition of information and development of belief systems. These affect breastfeeding in the same manner that they affect its replication precursors of fertility and pregnancy with adverse factors being actively sought after for medical diagnoses and drug treatments. (4)

A simple biological understanding of the processes of breastfeeding demonstrates its contribution to healthy human development and empowers mothers to make the ongoing observations and decisions that enable successful breastfeeding. (5)

.....
 (1) How the Commonwealth government can take a lead role to improve the health of the Australian population through support for breastfeeding.

(2) The extent of the health benefits of breastfeeding;

(3) Evaluate the impact of marketing of breast milk substitutes on breastfeeding rates and, in particular, in disadvantaged, Indigenous and remote communities;

9.

(4) The potential short and long term impact on the health of Australians of increasing the rate of breastfeeding;

(5) Initiatives to encourage breastfeeding;

(6) Examine the effectiveness of current measures to promote breastfeeding;

(7) The impact of breastfeeding on the long term sustainability of Australia's health system.

.....
Margaret Levin.

26th February 2007