

**“Zone Model” Tool for Assessing Early Nipple Discomfort in first 2 weeks postpartum.
(See illustrations of zones. Concept not applicable to thrush)**

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The basic anatomical design of the human nipple-areolar complex has many normal variations, just as occur in hair color and texture, etc. It is a unit made up of several areas which are directly connected anatomically, work closely together, and compensate for each other in various ways when forces are applied. Medical diagrams have often shown what I call a “generic nipple”, as well as a “bicycle spoke” distribution of milk sinuses. To avoid this simplistic approach, I have included two diagrams to represent the specific Zones that I visualize as a basis for assessing early latching discomfort. Assessment often reveals discomfort in more than one zone.

Ultrasound research done during well-established breastfeeding has created questions about the nature, distribution and even the existence of milk sinuses, even though photos of sinuses under the microscope in specimens of resting breast tissue have often been illustrated in pathology literature. I believe the controversy exists partly because the sinuses may undergo a change in shape and size at various stages of reproductive life, much as the uterus does. As the breast begins producing colostrum in mid-pregnancy, increasing rapidly after birth, the microscopic sinuses begin to dilate and enlarge. Despite the fact that these stages have not yet been the subject of ultrasound research, my experience has found this concept very helpful in assessing discomfort during the first two weeks of lactation.

Long before damage occurs, a mother experiencing any degree of discomfort may benefit from an assessment immediately before a feeding, providing a more accurate idea of which zones have been traumatized in previous feedings. If assessment is repeated after feeding, it is usually quite different for 1-2 hours p.c. **With the mother’s permission**, I find it helpful to do the first assessment personally, palpating each zone slowly and gently as I elicit feedback and watch body language, until the mother proves to herself how to separate her subjective experience out into a more objective observation. I have taught it over the phone to very savvy mothers. It permits targeting interventions more appropriately to the specific zone(s) experiencing discomfort.

Zone 1-brush a fingertip lightly over the skin on the tip and sides of the nipple button, asking the mother to rate the pain on a 0-10 scale, ranging from “no discomfort, up to the worst pain you can imagine.” Despite any visible damage during this time period, (which usually leads everyone to conclude that the damage is the source of all the pain), the mothers I’ve tried it on have usually rated the pain from 0-2 before feedings.

Zone 2-very gently compress the “meat” (the connective tissue and muscle) of the nipple button with the thumb and first finger, and watch the mom’s body language for signs of flinching, etc. Release the pressure and recompress several times, increasing the pressure somewhat more according to her response. Have her rate the discomfort. (This area should normally experience only intermittent contact with the soft palate junction and the back third of the tongue. Elevated pain here, sometimes up to 6-7, may be due to internal bruising or inflammation of the muscular/connective tissue inside the nipple itself, due to misapplied compression of the jaws and/or the tongue against the hard palate. Inspect the baby’s frenulum carefully and question the mother about the shape of the nipple as it comes out of the baby’s mouth.)

Between 1 or 2 feedings, an ice pack to the nipple (initially covered with a warm wet wash cloth and strictly limited to 20 minutes to avoid risk of frostbite) may help resolve internal inflammation. If application of cold causes pain, observe the nipple for blanching and color changes, since trauma that continues long enough may eventually contribute to Raynaud’s

syndrome of the nipple. Conversely, immediate relief just before latching often comes from saturating a clean folded washcloth with the hottest water a mother can comfortably tolerate on her inner wrist, holding it to the nipple and areola till it cools. Some radiology texts state this relaxes muscles in the nipple, elevating the pain threshold.

Zone 3-gently grasp the base of the nipple just where it meets the areolar skin and slowly begin to exert slight, increasing traction while very gently rotating the nipple as you watch the mother's body language. Have her rate any discomfort. Like the other 3 zones, this area has no fatty tissue to cushion trauma. Extreme guarding, exquisite tenderness ranging upward to 6-7 or higher is often a sign that traction has "sprained" this area of tissue, causing internal bruising and/or tearing. There should be absolutely no traction on the nipple or its base during nursing or pumping. Also look closely at the skin at the junction of the nipple and areola, tilting the nipple this way and that, as traction/tension may even cause external skin tears there.

During the learning period, discomfort in this zone is almost always due to severe traction at the base of the nipple caused by the mother's fearful, self-preservation urge, grit-your-teeth, 'get-it-out-of-his-mouth!', rapid-but-incorrect suction breaking. The more often it's done, the worse it may become. In addition, this kind of discomfort may also be partially due to the weight of a poorly supported breast dragging the nipple from the baby's mouth, or from too small a pump flange tunnel, perhaps combined with too strong a vacuum. There should be no significant compression in this area either, except for the ripple of the middle of the tongue during the extrusion process. This pain, when present, is excruciating, lasting through practically the whole feeding, unless the mother can reposition the baby's mouth at least 1 cm. beyond the "sprained" area. I have found baby-prone nursing position helps maintain this deeper placement of the baby's jaws and tongue.

I have had a few mothers who found this type of pain resolved only by 24-48 hours of resting the nipple base, especially if skin tears exist. This includes even the force of vacuum, instead using frequent fingertip expression 1-2 cm. further back on the areola beyond the tender area, to maintain supply and avoid engorgement. A few weeks later (at the beginning of the "curiosity stage") it can occur due to the baby's allowing the nipple to slip and then jerking the head with the tip of the nipple held firmly between the jaws, perhaps while attempting to follow someone or something with his eyes.

Zone 4-Visualizing the nipple as the center of a clock, place "C" shaped curved thumb and fingertips at 12 and 6 o'clock, about 2-3 cm. away from the base of the nipple, slightly forward of the "sweet spot" for fingertip expression. First, press deep straight inward toward the ribs, maintain that pressure, and begin to close the fingertips into an "O" shape directly over the "belly" of several milk sinuses.

Have the mother rate it. This often rates a 6 or 7 from mothers where sinus walls are markedly distended and tensely stretched. In my experience, as much as 50-75% of "latch pain", thought to be from the nipple itself, is really occurring in the walls of the milk sinuses due to sudden compression exerted on the sinuses at their thinnest, most tightly stretched area. (think of the sensation you get when your driver suddenly applies the brakes causing your seatbelt to forcefully compress your full bladder!)

Very gentle slow removal of 5-10 drops by fingertip expression soon causes the pain to subside, and co-incidentally often triggers MER. If the mother's body/verbal language indicates pain, go at it more easily and slowly, asking her to tell you immediately when the pain goes away. An incredulous look of relief often lights her face at about 30 seconds, as she says "Why, it's gone!"

(If you were to re-test 90 degrees around, in the opposite quadrants, this same thing could also be expected, because each outer wall of each milk sinus is stretched to capacity, even prenatally in some mothers, but especially during this time period when elasticity is still being established.)

Interestingly, compression of the sinus from either end where the walls are not quite so distended, does not seem to cause discomfort.

- Off-center latch avoids pain by having the baby's upper jaw on the less distended portion of the sinus nearest the nipple, and the tongue and lower jaw extruding from beyond the end of the sinus nearest the mother's body.
- Reverse pressure softening, gently performed right at the base of the nipple and directed at the anterior ends of the sinuses, pushes some of the milk slightly back upward into the contributing ducts. (If RPS hurts, use less pressure, for a longer period.) This relieves the discomfort in Zone 4 before latching. It also permits more effective milk transfer because it stimulates MER, and permits the relaxed sinus walls to respond more easily to rippling of the tongue. It also then facilitates the teaching of fingertip expression, a helpful and important skill for the mother to know.

(Published September 2002, Updated November 2007, May 2010)

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(Received the 2004 JHL "Reader's Choice" award.)

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