Unit 4. Stanya Vijnana (Breast Milk) Topic 1. Stanyotpatti

Unit 4: Stanya Vijñāna (Breast Milk)

Topic 1 — Stanyotpatti (physiology of lactation), Stanya Guṇa, Śuddha Stanya Lakṣaṇa (qualities of normal breast milk), Piyūṣa (colostrum), Composition and Types of Breast Milk

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1) Classical orientation and definitions

Stanya (breast milk) is considered the *upadhātu* (secondary tissue-product) of **Rasa-dhātu** (plasma/nutrient fluid) and the primary food of the infant in Ayurveda. Vāgbhaṭa and other Ācāryas repeatedly emphasise its indispensability for life, nutrition and immunity of the newborn.

Classical proof (Upadhātu of Rasa):
"**रसात् स्तन्यं स्त्रियाः...**" — the generation of *stanya* (in woman) from *rasa* is stated by Ācārya Caraka while enumerating the upadhātus.
Source: *Caraka Saṃhitā*, **Cikitsāsthāna 15/16–17**.

Human milk in Kṣīra-varga (Drava-dravya-vijñānīya):
"**मानुषं वातपित्तासृगभिघाताक्षिरोगजित् । तर्पणाश्चोतनैर्नस्यैः**" — "Human milk is beneficial in disorders of Vāta, Pitta, blood and injuries; salutary for eye therapies (tarpana, aścyotana) and as *nasya*."
Source: *Aṣṭāṅgahṛdaya*, **Sūtrasthāna**, Drava-dravya-vijñānīya (Kṣīra-varga).

> These two ślokas together establish: (i) *stanya* arises from *rasa*, and (ii) *mānuṣa-kṣīra* (human milk) has cooling, nourishing, protective properties, aligning with modern findings on immunological benefits.

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2) Stanyotpatti — Physiology of lactation

Ayurvedic view

- **Dhātu-saṃtāna:** Maternal *āhāra-rasa* nourishes Rasa-dhātu; from Rasa, *stanya* is elaborated as its *upadhātu* and transported through **stanya-vāha srotas** to **stana** (breasts). Balanced *Agni*, *doṣa*, and unobstructed srotas are prerequisites for adequate flow (*stanya-pravṛtti*).
- **Factors favouring stanyotpatti:** *Sātmyāhāra* (wholesome diet), *snigdha-madhura-rasa* intake, adequate *nidrā* (sleep), calm *manas*, regular suckling (stimulates flow), and *stanya-janaka* dravyas (galactagogues) such as śatāvarī, vidārī, yaṣṭimadhu, and *ghṛta* when indicated.
- **Factors impairing stanyotpatti:** Maternal undernutrition, dehydration, *śrama* (fatigue), *rukṣa* & *tikta-kaṭu* dominant diets in excess, emotional disturbance, breast/duct obstruction (*sanga*), and *stanya-doṣa* due to maternal *doṣa-prakopa*.

Modern physiology (bridged to Ayurvedic concepts)

- **Hormonal axis:**
  - **Prolactin** (anterior pituitary) — milk synthesis. Peaks with suckling; higher at night.
  - **Oxytocin** (posterior pituitary) — **let-down reflex**; causes myoepithelial contraction and ejection of milk through ducts (*stanya-vāha srotas* ↔ *let-down pathway*).
- **Stages of lactation:**
  - **Lactogenesis I** (mid-pregnancy to early postpartum): Colostrum formation.
  - **Lactogenesis II** (days 2–4): "Milk coming in" — sharp rise in volume with falling progesterone.
  - **Galactopoiesis** (maintenance): Supply-demand principle; frequent emptying sustains production.
- **Autocrine control:** The more completely and frequently breasts are emptied, the greater the synthesis (mirrors

Ayurvedic emphasis on regular *stanya-pāna* to keep srotas unblocked).

Clinical pearls (exam-oriented): Initiation of breastfeeding within the **first hour** optimises oxytocin reflex and infant thermoregulation; rooming-in, skin-to-skin contact, and on-demand feeding prevent early lactation failure.

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3) Stanya Guṇa — Properties of breast milk

Ayurvedic properties (Mānuṣa-kṣīra)

- **Rasa (taste):** *Madhura* (sweet).
- **Guṇa:** *Snigdha* (unctuous), *mṛdu* (soft), *sātmya* (naturally suited to the infant).
- **Vīrya:** Predominantly *śīta* (cooling, pitta-śāmaka).
- **Vipāka:** *Madhura*, thereby building tissues.
- **Karma (therapeutic actions):** *Jīvanīya* (life-promoting), *bṛṃhaṇa* (anabolic), *ojovardhana* (enhances ojas), *rasāyana-tulya* for the infant (supports immunity and longevity).
- **From Aṣṭāṅgahṛdaya reference above:** Indications in eye disorders and as *nasya* reflect anti-inflammatory/protective (IgA-rich) qualities.

Modern correlates

- **Immunological:** Secretory **IgA**, lactoferrin, lysozyme, leukocytes; **HMOs** (human milk oligosaccharides) promote beneficial microbiome and anti-adhesive pathogen defence.
- **Growth & neurodevelopment:** Long-chain PUFA (DHA/ARA), cholesterol, hormones (leptin, adiponectin), nucleotides, growth factors (EGF), stem cells — support brain myelination, retinal development and gut maturation.
- **Allostatic protection:** Lower risks of NEC, sepsis, otitis media, diarrhoea, SIDS; long-term reduction in obesity, type-2 DM; improved cognitive scores.

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4) Śuddha Stanya Lakṣaṇa — Qualities of normal breast milk

Ayurvedic descriptors (examination-ready):

- **Varṇa:** Śaṅkha-śubhra (pearl-white), not too yellow/greenish.
- **Gandha:** *Manda* / non-offensive, characteristic sweetish odour; no rancidity.
- **Rasa:** *Madhura*, non-astringent/bitter.
- **Sparśa/Drava:** Smooth, homogeneous; not excessively viscous (*atitanutā/taṇḍulatā* absent); minimal frothing.
- **Śuddhi markers:** Infant drinks readily; no abdominal colic, regurgitation, skin eruptions or eye discharge after feeds, sleep is sound, weight gain appropriate.

Note: Texts also describe *stanya-parīkṣā* (simple bedside checks) and contrast features of *duṣṭa stanya* (e.g., excessive froth, stringiness, discoloration, unpleasant smell/taste) which correlate with infant intolerance/infections; these are detailed formally under *Stanya-doṣa* elsewhere in the syllabus.

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5) Piyūṣa (Colostrum) — Concept and significance

Definition: *Piyūṣa* denotes the **first milk** expressed in early postpartum days (golden-yellow, viscous). Traditionally regarded as *amṛta-sadṛśa* (nectar-like), it is **not** to be discarded; it is the **first *āhāra*** of the newborn.

Ayurvedic rationale:

- Highly *saṃskāra-yukta* (naturally processed by the mother's physiology), bestows *bala*, *varṇa*, *medhā*, and

protects the *bāla-agni* and *srotas*.
- Its early administration aligns with *jātakarma* care, ensuring warmth, bonding and initiation of *stanya-pravṛtti*.

Modern composition & benefits (clinically high-yield):

- **High protein (esp. whey), low fat & lactose;** very rich in **sIgA**, lactoferrin, leukocytes, cytokines, HMOs, vitamin A & zinc.
- **Gut priming:** Seals mucosa, reduces intestinal permeability, promotes meconium passage (↓ jaundice risk), and seeds healthy microbiota.
- **Infection control:** Broad passive immune protection; strong anti-inflammatory action.

Practice points: Start within **1 hour** of birth; feed *on demand* (8–12 times/day); avoid pre-lacteal feeds and routine bottles to protect latch and supply.

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6) Composition of breast milk

Component	Colostrum (0–3 d)	Transitional (4–14 d)	Mature milk (>2 wk)	Key notes
Energy	~55–65 kcal/100 ml	↑	65–75 kcal/100 ml	Varies with maternal diet, time of day
Water	~87–88%	~87%	~87%	Adequate hydration for infant; no extra water needed
Protein	**2.0–2.5 g/100 ml**	1.5–1.8	**0.8–1.0**	Immunoproteins dominate early (sIgA, lactoferrin)
Fat	2–3 g/100 ml	3–4	**3.5–4.5 (variable)**	↑ in hind-milk; provides DHA/ARA
Lactose	4–5 g/100 ml	5–6	**6.5–7.5**	Fuel for brain; promotes Ca absorption
HMOs	**High**	High	High	Prebiotic; pathogen decoy
Micronutrients	Vitamin A, E, Zn **high**	Balanced	Balanced	Vit D depends on maternal status/sunlight

Foremilk vs hindmilk: Foremilk is relatively lower in fat (quenches thirst), hindmilk is fat-rich (satiety, weight gain). Ensure **complete emptying** of one breast before switching.

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7) Types/classifications of milk

(A) Ayurvedic Kṣīra-varga (overview)

Classics describe **eight milks** (cow, buffalo, woman, goat, sheep, camel, horse, elephant) with distinct guṇas. For **mānuṣa-kṣīra**, the Aṣṭāṅgahṛdaya śloka (quoted above) highlights therapeutic use, reflecting its gentle, protective nature suited to the human infant.
(Detailed doṣa-wise stanya-doṣa classification is addressed under a separate topic.)

(B) Modern functional types

- **Colostrum → Transitional → Mature** (time-based maturation).
- **Foremilk vs Hindmilk** (within-feed gradient).
- **Preterm milk:** Higher protein, certain minerals, and protective factors than term milk — naturally tailored to preterm needs.

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8) Practical assessment of adequate lactation & normal milk

- **Infant parameters:** Effective latch/suck-swallow-breathe pattern; ≥6 wet nappies/day by day 5; transitional stools

to seedy yellow by day 4–5; **birth weight regained by 10–14 days**, then **~20–30 g/day** gain in early months.

- **Maternal signs:** Fullness before feeding, softening after; occasional let-down tingling; no persistent pain/cracks (suggest latch issues).
- **If concerns:** Observe a full feed, correct positioning, ensure on-demand frequency (including night feeds); screen for maternal anaemia, thyroid disorders, drug use, dehydration, stress; investigate infant tongue-tie or illness when indicated.

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9) Integrative management pointers (Ayurveda + modern care)

- **Daily regimen:** Warmth, rest, post-partum *abhyanga* as per season, light *bṛṃhaṇa* diet (e.g., *yavāgū*, *māṣa/mudga* as suitable), *ghṛta* in moderation, spices that aid *agni* yet are mild (śuṇṭī, ajamodā).
- **Stanya-vardhaka dravyas** (under supervision): Śatāvarī, Vidārī, Yaṣṭimadhu, Jeeraka-kaṣāya, *ṣaḍ-dhānya* gruels, fenugreek in appropriate dose; maintain hydration.
- **Lactation counselling:** Early skin-to-skin, rooming-in, demand feeding, avoid pre-lacteals/formula unless medically indicated.
- **Red flags needing referral:** Poor weight trajectory, dehydration signs, persistent jaundice >3 weeks, fever, maternal mastitis/abscess, inverted nipples unresponsive to support, infant structural anomalies affecting feeding.

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10) High-yield “compare & contrast”

Feature	*Śuddha stanya* (Ayurveda)	Healthy breast milk (modern)
Appearance	Pearl-white, homogeneous, not frothy	Opaque white/bluish; thin at start, creamier later
Tolerance	Infant calm, sleeps well, thriving	Adequate wet diapers, weight gain, no persistent colic
Smell/taste	Pleasant, not rancid or bitter	Mild “sweet” smell; off-odour suggests storage/rancidity
Effect	*Bṛṃhaṇa*, *ojovardhana*, disease protection	Immunoprotection (sIgA, HMOs), neurodevelopment support

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Key Sanskrit ślokas for this topic

1. **Upadhātu link (origin of stanya):**
   “रसात् स्तन्यं स्त्रियाः...”
   Caraka Saṃhitā, **Cikitsāsthāna 15/16–17**.
2. **Properties/indications of human milk:**
   “मानुषं वातपित्तासृगभिघाताक्षिरोगजित् । तर्पणाश्चोतनैर्नस्यैः”
   Aṣṭāṅgahṛdaya, **Sūtrasthāna**, Drava-dravya-vijñānīya (Kṣīra-varga).

(Use these verbatim with source. If your university expects exact numbering for AH verses, cite by chapter title—Drava-dravya-vijñānīya (Kṣīra-varga)—as printed editions vary in verse counts.)

Assessment

A. Long answer (10 marks)

1. Explain **Stanyotpatti** with Ayurvedic and modern mechanisms. Add the role of *stanya-vāha srotas*, prolactin-oxytocin physiology, and clinical steps to establish breastfeeding within the first hour.

B. Short essays (5 marks each)

1. **Śuddha Stanya Lakṣaṇa**: enumerate and correlate with modern clinical markers of adequate milk.
2. **Piyūṣa (Colostrum):** composition, benefits, and its place in *jātakarma* care.

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3. **Stanya Guṇa** of *mānuṣa-kṣīra*: Ayurvedic properties with modern parallels.

C. Short answers (3 marks each)

1. List any four immunological constituents of human milk.
2. Define foremilk and hindmilk; why must one breast be emptied before switching?
3. Name three **stanya-vardhaka** dravyas with classical rationale.
4. Mention two **maternal** and two **infant** causes of perceived “low milk”.
5. Enumerate three bedside signs that lactation is adequate by day 5.

D. MCQs (1 mark each)

1. *Stanya* is an **upadhātu** of: **(a) Rasa** (b) Rakta (c) Meda (d) Śukra.
2. Primary hormone for milk **ejection** is: **(a) Oxytocin** (b) Prolactin (c) Estrogen (d) Progesterone.
3. HMOs in human milk act mainly as: **(a) Prebiotics/anti-adhesins** (b) Vitamins (c) Enzymes (d) Minerals.
4. Which is **richest** in sIgA: **(a) Colostrum** (b) Transitional milk (c) Mature foremilk (d) Mature hindmilk.
5. A normal indicator by day 5 is: **(a) ≥6 wet diapers/day** (b) Weight loss >12% (c) Green frothy stools persistent (d) No stools at all.
6. In AH Kṣīra-varga, *mānuṣa-kṣīra* is indicated even for: **(a) Ocular therapies** (b) Vamana (c) Virechana (d) Basti.
7. Foremilk is relatively: **(a) Lower fat** (b) Higher fat (c) Higher protein (d) Higher minerals.
8. Hindmilk supports: **(a) Satiety & weight gain** (b) Only hydration (c) Only immunity (d) Only minerals.
9. Earliest breastfeeding should begin within: **(a) 1 hour** (b) 6 hours (c) 24 hours (d) 48 hours.
10. A true sign of adequate supply is: **(a) Breast softening after feeds** (b) Persistent deep nipple pain (c) Infant lethargy and dry mouth (d) <2 wet diapers/day.

Case-vignette prompt (5 marks): A primipara on day 3 reports “no milk,” baby crying. Outline **five** steps to assess and support lactation using both Ayurvedic and modern measures.

References

Classical

- **Caraka Saṃhitā** — *Cikitsāsthāna* 15/16–17 (Upadhātu enumeration: *rasāt stanyaṃ*).
- **Aṣṭāṅgahṛdaya Saṃhitā (Vāgbhaṭa)** — *Sūtrasthāna*, **Drava-dravya-vijñānīya (Kṣīra-varga)** — properties and indications of *mānuṣa-kṣīra*.
- **Suśruta Saṃhitā** — *Śārīrasthāna* (context of *stanya* and post-natal care), *Sūtrasthāna* (Kṣīra-varga parallels).
- **Kāśyapa Saṃhitā** (Vṛddha Jīvakiya Tantra) — *Khilasthāna/Lehya-annapāna*, *Bāla-poshana* topics supporting primacy of *stanya* and colostrum feeding.
- **Aṣṭāṅgasaṅgraha** — corroborative verses on *kṣīra-varga* and paediatrics.

Modern

- *IAP Textbook of Pediatrics* (latest ed.) — Breastfeeding & human milk composition.
- WHO/UNICEF: **Ten steps to successful breastfeeding**; Early initiation policy briefs.
- Lawrence & Lawrence: *Breastfeeding: A Guide for the Medical Profession* — physiology & clinical practice.
- Ballard O., Morrow A. — Human milk composition: nutrients and bioactive factors (*Pediatr Clin North Am*).
- Victora et al. — Breastfeeding and health outcomes (The Lancet Breastfeeding Series).

Exam tip: Quote *Caraka* for **origin** (Rasa → *stanya*) and *Aṣṭāṅgahṛdaya* for **properties** and **clinical indications** of *mānuṣa-kṣīra*. Use modern numbers (sIgA, HMOs, DHA, 6–12 feeds/day, ≥6 wets by day 5) to secure integration marks.