

5.3. Assess the status of Dhatu and Dhatu Pradoshaja Vikara

5.3. Assessing the Status of Dhātu and Dhātu-pradoṣaja Vikāra

Learning goals

By the end of this chapter, you will be able to: (i) define **dhātu-sāmyata** (balanced tissue state) and recognise **dhātu-kṣaya/vṛddhi**; (ii) perform a **structured assessment** of each of the seven dhātus in infants, children and adolescents; (iii) identify **dhātu-pradoṣaja vikāra** (tissue-specific morbidities) with paediatric correlates; and (iv) write an **examready** plan that integrates **Daśa-vidha parīkṣā** with modern measures (anthropometry, targeted labs).

Classical anchor (why dhātu status matters)

"समदोषः समाग्निश्च समधातु मलिक्रयाः। प्रसन्नात्मेन्द्रियमनाः स्वस्थ इत्यभिधीयते॥"

- Suśruta Samhitā, Sūtrasthāna 15/41

(Health is the state of equilibrium of doṣa, agni, dhātu and mala with pleasantness of self, senses and mind.)

This verse is your opening line in long answers: assessment of health is assessment of dhātu balance.

1) Key definitions

- Dhātu: the seven sustaining tissues Rasa, Rakta, Māmsa, Meda, Asthi, Majjā, Śukra which sequentially nourish one another (dhātu-samtāna).
- Dhātu-sāmyata: functional and quantitative balance of each dhātu, appropriate for age and sex.
- Dhātu-kṣaya: deficiency (quantitative/qualitative) of a tissue; Dhātu-vṛddhi: excess/overaccumulation.
- Dhātu-pradoṣaja vikāra: tissue-specific morbid states arising from qualitative/quantitative derangement of a dhātu (with characteristic clinical expressions).

2) Assessment framework (how to examine dhātus in children)

Use **Daśa-vidha parīkṣā** (Charaka: *sāra, saṃhanana, pramāṇa, satmya, satva, āhāra-śakti, vyāyāma-śakti, vaya* + *prakṛti, bala*) with **age-appropriate** observations. Pair every Ayurvedic observation with a **modern correlate** so your answer is complete and clinically useful.

2.1 Sāra-parīkṣā (excellence of tissues) — child-friendly cues

(Summarised from classical descriptions; apply sensibly across ages)

Dhātu	Classical "sāra" hints (child-friendly)	Bedside/modern correlates
Rasa	Soft, well-hydrated skin, pleasant sheen, good stamina for age	Skin turgor, mucous membranes moist; hydration; no undue fatigue
Rakta	Healthy pink of lips, nails, conjunctiva; good enthusiasm	Hb, MCV; no pallor/jaundice; capillary refill normal
Māṃsa	Well-filled limbs, firm tone, good posture	MUAC, muscle bulk/strength (age-fit tasks), growth velocity

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Dhātu	Classical "sāra" hints (child-friendly)	Bedside/modern correlates
Meda	Smoothness, unctuousness without heaviness	BMI-for-age, skinfolds; no acanthosis (excess) or wasting (deficit)
Asthi	Strong teeth, nails, hair set; steady gait	Rickets signs, bone pain, dental caries; Vit-D/Ca/ALP if indicated
Majjā	Plumpness, good eye glow, calm sleep	Neuro-development, fatigue, marrow/neurologic cues as relevant
Śukra/Artav	Luster, clarity of voice/eyes; in adolescents, normal pubertal milestones	Tanner staging; menstrual history in girls; endocrine red flags

Exam tip: In **infants**, emphasise **Rasa-Māṃsa** (hydration/growth) first; in **adolescents**, add **Asthi-Śukra/Artava** (bone mass, pubertal progress).

2.2 Saṃhanana (body compactness) & Pramāṇa (proportions)

- Observe frame, posture, and proportions (upper/lower segment ratio, head circumference in infants).
- Modern: length/height, weight, BMI-for-age, MUAC, HC; plot on WHO growth standards; track z-scores and velocity.

2.3 Satmya, Satva, Āhāra-/ Vyayāma-śakti, Vaya

- Satmya: foods that suit the child (intolerance hints Rasa/Rakta or Māṃsa issues).
- **Satva**: mental strength (poor satva → low appetite, recurrent illness).
- Āhāra-śakti: appetite + digestion (vomits/bloating → Rasa pradoṣa/Agni issues).
- Vyayāma-śakti: endurance for age (links Māmsa/Meda/Asthi).
- Vaya: age-appropriate milestones/puberty (dhātu maturity).

2.4 Srotas-parīkṣā (channels) and Doṣa context

• Do not assess dhātu in isolation: annotate doṣa influences (e.g., Pitta aggravation with Rakta signs; Kapha with Meda).

3) The seven dhātus: what to look for, what goes wrong, how to corroborate

Use this table to structure any short/long answer; adapt examples to age.

Dhātu	Healthy status (age-fit)	Kṣaya (deficit) — signs & paediatric correlates	Vrddhi (excess) — signs & correlates	Targeted corroboration
Rasa (plasma/primary nutrition)	Hydrated skin, good sleep, steady appetite	Dry tongue, poor skin turgor, easy fatigue, dizziness	Heaviness, lethargy, sticky salivation, oedema tendency	Hydration status, serum electrolytes if severe; feeding history
Rakta (blood)	Pink mucosae, warm peripheries, vigour	Pallor, irritability, pica; recurrent infections; tachycardia	Flush, bleeding tendencies with heat signs (rare in children)	CBC, smear, ferritin±CRP; LFT if jaundice
Māṃsa (muscle)	Age-appropriate bulk/tone; active play	Wasting, hypotonia, delayed motor skills	Stocky habitus with poor endurance	MUAC, growth velocity; diet protein quality

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Dhātu	Healthy status (age-fit)	Kṣaya (deficit) — signs & paediatric correlates	Vṛddhi (excess) — signs & correlates	Targeted corroboration
Meda (adipose/lipids)	Softness without heaviness; satiety cycles	Dry rough skin, poor weight gain	Central adiposity, snoring, acanthosis	BMI-for-age, skinfolds; fasting glucose/lipids if obese
Asthi (bone/teeth)	Straight limbs, firm teeth/nails	Rickets signs (wrist widening, genu varum), bone pains	Bony overgrowths (rare; note exostoses/dentition anomalies)	Ca, P, ALP, 25-OH-D; dental exam
Majjā (marrow/nerve)	Calm sleep, bright eyes, good recovery from illness	Fatigability, neuro-cognitive lag (broad flag), recurrent bone pain (marrow)	Head-aches/heaviness with kapha signs (non- specific)	Developmental screen; anaemia profile; neuro eval if indicated
Śukra/Artava (reproductive tissue)	Normal pubertal timing; clear skin/lustre	Delayed puberty, dysmenorrhoea/oligomenorrhoea in girls, under-muscled boys	Precocious features; acne/oily skin (pitta/meda overlay)	Tanner staging; thyroid/FSH-LH/PRL as needed

4) Dhātu-pradoṣaja vikāra: concept and paediatric mapping

Definition: When a **particular dhātu is qualitatively vitiated or quantitatively deranged**, a recognisable **cluster of disorders** arises — these are **dhātu-pradoṣaja vikāra**. Know the classical associations and give **modern paediatric parallels** (for theory marks).

Dhātu	Classical pradoșaja pointers	Paediatric correlates/examples
Rasa	Āruci (anorexia), tandra (somnolence), gaurava (heaviness), klama (fatigue), śūla/āmā symptoms	Feeding difficulties, functional abdominal pain, recurrent viral illnesses with poor hydration/nutrition
Rakta	Raktapitta, kuṣṭha/śvitra, visarpa, pittaja netra-roga	Anaemia syndromes, bleeding diathesis work-ups, atopy/eczema overlap (pitta-rakta)
Māṃsa	Granthi/arbuda, apacī, gala-gaṇḍa (with other factors)	Adenitis , tonsillar hypertrophy ; rare neoplasms (mention carefully)
Meda	Prameha, sthūlatā, medoroga; srotorodha	Childhood obesity , insulin resistance (acanthosis), dyslipidaemia
Asthi	Danta-vikāra, nakha-kacha vikāra, śūla, sandhi-akṣepaka	Rickets/osteomalacia , dental caries/enamel defects, bone pains
Majjā	Timira/anetra-vikāra (with pitta/rakta), majjā- kṣaya lakṣaṇa	Marrow failure/anaemia red flags; neurodevelopmental lag (broad)
Śukra/Artava	Klaibya, vandhyatā, pautika/śukra-doṣa	Pubertal disorders (delayed/precocious), menstrual irregularities (adolescents)

Important: In **children**, Śukra/Artava-pradoṣa is mostly **puberty-age**; avoid adult sexual dysfunction language in paediatric answers — instead **chart pubertal timing and menstrual health**.

5) Step-wise assessment algorithm

- 1. **General growth screen:** weight, length/height, **z-scores**, **MUAC** (6-59 mo), **BMI-for-age** (5-19 y).
- Daśa-vidha parīkṣā focus: Sāra → Saṃhanana → Pramāṇa; āhāra-śakti & vyāyāma-śakti; satmya/satva; age (milestones/puberty).
- 3. **Dhātu-wise checklists:** Rasa (hydration, appetite), Rakta (pallor, bleed), Māṃsa (tone, MUAC), Meda (skinfolds, acanthosis), Asthi (rickets/dental), Majjā (fatigability/neuro), Śukra/Artava (Tanner/menstrual).
- 4. Doșa & srotas lens: is there Pitta-Rakta pattern? Kapha-Meda block? Vāta-Asthi link?

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- 5. **Corroborative tests (only as needed):** CBC, ferritin±CRP; Ca/P/ALP/25-OH-D; fasting glucose/lipids in obesity; thyroid & pubertal hormones selectively.
- 6. Grade the state: Sāmyata vs Kṣaya vs Vṛddhi (dhātu by dhātu).
- Plan: Pathya-āhāra + vyāyāma; correct micro-nutrients; age-fit rasāyana/bṛṃhaṇa or langhana/lekhanīya where appropriate; treat any dhātu-pradoṣaja condition with standard protocols; schedule follow-up with growth velocity.

6) Putting theory into practice (age-wise nuances)

Infants (0-12 months)

- Rasa-Māṃsa priority: ensure exclusive breastfeeding (0-6 mo), then iron-rich complementary feeding; check hydration, stools, weight velocity.
- **Dhātu-pradoṣa focus: Rasa-pradoṣa** (feeding/colic/functional diarrhoea); **Rakta** (early anaemia) **CBC** if red flags.

Toddlers & preschool (1-5 years)

- Māṃsa-Meda-Asthi triad: protein quality, fats (energy density), calcium/vit-D; watch for rickets signs.
- Pradoșa: Meda (early adiposity), Asthi (vit-D deficiency), Rakta (IDA).

School-age & adolescents

- Asthi peak-bone-mass and Śukra/Artava maturation: calcium-vit-D, exercise; monitor menstrual health in girls; iron for both sexes (esp. girls).
- Pradoşa: Meda-pradoşa (obesity/IR), Rakta (anaemia), pubertal disorders (endocrine evaluation).

7) Management principles framed by dhātu state

Rule: "Treat the child, the doṣa, the dhātu, and the srotas — in that order, with age-appropriate gentleness."

- Dhātu-kṣaya (deficit):
 - **Pathya**: energy-protein dense diet, iron-zinc-vit-A/D/B12 as indicated; small frequent meals; correct *agni* (avoid over-restrictive fad diets).
 - **Bṛṃhaṇa & Rasāyana-yoga** (child-safe): *ghṛta-based* preparations, *Jīvantī/Śatāvarī/Vidārī* support where appropriate; treat underlying infections/IBD/parasites.
- Dhātu-vrddhi (excess):
 - Langhana/Laṅghana-pācana (mild), lekhanīya pathya; prune sugars/UPFs; bolster playful vyāyāma; address sleep.
 - For **Meda-pradoşa** (obesity/IR): graded activity, family diet change; consider **lipid/glucose** screens.
- Dhātu-pradosaja vikāra (examples):
 - Rakta (IDA): diet + iron therapy with deworming per program; address menorrhagia in adolescents.
 - Asthi (rickets): vit-D + calcium regimen, sun-exposure guidance.
 - o **Meda** (obesity): stage by BMI-z; comorbidity screen; behaviour therapy.

8) Case snippets (for short answers)

1. **9-month infant**, BF + thin gruels, pallor.

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- o Dhātu screen: Rasa okay? Rakta likely kṣaya.
- Plan: Thicken foods; add iron-rich (egg/legume + vit-C); CBC/ferritin; review in 2 weeks with weight.
- 2. **7-year child**, BMI-z > +2, acanthosis.
 - Dhātu: Meda-vṛddhi (pradoṣa).
 - Plan: Family-based diet shift; playful daily activity; fasting glucose/lipids; counsel sleep.
- 3. **14-year girl**, delayed menarche, fatigue, bone pains.
 - Dhātu: Asthi kṣaya with possible Rakta issues.
 - Plan: Tanner staging; Ca/P/ALP/25-OH-D, CBC; calcium-vit-D repletion; protein upgrade; reassess milestones.

9) Common pitfalls (and how to avoid them)

- Mixing up doşa and dhātu: write both (e.g., "Pitta-rakta prakopa → Rakta-pradoşa features").
- **Ignoring age**: Śukra/Artava assessment applies to **adolescents**; do not discuss adult sexual dysfunctions in paediatric answers.
- Over-ordering labs: use targeted tests; the backbone is growth + sāra/saṃhanana/pramāṇa assessment.
- One-size diet: tailor by satmya, āhāra-śakti, and culture.

Self-assessment

MCQs (one best answer)

- 1. The single verse that best justifies assessing dhātu balance in health definition is from:
 - A. Caraka Nidānasthāna 4
 - B. Suśruta Śārīrasthāna 2
 - C. Suśruta Sūtrasthāna 15/41
 - D. *Aṣṭāṅga Hṛdaya* Uttarasthāna 3

Answer: C.

- 2. A 2-year child with MUAC 11.8 cm most likely has:
 - A. Normal Māṃsa
 - B. **Māṃsa-kṣaya** (MAM)
 - C. Meda-vrddhi
 - D. Asthi-vrddhi

Answer: B (MUAC 115-124 mm ≈ MAM).

- 3. Acanthosis nigricans in a 10-year-old suggests primarily:
 - A. Rakta-kşaya
 - B. Meda-pradoșa with insulin resistance
 - C. Asthi-kṣaya
 - D. Rasa-kşaya

Answer: B.

- 4. Rickets-like signs point to derangement of:
 - A. Rasa
 - B. **Asthi**
 - C. Māṃsa
 - D. Majjā

Answer: B.

- 5. In adolescents, delayed menarche belongs under:
 - A. Rasa-pradoșa
 - B. Śukra/Artava-pradoşa (with endocrine review)
 - C. Meda-vrddhi
 - D. Māṃsa-vrddhi

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Answer: B.

Short-answer prompts (3-4 lines each)

- Define dhātu-pradosaja vikāra and give two examples each for Meda and Asthi.
- Outline a dhātu-wise assessment plan for a 7-year-old with poor school stamina.
- List four clinical cues of Rakta-kşaya and two investigations.
- Write three diet measures for Māṃsa-kṣaya in a toddler.

References

Classical sources

- Suśruta Saṃhitā, Sūtrasthāna 15/41 definition of health emphasising samadhātu (quoted above).
- Caraka Samhitā, Vimānasthāna 8 Sāra-parīkṣā, Daśa-vidha parīkṣā parameters (sāra, samhanana, pramāṇa, satmya, satva, āhāra-śakti, vyāyāma-śakti, vaya).
- Caraka Saṃhitā, Sūtrasthāna (relevant adhyāyas on dhātu-saṃtāna and dhātu-kṣaya/vṛddhi concepts; commentators describe dhātu-pradoṣaja clusters across Sūtrasthāna 28–30).
- Aṣṭāṅga Hṛdayam, Sūtrasthāna (doṣa-dhātu-mala & srotas concepts supporting tissue assessment); Uttaratantra
 Bālopacaraṇīya (age-context in children).

Modern standard resources

- WHO Child Growth Standards and WHO 2007 BMI-for-age (anthropometry, z-scores, MUAC thresholds).
- IAP Textbook of Pediatrics growth & puberty, anaemia, rickets/osteomalacia, childhood obesity.
- Ghai Essential Pediatrics practical nutrition, anaemia work-up, Vitamin D/calcium disorders.
- NIN/ICMR Dietary Guidelines (energy-protein and micronutrient priorities by age).

60-second last-minute revision

- Quote **Suśruta 15/41** to anchor samadhātu.
- Examine via Daśa-vidha parīkṣā; translate each finding into modern growth & lab screens.
- Rasa-Māṃsa dominate infancy; Asthi-Śukra/Artava gain importance in adolescence.
- Dhātu-pradoṣaja = tissue-specific morbidity clusters (e.g., Meda→ obesity/IR; Asthi→ rickets; Rakta→ anaemia).
- Finish with a plan: pathya, micro-nutrients, bṛṃhaṇa (for kṣaya) or lekhanīya/langhana (for vrddhi), and follow-up on velocity.

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