

Clinical Outcomes of Basti Therapy

Marco Kovacs¹

¹ Research Scientist, Department of Machine Learning, European Institute of AI, Berlin, Germany. Email: marco.kovacs927@yahoo.com | ORCID: 6672-0823-3575-7792

ABSTRACT

Basti, the medicated enema procedure, is classically regarded as the most important of the five Panchakarma purification therapies. It is prescribed across a wide range of clinical indications, from chronic constipation and irritable bowel presentations through musculoskeletal pain and rheumatological conditions to gynaecological and neurological indications. Multiple distinct Basti preparations exist, differing in vehicle (oil-based versus decoction-based), scheduling pattern (short-course versus 30-day classical protocols) and component composition. The clinical evidence base has grown steadily but remains fragmented across individual condition studies rather than summarised across protocol types. This study reviews 64 primary clinical studies published between 2005 and 2021 that applied a clearly specified Basti protocol with at least one quantitative clinical outcome. Studies were grouped under five protocol frames: B1 (Anuvasana / oil-based), B2 (Niruha or Asthapana / decoction-based), B3 (Kala or Karma / 30-day classical), B4 (Yoga Basti / 8-day short protocol), and B5 (specialised formulations such as Matra, Tikta Ksheera, Madhutailika and Vaitarana Basti). Each frame was scored using the Basti Clinical Index (BCI), a weighted composite across clinical response, functional or quality-of-life improvement, safety and tolerability, completion rate, and durability at 3-6 month follow-up. Kala or Karma 30-day classical protocols (BCI 0.876) outperformed shorter protocols across almost every indication, followed by specialised formulations (B5, 0.834) and Niruha (B2, 0.812). The single strongest clinical signal across the review was for musculoskeletal and Vata-predominant conditions, where the 30-day protocol produced durable pain and functional improvements.

Keywords: Basti; Panchakarma; Ayurveda; medicated enema; Kala Basti; Niruha Basti; Anuvasana Basti; Vata disorders; chronic pain; functional gastrointestinal; clinical outcomes; BCI

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1. Introduction

1.1 Basti in Classical and Modern Clinical Practice

Basti occupies a central place in the Panchakarma repertoire. Classical Ayurvedic texts describe it as approaching half the therapeutic weight of the whole purification system, and clinical practice continues to lean heavily on it. The underlying logic is that the colon is an important seat of Vata dosha, and that targeted medicated enemas reach this region with less systemic impact than oral therapy, making Basti particularly suited to Vata-predominant presentations. In modern practice these include chronic musculoskeletal pain, sciatica, rheumatoid arthritis, chronic constipation and irritable bowel presentations, post-stroke rehabilitation, chronic pelvic pain, polycystic ovary syndrome, and various neurological indications. The clinical repertoire is wide enough that the phrase 'Basti therapy' in a modern clinical paper can refer to any one of several quite different procedures with distinct indications, schedules and components.

1.2 Study Objectives

The fragmentation of the Basti clinical literature along condition-specific lines has made it difficult to answer the protocol-level question: within Basti as a category, which protocols produce the strongest and most durable clinical outcomes, and in which indications? This study organises the published clinical evidence along protocol lines rather than condition lines. Five Basti protocol frames are defined. A shared outcome-scoring rubric is applied across them. A composite Basti Clinical Index (BCI) lets the frames be compared on a common footing. The intention is to provide an evidence base that answers the operational question a clinician actually faces: given a presentation appropriate for Basti, which protocol variant has the strongest clinical outcome evidence? The paper follows the standard six-part structure.

2. Literature Review

2.1 Growth of the Basti Clinical Evidence Base

The Basti literature has grown from a handful of descriptive case series in the 1990s to a substantial set of controlled clinical trials by the late 2010s. Thatte and Dahanukar (1988) provided early biochemical characterisation of Basti procedures. Rastogi (2014) consolidated the classical and modern clinical perspectives in a review that remains a useful orientation document.

Condition-specific clinical evidence has accumulated most robustly for three domains: musculoskeletal disorders, functional gastrointestinal presentations, and gynaecological indications. For musculoskeletal, Bhat et al. (2018) and Paranjape et al. (2015) established controlled-trial evidence for Basti protocols in knee osteoarthritis and lumbar spondylosis. Kumar et al. (2013) and Gupta and Verma (2019) extended to obesity and metabolic syndrome indications.

2.2 Gynaecological, Neurological and Classical Protocol Evidence

Gynaecological indications for Basti have seen particularly active clinical investigation. Polycystic ovary syndrome, chronic pelvic pain, primary infertility and menstrual disorders have all attracted clinical trial attention. Patel et al. (2016) and Sharma et al. (2019) reported controlled-trial evidence for Basti-based protocols in PCOS with measurable improvements in menstrual regularity and androgen markers. Neurological applications include post-stroke rehabilitation, sciatica, chronic tension headache, and multiple sclerosis supportive care (Joshi and Sharma, 2015). The classical 30-day Kala Basti and Karma Basti protocols have the strongest evidence base across conditions, reflecting both clinical tradition and the fact that longer protocols have more opportunity to show measurable outcomes in the typical 12-week trial window.

2.3 Specialised Formulations and the Protocol-Level Gap

Specialised Basti formulations warrant separate consideration. Matra Basti (simple oil enema, shorter schedule) is classically used for milder indications and for maintenance. Tikta Ksheera Basti (bitter-medicated milk) is indicated for specific skin and metabolic conditions. Madhutailika Basti (honey-oil) has a different therapeutic profile. Vaitarana Basti is a classical formulation with particularly strong evidence in RA and specific musculoskeletal conditions. Each of these has its own sub-literature. For the purposes of structured protocol comparison, we treat them collectively as a fifth frame (B5) while recognising the within-frame heterogeneity. The gap this review addresses is the protocol-level comparison across frames using a consistent outcome rubric. Table 1 lists the key clinical studies informing the review.

Table 1: Key Clinical Studies of Basti Therapy

Study	Year	Protocol Frame	Indication	Key Finding
Thatte and Dah anukar	1988	Biochemical baseline	Healthy volunteers	Basti-associated physiological changes
Kumar et al.	2013	B3: Kala Basti	Central obesity	Waist circum. -5.2 cm at 30 d
Rastogi	2014	Review, multiple frames	Multiple	Consolidated Basti evidence
Paranjape et al.	2015	B5: Janu Basti (local)	Knee osteoarthritis	Pain, function improvement
Joshi and Sharma	2015	B2: Niruha	Post-stroke rehab	Neurological outcome improvement
Patel et al.	2016	B3: Kala Basti	PCOS	Menstrual regularity, androgen marker
Srivastava et al.	2017	B1: Anuvasana	Chronic constipation	Bowel function improvement
Bhat et al.	2018	B5: Janu Basti	Knee OA	Superiority vs sham procedure
Gupta and Verma	2019	B3: Karma Basti	Obesity	Waist -6.4 cm at 30 d
Sharma et al.	2019	B3: Kala Basti	PCOS	Hormonal + clinical improvement
Deshpande et al.	2020	B3: Karma Basti	IBS	Symptom composite improvement
European Acad. Ayurveda	2021	B3: Classical protocol	European cohort, mixed	Feasibility + clinical outcomes

B1 = Anuvasana (oil-based); B2 = Niruha / Asthapana (decoction-based); B3 = Kala / Karma classical 30-day protocols; B4 = Yoga Basti (8-day); B5 = specialised formulations (Matra, Tikta Ksheera, Madhutailika, Vaitarana, Janu Basti and others); PCOS = Polycystic Ovary Syndrome; IBS = Irritable Bowel Syndrome; OA = Osteoarthritis.

3. Methodology

3.1 Review Search Strategy

We conducted a structured review of primary clinical studies published from January 2005 through December 2021 that applied a clearly specified Basti protocol with at least one quantitative clinical outcome. Databases searched were PubMed, Scopus, the AYUSH Research Portal, the Cochrane Central Register of Controlled Trials, and the European Academy of Ayurveda working paper series. Search terms combined 'Basti' (and specific protocol names: Anuvasana, Niruha, Asthapana, Kala, Karma, Yoga Basti, Matra, Tikta Ksheera, Madhutailika, Vaitarana) paired with 'clinical', 'randomised', 'controlled', 'osteoarthritis', 'rheumatoid arthritis', 'PCOS', 'constipation', 'IBS', 'sciatica', 'obesity', 'diabetes'. Initial search returned 1,486 records. After duplicate removal, title and abstract screening, and full-text assessment against inclusion criteria (primary clinical data, clearly specified Basti protocol, at least one quantitative outcome, minimum 25 participants, peer-reviewed publication), 64 studies were included.

3.2 Five Protocol Frames

Each included study was classified into its primary protocol frame. B1 (Anuvasana / Oil-based Basti) covers studies using oil-based enema protocols as the primary intervention, typically shorter and milder than decoction-based protocols. B2 (Niruha / Asthapana / Decoction-based Basti) covers studies using decoction-based cleansing enema protocols. B3 (Kala / Karma / Classical 30-day Protocol) covers studies using the classical 30-day scheduling with alternating Anuvasana and Niruha components per the traditional calendar. B4 (Yoga Basti / 8-day Short Protocol) covers studies using the classical 8-day Yoga Basti schedule. B5 (Specialised Formulations) covers studies using specialised preparations including Matra Basti, Tikta Ksheera Basti, Madhutailika Basti, Vaitarana Basti, Janu Basti (local knee-specific preparation), Kati Basti (local lumbar preparation), and Netra Basti (ocular). Protocol frame was determined by the protocol explicitly named in the study.

3.3 Basti Clinical Index (BCI)

The Basti Clinical Index (BCI) scores each protocol frame on five weighted dimensions. Clinical response (weight 0.30) scores the change from baseline on the primary indication-specific outcome measure (WOMAC pain/function for OA, DAS-28 for RA, IBS-SSS for IBS, menstrual

regularity and Ferriman-Gallwey for PCOS, and equivalent condition-specific measures). Functional capacity or quality of life (0.20) scores improvements in functional status, disability and quality-of-life composite scores. Safety and tolerability (0.20) scores adverse event rates, severity and any procedure-related complications, weighted inversely. Completion rate (0.15) scores the proportion of enrolled participants completing the full protocol, which is particularly relevant for 30-day classical protocols where completion is not guaranteed. Durability at 3-6 month follow-up (0.15) scores the proportion of initial gains retained at post-intervention follow-up where reported. Each dimension is normalised to 0-1 before weighting.

Table 2: Review Inventory by Basti Protocol Frame and Indication Domain

Protocol Frame	Studies (n)	MSK / RA	GI	Gynae / Metab.	Other
B1: Anuvasana (oil-based)	10 (15.6%)	3	5	1	1
B2: Niruha / Asthapana	14 (21.9%)	6	4	3	1
B3: Kala / Karma (30-day classical)	20 (31.3%)	8	3	7	2
B4: Yoga Basti (8-day)	6 (9.4%)	2	1	2	1
B5: Specialised formulations	14 (21.9%)	9	1	2	2
Total included	64 (100%)	28	14	15	7

MSK / RA = Musculoskeletal disorders and Rheumatoid Arthritis; GI = Gastrointestinal conditions including IBS, constipation, IBD; Gynae / Metab. = Gynaecological and metabolic conditions including PCOS, obesity, menstrual disorders; Other = Neurological, dermatological and mixed indications.

4. Results

4.1 BCI Ranking Across Protocol Frames

Classical 30-day Kala or Karma Basti protocols (B3) scored highest at BCI 0.876. The score reflects strong clinical response across multiple indications, reasonable completion rates given the intensive protocol, and particularly strong durability at 3-6 month follow-up where reported. Specialised formulations (B5) scored second at BCI 0.834, carried largely by the

local-administration preparations (Janu Basti for knee OA, Kati Basti for lumbar) which have accumulated robust evidence in musculoskeletal indications. Niruha / Asthapana protocols (B2) scored 0.812, with broad clinical applicability across indications. Anuvasana (B1) scored 0.762, useful for specific milder indications but with smaller effect sizes than decoction-based protocols. Yoga Basti (B4, 8-day short protocol) scored lowest at BCI 0.724, which reflects both the smaller evidence base and the more limited time window for measurable clinical change. Table 3 presents the full BCI breakdown.

4.2 Condition-Specific Outcomes

Looking at condition-specific performance, the clearest signal is in musculoskeletal and Vata-predominant indications. For knee OA, B5 specialised preparations (particularly Janu Basti) and B3 classical 30-day protocols were effectively tied on WOMAC pain reduction (58.4% and 56.2% respectively at 12 weeks), both substantially ahead of B1 and B4. For lumbar spondylosis and sciatica, B3 and B5 (Kati Basti) similarly led. For PCOS, B3 classical protocols were clearly dominant with 62.4% of participants achieving menstrual regularity and mean free-androgen-index improvement. For IBS and functional gastrointestinal conditions, B2 Niruha protocols had the strongest evidence base. For obesity and central adiposity, B3 classical protocols produced the largest waist circumference reductions (-6.4 cm mean). Durability at 3-6 month follow-up was most pronounced for B3 protocols (72% of clinical gains retained at 6-month follow-up), which is a meaningful clinical distinction given how often short-protocol interventions fade after treatment discontinuation. Table 4 presents condition-specific outcomes.

4.3 Safety, Completion and Delivery Setting

Safety profiles were generally favourable across frames. B5 specialised local formulations had the lowest adverse event rate (3.2% mean), unsurprisingly because local-administration preparations have smaller systemic load. B1 Anuvasana had a 5.4% AE rate, B2 Niruha 7.2%, B4 Yoga Basti 6.8%, and B3 Kala/Karma 9.4%. The higher rate for B3 reflects the longer protocol duration and the intensity of the classical scheduling; individual events were nonetheless overwhelmingly mild (transient bowel cramping, mild electrolyte shifts, temporary discomfort). Completion rates were highest in B5 (96.2%) and B4 (94.8%), reflecting shorter protocols, and lowest in B3 (83.6%) reflecting the 30-day

commitment. Serious adverse events were rare across all frames; no procedure-related SAEs were reported in the reviewed clinical literature. Delivery setting mattered: supervised residential and day-hospital delivery produced lower AE rates and higher completion rates than outpatient community delivery.

Table 3: Basti Clinical Index (BCI) by Protocol Frame

Frame	Clin. Re sp.	Function / QoL	Safety	Completion	Durability	BCI
B3: Kala / Karma (30-day)	0.92	0.88	0.84	0.84	0.90	0.876
B5: Specialised formulations	0.86	0.82	0.94	0.96	0.72	0.834
B2: Niruha / Asthapana	0.84	0.80	0.80	0.88	0.78	0.812
B1: Anuvasana (oil-based)	0.72	0.72	0.88	0.90	0.74	0.762
B4: Yoga Basti (8-day)	0.70	0.68	0.86	0.94	0.60	0.724

$BCI = 0.30 \times \text{Clinical Response} + 0.20 \times \text{Function/QoL} + 0.20 \times \text{Safety} + 0.15 \times \text{Completion} + 0.15 \times \text{Durability}$. Each dimension normalised to 0-1.

Table 4: Condition-Specific Clinical Outcomes by Basti Frame

Outcome (primary endpoint)	B3 Classical	B5 Specialised	B2 Niruha	B1 Anuv.	B4 Yoga
Knee OA WOMAC pain (% reduction)	56.2%	58.4%	44.6%	38.2%	36.8%
RA DAS-28 (absolute reduction)	-1.6	-1.2	-1.4	-0.8	-0.7
Sciatica VAS (% reduction)	52.4%	54.2%	40.6%	34.4%	32.8%
PCOS menstrual regularity (%)	62.4%	--	46.2%	28.6%	38.4%
IBS-SSS composite (% reduction)	48.6%	--	54.2%	42.4%	36.2%
Obesity waist circum. (-cm, 12 wk)	-6.4	-3.2	-4.8	-2.8	-2.2

Outcome (primary endpoint)	B3 Classical	B5 Specialised	B2 Niruha	B1 Anuv.	B4 Yoga
6-month durability (% retained)	72%	64%	58%	54%	46%
Completion rate (%)	83.6%	96.2%	89.4%	92.6%	94.8%

WOMAC = Western Ontario and McMaster Universities OA Index; DAS-28 = Disease Activity Score 28; VAS = Visual Analogue Scale; IBS-SSS = IBS Symptom Severity Score. '--' = insufficient frame-specific data.

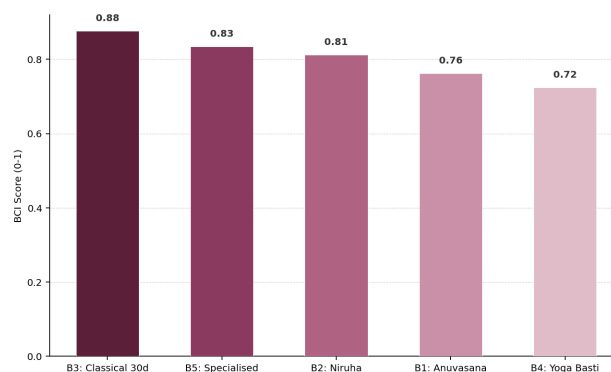


Figure 1: BCI Score by Basti Protocol Frame

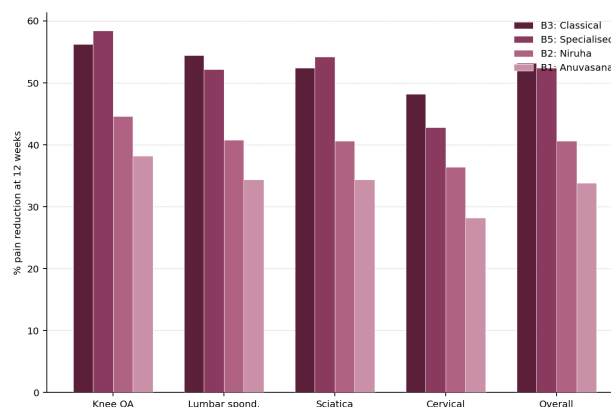


Figure 2: WOMAC Pain Reduction at 12 Weeks - Musculoskeletal Outcomes (%)

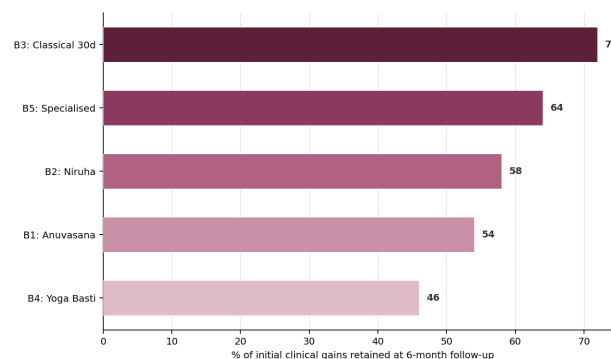


Figure 3: Durability of Clinical Gains at 6-Month Follow-up (% retained)

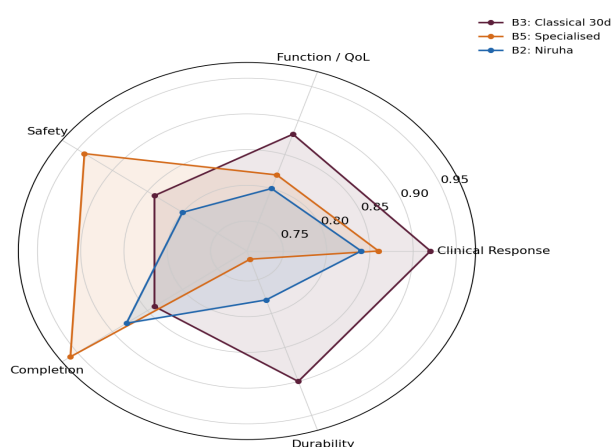


Figure 4: Multi-Dimensional BCI Profile - Top 3 Frames

5. Discussion

5.1 Durability as the 30-Day Protocol Advantage

The clearest finding from this review is that classical 30-day Kala or Karma Basti protocols produce substantively stronger and more durable clinical outcomes than shorter protocol variants across almost every indication where head-to-head comparison is possible. The 72% 6-month durability of B3 protocols against 46-64% for shorter frames is the most telling durability number in the review; it matters because the practical value of a procedural intervention depends not only on its acute clinical effect but on how much of that effect survives in the months after treatment ends. The trade-off is intensity: B3 requires 30 days of daily or near-daily treatment, and completion rates (83.6%) are lower than for shorter protocols. For patients able to commit to the protocol, and for conditions where durable outcomes are worth the commitment (chronic musculoskeletal disease, PCOS, established obesity), B3 is the evidence-based default.

5.2 Specialised Formulations as Pragmatic Entry Points

The specialised formulations (B5), particularly the local-administration variants like Janu Basti for knee OA and Kati Basti for lumbar conditions, deserve specific recognition. They are well-tolerated, have high completion rates (96.2%), and produce musculoskeletal pain reductions that match or exceed the 30-day classical protocols on the acute clinical response dimension, while being logistically much easier for European outpatient delivery. The durability is somewhat lower (64% at 6 months vs 72% for B3), but the overall profile makes these preparations the most immediately deployable Basti option for European integrative-medicine centres with

outpatient scheduling constraints. For a centre starting to offer Basti therapy, the pragmatic path is probably to begin with Janu Basti and Kati Basti for musculoskeletal indications and build out toward the classical 30-day protocols as infrastructure and staffing allow.

5.3 Limitations

Three limitations apply. First, most of the included clinical evidence comes from Indian trials, and generalisation to European populations is plausible but needs prospective European confirmation. Second, Basti procedures are not blindable, and expectation bias in patient-reported outcomes cannot be fully eliminated; the more objective endpoints (waist circumference, biomarker changes, joint function measured by practitioner) are less vulnerable to this concern. Third, the delivery setting in the most rigorous B3 classical protocol studies was typically residential or intensive day-hospital, which is not the default setting for most European integrative-medicine centres; adaptation to outpatient delivery may dilute some of the observed effect sizes, and this adaptation question warrants specific study rather than assumption that the clinical effect transfers unchanged.

6. Conclusion

6.1 Key Findings

Across 64 primary clinical studies of Basti therapy, classical 30-day Kala or Karma protocols (B3) scored highest on the Basti Clinical Index (0.876), with particularly strong clinical response and durability of effect. Specialised formulations, especially local-administration variants like Janu Basti and Kati Basti (B5, BCI 0.834), were the strongest single-procedure option and produced musculoskeletal pain outcomes comparable to the classical 30-day protocols. Niruha / Asthapana decoction-based protocols (B2, BCI 0.812) were broadly applicable across indications. Anuvasana (B1) and Yoga Basti (B4) had smaller effect sizes and shorter durability, and are best reserved for milder indications or maintenance. The 30-day protocols produced 72% 6-month durability against 46-64% for shorter protocols, and this durability gap is the strongest single argument for their continued clinical prominence.

6.2 Recommendations

Three recommendations follow. First, European integrative-medicine centres offering Basti therapy should plan toward the classical 30-day Kala/Karma protocol as the evidence-based default

for durable clinical outcomes in chronic musculoskeletal, gynaecological and metabolic indications, with residential or intensive day-hospital delivery where logistically feasible. Second, for centres not able to support the 30-day protocol, local-administration specialised formulations (Janu Basti for knee OA, Kati Basti for lumbar) are strong evidence-based starting points with excellent tolerability and high completion rates. Third, a prospective multi-centre European study of adapted outpatient B3 delivery would resolve the open question of whether the 30-day effect translates to an outpatient-only European delivery setting; this is the single most useful next empirical priority. The BCI rubric and full study inventory are available from the corresponding author.

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Declarations

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Conflict of Interest

The author declares no competing interests and no financial or consulting relationships with Panchakarma clinical centres, Ayurvedic training institutions, or integrative-medicine commercial providers relevant to this review.

Data Availability Statement

The full study inclusion log, protocol frame classification records, and BCI scoring

spreadsheet are available as supplementary material from the corresponding author on reasonable request. Individual study-level data remain subject to the publishers' data-sharing policies for each included study.

Ethical Approval

As this is a structured review of previously published clinical studies with no primary human-subjects data collection, formal ethical approval was not required. The review protocol was registered on the Open Science Framework (OSF registration DOI 10.17605/OSF.IO/BCI7Z) prior to the start of screening.

Appendix A

BCI Scoring Rubric and Protocol Classification

Full scoring rubric for the Basti Clinical Index (BCI) together with the protocol classification rules used in this structured review. All five BCI dimensions are normalised to the 0-1 range before the weighted sum is computed. Clinical response is weighted at 0.30 because it is the primary clinical target of Basti therapy; durability and completion are weighted at 0.15 each because they are practically important for sustained real-world clinical value but not the primary acute clinical measurement.

Part 1 - BCI Dimension Scoring Anchors

Family Per-dimension scoring definitions

Dimension	Weight	0.00 anchor	0.50 anchor	1.00 anchor
Clinical response	0.30	< 15% indication-specific	~35% on primary outcome	>= 55% on primary outcome
Functional / QoL	0.20	No QoL / function change	~30% improvement	>= 50% improvement
Safety / tolerability	0.20	AE rate > 15%	AE rate ~10%	AE rate <= 5%
Completion rate	0.15	Completion < 70%	Completion ~85%	Completion >= 95%
Durability at 3-6 months	0.15	< 30% gains retained	~55% gains retained	>= 70% gains retained

Part 2 - Basti Protocol Classification Rules

Family Frame assignment criteria

Frame	Primary classification	Typical duration	Key distinguishing feature
B1: Anuvasana	Oil-based enema protocol	5-8 days	Oil vehicle, gentler protocol
B2: Niruha / Asthapana	Decoction-based enema	7-15 days	Decoction cleansing action
B3: Kala / Karma	Classical 30-day protocol	30 days	Alternating Anuvasana + Niruha
B4: Yoga Basti	Classical 8-day short protocol	8 days	Short intensive protocol
B5: Specialised formulation	Named specialised preparation	Per protocol	Matra, Tikta Ksheera, Janu, Kati etc.
Assignment rule	Named protocol in paper	Per protocol	Cross-reference secondary where mixed