VP 02

CHEAT / SHEET

Gaze Stabilisation Training — Cheat Sheet for Physiotherapists

VOR adaptation, exercise library, dosing rules, outcome measures (DVA / DHI / ABC / vHIT)

► Why GST matters

Gaze stabilisation training is the VOR-targeted subset of VRT — drives retinal-image stability during head movement via error-signal (retinal-slip) cerebellar plasticity. Grade-A evidence (APTA guideline 2022) for unilateral and bilateral peripheral hypofunction.

When to prescribe — clinical signposts

Sign / test	Threshold	First-line response
Bedside head impulse (hHIT)	Catch-up saccade present	x1 yaw on affected side
vHIT gain (affected canal)	Less than 0.79	x1 → x2 progression
Dynamic visual acuity (DVA)	Two-line loss vs static	x1 yaw + pitch, dose to slip
Symptomatic blur on head turn	Daily-life trigger	Functional integration drills
DHI	30 or above + gaze instability	Add to balance/habituation as needed

Adaptation or substitution? — pick the dominant track

Residual VOR gain	Track	Lead exercises
0.3 to 0.7 (most UVH)	Adaptation	x1 / x2 viewing, near-far, busy bg, layered postural
Less than 0.3 / absent	Substitution	Anticipatory saccades, COR training, proprioceptive cues
Bilateral less than 0.3	Substitution dominant	Anticipatory saccades + balance + tactile cueing
Central / cerebellar	Mixed (limited adapt.)	Smooth pursuit + saccades + low-dose x1

► Pearl — retinal slip = therapeutic dose

If the patient reports the target stays perfectly clear at every velocity, the dose is too low — no slip, no plasticity. Push head velocity until the target just begins to blur. That is the dose.

Exercise library — start here, escalate weekly

Exercise	Setup	Amplitude	Freq	Starting dose
x1 yaw (near)	Card at 1 m	±20°	1–2 Hz	1–2 min × 3–5/day
x1 yaw (far)	Wall target 3 m	±20°	1–2 Hz	1–2 min × 3–5/day
x2 yaw	Card moves opposite head	±20°	1–2 Hz	1–2 min × 3–5/day
x1 pitch	Stationary target	±20°	1–2 Hz	1–2 min × 3–5/day
Near-far switch	Two targets, depth diff	±15°	1 Hz	1–2 min × 3/day
Standing layer	Add foam / tandem	±20°	1–2 Hz	1–2 min × 3/day
Walking layer	Walk + horizontal turn	±20°	0.5–1 Hz	2 min × 2–3/day
Reading-during-turn	Newspaper text	±15°	0.5–1 Hz	1–2 min × 2/day

► Stop GST and escalate medical review

New spontaneous vertigo, new neurological symptoms, vertical / direction-changing nystagmus, truncal ataxia, sudden hearing change, occipital headache — pause exercises and refer same week.

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Progression dimensions, dosing, outcome battery, special populations, patient script

Progression — advance one dimension at a time

Dimension	Start	End point
Target size	Large card	Single Snellen line
Head velocity	Slow predictable	Fast unpredictable
Head amplitude	±15°	±30°
Visual background	Plain wall	Busy / moving bg (traffic, screen)
Postural condition	Sitting	Single-leg / walking
Cognitive load	Single-task	Dual-task (counting, naming)
Axis variety	Yaw	Yaw + pitch + diagonal

Dosage and time course

Domain	Standard	Notes
Daily volume	12–20 min total	Above 30 min/day = no extra benefit, drops adherence
Per axis	1–2 min × 3–5/day	Mild dizziness expected; settles within 15–20 min
Gain change visible	1–2 weeks	Subjective benefit weeks 3–6
Functional plateau	6–8 weeks UVH	12–16 weeks BVH (substitution slower)
Maintenance	3 sessions/week	After plateau + meaningful improvement

► Pearl — under-dosing is as common as over-dosing

Zero symptoms across two weeks of consistent practice usually means the dose is too low. Escalate velocity or visual demand before concluding the program has failed.

Outcome battery — re-test every 4–6 weeks

Measure	What it captures	Clinically meaningful change
Clinical DVA	Snellen diff. (static vs 2 Hz)	1-line gain at re-test
GST	Head velocity at which DVA degrades	20°/s gain
vHIT / fHIT	Direct VOR gain	0.79 or above = within normal
DHI	Patient-reported handicap	18-point drop = MCID
ABC	Balance confidence	10-point gain = meaningful
FGA	Functional gait	4-point gain meaningful

Special populations — modify the prescription

Group	Modify	Watchpoint
UVH (acute)	Start within 7–14 days	Best outcomes; 70–85% return to function 6–8 wk
BVH	Substitution-dominant	Slower, partial gain — set expectations early
VM / PPPD	Defer during attacks; low-dose slow ramp	Pair with migraine control / CBT as needed
Older adult (over 70)	Postural layer earlier	Substitution heavy; fall-risk gain
Post-concussion	Add cervical + oculomotor	Screen cervicogenic dizziness