Interventions in Upper Cervical Instability (UCI) in patients with symptomatic generalised hypermobility according to irritability

TABLE 11 Interventions for all patients, and interventions to avoid in high irritability patients.

General education
- About S-GJH and UCI
- "Safety netting": recognizing signs and symptoms that trigger emergency or urgent follow-up or referral; self-care in these situations (e.g., wear cervical brace)

Posture and body mechanics education
- Sitting, standing, and sleeping posture, positioning, and body support
- Body awareness and mindfulness in various positions (sitting, standing, lying down)
- Avoiding or limiting neck motion if small range motion is safe
- Functional training for posture and joint protection during essential ADLs such as bathing, brushing teeth, brushing hair, washing hair, sleeping postures, putting in contacts, eating, etc.
- Body mechanics, ergonomics, joint protection, activity pacing
- Orthotics and braces, as needed throughout the lower extremities and lumbar spine, to provide stable base for cervical spine
- Importance of shoe-wear support for spinal alignment

Pain science and pain self-care
- Relaxation, autonomic nervous system balancing (not requiring neck movement)
- Breathing, e.g., diaphragmatic or slow breathing
- Pain neuroscience education, addressing catastrophization, mindful use of language to enhance feelings of safety
- Self-care "toolbox": e.g., pain management strategies (e.g., heat, ice, transcutaneous electroneural stimulation, topical analgesics, relaxation, positive thinking, etc.)

Neck bracing (if appropriate)
- Education about use of neck brace: how to put on, how often to use, when to use (e.g., during ADLs, flares, car travel)
- Custom fitting of rigid or soft cervical brace

Manual therapy

Some high irritability patients will not tolerate manual therapy, even remote from the neck, and it should be discontinued if not tolerated.
- Cautious myofascial release, trigger point release or neuromuscular inhibition techniques in the thoracic and lumbar spine, scapulae, lower and upper extremities.
- Cautious myofascial release, trigger point release or neuromuscular inhibition in the upper trapezius, levator scapulae, and sternocleidomastoid ONLY by clinicians with S-GJH/UCI expertise

Motor control

Some High Irritability patients will not tolerate motor control training, even remote from the neck, and this should be discontinued if not tolerated. These should be done with neck, torso and limbs suitably supported, generally in neutral position.
- Eye movement muscle energy techniques
- Pelvic and lumbar stability training; finding pelvic neutral. Ensure that the cervical spine is optimally aligned and supported
- Motor control training of the cervical spine, near mid-line
- Supine with head supported, scapular recruitment in neutral "safe zone," side lying supported head and arm

Aerobic exercise
- e.g., Recumbent bike, pedal exerciser (if there is no indication of neural tension/tethered cord)

Interventions to AVOID with high irritability patients
- Exercises involving moderate to large neck movements, such as cervical range of motion
  - Some patients will not tolerate any neck movement, even chin tucks
  - Isometrics with more than minimal force
- Cervical axial loading (weight on head) or distraction (manual or mechanical)
- Only therapists with S-GJH/UCI expertise should perform any manual therapy to the cervical spine, and some patients may not tolerate any manual therapy, even by experts
- Positioning that creates neural tension (e.g., pelvic tilt in some people) or isometric load (e.g., quadruped) to the cervical spine

TABLE 12 Interventions for patients with moderate irritability.

- All interventions discussed in Table 11

Education
- Functional training, as described in Table 11 plus: Meal preparation, positional training for ADL and IADLs, standing, pivoting, stand pivoting, squatting, half-kneeling, pushing/pulling light objects, rotational upright core training, sweeping, shopping, light housework, carrying, driving, and lifting.

Motor control and strength training
- Proprioception, motor control, and strengthening exercises for:
  - Lower extremities, including knee, foot, ankle
  - Shoulders and scapulae
  - Thoracic spine
  - Continue and progress for pelvis and lumbar spine
- Proprioception, motor control, and stabilization training for the cervical spine through available pain-free range. This may include using the head laser, starting by maintaining the head stable while moving the arms or legs, walking, and gradually progressing to small, controlled neck movements
- Gentle axial loading of the cervical spine (e.g., up to 1 pound/450 grams) if tolerated
- Low load cervical isometrics, with cuing to deactivate superficial muscles

Manual therapy:
- Manual therapy for 1st rib, thoracic spine, acromioclavicular and sternoclavicular joints
- Soft tissue techniques for cervical muscles in spasm, physiological quieting
- Gentle manual techniques for C1 and C2 (if the therapist is trained)
- AVOID aggressive soft tissue or joint-based manual therapy to the cervical spine

Aerobic exercise:
- E.g., Recumbent bike/peddler (if no neural tension signs); walking

TABLE 13 Interventions for patients with low irritability.

- All interventions discussed in Tables 11, 12

Education
- Functional training, as described in Tables 11, 12, plus: Occupation related functional training, i.e., prolonged desk work, phone, heavier household chores, gardening, etc. Sports specific training with precautions such as avoiding contact sports such as football or modification to sports such as no "heading" the ball

Manual therapy:
- Additional muscle energy techniques in the cervical spine

Motor control and strength training
- Proprioception and motor control using larger cervical ranges. Cervical axial loading may decrease symptoms during proprioceptive training
- Trunk-head coordination, eye-head coordination, eye-balance exercises
- Resistance training for the cervical spine
- Return to function/sport exercises, if appropriate, which may include more aggressive exercise, if tolerated. These may include perturbation, unpredictable challenges, and more endurance exercise for the neck

Aerobic exercise:
- E.g., Walking, recumbent or upright bike. Some patients may tolerate running, swimming, aerobics with or without precautions

Russek LN, Block NP, Byrne E, Chalela S, Chan C, Comerford M, Frost N, Hennessey S, McCarthy A, Nicholson LL, Parry J**. Presentation and physical therapy management of upper cervical instability in patients with symptomatic generalized joint hypermobility: International expert consensus recommendations**. Frontiers in Medicine. 2023 Jan 18;9:4020.