Specific Treatment of Problems of the Spine (STOPS) produces better outcomes. The key to success is a thorough assessment that classifies patients into one of the five STOPS subgroups, and the provision of individualised treatment that targets specific barriers to recovery.

**Assessment**

To accurately classify a patient into a STOPS subgroup the following information must be obtained (with particular importance in brackets) on assessment:

- A detailed history (recent and past symptoms, work, sport/recreation, response to STOPS types of treatment)
- Body chart including severity, irritability and nature of symptoms (Z-joint and disc herniation + radiculopathy)
- Aggravating and easing factors (discogenic problems)
- 24 hour behaviour including morning, end of the day and night symptoms (to determine inflammation)
- Special questions (imaging, medication, general health). Follow up of imaging report important for disc related subgroups
- Observation (posture, gait, functional testing/modification/retesting)
- Active movement testing (Z-joint)
- Neurological examination (disc herniation + radiculopathy)
- Provocative neurodynamic testing (disc herniation + radiculopathy)
- Palpation including passive accessory intervertebral movements (Z-joint)
- Passive physiological intervertebral movements
- Motor control including deep/local muscle function (transversus abdominis)
- Special diagnostic tests such McKenzie repeated movements or provocative sacro-iliac joint tests (reducible discogenic pain)
- Functional outcome measures such as the Oswestry
- Screening questionnaires such as the Örebro Musculoskeletal Pain Questionnaire for psychosocial risk factors (multifactorial persistent pain)

**STOPS Subgroup Classification**

The following criteria are essential for classifying the patient into one of the STOPS subgroups:

1. **Disc herniation + radiculopathy (DHR)** – below knee symptoms and disc herniation (having at least nerve root contact = greater certainty) on CT or MRI and at least one of positive straight leg raise or lower limb neurological sign
2. **Reducible discogenic pain** – positive to at least 4 (higher number = greater certainty) of aggravating factors of sitting, forward bending, lifting, sit to stand, cough/sneeze, worse next morning following injury, history of manual handling job, flexion/rotation mechanism of injury and positive response to mechanical loading strategies (most often extension in lying ± ipsilateral side glide aka hips away from painful side)
3. **Non-reducible discogenic pain** – positive to at least 4 of the discogenic factors and not responsive to mechanical loading strategies
4. **Z-joint pain** – at least 3 of unilateral symptoms, a regular “compression” pattern reproducing symptoms (usually active extension + ipsilateral lateral flexion), a comparable z-joint finding on lumbar palpation and positive response to mini-treatment
5. **Multi-factorial persistent pain** – not fitting any of the pathoanatomical subgroups and having an Örebro score of above 105/210 (high score = greater certainty)
Treatment

All patients (1, 2, 3 & 4) except those with multifactorial persistent pain (5):

- Treatment of inflammation including NSAIDs progressing to oral steroids if the patient had at least 2 of constant symptoms, getting out of bed at night due to the pain or early morning symptoms for at least 60 minutes
- Specific muscle activation of the local/deep muscles progressing to a functional motor control program comprising:
  - Usual commencement of specific activation of transversus abdominis ± pelvic floor in side lying, progressing to standing then walking
  - Collaborative identification of patient functional goals
  - Identification and correction of maladaptive postural/movement patterns
  - Progressive functional and goal oriented exercise program practicing correct motor control pattern
  - Exercise progressed in a pain contingent manner (respecting pain response)
- Progression away from a pathoanatomical to a psychosocial approach to treatment if the patient failed to respond to treatment and particularly if Örebro score increased over time

1 & 3. Disc herniation + radiculopathy and non-reducible discogenic pain:

- Pathoanatomical explanation
- Assessment and management of directional preference if present at any time during the treatment program (particularly after inflammation controlled)
- Lumbar taping in a neutral spine position until symptoms (particularly inflammation) controlled
- Postural education
- Specific muscle activation and functional motor control training

2. Reducible discogenic pain:

- Pathoanatomical explanation
- Assessment and management of directional preference including individualised mechanical loading strategies every 1-2 hours (10-20 repetitions)
- Provision of a lumbar roll for sitting ± sleep (individualised depending on posture)
- Postural education
- Daily walking program
- Lumbar taping in a neutral spine position until symptoms (particularly inflammation) controlled
- Specific muscle activation and functional motor control training once symptoms under control

4. Z-joint pain:

- Pathoanatomical explanation
- Assessment and management of potential targets for manual therapy (commencing with the comparable lumbar sign on palpation) based on response to mini-treatment as well as within and between treatment response to main treatment
- Manual therapy applied with adherence to clinical reasoning principles including changing only treatment component per treatment, selecting an appropriate treatment grade (using movement diagram concepts), not under/over treating an area, exploring evolving concepts of contributing factors/structures to the patient’s symptoms
- Specific muscle activation and functional motor control training once symptoms under control

5. Multi-factorial persistent pain:

- Pain education
- Collaborative goal setting
- Progressive functional and goal oriented exercise program practicing correct motor control pattern (only if some form of “physical” component of the treatment rationale needed for patient compliance)
- Exercise progressed in a collaboratively agreed upon time contingent manner (independent of pain response)
- Weaning and cessation of passive treatment

All treatments are reinforced by the STOPS.physio Patient Information Sheets.