

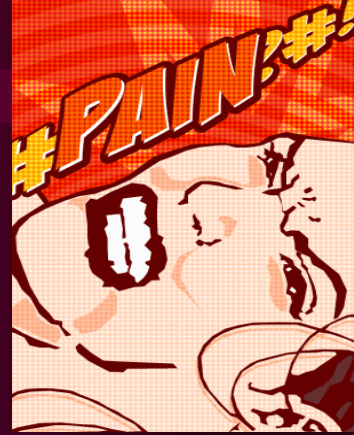
CHRONIC PAIN WORKSHOP

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PAIN

IASP Definition (1979)



‘an unpleasant sensory and emotional experience, associated with actual or potential damage or described in terms of such damage’

- Pain involves thoughts and feelings
- **All pain is real**, whether or not the biological cause is known

PAIN ASSESSMENT



- **Complex process**
 - Based on identification of pain behaviour
 - Verbal and non-verbal cues
 - If behaviour not clearly communicated, pain will be poorly assessed and as a result, under-treated
- **Pain**
 - Whatever the experiencing person says it is
 - Exists whenever the experiencing person says it does

ACUTE PAIN

- **Has a purpose**
 - Warn of damage
 - Underlying condition
 - Encourage rest
 - Prevent further damage
 - Increase healing
 - Progressive if not treated

CHRONIC (Persistent) PAIN

- Pain persists beyond expected recovery time
- Pain continuous or recurrent beyond 3-6 months
- Pain interferes with life
- Pain affects self-esteem, well-being and relationships
- Pain can lead to deconditioning
- Pain can lead to fear, avoidance, depression and irritability

Prevalance of Pain in Australia

- At any time
 - 17% males and 20% females report pain
- Levels peak
 - Males at 65-69 and females at 80-84
- Of the 20% of people who suffer pain,
 - 33% report interference to their work, home, play
- Associated with
 - Older age, social disadvantage and psychological distress

Impact on Society

- Cost to community
 - High cost of continued treatment
 - Loss of productivity
- Estimated cost in Australia
 - 75 million work days per year lost due to pain
 - 40,000 people not working due to pain
 - Annual cost of pain estimated at \$15 billion in 2006

3. What is Persistent Pain?

THE LONG-TERM SEQUELS OF PERSISTENT PAIN

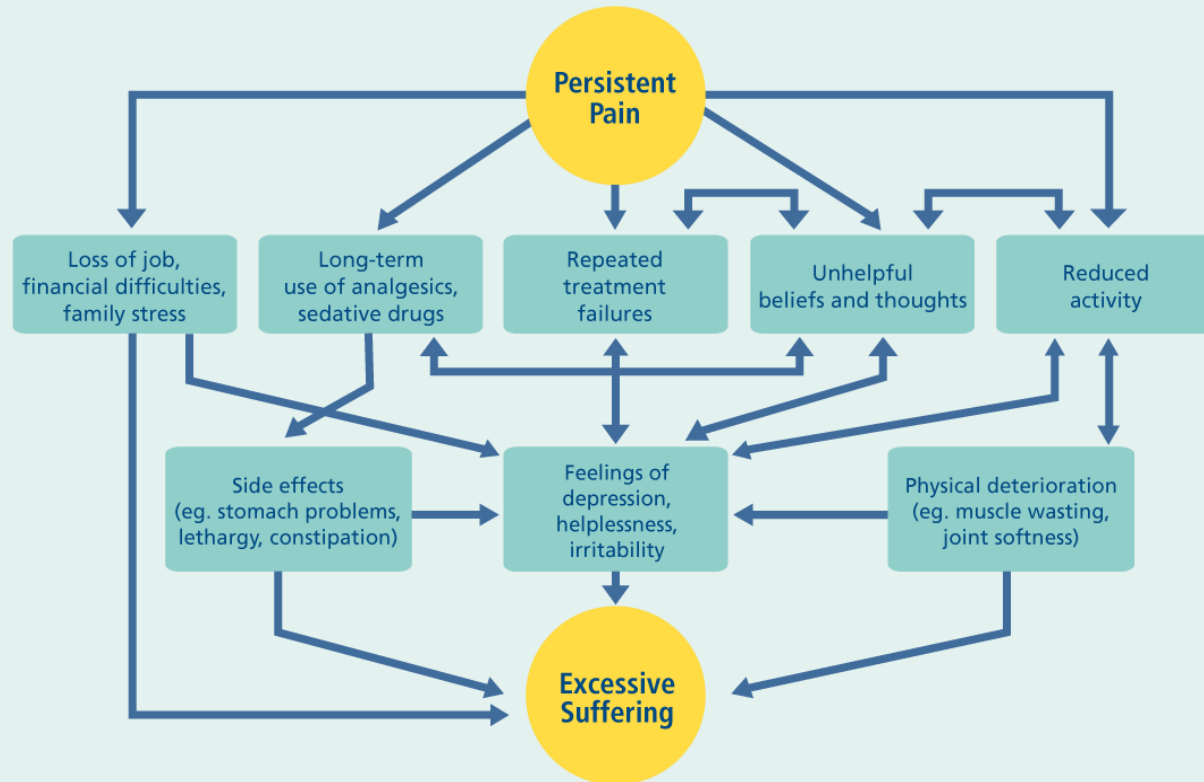
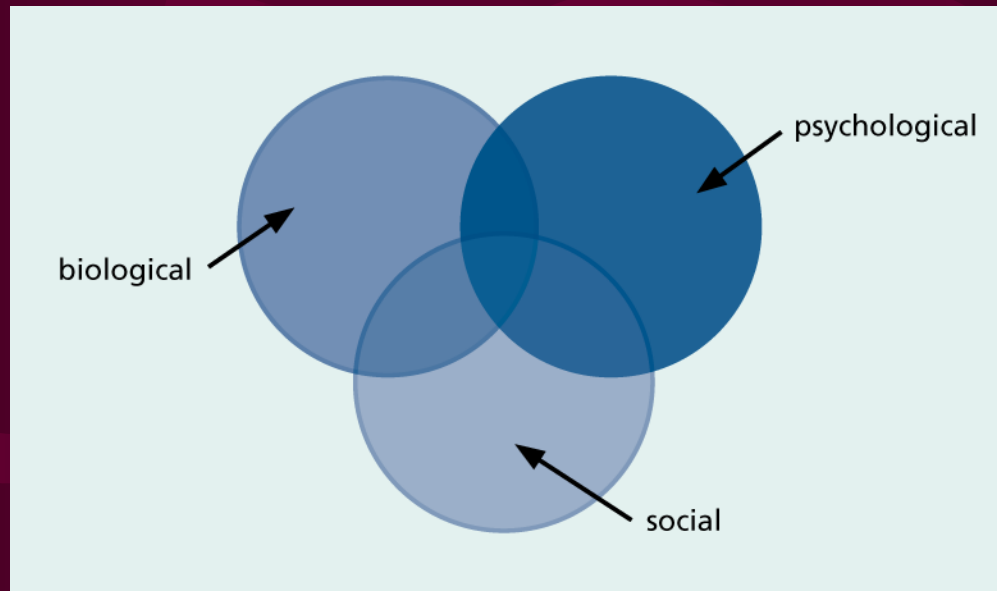
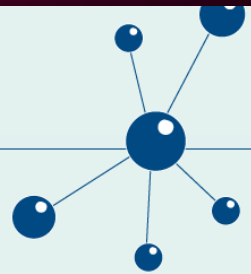


Figure 5. When persistent pain becomes a problem (reprinted from 'Managing Your Pain' by Nicholas M, et al (2002), ABC Books⁵, with permission from the authors)

UNDERSTANDING PAIN

- Effective pain management requires a comprehensive assessment which incorporates the biological, psychological and social factors of the pain experience





PERSISTENT PAIN – A COMPREHENSIVE ASSESSMENT

The assessment should look at that the following factors:

- physical/biological
- psychological
- environmental/social
- other factors influencing their pain

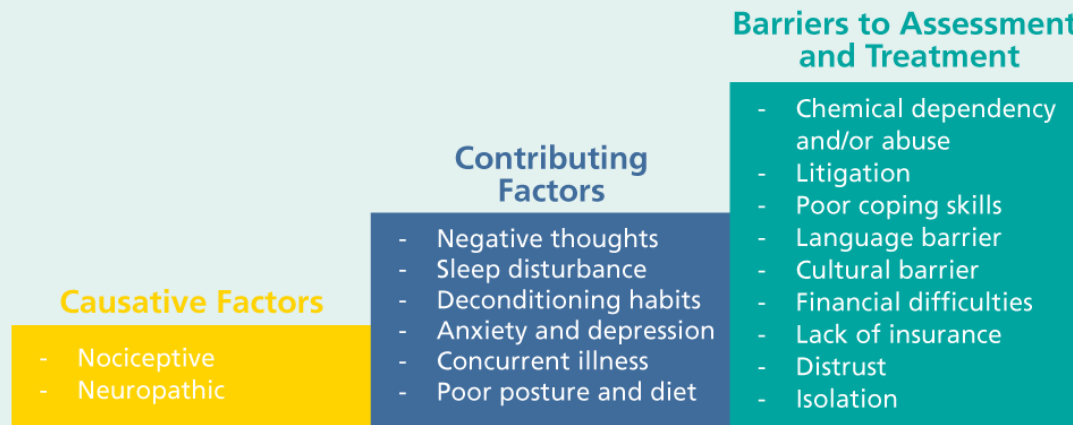
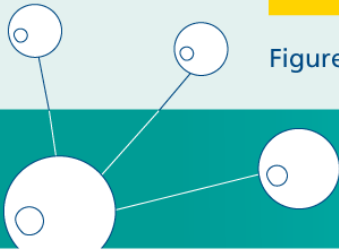


Figure 6. Three components to pain assessment



TYPES of PAIN

- **Physical**

- **Nociceptive**

- Stimulation of somatic or visceral nociceptors by tissue damaging (noxious) stimuli

- **Neuropathic**

- "pain initiated or caused by a damage, disease or dysfunction in the nervous system, in the absence of an ongoing peripheral noxious stimulus"

- **Psychological**

NOCICEPTIVE PAIN

- Response to damaged tissue with an intact nervous system
- Dull ache, tightness, pressure
- Cancer Pain
- Osteoarthritis
- Orthopaedic Surgery

NEUROPATHIC PAIN

- Nerve injury initiates a cascade of pathophysiological events not related to nociceptor stimulation
- Symptom of neurological dysfunction not disease in itself
- Comprise about 25% of chronic pain referrals
- Pain delayed months or even years after original injury
- Absence of ongoing tissue damage
- Burning, shooting, lancinating, stabbing
- Spontaneous or stimulus evoked pain
- Allodynia - pain to non-painful stimulus
- Hyperalgesia - increased pain to painful stimulus

PSYCHOLOGICAL (Unexplained) PAIN

- Persistent pain despite absence of physical pathology
- Results in significant symptoms and disability
- Modulation of peripheral sensory signals by higher cortical areas in association with psychological illness may play a role

PAIN HISTORY



- **General**

- Age
- Marital status
- Living arrangements
- ADL's and mobility

- **Work history**

- Occupation
 - Current status
 - Attitude to work (enjoy, supportive environment)
 - Plans to return to work (Rehab provider)
- Source of income

- **Compensation**

- Medico legal / Workers Compensation / 3rd Party

PAIN HISTORY

- **Past medical history**
 - Co-morbidities
 - Alcohol
 - Smoking including recreational drugs
 - Allergies
- **Medications**
 - Current Medications
 - Doses
 - How long taking
 - Side effects
 - Effectiveness
 - Non prescription medications



PAIN HISTORY

- **Pain Profile**
 - Site of pain
 - Onset of Pain
 - Duration
 - Radiation
 - Description
 - Sharp, dull, burning, or tingling
 - Aggravating factors
 - Relieving Factors
- **Severity**
 - VAS - Numerical rating scale 0-10

PAIN HISTORY

- **Past Treatments**

- What

- Medications including doses
 - Physiotherapy, Acupuncture, Chiropractor, Osteopath
 - Blocks and TENS
 - Relaxation, Meditation, Yoga

- When

- Results or complications

- **Previous consultations**

- **Investigations**

PAIN HISTORY

- **Impact of pain of lifestyle**
 - ADL's
 - Work
 - Homeduties
 - Sleep
 - Family relationships
 - Sexual activity
 - Social interactions with friends, activities and hobbies
 - Appetite and weight loss
- **Mood**
 - Depression and anxiety
 - Emotions – Irritable, Short-tempered, Frustrated, Angry

PSYCHOLOGICAL HISTORY

- **Introduction**

- What brought you to see us?
- What are you hoping we could help with?
- Are there any other past experiences with pain?
- Family history of illness/chronic pain?
- What do you think is the cause of your pain?
- Do you ever think you have something seriously wrong like cancer, which the doctors have missed?

PSYCHOLOGICAL HISTORY

- **Future expectations**
 - What do you expect will happen to your pain in 1-2 years?
 - If your pain could be relieved, what would you do that you are not doing now?
- **Coping strategies**
 - What do you do when the pain is bad?
 - What thoughts and feelings do you have about your pain?
- **Assess resistance to engaging in treatment**

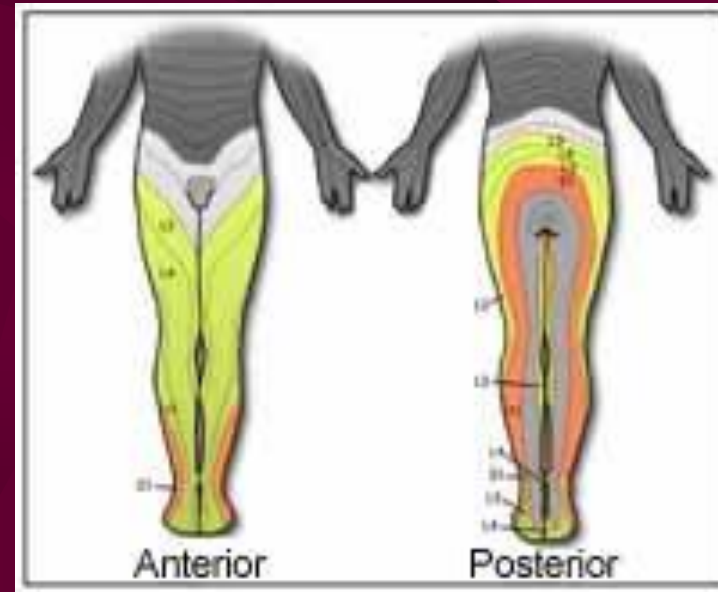
PAIN EXAMINATION

- **General Appearance**
 - Observation
 - Facial expression
 - Body movements
 - Pain behaviour and grimacing
- **Physiological**
 - BP, breathing, HR
- **Gait**
- **SLR** – straight leg raising
 - sitting & lying

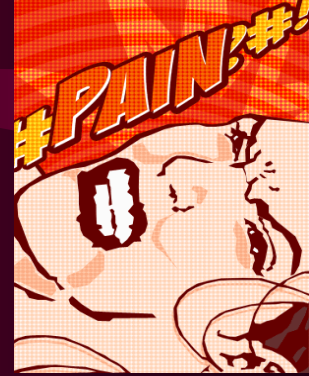


PAIN EXAMINATION

- **Range of Movement**
 - Lumbar spine
 - Cervical spine
 - Other joints
- **Neurological**
 - Tone
 - Power
 - Upper and lower limbs
 - Reflexes
 - Sensation
 - Plantars
- **Tenderness**
 - Axial and peripheral



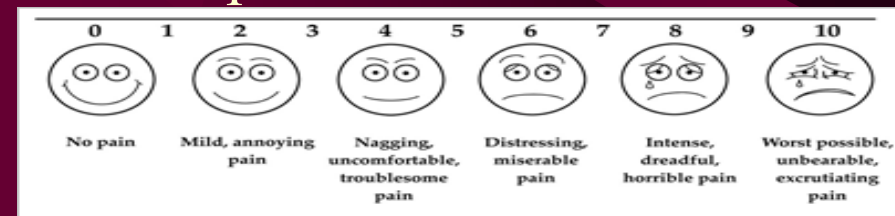
NON-ORGANIC SIGNS



- **Waddell's signs (1980)**
 - Indicates non-organic or psychological component to chronic low back pain
 - 3 or more positively correlated with depression , somatisation and abnormal illness behaviour
- **Superficial tenderness**
- **Widespread or non-anatomic tenderness**
 - pain on light palpation crossing multiple anatomic boundaries
- **Axial loading**
 - pain when pressing down on the top of the head
- **Distracted straight leg raise**
 - pain on SLR while lying, but not when knee extended with the patient seated
- **Pain on simulated rotation**
 - rotating the shoulders and pelvis together should not be painful as it does not stretch the structures of the back
- **Regional sensory change**
 - sensory loss in entire extremity or side of the body
- **Regional weakness**
 - jerky weakness with intermittent resistance (give-way)
- **Overreaction**
 - exaggerated painful response , not reproducible to same stimulus is given later

PAIN SCALES

- Subjective experience - rely on self reporting
- **Verbal Rating Scale**
 - no pain, mild, moderate and severe (0-3)
- **Visual Analogue Score**
 - 10cm line from “no pain” to “worst pain”
- **Numerical Rating Scale**
 - Ask to rate pain intensity (0 to 10)



QUESTIONNAIRES

- **McGill Pain Questionnaire**

- VAS and Present Pain Index
- 15 adjectives to describe pain (0-3)

- **Oswestry Low Back Pain Disability Questionnaire**

- 10 functional activity measures (a-f)
- Intensity, personal care, lifting, walking, sitting, standing, sleeping, social, traveling and change in pain

- **Beck Depression Inventory**

- Depressive symptoms
- 21 questions (0-3)
- Sadness, pessimism, past failure, loss of pleasure, guilt, crying, agitation, loss of interest, worthlessness, sleep change, irritability, appetite, libido

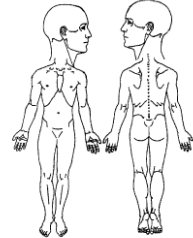
Appendix IV (i)

SHORT FORM MCGILL PAIN QUESTIONNAIRE and PAIN DIAGRAM
(Reproduced with permission of author © Dr. Ron Melzack, for publication and distribution)

Date: _____
Name: _____

Check the column to indicate the level of your pain for each word, or leave blank if it does not apply to you. _____

	Mild	Moderate	Severe
1 Throbbing	_____	_____	_____
2 Shooting	_____	_____	_____
3 Stabbing	_____	_____	_____
4 Sharp	_____	_____	_____
5 Cramping	_____	_____	_____
6 Gnawing	_____	_____	_____
7 Hot-burning	_____	_____	_____
8 Aching	_____	_____	_____
9 Heavy	_____	_____	_____
10 Tender	_____	_____	_____
11 Splitting	_____	_____	_____
12 Tiring-Exhausting	_____	_____	_____
13 Sickening	_____	_____	_____
14 Fearful	_____	_____	_____
15 Cruel-Punishing	_____	_____	_____



Mark or comment on the above figure where you have your pain or problems.

Indicate on this line how bad your pain is—at the left end of line means no pain at all, at right end means worst pain possible.

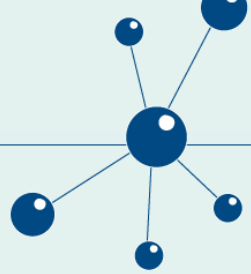
No Pain				Worst Possible Pain
S	/33	A	/12	VAS /10

AIM OF TREATMENT

- Decrease pain and suffering
- Improve physical and psychological function
- Maximise participation in daily activities
- Improve emotional well-being
- Provide hope, coping skills and confidence
- Minimise time spent away from work
- Increased self-reliance
- Achieve a sense of control

MEDICATION USE

- Take medication regularly
- PRN results in:
 - Patients need to monitor levels
 - Keeps pain gates constantly open
 - Fail to maintain adequate levels
 - Analgesics use usually increased



PHARMACOLOGICAL TREATMENTS – NOCICEPTIVE PAIN

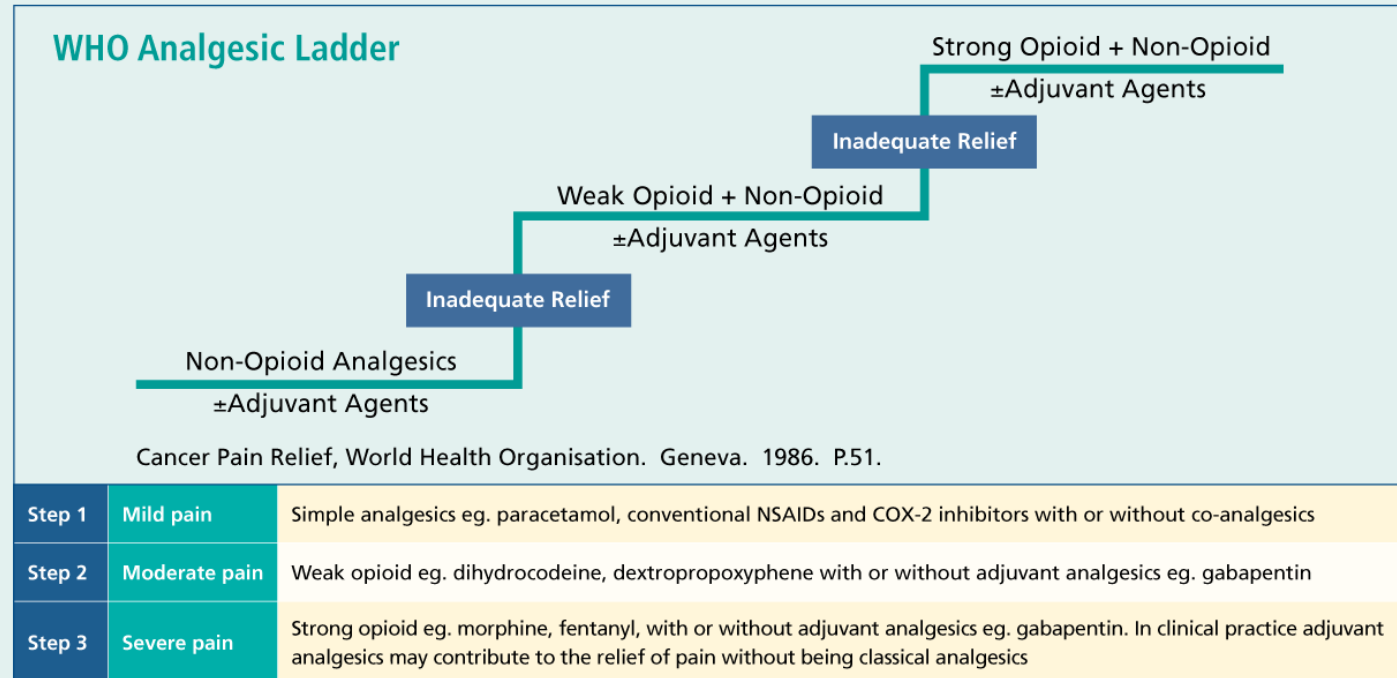
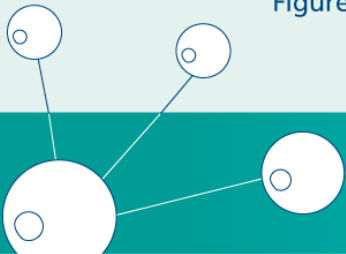


Figure 7. WHO Analgesic Ladder



Pharmacological Treatments

Initial analgesic options	<ul style="list-style-type: none">• Paracetamol (1000mg qid)• Paracetamol + codeine (2 x 500mg/30mg qid)• Tramadol IR (50mg qid)
For pain persisting > 5 days	<ul style="list-style-type: none">• Tramadol SR (100-200 mg bd)• Duro-Tram XR (100-200mg nocte)• Oxycontin SR (10mg bd)
Supplemental tricyclic antidepressant for nocturnal pain	<ul style="list-style-type: none">• Amitriptyline (10-25mg at night)• Nortriptyline (10-25mg at night)• Doxepin (25-50mg at night)

NUMBER NEEDED TO TREAT

	Success	Fail	Rate
Treatment	40	10	0.8
Control	30	20	0.6

- Attributable effect = $0.8 - 0.6 = 0.2$
- $NNT = 1/0.2 = 5$ i.e. treat 5 patient to get 1 positive response due to the treatment.
- $NNT < 3$ is good

SIMPLE ANALGESIA- non-opioids

- **Aspirin and Paracetamol**
 - first rung of pain ladder
 - mild-moderate pain
 - non-additive and safe in long-term use
 - few side effects and no sedation
- Moderate-severe post-operative pain, NNT for Panadol was 4.4 and Panadeine 1.9

NSAID's and COX-2's

- Mild-moderate pain
- Inhibition of COX-1 is responsible for the most common side effects:
 - gastrointestinal irritation and ulceration
 - blockade of platelet aggregation
 - renal dysfunction
 - hepatic damage
- The effect of these drugs on COX-2:
 - analgesic and anti-inflammatory effects
- COX-2 - Celebrex and Mobic

OPIOIDS

- Moderate-severe pain
- Careful assessment before starting
- Need careful monitoring so that adverse side-effects can be detected and treated
- Need careful titration of dose effect
- Addiction uncommon when used for pain
- Common adverse side effects include:
 - constipation, sedation, rebound pain (with short-acting opioids), and impaired cognition.

The Place of Opioids in Persistent Pain

- Literature indicates opioid therapy might be beneficial in some patients
 - Demonstrated good efficacy outcomes
 - Only moderate side effects
 - Low risk of abuse or addiction
 - Diversion
- Longer acting opioids are better than short-acting
- Patient selection and close follow-up are critical to good outcomes

OPIOIDS

- 14 RCT's
- Efficacy of acute exposure (mainly intravenous) to opioids
 - mainly involved TN and none involved DPN
 - mixed results with respect to the analgesic effect of opioids

OPIOIDS

- 9 intermediate term studies
- Consistent opioid analgesic efficacy in reducing spontaneous neuropathic pain
 - 4 with Morphine, 3 with Oxycodone and 1 with Methadone
 - 3 trials had additional groups with administration of non-opioid drugs such as Tegretol, Nortriptyline and Gabapentin

OPIOIDS

- 2 trials in neuropathic pain
 - Gilron 2005
 - non-significant superiority of Morphine to Gabapentin
 - Raja 2002
 - non-significant superiority of morphine and methadone to nortriptyline - 4.4 vs 5.1 - low numbers 120
- 2 trials in diabetic peripheral neuropathy
 - Watson 2003
 - physical and mental health components of SF-36 improved on oxycodone 10-40 mg bd compared to placebo NNT 2.6
 - Gimbel 2003
 - no improvement with oxycodone 10-60 mg bd

Raja 2002

Morphine vs Nortriptyline

Study	Raja 2002
Methods	QS - 5 (R - 2, DB - 2, W - 1) Crossover, eight weeks each arm
Participants	Study arms enrolled/completed: Opioid arm: 76/56 Control arm: 76/70 Placebo arm: 76/75 Neuropathic pain diagnosis: PHN
Interventions	Morphine oral: 15 to 240 mg/day or methadone oral five to 80 mg/day (means 91 ± 49.3 & 15 ± 2.0) Nortriptyline or desipramine: ten to 160 mg/day (means 89 ± 27.1 & 63 ± 3.6) Placebo
Outcomes	Pain intensity: 4.4 ± 2.4 opioid arm vs 5.1 ± 2.3 antidepressant arm vs 6.0 ± 2.0 placebo arm (zero to ten scale) % pain reduction: 38.2 ± 32.2 opioid arm vs 31.9 ± 30.4 antidepressant arm vs 11.2 ± 19.8 placebo arm Cognitive function slightly worsened with antidepressants; sleep improved from baseline with opioids and antidepressants; all other multidimensional pain inventories unchanged
Notes	Adverse events: nature - opioid vs. control (n): Nausea: 30 vs five Constipation: 23 vs eight Drowsiness/Somnolence: 23 vs 11 Dizziness: 14 vs five Altered cognition: normal in both groups Withdrawals due to adverse events: seven vs NR

Watson 2003

Oxycodone

Study	Watson 2003
Methods	QS - 5 (R - 2, DB - 2, W - 1) Crossover, four weeks
Participants	Study arms enrolled/completed: Opioid arm: 45/35 Active placebo arm: 45/36 Neuropathic pain diagnosis: Diabetic neuropathy
Interventions	Oxycodone oral long-acting: ten to 40 mg twice daily (mean: 40.0 ± 18.5) Benzotropine: 0.25 to 1.0 mg twice daily (mean: 1.2 ± 0.6)
Outcomes	Daily pain intensity: 26.3 ± 24.7 oxycodone group vs 46.7 ± 26.9 placebo group. Daily categorical pain scale: 1.3 ± 0.9 vs 1.9 ± 0.9 Categorical pain relief scale: 1.8 ± 1.4 vs 2.7 ± 1.2 (relief measured on a zero to five scale; lower score = more relief) "Skin pain": 14.3 ± 20.4 vs 43.2 ± 31.3 Oxycodone superior to placebo for overall Pain and Sleep. Questionnaire, Pain Disability Index, SF-36; NNT for moderate pain relief = 2.6
Notes	Adverse events: nature - opioid vs placebo (n): Nausea/ vomiting: 16/5 vs 8/2 Constipation: 13 vs four Drowsiness/Somnolence: nine vs 11 Dizziness: seven vs three Altered cognition: NR Withdrawals due to adverse events: seven vs one

OPIOIDS

- Opioids were effective in reducing spontaneous neuropathic pain and have a dose dependent response
- Overall mean pain intensity reduced by 13 points compared to placebo ie 20-30% reduction
- To achieve this effect, 67% of the Gabapentin study required a daily dose of 3600 mg a day (Backonja 1998)
- Most common side effects
 - nausea and constipation - NNH was 4.2 (CI 3.2-5.6)
 - followed by drowsiness, dizziness and vomiting

TRAMADOL

- **Opioid** (mu-opioid) analgesic activity
- **Non-opioid** analgesic activity
 - Inhibition of noradrenaline reuptake
 - Stimulation of serotonin release at the spinal level
- Quick acting, slow release, extended release, IV or IM
- Side effects:
 - CNS (somnolence, confusion, dizziness) & GIT (nausea)
- Moderate post-operative pain - NNT 100mg 4.7

TRAMADOL

- CNS-active analgesic, synergistic action via:
 - Non-opioid - reuptake inhibitor of serotonin and noradrenaline
 - Opioid - weak binding to mu-opioid receptors.
- 6 eligible trials
 - Tramadol 100 – 400 mg / day with placebo
 - significant therapeutic effect on paraesthesia, allodynia, and touch evoked pain
 - Tramadol with clomipramine – 21 patients
 - Tramadol with morphine – 40 patients

TRAMADOL

- Evidence showed that 100 - 400 mg is effective symptomatic treatment for peripheral neuropathic pain
- NNT compared to placebo to reach at least 50% pain relief
3.8 (CI 2.8 to 6.3)
- Side effects
 - constipation, nausea, sedation and dry mouth
 - small risk of seizures (use is contraindicated if history of epilepsy)
- NNH was 8.3 (CI 5.6 to 17)

Buprenorphine - NORSPAN

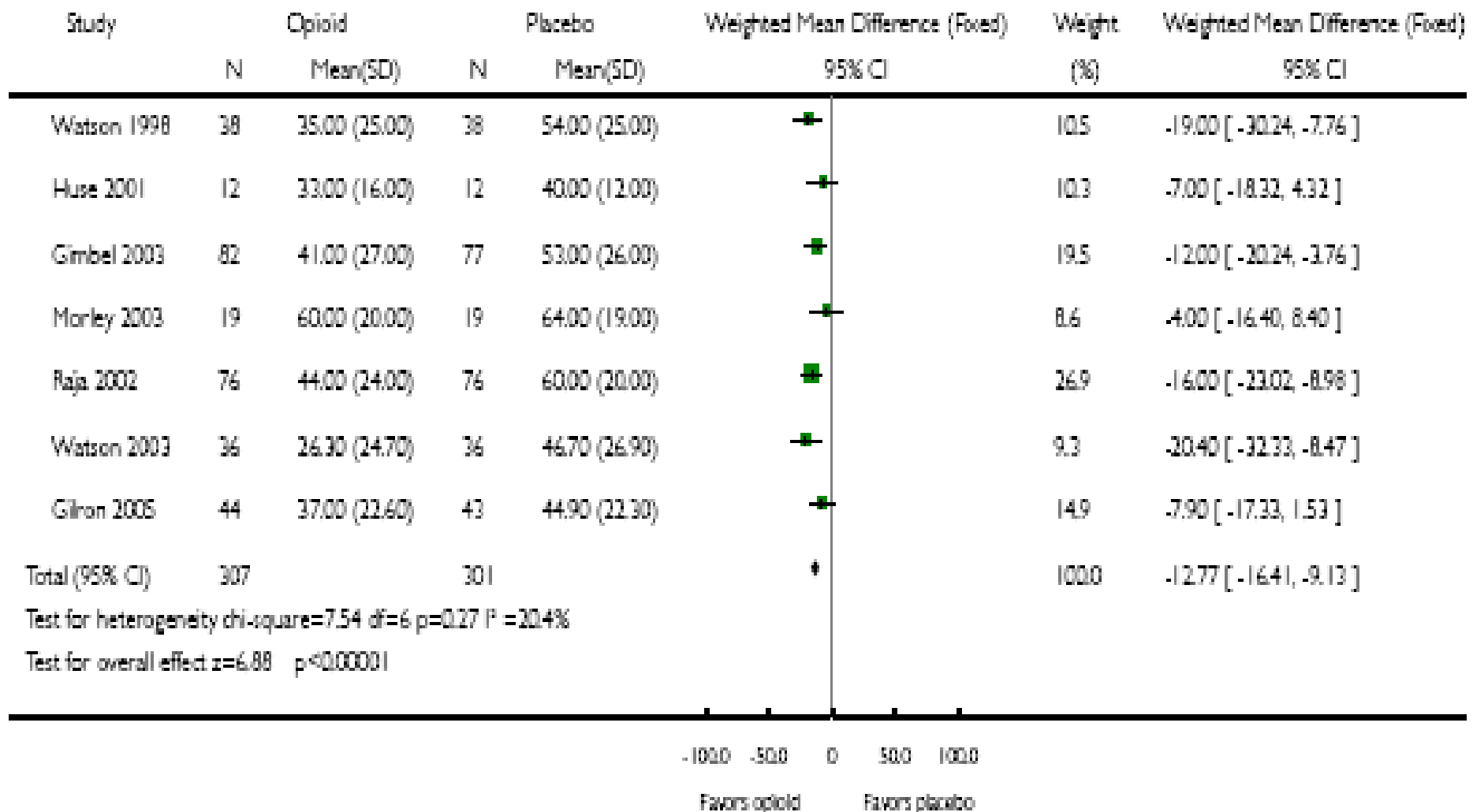
- Transdermal patch - weekly
 - Partial opioid agonist
 - SE's
 - Application site skin irritation (rotate sites)
 - Headaches
 - Dizziness, drowsiness, nausea, constipation
 - Doses
 - 5 mcg/hr / 10 / 20

Analysis 02.01. Comparison 02 Intermediate-term Efficacy Studies: Opioid vs. Placebo, Outcome 01 Pain intensity post opioid/placebo

Review: Opioids for neuropathic pain

Comparison: 02 Intermediate-term Efficacy Studies: Opioid vs. Placebo

Outcome: 01 Pain intensity post opioid/placebo



LOCAL BLOCKS

- **L2 paravertebral blocks**
 - Innervation of disc with nerve root distribution of pain.
 - Pain on flexion. Pain on sitting
- **Peri-radicular block**
 - Nerve root compression with radicular symptoms
- **Epidural block**
 - Disc pain with radicular pattern
- **Facet joint block**
 - Pain on extension.
 - Pain usually not below knee

PHYSIOTHERAPY - Exercise

- Restore physical activity
- Graded return to activities
- Gentle stretches to prevent contractures
- Maintain ROM and prevents muscle stiffness
- Increase strength
- Build endurance and stamina
- Prevent physical deconditioning
- Encourage production of endorphins
- Improve posture and body mechanics

Low Back Pain

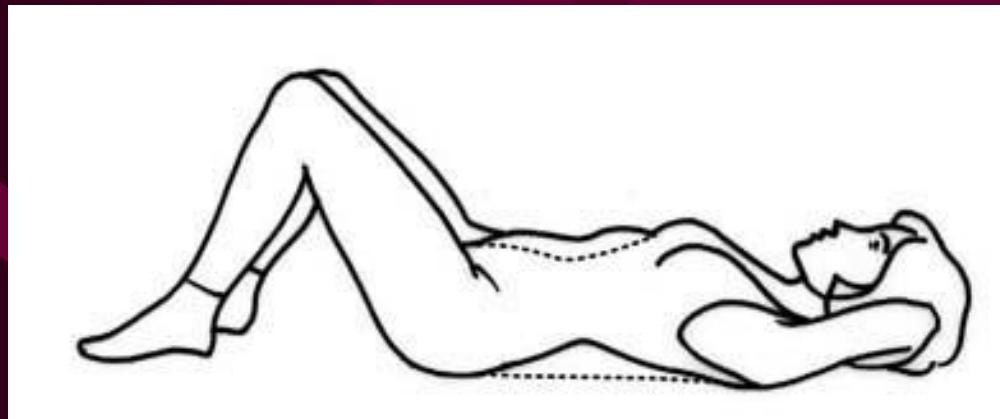
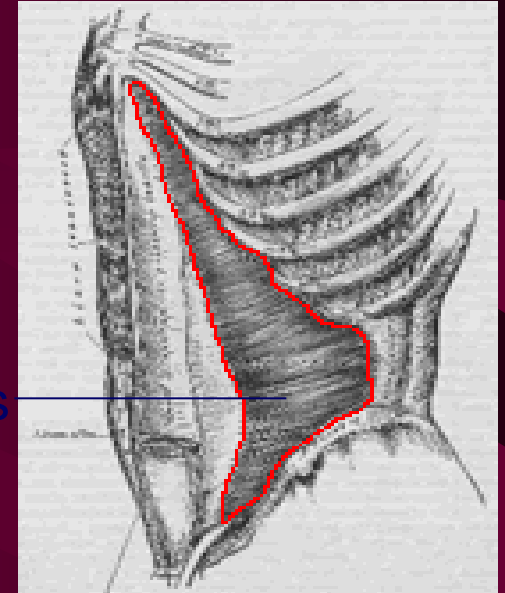
Lumbar Stabilisation Exercises



Muscle multifidus

Lumbar multifidi

Transversus abdominus



Initial phase of
stabilisation begins
with isolated muscle
contraction

TENS

- Sends electrical impulses to nerve endings through electrodes
- Stimulates the release of endorphins to decrease pain
- Produces a tingling sensation on the skin
- No side effects
- Apply 1-4 hours, 3-4 times a day

PAIN CLINICS

- **Does not imply “Pain is not Real”**
 - When pain persists beyond healing or with no cause, it is often assumed patient is willingly aggravating the pain
 - This is rarely the case**
 - Pain is a perception, which is filtered through the brain
- **Multidisciplinary treatment**
 - 1st pain clinic to include psychological component –1976
 - Cognitive components are crucial to the treatment
 - Reduce pain but also improve mood and decrease disability
 - Medical, physical, behavioural, emotional, vocational, social

PAIN CLINIC RECOMMENDATIONS

- Investigations and referrals
- Medications
 - Nociceptive
 - Anti-neuropathic
- Anaesthetic blocks or TENS
- Physical therapy and exercise program
- Occupational therapy
- Psychiatric or Drug & Alcohol review
- Psychological management
 - Meditation / relaxation
 - Pain Education Program
- Implantable drug pump and spinal cord stimulation

PAIN CLINICS

- **Physical Profile**

- Inactive
- Not participating in regular exercise
- Day spent avoiding pain
- Loss of general fitness
- Reduction of use and range of motion of painful sites

VICIOUS CYCLE OF PAIN

- Pain is interpreted by brain as a warning
- Leads to a internal stress response
- Blood diverted to heart, away from muscles
- Muscles become tight and tense
- Long-term tension leads to fatigue, stiffness and immobility
- Spasms and cramps lead to pain

PAIN CLINIC PROGRAMS

- Information and Education about pain
- Medication review and advice
- Reduce fear avoidance of activity
- Exercise
- Planning and Pacing
- Psychological Intervention

PSYCHOLOGICAL PROFILE

- Strong relationship between chronic pain and psychological distress
- Chronic musculoskeletal pain and depression
- Somatisation
- Anxiety
- Post-traumatic stress disorder
- Fears of physical disability
- Childhood victimisation / abuse

PSYCHOLOGICAL THERAPY

- Cognitive and behavioural therapy
- Sleep-wake cycle management
- Activity scheduling (Pacing) and goal setting
- Graded muscle relaxation
- Slow breathing exercises
- Stress management techniques
- Drug & Alcohol counselling
- Relationship therapy

COGNITIVE COPING STRATEGIES

- Help patients recognise, challenge and replace unhelpful thoughts
- Train in assertive behaviour
- Mental relaxation and distraction
- Recognise emotional problems
- Adjust lives to degree of disability – coping skills
- Deal with anger and frustration
- Improve quality of life

WHY MEDICATIONS FAIL?



Mr GS

- 57 yo
- R TKR 30/5/09 Mater Hospital
- Endone 10mg q4h and Tramadol 100mg q4h
- Transferred to HHP Day 7 post op
- Commenced DuroTram-XR 200mg nocte
 - Pain well controlled, requiring Endone 2/day
- Mobic 15mg mane added
 - Reduced Endone to daily, just before physio

Mr RR

- 71 yo
- 6 week history cervical neck pain and headaches
- CT cervical – multi-level degenerative disease
- Partial response to Panadol Osteo
- Commenced Tramadol SR 100 mg mane – 150
 - Improved pain till mid afternoon
- Changed to DuroTram-XR 200mg nocte
 - Pain well controlled throughout the day

Mr MV

- 30 yo
- Back seat passenger accident 9 years ago (2000)
- Intermittent R sided pain from neck to toes
 - Dull ache and cramping. Not sharp or burning
 - Right leg gives way when pain increases
 - Partial response to Tramadol 50 mg 3-4 /day
- Commenced Tramadol SR 100 mg bd
 - Improved pain for about 50% of the day
- Commenced DuroTram-XR 200 mg nocte
 - Generally 24 hour relief. Occ needs 50mg capsule

Mrs CB

- 82 yo
- L TKR Feb 09
- Transferred to Metro on Oxycontin 10 mg bd
 - Cognitive side effects and drowsiness
- Changed to DuroTram-XR 100mg nocte
 - Tolerated well and good pain control

Mrs MW

- 73 yo
- R TKR April 2009
- DuroTram-XR 100mg nocte
 - Constant feeling of nausea
 - Ceased after 3 days
 - OK on Oxycontin 5 mg then 10 mg bd

Mrs RH

- 90 yo
- Lower lumbar back pain to r knee and groin
 - Constant dull ache, increases with walking
 - X-rays – deg facet joint changes
 - Tried Celebrex. Now takes Digesic 2-4/day
- Commenced Tramadol SR 100mg nocte 5/08
 - Takes edge off her pain, but not sleeping well
- Changed to DuroTram-XR 100mg nocte
 - Pain manageable , walking and sleeping well

Ms CR

- 56 yo
- 18 month history of right leg pain on walking
 - Throbbing, pressure, tightness. No sharp, burning
 - MRI – deg disc changes with R S1 compression
 - Mobic – increased BP
- DuroTram-XR 100mg nocte increased to 200mg
 - No improvement in pain. Ceased after 1 month
- Norspan patch improved pain