INTEGRATED MANUAL THERAPY

INTRODUCTION

Over the years the physiotherapist used a wide range of treatments such as heat or cold, exercise, traction, electrical pain relieving modalities, mobilisation and manipulation. Manual therapy has an origin from osteopathy and chiropractioners. But manual therapy by physiotherapist has taken it into right direction by making the features fit for it. The purpose of this programme is to direct graduates and interested physiotherapist in the field of manual therapy to give a combination of articular, muscular, fascial and neural approach. Irrespective of the different diagnostic titles, the principles of diagnosis and treatment remain the same.

AUSTRALIAN APPROACH MANUAL THERAPY

The widespread use of manual therapy techniques suggests some degree of success in their application. The Australian manipulative physiotherapeutic approach to musculoskeletal disorders has evolved over four decades to become a part of the health care provider network in Australia.

The fundamental concept of treatment of musculoskeletal disorders has been influenced by Geoff Maitland's manual therapy approach. The concept which Geoff Maitland has introduced is based on clinical observations. These clinical observations have evolved as a result of a systematic approach to the examination and treatment of the patients presenting signs and symptoms. This systematic approach involves the evaluation of the patients clinical signs and symptoms and the evaluation of the effects of treatment techniques on these signs and symptoms. Since the value of the treatment technique on the presenting signs and symptoms may be assessed, the physiotherapist is left with the ability to find the most effective treatment technique. Through the interpretation (clinical reasoning) of the presenting signs and symptoms devolved.

way. The information which the patient provides may be interpreted and placed into a meaningful context by the physiotherapist. Further, the physiotherapist may need to ask the appropriate questions in order to confirm and correlate the information which is given by the patient. A physiotherapist may label a patient unreliable when a positive treatment outcome doesn't occur, yet unreliability may occur when either the patient and/or physiotherapist become inconsistent with their response to questions and answers Maitland states "the patient has one witness whereas the physiotherapist has none" (Maitland 1988). This means that the physiotherapist needs to believe the patient and try to "make the features fit" (Maitland 1986) through an unbiased clinical reasoning approach. Only when "the features" don't fit may the physiotherapist consider the patient unreliable. However, the physiotherapist needs to consider and investigate all possibilities before a patient is 'labeled' as unreliable. The presentation and the solving of unfamiliar clinical presentations through the correlation of information may assist the physiotherapist to learn and better understand the human being. The ability to adjust our clinical reasoning processes and explore every treatment possibility at the clinical interface makes our profession a very exciting profession to be in.

Since the expectations of a positive treatment outcome on signs and symptoms underlie the success of this approach to treatment, the continued existence of physiotherapy as a primary health care provider in the face of ever increasing economic constraints may attest to the practicalities for the physiotherapist and the satisfaction by patients of this treatment approach. Indeed, the Maitland concept fails to work if a thorough assessment and re-assessment during the subjective and physical (objective) examination are not carried out. Therefore, the Maitland approach makes use of the correlation of information within and between various aspects of the subjective and physical (objective) examination ("Make the features fit" [Maitland 1986]) to increase the validity and reliability of this approach to the assessment and treatment of musculoskeletal disorders. Clinical investigations on manual therapy at the University of Queensland are increasing our clinical knowledge (Jull, Bogduk, Marsland 1988; Jull & Bullock 1987; Jull, Treleaven, Versace 1994) whereas investigations designed to assess the validity of our measurement tools in terms of joint biomechanics (Lee & Svensson 1990), EMG (Lee, Esler, Mildren, Herbert 1993; Shirley & Lee 1993), proprioception and statistical methods (Maher & Latimer 1992) are being carried out at the University of Sydney. The ever increasing number of continents where this systematic approach is being taught and applied in the clinical practice (Europe, Asia, Africa, North & South America) may be attributed to the validity and reliability of the manipulative physiotherapeutic approach to the treatment of musculoskeletal disorders.

A catchcry for the healthcare dollar (peso) of this decade has been to "either prove it or loose it" (Jull 1987). The clinical reasoning approach to clinical signs and symptoms is being enhanced by the work of Mark Jones (South Australia) and Joy Higgs (University of Sydney) and by scientific evidence from anatomy, biomechanics and neurophysiology.Knowledge in applied clinical anatomy has been enhanced by the works of Nikolai Bogduk at the University of Newcastle, Twomey and Taylor in Western Australia (Bogduk & Twomey 1991). The biomechanical approach in the assessment of neural mobility has been enhanced by Bob Elvey in Western Australia, whereas the neurophysiological approach to manual therapy has been stimulated by David Butler, Michael Shacklock, and Helen Slater in South Australia. Certainly, the revolution in knowledge in the pain sciences may be reflected in the ever increasing membership numbers of the IASP (International Association for the Study of Pain) of which Australian scientists and practioners such as Michael Cousins (former president) from the University of Sydney have played an integral part. Indeed, it is this fundamental multidisciplinary approach to the validation of the treatment of pain which is integrated into both the IASP and manipulative physiotherapy concepts. However, although theoretical knowledge are important it should not bias the practioners judgement as to the significance of the presenting signs and symptoms. Maitland (1988) emphasises that although new theoretical hypotheses come and go, the clinical signs and symptoms have remained the same for thousands of years.

The subjective examination consists of

Body Chart

24 hour behaviour Aggravating/easing factors Past History Current History

The physical (objective) examination supplements the subjective examination and consists of the examination of

Active movements

Passive Accessory Intervertebral Movements (PPIVM)

Passive Physiological Intervertebral Movements (PAIVM)

Neurological examination

Special test (e.g. neural mobility, impingement, instability tests, vertebral

artery, etc)

The treatment should be the final stage in the validating and correlating approach to the assessment of the musculoskeletal disorder (Maitland 1986) Thus, the reliability of the manipulative physiotherapeutic approach may be enhanced by correlating all the information. The reliability of the physiotherapists thinking (cognition) is self assessed (meta cognition) through the correlation of all aspects of the physical (objective) and subjective examination and the validity of the treatment technique is assessed through the correlation of all aspects of the physical (objective) examination with treatment outcome (and thus the subjective examination).

During the subjective examination, the distribution of symptoms on the body chart should give the physiotherapist an initial impression (working hypothesis) as to which structures may be involved in the presentation of pain (Bogduk & Marsland 1988). Further questioning as to the type of pain, whether the pain is deep or superficial, whether the pain is constant or intermittent, whether pins and needles/numbness are present should further lead to hypotheses generation in regard to the involvement of somatic and/or nerve root structures. Also the relationship between the pains and pins & needles/numbness may lead to hypotheses generation as to the number of structures involved (Maitland 1991).

The hypotheses generated by the body chart should be confirmed or denied through the correlation with the remaining examination. The 'aggravating/easing' factors (Maitland 1991) may generate hypotheses as to the movements involved in the patient's problem and should correlate to the relationship between the pains on the body chart and later should correlate to limitations in the active movement examination. The aggravating/easing factors should also establish the 'irritability' (time for pain to come on, the intensity of activity required to produce pain, the time taken for symptoms to decrease) of the disorder (Maitland 1991). 'Irritability' is considered to protect both the patient and the physiotherapist during the physical (objective) examination by identifying the proportion of inflammation and mechanical irritation (pain and stiffness) involved in the movement dysfunction. Further, these aggravating/easing factors may provide a valuable tool for reassessment purposes (i.e. time for pain to come on, the time for pain to came on, the severity of symptoms, the distribution of symptoms, the intensity of the activity required to produce symptoms, etc).

The 24 hour behaviour may provide information as to the presence of inflammation and mechanical irritation. Inflammatory conditions tend to be worse at night and are thought to be accompanied by morning stiffness lasting longer than half an hour. Also, heat is thought to give some relief of pain during inflammatory conditions. Further, medication use in the 'special questions' (e.g. the effect of NSAID's) may correlate to the presence or abscence of non-neurogenic inflammation. The 24 hour behaviour may further confirm the relationship between pains and may be a useful reassessment tool (e.g. pain A comes on at 1400 rather than at 1000 and is no longer accompanied by pain B, C, D, and E, etc).

The current history may identify the extent of injury and the onset of pain and correlate the relationship between the pains to that which was established on the body chart, aggravating/easing factors and 24 hour behaviour. The current history may also

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provide information with regard to a mechanism of injury (specific movement, degree of force involved, etc) which may be related to the aggravating/easing factors and may later be related to the active movement examination. The current history may also help identify the 'stage of the disorder' (i.e. "getting better, worse, or the same?").

The past history may further correlate the relationships between the pains which are being established, the 'stability' of the disorder, and together with the remaining subjective examination an initial hypothesis as to the prognosis of treatment outcome may be made. The 'stability' of the disorder refers to the frequency of symptoms, the intensity of activity to cause a relapse of symptoms, previous treatment, etc. Expectations of treatment outcome may be hypothesized if previous treatment helped, did not help (due to inappropriate treatment or due to the extent of pathology?), if the problem has been getting worse over the past 20 years verses the first occurrence, etc. Treatment progress not in correlation with the therapist's expectations may be a good indicator that a particular technique needs to be changed or that another problem exists. Further, the patient may have more confidence in the physiotherapist if treatment goals are defined.

Finally, the 'special questions' should identify the results of medical investigations and treatment (e.g. NSAID's, steroids, operations, etc.) any precautions and contraindications to treatment with manual therapy. Also referral back to the medical practitioner may be necessary at this stage due to suspected cancer, cord compression, cauda equina dysfunction, instabilities, fractures, osteoporosis, systemic inflammation. virus, etc.. In this manner a close working cooperation with the medical practitioner helps in the differential diagnosis procedure.

At this stage of the examination procedure, a working hypothesis related to the structure (joint, neuromeningeal, nerve root compromise, etc.,), the segment(s), the 'stage', the 'stability', the 'irritability', precautions/contraindications, and the expectations of treatment outcome should be made. At the end of the subjective examination but prior to the physical (objective) examination a precise working hypothesis may be made

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as to what the physiotherapist expects to find during the physical (objective) examination. Maitland considers the subjective examination to be 70% of the examination process, with the remaining 30% of the examination process being divided into 20% for the physical (objective) examination and 10% for the treatment outcome (Maitland 1986).

During the physical (objective) examination a correlation to the findings in the subjective examination should be confirmed. This confirmation between the subjective and physical (objective) examination should include the relationship between the pain(s), the active movements which are compromised, the irritability of the disorder, the and symptoms and the confirmation of signs of neurological presence precautions/contraindications. The objective examination should confirm the presence of an 'opening' or 'closing' pattern of pain and movement dysfunction and it should confirm the existence of one or more regions of pathology. In the presence of more than one region of pathology the physiotherapist may need to identify whether the one movement is placing stress on 2 different structures and resulting in 2 different pains or whether this one movement is placing stress on 1 structure which is referring pain into a second region. This relationship of pains in the physical examination (objective) should correlate with the 'irritability' and the relationship of pains established in the subjective examination (i.e. body chart; aggravating/easing factors; onset of pains with respect to the past and current history).

Within the physical (objective) examination a correlation between active movement dysfunction and Passive Accesssory Intervertebral Movement (PAIVM) and Passive Physiological Intervertebral Movement (PPIVM) may be made. The PAIVM may establish the segment(s) of dysfunction and the relationship of pain and resistence. Reassessment of the active movement after PAIVM may establish whether this technique had any effect on the most 'comparable' active movement dysfunction. Further, PAIVM's should help confirm or deny the relationship between the pain(s). The PPIVM may be correlated to the PAIVM's as to where the movement dysfunction(s) are/is taking place (e.g 2 segments within the cervical spine, 1 segment in the cervical

spine and 1 segment in the thoracic spine and another in a peripheral joint). Further, PPIVM's may confirm the presence of an 'opening' or 'closing' pattern to the movement dysfunction (e.g. contralateral rotation may correlate with contralateral lateral flexion, lateral glide and flexion in an 'opening' pattern whereas ipsilateral lateral flexion may correlate with lateral glide and extension in a 'closing' pattern). Reassessment of the active movements after the PPIVM's may establish the validity of using this technique in the treatment of movement dysfunction due to pain.

Manual examination is a cornerstone of the manipulative physiotherapist's physical diagnosis of spinal joint dysfunction (Jull, Treleaven, Versace 1994). The manipulative physiotherapist's ability to detect the pathological segment in patients with spinal pain have been found to be reliable when tested against nerve and facet blocks, provocative discography, mobility X-rays and ultrasound scanning of acute segmental muscle spasm and inhibition (Behrsin & Andrews 1991; Hides, Stokes, Saide, Jull, Cooper 1994; Janos & Ray 1992, Jull, Bogduk & Marsland 1988). Jull et al (1994) suggest that the manipulative physiotherapist is able to determine the segment of pathology without reference to the patients pain, however the investigations by Maher & Latimer (1992) and the literature review of the neurophysiological mechanisms of pain (Zusman 1994) suggest that any "abnormal quality of resistance to motion" (Jull et al 1988) should be related to the patients pain.

Special tests may need to be carried out in order to establish the presence of decreased neural tissue mobility (Butler 1991; Edgar, Jull, Sutton 1994; Elvey 1986; Selvaratnam, Matyas, Glasgow 1994; Yaxley & Jull 1991). Neural mobility may be a useful treatment and/or reassessment tool but should correlate with findings in the subjective examination as well as with the findings of the remaining objective examination (e.g. contralateral lateral flexion results in the pain, anterior palpation of the cervical spine (e.g.C5) results in the pain, and lateral gliding (C5) as well as lateral flexion (C5/6) are restricted in opening, then the mobilisation of any one of these components which improves pain and hence range of movement may improve the pain and range of movement in the other components, including the C5/6 component of

neural mobility). Futher special tests to assess aspects of the subjective examination may include tests of instability.Insufficiency of the vertebral artery needs to be assessed in the patient complaining of vertebral artery symptomatology (e.g. dizzyness, ringing in ears, pins and needls on face and/or tongue, blurred vision, etc) and prior to manipulation. A neurological examination needs to be carried out in all patients who complain of spinal and peripheral symptoms extending beyond the hip and shoulder. If the patient complains of cord compression symptoms (e.g. bilateral pins and needles in both hands and feet and/or unsteadiness of gait) then the neurological examination needs to include the examination of the babinski reflex and clonus. Cauda equina symptomatology includes frequency of micturition and/or loss of bowel control and is considered a medical emergency. Therefore, special tests may be used to confirm certain aspects of precautions/contraindications in the subjective and physical (objective) examination.

The following outlines typical examinations of a patient complaining of dysfunction of the spine and limb

Conclusion:

The Australian manipulative physiotherapeutic approach to movement dysfunction using manual therapy involves a clinical reasoning process of collecting information, interpreting this information, and forming multiple working hypotheses. By using the correlation of information it should be possible to narrow the focus of the therapists working hypothesis so as to be able to make a treatment decision. Even at the stage where a treatment decision has been made, the technique itself needs to be assessed in terms of its effect on the subjective examination and on the active movement dysfunction. The therapist should also be able to make a decision as to the prognosis and expectations of treatment outcome. If these treatment expectations are not fulfilled, a change of treatment technique may need to be made. In this manner the therapist remains open minded and treats the clinical signs and symptoms based on a clinical reasoning process rather than treating a biased theoretical construct.

CLINICAL REASONING



The basis of sound clinical reasoning include:

- Ability to access one's knowledge base
- Cognition
- Metacognition

Ability to access one's knowledge base

Clinical knowledge

Biomedical knowledge

Cognitive Skills:

- Perception of relevant from irrelevant, interpretation of information and hypothesis generation.
- Inquiry strategies.

Meta cognition

- Therapist awareness
- Self monitoring
- Reflective processes

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Maitland concept

The use of manipulative treatment by Maitland concept has a much wider applications. The growth and expansion of manipulation within routine of orthodox medical care is most encouraging for the patient. In the modern era there are three main features of Maitland concept i.e.

- The continuous analytical assessment before, during and after the application each technique during each treatment session to session throughout treatment.
- 2. The gentleness of the initial treatment techniques.
- The symptomatic responses, both during and after application of treatment must be assessed and analyzed before progressing.

During the assessment the therapist evaluates the changes in the patient's symptoms and movement signs that occur as a result of the treatment techniques. The basic feature of applying technique is that the therapist mind must be open and they should be able to modify their technique until they achieve their intention. The basic treatment techniques will be physiological movements, accessory movements and combined movements. The technique chosen for treatment should be the movement that relieves the symptoms or the movement which provokes the symptoms. Apart from this, the treatment technique also depends upon the nature of the disorder, the severity of the disorder and irritability of the disorder.

Other important prime factor in this concept is how to relate the rhythm, the speed, the position in the range, the amplitude and the strength of the technique to the examination findings. for this purpose the grades of movements are essential for detailed thinking about the technique and for assessing progress, as a basis for teaching and communication and in recording treatment. The rhythm in which the technique is performed is essential for the quality of the technique. It may vary from gentle-smooth to stretching –staccato', was depending upon the clinical condition of the patient.

Brick wall theory

It's a symbolic permeable brick wall which guides therapists in their mode of thinking. By this mode of thinking the therapists can keep their thoughts, reflections, impressions, hypotheses and knowledge in two separate compartments. One compartment contains all theoretical information, known and speculative, including the precautions and contraindications. The other compartment should contain all the clinical evidence. The main core of this mode of thinking states that we must not get diverted by the theoretical aspects of a patient's disorder because there are enormous amount of events which we do not know.

Wording

The patient on being asked to demonstrate his area of pain places his hand over the sacroiliac joint and the therapist says that sacroiliac joint pain but to the concept it should be called as pain in the sacroiliac joint area

Listening:

In this concept it's emphasized that therapist should be a good listener, we must believe patient's subtle comments or remarks. The relevance of the remark must be confirmed by asking other related questions.

Examination:

The greater detail and depth of examination is demanded by this concept. The other peculiar features of this concept are

- The precise site and kind of patient's symptoms.
- 2. Functional movements that patients can demonstrate their symptoms.
- 3. The standard test movements of joints and vertebral canal and neural structures.
- Coupling different movements, sequences and positions.
- 5. Differentiation tests to determine which structure or movement component are involved with painful movement.
- 6. The accessory movements and palpation findings that have a effect on symptom.

Movement diagram

It's an essential part of the learning process. The learning process includes both a teacher teaching students, and also the teaching of oneself as one continues to practice and learn from experience. The movement diagram is very valuable in relating them to the selection of grade and rhythm of treatment techniques when applied to a patient's presenting symptoms and signs. Whenever we test any movement

- 1. Never think of pain without thinking of range.
- 2. never think of range without thinking of pain
- 3. The advantages of the movement diagram know how much change in the examination findings certain treatment techniques should effect.



MOBILISATION:

Rule of convexity and concavity:

If moving surface is concave - glide occurs in same direction as bone movement.

If moving surface is convex - glide occurs in opposite direction of bone movement.

PRINCIPLES OF JOINT MOBILISATIONS:

- Place joint in resting position
- Determine treatment plane
- Determine direction of mobilization using concave/convex rule
- Patient and body well supported
- Patient and therapist relaxed
- Mobilizing force should be close to therapist center of gravity
- Compare involved extremity to uninvolved
- Check one joint at time, one movement at a time

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- Stabilize one bone and mobilize the other. Usually stabilize proximal bone. Contact should not be painful.
- Therapist's hands should be close to joint surfaces as possible.
- When possible work with force of gravity rather than against it.
- Stop the mobilization test or treatment if too painful
- Initial mobilizations are in the loose pack position
- Treat deficiencies in joint play before attempting to treat component motions
- Assess before and after treatment

Indications for joint mobilizations:

- Pain
- Joint hypo mobility

Contraindications:

- Malignancy
- Rheumatoid collagen necrosis
- Fracture-recent or unhealed
- Excessive pain
- Acute inflammatory/infective arthritis
- Osteoporosis
- Pregnancy
- History of malignancy
- Hyper mobility
- Dizziness
- Neurological signs
- Spondylolisthesis

Contraindications to manipulation

- VBI
- Compromise of the carotid artery
- Malignancy of the spine
- Instability
- Hyper mobility
- Spinal canal encroachment

Ligamentous rupture

Source cannot be determined

MAITLAND, S GRADE OF OSCILLATORY MOBILISATIONS

GRADE 1: Small amplitude movement performed at the beginning of the range.

GRADE 2: Large amplitude movement performed within the range.

GRADE 3: Large amplitude movement performed up to the limit of the range.

GRADE 4: Small amplitude movement performed at the limit of the range.

GRADE 5: High velocity thrust performed at the limit of the range

PAIN

- Pain free position
- Largest possible range
- Look for increase
- If it sustains cease passive treatment

STIFFNESS

- Stretch the most comparable movement
- Small amplitudes
- Alternate physiological and accessory movements

PAIN AND STIFNESS

• Large and small amplitude

BITE

Treat into bite

Mobilising into bite with oscillating movements

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