**THE WHIPLASH PATIENT:**

Post-whiplash head and neck pain are probably the most frustrating clinical challenges facing the orthopedic manual therapist and the post-whiplash patient potentially one of the most dangerous patients. Frequently manual therapy provides only temporary relief and the patient becomes a regular feature in the office. The main purpose of this course is threefold, one to teach separate out seriously injured patients including those with vertebrobasilar problems, two a new evaluation and treatment concept in the management of chronic head and neck pain second to identify those patients in whom recovery is unlikely or at best very limited and manage them effectively.

**This course will cover:**

1. The anatomy and physiology of the spine
2. The anatomy and physiology of the balance system
3. The forces and effects of the impact will be described
4. It will discuss the pathology of balance together with musculoskeletal effects caused by dysfunction of this system
5. It will teach the assessment of the cervical pain, headaches, and dizziness including differential biomechanical and somatosensory diagnosis
6. Prognostic features based on research of the accident and patient presentation will be discussed to allow a reasonable prediction to be made early and late in the progress of the patient and to tailor treatment accordingly
7. It will offer a new approach to the non-recovering MVA patient integrating the re-education of the vestibulo-oculo-spinal reflexes with traditional manual therapy and balance exercises.

**Teaching Materials and Methods**

Preclassroom Preparation:

* Review of previously learned topics such as video of diagnostic and biomechanical examinations will be available for streaming and these will remain availble indefinitely after the conclusion of the class.
* Pdf versions of the Powerpoint presentations and the course manuals will be sent to students
* Powerpoint presentations of the anatomy of the cervical spine and neurovascular systems

Classroom

* Tutorial style lectures and lectures using PowerPoint presentations
* Lab sessions
	+ teaching and/or reviewing diagnostic and biomechanical examinations of the neck
	+ teaching neurophysiological examinations and treatments
	+ teaching biomechanical treatments
	+ teaching specific exercise prescriptions based on the above examinations

Postclassroom

In order to support what was learned in the classroom session each student will be supplied with a USB containing the following:

* All text including manuals
* All PowerPoint presentations
* Technique videos of all examination and biomechanical treatment techniques demonstated during the lab session
* The complete commercially produced MVA video made by Jim Meadows FCAMPT

**TOPICAL OUTLINE**

1. **Course Purpose**

**Background information will include:**

* Research concerning evidence:
	+ on the mechanics of whiplash
	+ on tissue damage from whiplash
	+ on early indications of chronicity
* Limiting chronicity in the acute phase
* Understanding the whiplash patient as a multisystem problem rather than just an orthopedic one

**Clinical Sciences**

**The following will be reviewed and taught:**

**1**. Neuroanatomy and physiology of the brainstem and upper cervical spinal cord

**2**. Sensory anatomy of the upper cervical region and head

**3**. Normal and aberrant neurovascular anatomy of the head and neck

**4**. Normal anatomy and physiology of balance including the vestibular apparatus, cervical receptors, eyes, jaw and their neurological connections

**5**. Etiologies and clinical manifestations of dysequilibrium including labyrinthine concussion, brainstem damage and cervical dysfunction

**6**. Normal and aberrant anatomy of the craniocervical region

**7**. Normal and dysfunctional biomechanics of the neck

**8**. Neurological examination of the head-neck patient

**9**. Musculoskeletal examination of the neck, including the scanning examination, passive mobility and passive stability biomechanical segmental tests

**10**. Examination of equilibrium

**11**. Anatomy of a headache

**12**. Etiologies of headache

**13**. Clinical manifestations of various types of headaches (recognizing the non-benign headache)

**14**. Differentiation of the vestibular patient from the cervicovestibular dysreflexive patient

**15**. Motion dysfunction states (hypomobility, hypermobility, instability)

**16**. Treatment of motion dysfunction states (mobilization, manipulation and stabilization)

**17**. Why whiplash patients don't get better and others do

**18**. Integration of minimal vestibular dysfunction with minimal cervical dysfunction

**19**. Treating cervicovestibular dysreflexia

**B. Objectives**

At the end of the course, participants will have sufficient information to be able to:

**1**. Understand the neuroanatomical basis of a headache

**2**. Understand the various types of headaches, their etiology, clinical presentation and management

**3**. Understand the normal and aberrant anatomy of the vertebrobasilar system

**4**. Understand the various etiologies of vertebrobasilar insufficiencies, their clinical presentation and management

**5**. Understand the anatomy and physiology of balance

**6**. Understand the anatomy of the upper spinal cord and brainstem

**7**. Examine the function of the upper spinal cord and brainstem (including cranial nerve and long tract testing)

**8**. Carry out and examination of the upper spinal cord and brainstem

**9**. Understand the various etiologies of dysequilibrium, their clinical presentation and management

**10**. Understand the examination of the balance system

**11**. Carry out an examination of the balance system

**12**. Integrate the data generated from such an examination to be able to differentiate serious causes of balance disturbance such as vertebrobasilar insufficiency from benign causes

**13**. Understand the basis for treating balance disorders as they pertain to the orthopedic patient

**14**. Treat the balance system based on findings from the examination

**15**. Understand the indications for referral of the patient to a vestibular rehabilitation therapist

**16**. Understand the normal and aberrant anatomy of the neck

**17**. Understand the normal and dysfunctional biomechanics of the neck

**18**. Understand the basis for the musculoskeletal examination of the neck

**19**. Carry out a musculoskeletal examination

**20**. Integrate the information from the musculoskeletal examination so as to identify the dysfunctional segment(s) make a statement concerning its motion status

**21**. Understand the basis of the treatment of the motion dysfunction

**22**. Carry out a musculoskeletal treatment based on the findings of the examination

**23**. Integrate the treatment of dysequilibrium, dysfunctional movment patterns and musculoskeletal dysfunction

**24**. Understand the indications that demand the referral of the patient to another specialist

**C. Applied Conditions**

Whiplash; its mechanisms and effects

Minor brainstem lesions

Labyrinthine concussion; (BPPV, perilymph fistulae, oscicular damage, traumatic hydrops)

Spondylogenic Dizziness

Vertbrobasilar insufficiency and associated syndromes

Cervicogenic and other headaches

Cervical instability

Cervical hypermobility

Cervical hypomobility

Rim lesions

Fractures

Disc prolapse

Cervicovestibular dysreflexia

**D. Treatment**

**1**. Referral out

**2**. Balance exercises

**3**. Cervical spine manual therapy

**4**. Application of a collar

**5**. Cervicovestibular reflex re-education exercises

**6**. Movement pattern re-education exercises

**7**. Discharge improved

**8**. Discharge unimproved