ICPA 180 Hour Certification Examination

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Contemporary Pediatric Chiropractic
Joel Alcantara, DC Jan 6-7, 2007 San Francisco

1. Describe the 7 unique biomechanical features of the pediatric spine and their implications to chiropractic care.

1. Active Process of Growth :

The pediatric spine is going through highly active process of growth, even from in-utero and right after the birth. Because of this special feature of the pediatric spine, it is always important to assure the safest and the healthiest growth of it, by avoiding the pathological processes such as malformation, deformation, and disruption. The implications of chiropractic care to these issues are, first the preventive characteristics which can be applied to the care for both the mother and the baby. Webster In-Utero Constraint Technique is known as one of the most effective chiropractic approaches helps to avoid complications during pregnancy, according to the article by Pistolese RA (1). This technique is designed to help preventing malposition of a baby caused by intrauterine constraint, with which the optimum growth of a fetus could be affected. In addition, malposition of a baby will increase the risk of dystocia and surgical intervention such as cesarean section, which could be a reason for birth trauma. Birth trauma is a major reason disrupting the optimum growth of a pediatric spine. The other implication is the active care towards pediatric spine through chiropractic adjustments. This will help optimizing each stage of the rapid growth of pediatric population, especially on the spinal growth and avoiding those pathological processes mentioned above.

2. Malleability

Malleability is one of the unique biomechanical features of a pediatric spine, and not only the spine, but the bone structure of a pediatric population is malleable in general as well.

Historically, Chinese foot binding, or molding of the skulls seen in North American tribe (Chinook) are some good example for its malleability (2). Because of this nature, when external force is applied, pediatric spine may start to have problems even in their early stage of growth. Furthermore in some cases, pediatric spine absorbs significant amount of external forces before it starts to show signs of malfunction, making it harder for early detection of the problem. Chiropractic care will be one of the best approaches to detect and correct the most subtle change in the pediatric spine before seeing major problems, and also this malleability supports the safety factor of the chiropractic adjustments, rendered precisely and with the most adequate amount of the force.

3. Adaptability

The term "Adaptability" denotes one of the biomechanical features of the pediatric spine. The pediatric spine has high ability to resist and hold out against the external forces and stresses, and adapt to it. Because of this feature, early detection of ongoing potential problems in a child's spine and body is hard. In some cases, sub-clinical entities may not be recognized by usual medical approach examinations, because a child appears to be maintaining a good function level. Long term hidden dysfunction of the spine can cause significant clinical outcome (i.e. early spinal degeneration and associated complications affecting the neural structures adjacent to the spine). Chiropractic examination and treatment is one good candidate for early detection of the child's spinal dysfunction, correction, and maintaining optimal spinal hygiene. It is the chiropractic concept of "Wellness Care" that supports and enables the best growth of a child's spine at any stage.

4. Hypermobility :

Compared to the spine of the adult population, the spine of pediatric population has rather wider Range of Motion, and it is described as "Hypermobility" of the pediatric spine. This nature is due to the immature soft tissue component, such as muscles and ligaments, are not functioning enough yet to prevent excessive, hypermobile motion in a spine. Other reason for this nature is that the facet orientation between each vertebrae has lesser angle and flatter, and thus resulting in wider Range of Motion. Some implications for chiropractic care are; when examining and rendering adjustments to cervical region (C0/C1/C2), because of its anatomical considerations (facet joint orientation, ligament composition), one should need to pay additional attention towards normal variant such as C2 pseudo-subluxation seen on lateral cervical radiograph (2), and upon palpatory examination or adjusting this area, one should be aware of some variants on

motion palpation findings and/or the Line of Correction and Line of Drive of the adjustments applied to this area. In addition, this hypermobile nature is linked closely to the greater instability of pediatric spine, therefore special attention needs to be paid in case of major trauma such as severe fall or in a Motor Vehicle Accident.

5. Changing Spinal Contours

The pediatric spine is in its active process of growth, and especially after the birth in accordance with each developmental stage, it is susceptible to more and different types of forces. These forces are the necessary stimulus to prompt its growth, but if any potential problems (i.e. subluxations) are present, these forces can act more as stress factors which might cause both rotational and coronal deformities (2), and prevent the optimal growth of it. The contour of the pediatric spine such as lordosis and kyphosis are developed as a child starts to follow the developmental mile stones (i.e. holding the head and neck upright, rolling over and crawling, standing upright and walking). This rapid change of the physical activities is the timing that the spine receives more and different types of forces, or stresses in cases as mentioned above. It is said that the transitional regions in a spine are the regions of additional force/stress concentration (2), therefore, special attention to those regions is paid when a chiropractor performs the examinations and the adjustments.

Here are some good examples of implication to chiropractic care towards the rapid growing pediatric spine. These are the general areas to observe during different developmental stages of a child (3); the upper cervical region is examined in case of a newborn, since any birth trauma can cause extra damage to the area. The upper to middle thoracic region is examined in addition, if history of Cesarean section is reported. When a child is eight to ten weeks old, typically when they start to hold the head and neck upright, it is important to examine the lower cervical region with this timing. When a child is about five months old, and able to roll and lift up the torso in prone position, the lower thoracic region needs to be examined. The lumbar and the sacral regions are especially examined when a child starts to sit, stand, and walk, normally after the age of eight months or later. All of these examples indicate that it is important to particularly focus on the transitional regions of the spine, depending on each developmental stage.

6. Changing Applied Forces

When discussing the pediatric spine, it is necessary to review the forces applied to it in relation with the level of physical development of a child. Needless to say, because the pediatric spine is

very fragile and immature, it is at higher risk of developing subluxation with lower forces. In addition, as a child goes through each stage of physical development, both quality and quantity of the force applied to the spine changes. For example, when they start to stand and walk, the spine starts to experience different types and greater amount of forces. A child normally experiences repetitive fall on their buttock in the learning process, especially at the beginning. This longitudinal application of the force increases the chances of subluxation formation, particularly at their sacral area.

Another discussion is the relation between the cervical spine and the forces applied to it (i.e. whiplash injuries or Shaken Baby Syndrome) (2). Due to the fact that a typical pediatric patient has larger mass and weight of the head compared to their neck and the body, there is a tendency to produce more impact and damage to the cervical spine. In case of Shaken Baby Syndrome, this greater impact could cause serious damage to the head and brain as well. By putting these features into consideration, it is necessary to keep in mind that relative low forces for adults, as in a low impact collision from a motor vehicle accident, could result in producing considerable injury to the body of a child.

7. Immature Neuromuscular System

The immaturity of the pediatric neuromuscular system is one of the unique biomechanical features associated with the pediatric spine. One implication in chiropractic care of this feature is the risk of injury to both the skeletal system (i.e. spine) and the adjacent neuromuscular system. Needless to say, the immatureness of these systems increases the possibility of injuries which causes damages and symptoms such as pain and decreased physical functions. Early and appropriate chiropractic care will contribute to maximize the healing process of the injury (i.e. pain reduction and recovery of the damaged tissues), and restoring the functions of the systems. However, if the injury is not treated properly and any damage was left, it could lead to further complications and long-term effect.

Scoliosis, defined as a lateral curvature of the spine with rotation of the vertebrae about the vertical axis (4), is an example of the long-term effect and dysfunction. The cause of scoliosis is not known. However, recent research indicates that genetic, hormonal, or environmental factors contribute to the development of scoliosis (4). From the chiropractic point of view, any spinal subluxation formation which could prevent the optimal development of the spine is considered to be one causative factor of scoliosis. Another implication of scoliosis to chiropractic care is the “Dinner Plate-Flagpole theory”. Based on the retraining theory of the brain, the theory

suggests that, for example, chiropractic care and concurrent use of braces is an effective approach to treat scoliosis. The outline of the theory is as follows; any spinal subluxation is taken care by chiropractic adjustments to stimulate and activate the spinal joints, and to restore the normal function. Concurrently, bracing is applied to help restoring the better alignment of the spine, and sending the "retrained" information from the spinal joints and its surrounding structures to the brain. Upon receiving the retrained information, the brain integrates it and start to function towards further improvement of the spinal alignment.

References

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2. Alcantara, Joel, D.C., Contemporary Pediatric Chiropractic; 26, 27, 28,
3. Rossi, Armand M. D.C., F.I.C.P.A., Introduction to Chiropractic for the Family Practice; 9
4. Massachusetts General Hospital Orthopaedic Surgery http://www.mgh.harvard.edu/ortho/Scoliosis.htm

2. Provide a critical appraisal of the Balon et.al. Asthma Clinical Trial and the Olafsdottir et. al Colic Clinical Trial.

Critical Appraisal of the Balon et.al. Asthma Clinical Trial:

In the Asthma Clinical Trial of Balon et.al (1), there are three issues that need further examination regarding the purpose and conclusion of the paper.

First, the paper was designed to measure the benefit of chiropractic spinal manipulation in childhood asthma by a comparison of the benefits of active and simulated chiropractic manipulation. With regard to the term "simulated chiropractic manipulation", they need to clarify the distinction between "active" and "simulated" chiropractic manipulation to obtain a plausible result and conclusion in the study. In addition, the motivation for using simulated chiropractic manipulation to determine the benefits of active chiropractic manipulation is unclear since in general, studies become more acceptable when comparing two methods or interventions which have clear distinctions and/or different qualities (i.e. an active chiropractic manipulation to a medication or placebo) in each. By putting these points into consideration, the basic purpose of the study seems uncertain, and hence the conclusion becomes questionable.

Second, the conclusion of the paper states that the addition of chiropractic spinal manipulation to usual medical care provided no benefit in children with mild or moderate asthma (1). In the study, "ninety one children who had continuing symptoms of asthma despite usual medical therapy were randomly assigned to receive either active or simulated chiropractic manipulation for four months (1)." The question arises from the statement that the group of children was randomly assigned despite usual medical therapy. The method of a study should be instead designed to clearly eliminate the effect from any other interventions when measuring the benefits of one treatment towards a symptom. Therefore, the result of this study is questionable since there is no clear verification indicating weather the outcome data was brought from the effect of chiropractic manipulation or from the usual medical therapy. The conclusion is consequently questionable as well, since it is not supported by the evidence of examining solely the benefit of chiropractic manipulation (active or simulated) towards childhood asthma.

Lastly, the third issue is the failure of differentiation between two groups of patients (thirty eight in the active-treatment group and forty two in the simulated-treatment group) based on the outcome measurements, and the discrepancy associated with previous studies. This was pointed out by Anthony Rosner, PhD., in the article of "Walking on the Wild Side of Allopathic Medicine: Going Ballistic Instead of Holistic." The article states that the conclusion of Balon et. al is based upon the failure to differentiate two patient groups in both measurements of quality of life (including nighttime symptoms) and airway function, although another study performed by Balon et. al seventeen months earlier concluded that there was a significant difference with nighttime symptoms within the same two patient groups (2). The article further states that this discrepancy was not mentioned by Balon et.al, and thus leading to a suspicious conclusion of the paper by Balon et. al (1).

References

1. Balon J, Aker PD, Crowther ER, Danielson C, Cox PG, O'Shaughnessy D, Walker C, Goldsmith CH, Duku E, Sears MR. A comparison of active and simulated chiropractic manipulation as adjunctive treatment for childhood asthma. N Engl J Med 1998 Oct 8;339(15):1013-20
2. Anthony Rosner, PhD. Walk on the Wild Side of Allopathic Medicine: Going Ballistic Instead Holistic.

Critical Appraisal of the Olafsdottir et.al Colic Clinical Trial

The Randomized controlled trial of infantile colic treated with chiropractic spinal manipulation by Olafsdottir et.al, concludes that chiropractic spinal manipulation is no more effective than placebo in the treatment of infantile colic (1). This statement needs to be examined further with the comparison to a similar study formerly performed. The clinical trial by Wilberg JM et.al, investigating the short-term effect of spinal manipulation in the treatment of infantile colic (2), was performed in October, 1999. The objective, participants, and the intervention were similar enough since both studies were investigating the effect of spinal manipulation in the treatment of infantile colic. However, the results and the conclusions from those two studies revealed significant contrast. This contrast brings the necessity for a closer examination of the studies to clarify the definition and the specific description regarding the spinal manipulation performed in each study. It needs to include, for example, the name and features of each spinal manipulation (i.e. the effectiveness of the technique towards pediatric patients, typical force application), and the detailed description of each manipulation (i.e. spinal examination protocol, manipulated spinal segments). It is expected that the results of the same type of clinical trials as those above will be more substantial if the interventions are selected with these differences in mind.

References

1. Olafsdottir E, Forshei S, Fluge G, Markestad T. Randomized controlled trial of infantile colic treated with chiropractic spinal manipulation. Arch Dis Child 2001 Feb;84(2):138-41
2. Wilberg JM, Nordsteen J, Nilsson N. The short-term effect of spinal manipulation in the treatment of infantile colic: a randomized controlled clinical trial with a blinded observer. J Manipulative Physiol Ther 1999 Oct;22(8):517-22

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Short Lever Adjusting
Claudia Anrig, DC June 4-5, 2005 Los Angeles

Please answer the following questions in essay form:

1. Explain the difference of the AS condyle and PS condyle subluxation.
    a. Specifically address for both of them the mechanisms of injury, possible clinical symptoms related to this subluxation complex.

AS Condyle Subluxation

The mechanism of injury and some common causative factors of the Anterior-Superior Occipital Condyle Subluxation (AS condyle subluxation) are: malposition of the fetus resulting in in-utero constraint position such as brow or facial presentation, or transverse-lie presentation (1). When a fetus is in these presentations, typically the fetus is in prolonged extended position of the head and neck, which chould result in AS condyle subluxation. In cases of older children, accidental fall on the forehead or on the face resulting in an extension injury of the head and neck, is one of the common reasons to form AS condyle subluxation. In addition, forceful head banging motion to back and forth as seen in motor vehicle accident, is another example of possible mechanism of injury.

Some of the possible clinical symptoms related to AS condyle subluxation are; low APGAR score at birth (1), abnormalities in neurological reflexes, severe neurological symptoms such as seizures, epileptic seizures, Cerebral Palsy, Autistic Spectrum Disorders (1), and Pervasive Developmental Disorders. Various clinical manifestations especially a sudden change from normal is said to be related with AS condyle subluxation (2). Other signs seen in a pediatric patient with this subluxation are; anterior translated posture with extension of the neck (2), regular choking (3), and babies prefers to lay down prone.

PS Condyle Subluxation

Some of the mechanisms of injury and the causative factors of the Posterior-Superior Occipital Condyle Subluxation (PS condyle subluxation) are; malposition of the fetus resulting in in-utero constraint position same as in AS condyle subluxation, especially the transverse-lie presentation (1). This presentation forces the fetus in prolonged flexed position of the head and neck. Additionally, in-utero exposure to alcohol, drugs, and toxin from cigarette are said to cause in-utero formation of PS condyle subluxation (3). Accidental fall causing flexion injury of the head or whiplash injury could result in PS condyle subluxation formation as well.

Examples of the possible clinical symptoms related to this subluxation are; some of the similar manifestations as seen in the AS condyle subluxation, but usually the severity of those manifestations are not as intense (1). Other example is the conditions commonly associated with the upper cervical (C0/C1) subluxations and/or parasympathetic involvement such as asthma or any other allergic symptoms (4). Noticeable flexion of the head and neck, or head tilt upon visualization examination indicates possible PS condyle subluxation as well.

References

1. Anrig, Caludia D.C., Chiropractic Approaches to Pregnant and Pediatric Care; a Specific Biomechanical Approach Adapting the Gonstead System; 38,39
2. Mullin, Linda D.C., The Challenged Child; 12,13
3. Rossi, Armand M. D.C., F.I.C.P.A., Introduction to Chiropractic for the Family Practice; 8
4. Thompson, James V. D.C., Examination, Analysis, and Spinal Correction of Children; 27

b. Discuss the set-up procedure for correction on the infant and child (include patient and doctor set-up, patient contact point, the doctors hand contact and line of correction).

AS Condyle Subluxation

Patient set-up; a condyle block is always used when correcting all AS condyle subluxations. It is necessary to choose the condyle block with the correct size depending on each patient, and placed along the cervical spine from C1 through C7 to support the region. In case of an infant,

typically they are placed supine on a table, and the head should be at the edge of the table. The condyle block is positioned behind the patient's neck.

For a straight AS condyle subluxation without any laterality or rotatory component (AS), doctor kneels or squats directly behind superior to the patient, and in case with any laterality (ASRS or ASLS), the doctor positions slightly to the same side of the laterality. The patient's contact point and the doctor's hand contact point for AS listing are as follows; the doctor contacts the glabella of the patient with both right and left thenar eminences. The fingers are located around and under the posterior occiput to create minimum lift. This is done also by using the second and the third digits placed on the glabella, while the thumb is used to create the lift. For ASRS/ASLS, doctor contacts patient's glabella with the soft portion of the pisiform (fleshy pisiform) of right/left hand, while the opposite hand cups the posterior occiput to create the lift. Doctor's elbow should stay close to the side of the body for both methods. The Line of Correction (LOC) for AS listing is; Anterior to Posterior (A to P), minimum Superior to Inferior (S to I), with arching type of motion. The LOC for ASRS/ASLS listing is same as in AS listing with some modification in doctor's contact to adjust for the lateralities.
For the listings with any rotatory component (ASRSRA, ASRSRP, ASLSLA, ASLSLP), the head of the patient is rotated away from the rotatory component in the listing, prior to the adjustment (i.e. the head is slightly rotated anterior in case of RP or LP listings).

In case of an older child, typically they are placed upright (i.e. sitting on a chair). The condyle block is positioned behind the patient's cervical spine, while doctor's abdomen is used for stabilization. For AS condyle listing, the doctor stands straight behind the patient, and for ASRS/ASLS, the doctor positions slightly to the same side of laterality. The patient contact point and the doctors hand contact for AS listing are; the doctor contacs the center of the glabella with typically with the third, fourth, or fifth digit, while the opposite hand overlapped for stabilization. The doctor's elbow should stay close to the side of the body always. When the patient is positioned upright, slight flexion of the head is needed to obtain pre-tension at the joint. The LOC for AS listing is A to P, S to I, with inferior arching type of motion. The LOC for ASRS/ASLS is A to P, S to I, right to left/left to right (R to L/L to R) with the arching motion across the lateral mass of C1. For the listings with ratatory component, the patient's head is rotated away from the rotatory component in the listing prior to the adjustment.

PS Condyle Subluxation

Infant is placed upright either on the lap of the parent, or between the thighs of the doctor, while the parent supports the back and the chest of the child. The doctor is positioned behind the patient, and contacting the supra-mastoid groove on the side of the listing either with the thumb or the thenar eminence, whichever fits better to the patient. Other fingers are placed on the posterior side of the cervical spine to provide support and stabilization, and to increase the specificity of the segmental adjustment. The opposite hand is placed on the cervical spine and musculature of the other side of involvement, especially at C1/C2 segments for additional stabilization. The LOC of Posterior-Superior (PS) condyle listing is; Posterior to Anterior (P to A), S to I with an inferior arching type of motion across the lateral mass of C1. If there are any lateralities in the listing (i.e. PSRS PSLS), R to L/L to R component is needed in addition.

In case of an older child, they should be in seated position (i.e. on a cervical chair). The doctor stands behind the patient and slightly to the side if any literality is present in the listing. The patient is stabilized by the parent or by use of the stabilization strap. The doctor contacts the supra-mastoid groove of the patient on the side of listing, with the thenar eminence of the adjusting hand. The opposite hand is placed on the mastoid process and the cervical spine of the other side of involvement. The LOC for PS, PSLS, PSRS are same as in the adjustments of infants. As for the listings with any rotatory component, the component is compensated upon the set up of the adjustment (i.e. the head of the patient is slightly rotated away from the rotatory component).

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Neurosensory Integration
Dr. Monika Buerger Oct 28-29, 2006 Chicago

Please answer the following questions in essay form:

1. Case history: A 7 y.o. boy comes into your office for an evaluation for possible sensory issues. The mother states that her son has a hard time sitting still in class and paying attention. She also states that during circle time, her son can not sit still and often gets up and runs around. He also is very distractive when he sits in class as he likes to kick the desk of the kid that sits in front of him. Upon taking the history you also find that the child often goes around touching things and people; sometimes inappropriately, and he also has difficulty performing tasks that require multiple steps.
    a. Describe how you would perform the following primitive reflex exams and, if retained, what you would see:

1. Palmer
Doctor asks the patient to stand so that the vestibular system is engaged. Also it is better to cut all other sensory inputs such as sound and light, to obtain better findings. The doctor uses a light brush to stroke the patient's both palms. Stroking is performed along the horizontal crease and the vertical crease respectively. Positive findings are noted by slight flexion and abduction of the thumb, or any finger movement.

2. Schilder's (Asymmetrical Tonic Neck Reflex)
Doctor is positioned behind the patient, and the patient brings up both arms in front with the eyes closed. The doctor next turns patient's head to one side then to the other side. The doctor checks if the child's arms shifts and drifts downward and apart while turning the head for few times. If the child's arm is shifted and/or drifted, it is the positive finding.

3. Spinal Galant

Patient is positioned on floor on his/her knees and hands, while the doctor strokes the patient's back on their skin, downward from the shoulder to the base of the spine with a light brush. Positive findings are noted by the patient shifting the hip to right/left side when stroking down the right/left side of the spine.

b. In this particular case, what would you expect to see when performing the following tests?

1. Sequential finger touching

Patient is asked to make an "O" shape with his/her thumb and the index finger. This is performed with the patient's eyes opened and then closed, or watching the fingers then not watching the fingers. The doctor notes any flat looking "O" shape made with their fingers.

2. Diadokokinesis

Patient is asked to touch his/her nose by their index finger. It is performed five times on one side, and then five times on the other side. The doctor would expect to see the patient missing to touch the nose, or the child tilts their head as to tilt the nose into the finger. If the patient is seven years old or above, they should not miss to touch the nose more than once.

3. Prone extension

Patient is asked to lay down prone on a table or the floor, and next the patient is asked to lift up his/her upper torso and legs. The patient is asked to hold the position for about twenty seconds. The doctor notes that the child shows difficulty when lifting and holding up their torso and legs, and also any flexion of their knees and/or extension of their head.

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Transition to Wellness
Tony Carrino, DC Jan 27-28, 2007 St. Louis

Please answer the following questions in essay form:

1. A 3-year-old pediatric patient presents at your office for consultation and examination. Upon reviewing your office intake forms for this patient it is noted that the reason for this consultation is concerning chronic Otitis Media. The parent has disclosed that she is looking for an alternative treatment for the child's condition. In a concise chronological order please discuss how you would properly evaluate this patient beginning with your initial consultation.

One of the most important purposes of initial consultation is to demonstrate the difference between chiropractic and medical concept toward the definition of health, and to initiate the shift of paradigms from symptom based allopathic model to function based non-allopathic model. In this case, when considering the reason for the consultation was chronic Otitis Media and looking for an alternative treatment for the condition, the doctor should expect that the parent has misinterpretation with the need and reasons for the treatment, and understand the mindset of the parent to prevent further misconceptions.

The initial consultation consists of two main components. First is the Chief Complaint Focused Consultation which evaluates the history of the condition and the past medical history associated with the condition including positive/negative clinical outcome. Second is the consultation to review the patient's present health challenges and the effect on overall health with relation to the chief complaint. This consultation is essential to educate the parent the strong connection between symptoms and the physiological dysfunctions as the underlying cause, and let the parent understand the need of the treatment even after the symptom has

relieved. The definition and the concept of chiropractic care are then introduced to emphasize that chiropractic is not a treatment of symptoms of diseases. It also reinforces the understandings of the role of chiropractic in overall health of the child, and provides the parent with the best opportunity to make an informed decision. When considering the significance of the initial consultation, it may be better to have the consultation only with the parent so that the parent would be able to focus on the consultation without any distraction. As the last part of the initial consultation, it is necessary to create a form summarizing the terms of acceptance when starting the care of a child. The form not only prevents future misconceptions and negative legal ramifications, but leads to the agreement and patient compliance towards the best chiropractic care, and overall health and wellbeing.

Upon completing the initial consultation, general and case history of the patient is taken. In case of this three-year-old pediatric patient, the history should include the pregnancy and birth since intrauterine constraint during the pregnancy and/or birth trauma could be the major causative factor of subluxation formation. In addition, nutritional status and history of any physical trauma should be assessed as well. General and chiropractic examinations are performed next. General examinations are composed of physical examinations of the systems such as musculoskeletal, cardiovascular, gastrointestinal, ears, nose, and throat, and if necessary, radiographic and/or diagnostic testing are included. Chiropractic examination assesses the presence of vertebral subluxation, and it is composed of spinal palpation (static/motion), postural and range of motion examinations, muscular testing, and orthopedic/neurological examinations. Interpretation of the findings from the history and examination provides the clinical impression of the patient, and it is essential to determine the most appropriate chiropractic treatment and plan to the patient.

Report of Findings (ROF) is the second major step following the initial consultation. It is the opportunity for the doctor to integrate all the information and findings from the initial consultation, talk over the clinical impression in relation with the chiropractic concept with the patient and family, and inform them the course of treatment and how it will be monitored. The first adjustment is performed after the ROF, and the care continues with the proper visit to visit dialogue (i.e. reiteration of the chiropractic concept and explanation of the procedure), visit to visit monitoring (i.e. subjective/objective responses, range of motion, postural improvement, and soft tissue integrity), and visit to visit documentation (i.e. using the SOATP format).

Progressive re-evaluation will be scheduled every thirty days or every ten to twelve regular visits. Besides the benefit of evaluating the progression of the patient’s status, re-evaluation is

the opportunity that sets and gives motivation for families to move away from symptom based care, and shift to lifetime functional based chiropractic care.

The concept and knowledge described in this essay was referred from the handout "Transitioning your patients to wellness" by Dr. Tony Carrino.

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Technical Integration
Dr. Peter Kevorkian March 3-4, 2007 Raleigh-Durham

Please answer the following questions in essay form:

1. Describe the technique protocol you would use for a newborn. Explain the rational for each part of the spinal analysis and describe how you would select an appropriate force application. You may use a specific subluxation pattern to be as specific as possible in your description.

The technique protocol of choice for a case with a newborn is the Sacro Occipital Technique (SOT) analysis and the adjustments. With the SOT approach, spinal and cranial subluxation patterns should be divided into two major groups, the meningeal subluxation complex and the structural subluxation complex (1). This division helps the doctor to detect the major type of neurological facilitation and the most effective corrective techniques (i.e. vector determination and force application) to apply for each patient (1). The SOT technique emphasizes that in infants up to six months of age, the meningeal subluxation complex is almost always the major component. This is because the supporting structure of the central nervous system is predominantly meningeal membranes at this stage of development, and any cranial and/or spinal subluxation is detected and corrected better with the approach focusing on the meningeal subluxation pattern.

Atlanto-occipital subluxation is one typical example seen in a newborn with meningeal subluxation complex (1). It is analyzed by the Condylar System (i.e. atlanto-occipital restriction, high occiput) examinations and the Atlas Occipital Decompression examination, which is a part of standard SOT examination protocol. Detection of any unequal tension and/or restriction in Range of Motion (ROM) of the area is the goal of these examinations, and the correction is

done by specific adjustments for each positive findings. Both the examinations and the correction in this method assures the doctor to select the appropriate force application since the technique is designed and modified to fit best to the features of newborn's body. As an example, the detailed description of the Condylar System (atlanto-occipital restriction) examination and the adjustment is as follows: doctor places tip of the index and middle fingers bilaterally to the patient's occipital bowls, and checks the side of restriction (side of the subluxation) by gently side-bending the area right to left about three to five degrees of angle. When one side shows restriction on ROM than the other, the doctor applies sustained pressure into the restriction until it is released, and the ROM is equal on both sides. It is important to note that the doctor should feel the amount of the pressure matches the tone of the restriction, so that the most appropriate pressure is applied.

2. Please describe how the chiropractor can create rapport with a child (age 6) both with the child's conscious mind (i.e. having them do what you want them to do) and with their subconscious patterns (i.e. stored data – programs – within the nerve system).

The rapport both with the child's conscious mind and with their subconscious patterns is essential to attain the best chiropractic care, and reach deeper relationships with each other. To create rapport with a child, the chiropractor must first move into the child's space. The child must then move into the chiropractor's space.

The rapport with the child's conscious mind can be created by matching the tone and resonating with them. For example, the chiropractor moves into the child's place by setting a safe, welcoming, kids-friendly environment. This includes smooth and comfortable procedures for both initial and regular visits. The chiropractor should again move into the child's place by listening carefully and talking in an understandable manner, not only to the child, but to the parents as well. It is essential for the parents to be comfortable and confident with the chiropractor in order to gain the trust of the child. When this is accomplished and good communication is established, we can expect that the child will start to move into our space and getting closer to the rapport. In addition, breathing with the child, for example, will help us to harmonize the consciousness with the child to minimize the distance between each other.

The chiropractor can create rapport with the child's subconscious pattern by utilizing the right and the left brain evaluations, and integrating those results to determine the best chiropractic

technique. The left brain evaluations (i.e. physical and chiropractic examinations) enable the chiropractor to move into the child's space by gathering information such as stored data and programs within the nervous system, which is typically in an altered pattern due to the effect of vertebral subluxations. The right brain evaluations are also important to let the child move into the chiropractor's space. The chiropractor uses the right brain to establish deeper connection with the child so that he/she can talk and listen to their subconscious mind and patterns. The connection is between eye to eye, mind to mind, spirit to spirit, and once connected closer to each other, the chiropractor is able to create rapport to converse with, and embrace the child's whole body.

Altogether with the integration of these evaluations, and with the rapport, the best chiropractic care can be given to the patients. This will lead to further development of the relationships not only with each patient, but with ourselves and with every person involved, and let us reach to the deeper stages of relationships.

References

1. Martin G. Rosen, D.C., SOT Pediatric Spinal Adjustment; 24, 25, 26, 27

ICPA 180 Hour Certification Examination

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Neuroimmunology
Dr. Stephen Marini Feb 17-18, 2007 St. Louis

Please answer the following questions in essay form:

1. Immunostasis equates with the optimum levels of Th1 and Th2 cells for the individual to maintain health and wellness.
    a. Discuss when a high Th1/Th2 ratio is necessary and what psychological, nutritional or physical factors have been shown to increase this ratio.

A high Th1/Th2 ratio is necessary to increase the function of Cell Mediated Immunity (CMI) and the activities of Th1 cells. CMI system is described as the first line of immune response by protecting the body against infections, cancer cells, some allergies, and reactions from transplantations. CMI performs this function by means of various immune cells such as phagocytic cells (against bacteria, fungi, and parasites), T cells (against bacteria, viruses, fungi, and cancer cells), and NK cells (against viruses, cancer cells). T cells and NK cells have some other functions additionally, which are the elimination of cancerous cells, virus infected cells, and the process called immune surveillance. One of the psychological factors leads to high Th1/Th2 ratio is the Welfare Consciousness Patterns (1). It is obtained by shifting from Emergency (stress) Consciousness Patterns which causes sympathetic activities to increase and stimulates Hypothalamic-pituitary adrenocortical (HPAC) axis (1). The results are low Th1/Th2 ratio and overall immunosuppressive conditions (1). Nutritional intake can act as a Th1 up regulator as well, to support high Th1/Th2 ratio. Some examples are Glucans and Mushroom extracts, Melatonin, plant sterols, and fish oils (1). Probiotic supplements will help to maintain Th1/Th2 balance by supporting the normal flora of intestine and enhancing proper function of the enteric immune system. Breast feeding is one of the most important factors for babies to establish a good Th1/Th2 ratio. Physical factors such as viral and/or bacterial infections will

trigger the shift of Th1/Th2 ratio, and especially in children, these exposure is essential for the development of healthy immune system with a good balance between Th1/Th2 cells.

b. What factors contribute to generating a low Th1/Th2 ratio and what are some of the consequences?

Factors contribute to generate a low Th1/Th2 ratio can be divided into three categories as discussed in the previous part. Nutritional factors leading to low Th1/Th2 ratio are: excess dietary intake of particular fats (i.e. TFAs, 6EFA), sugars, proteins, and food preservatives or additives. Nicotine, caffeine, and heavy metal toxicity could be included as well. Some of the physical factors are: vaccinations, use of antibiotics, infection in skin or respiratory systems, exposure to allergens, exposure to environmental toxins (i.e. chemical fumes, pesticides, and hormones), and familial and/or genetic history. Psychological factors such as anger, anxiety, fear, and depression can also act as a Th2 up regulators. These emotions are connected to "Emergency Consciousness" (1) which stimulates the sympathetic activities and triggers the HPAC axis, resulting in low Th1/Th2 ratio and overall depression of the immune function (1). The consequence of a low Th1/Th2 ratio is the predominance of Th2 humoral immunity. Some examples are allergies (i.e. asthma, atopic dermatitis, seasonal allergies, and rhinitis), autoimmune disorders (i.e. SLE, Rheumatoid Arthritis, and Graves' Disease), inflammatory bowel diseases (i.e. ulcerative colitis, Crohn's Disease), and immunodeficiency disorders such as AIDS.

c. How can a Th2 dominant child affect your chiropractic assessment and adjustment plan?

In case with a child who is thought to be in a Th2 dominant status, besides a thorough chiropractic spinal examination, an assessment of the child's immune system through psychoneuroimmunology model is considered to be an effective approach. The effect of Vertebral Subluxaxion Complex (VSC) towards neuroimmune modulation, endocrine system, and psychoneuroimmune modulation is considered first. The presense of vertebral subluxation is linked to immune imbalance since it influences autonomic neuroimmunomodulating

pathways and neuroendocrine factors, and thus leading to Th2 dominant status (1). The psychoneuroimmunology model with gastroenteric and musculoskeletal components consist the PNEIGMs model (1), and in addition, it should be utilized to focus how a patient's immune responses are regulated in relation with the function of each system. Problems in each system should be assessed through patient's general history, physical and neurological examinations, dietary history, and from any past medical records. The chiropractic assessment in this case should be based on the integration of all findings from the history and examinations, and moreover, it is necessary to understand the impact of VSC towards immune imbalance, and the significance of chiropractic adjustment in modulating immune function. The adjustment plan of a Th2 dominant child should, for example, take the effect of chiropractic adjustments toward the autonomic nervous system into consideration. The Gonstead Chiropractic Methodology recommends dividing spinal segments into two groups in relation with sympathetic nervous system and parasympathetic nervous system, and not to correct subluxations of both groups at the same time. The priority of correction needs to be considered depending on each case, and along with any changes seen in the course of the treatment.

Reference

1. Marini, Stephen C., M.S., D.C., PhD, Neuroimmunology: Patterns of interference; 19, 25, 26, 28, 46

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Challenged Child
Dr. Linda Mullin April 9-10, 2005 Dallas

Please answer the following question in essay form:

1. Using People First Language, describe specific, common physical complaints that a child with Autism commonly has and how chiropractic care can benefit them.

Common complaints that a child with Autism has are interpreted as both behavioral and physical. Some of the behavioral complaints are; strong resistance to change in pattern or daily routine, difficulties in establishing social relationship or communication with others, lack of or poor expression such as smiling and/or laughing, lack of or poor eye contact, and spending a lot of time in odd play such as spinning, turning, or lining things.
Physical aspect associated with a child with Autism are as follows; tantrums, hypersensitivity to a specific sound and/or light, hypersensitivity to body contact, including body hugging/cuddling, hypersensitivity/hyposensitivity to pain, apparent physical hyperactivity/hypoactivity, self-injurious behavior, problems with gross/fine motor skills including toe/heel walk, problems with equilibrium (sense of balance) and proprioception(sense of the body and joint location in the air), and along with those mentioned above, headaches, stomachaches, and vowel irritation are reported.

From the chiropractic point of view, one of the reasons for these common complaints of a child with Autism is suspected to be the disruption of the proper function and development of the nervous system caused by vertebral misalignment called “Subluxation”.

One example of this disruption is the Sensory Integration Dysfunction. In our daily life, we are surrounded by different kinds of sensory inputs; (i.e. vision, hearing, smell, sense of touch

(tactile), and so on). When these inputs are not properly processed and integrated, we are not able to understand what is happening, and not able to take action or behave properly to it. This phenomenon is said to be one of the possible explanations for the autistic behavioral complaints listed above.
Furthermore, sensory integration dysfunction has a strong connection to the dysfunction of the general motor skills and functions of a child. Our motor skills are developed close together with the development of the sensory system. For example, gross motor skills are developed in harmony with the sense of equilibrium. We learn how to use and control specific muscles to maintain good balance of our bodies against gravity, or when the body is in motion. A child that could not take advantage of this learning opportunity may develop problems maintaining equilibrium later on, resulting in uncoordinated motor skills. Sensory Integration Dysfunction can affect Fine motor skills as well, such as writing or putting on clothes and button, require good development of proprioception and tactile sensation. Proprioception helps us to know where the hand is, and where it should go, and tactile sense will help determine required amount of force for a task. With the combination of these senses, we are able to perform various complex tasks successfully.

As mentioned before, the chiropractic approach considers that it is critical to attain proper function and development of our nervous system, especially in the developmental aspect in the case of pediatrics. Chiropractic care specializes in removing “Subluxation” with non-invasive, non-surgical, and the safest method known as “Spinal Adjustment”. By removing subluxation, we are able to minimize the disruption and expect maximum development of the nervous system of the child.
It would be safe to say that the benefit of chiropractic care is considerable for any pediatric population, especially for a child with Autism.

2. Write a short article for your patients to educate them on some common play activities that can result in Shaken Baby Syndrome.

The Shaken Baby Syndrome (SBS) is a type of serious traumatic brain injury that occurs when violent, excessive shaking type of force is applied to a baby’s head and neck. This can result in considerable damage to the baby’s eyes, bones of the head and neck, and the spinal cord. Severe cases can result in swelling of the brain (Cerebral Edema), bleeding in the brain (Subdural Hematoma), direct brain tissue damage, and even coma or death. Other signs and symptoms of

SBS are Dilated Pupils (most common and first sign of SBS), Retinal Hemmorage, difficult breathing or sleeping, vomiting, seizures, convulsions, lethargy, feeding problems, etc.

The most common cause of Shaken Baby Syndrome is non-accidental trauma, such as child abuse. However, parents frequently ask if daily play activities with babies can cause it. The answer is **no**. SBS is not typically caused when playing with a baby like bouncing the baby on your knee or tossing the baby in the air **gently.** But inadvertent damage can occur. Recently, it has been reported that when the baby's head accidentally struck a surface, causing a whiplash type of injury, resulting in signs and symptoms listed above. It is always safer to consult a specialist to make sure if there is any damage or not. Other cases could cause SBS are, repeat tossing a child in the air or bouncing /swinging motion **strongly and vigorously.**
Also SBS might be caused while jogging with carrying a baby in a backpack, causing the baby's head and neck to shake back and forth without any support.

To prevent SBS, it is necessary to keep in mind that child's body is very fragile, and needs special attention at all times.

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Perinatal Care
Jeanne Ohm, DC April 2-3, 2005 Los Angeles

Please answer the following question in essay form:

1. Define the four obstetric reasons for dystocia: and relate each reason to the chiropractic adjustment.

a. Abnormalities of the expulsive forces

According to the Williams Obstetrics, abnormalities of the expulsive forces are due to either insufficient or inappropriate coordination of the uterine forces (uterine dysfunction), or inadequate voluntary muscle effort.
Implication in chiropractic adjustments of this problem is that the chiropractic adjustment eliminates stresses in the spine and the pelvis due to the displacement and misalignment (known as "Subluxation") of those structures. Subluxation is considered to cause interference to the nervous system, resulting in decreased function of the uterus, and overall function of the body. The chiropractic adjustment specifically focuses on removing the subluxation, allowing the uterus to function with the highest potential and the overall optumim function of the whole body. These improvements will naturally lead to decrease the uterine dysfunction and the possibility of dystocia, and thus lead to easier and safer birthing processes for both the mother and the baby.

b. Abnormalities of the maternal bony pelvis – the pelvic contraction (Passage)

Williams Obstetrics notes that "Any contraction of the pelvic diameters that diminish the capacity of the pelvis can create dystocia (difficulty) during labor." They further state that the diameter of the woman's pelvis is decreased when the sacrum is displaced.

One important reason to receive chiropractic adjustments during pregnancy is to improve and maintain the optimum balance of the mother's pelvis. When the pelvis of a mother is misaligned, it will disturb the whole balance of both the bony structure of the pelvis and the ligaments and muscles attached to it. This imbalance will directly affect the diameter of the pelvis to decrease, which is an obvious factor for dystocia. In addition, as mentioned before, especially the sacral displacement decreases the pelvic diameter. The Webster Chiropractic Technique is a specific chiropractic adjustment for pregnant mothers which focus on the correction of sacral subluxations, and balancing the whole pelvis alignment, including the pelvic muscles and ligaments. The optimum balance of the mother's pelvis is essential to not only assuring the most favorable passage for the baby, but to assure the most favorable birthing process.

c. Abnormalities of presentation, position, or development of the fetus

One of the main reasons of malpositioned fetus is said to be the Intrauterine Constraint. It is defined as "any forces external to the developing fetus that obstructs the normal movement of the fetus". The intrauterine constraint is typically associated with uterine torsion which is caused by torsion and uneven tension in the supporting structures of the uterus (i.e. round ligaments and uterosacral ligaments). These ligaments are attached directly to the uterus to maintain the optimum position of it, however, the uterus could be malpositioned and constrained when any torsion or uneven tension is transmitted through these ligaments. Furthermore, the uterine malposition and constraint may lead to any malposition and/or developmental abnormalities of the fetus, since the uterus is not maintaining its optimum function. It is said that posterior subluxation of the sacrum may result in creating both tension and torsion of the surrounding ligaments, resulting in uterine dysfunction and further intrauterine constraint of the fetus.
The Webster Chiropractic Technique will correct the sacral subluxation, and balances the supporting ligaments of the uterus. This is necessary to remove the intrauterine constraint of the fetus, allows the ideal development of the fetus, and prevents the fetal malposition so that the fetus is able to move into the best position for delivery.

d. Abnormalities of the soft tissue of the reproductive tract that form an obstacle to fetal descent

Williams Obstetrics notes "in general, these are considered as developmental anomalies incurred during embryogenesis or they may be acquired and caused by events that usually occur

during adulthood". Some examples such as uterine displacement, cervical mymomas, or cervical stenosis are introduced in the text, however, the clear mechanism and the etiology of these abnormalities are not known. Here is another example of maternal abnormality forming obstruction to fetal descent. The Obstetrics Illustrated Sixth Edition by Hanretty, notes that "dysfunctional labour occurs when the cervix does not dilate with the presence of uterine contraction to fetal descent". They mention the causes of the dysfunctional labour as; dysfunctional uterine activity, malposition/malpresentaion, and rare causes such as cervical stenosis, however, the etiology was not mentioned either in this textbook.

From chiropractic point of view, it is thought that these conditions could result from the misalignment occurred in the spine and the pelvis called "Subluxation". The subluxation puts pressure on the spinal cord and nerves, causing disruption in the nervous system and thus the optimum function of the body is not attained. Specific chiropractic adjustment is designed to correct the subluxation, not the symptom or complication itself. When the subluxation is corrected and the pressure and the disruption in the nervous system is removed, it restores the body's function to its maximum potential, leading to prevent dysfunctions in pregnancy and to easier and safer delivery for both the mother and baby.

2. For the next 25 patients who come into your office: analyze their sacrum for posteriority as you would usually do. Write a step by step protocol of that analysis. Compare that analysis with the Webster analysis. Record your results.

Posterior rotation of the sacrum is analyzed typically by using the palpation and the X-Ray analysis based on the Gonstead Technique. The distance from the sacral tubercles to the Posterior Superior Iliac Spine (PSIS) is palpated, and measured visually. Occasionally, the posterior sacrum is obviously visualized, with the findings of edematous change and tenderness over the involved Sacroiliac (SI) articulation. In addition, motion palpation checks for the SI articulations are done such as knee raiser test, leg fanning test, or fluid motion test, to detect any fixation in the SI articulation. The X-Ray analysis is done by using A to P lumbopelvic film, and the procedure is as follows; The center of the first sacral tubercle is marked, then the distance from the center to both right and left most lateral borders of the sacrum is measured. If the measurement of one side is greater than the other, and the difference is more than four millimeters, the greater side is considered as the side of posterior sacrum.

Patient	Webster Finding (Circle side of Posteriority)		Your Finding (Circle side of Posteriority)	
#1	R○	L	R	L○
#2	R	L○	R	L○
#3	R	L○	R	L○
#4	R	L○	R○	L
#5	R○	L	R○	L
#6	R	L○	R	L○
#7	R○	L	R○	L
#8	R○	L	R○	L
#9	R○	L	R○	L
#10	R	L○	R	L○
#11	R	L○	R	L○
#12	R○	L	R○	L
#13	R	L○	R○	L
#14	R○	L	R○	L
#15	R○	L	R	L○
#16	R	L○	R	L○
#17	R	L○	R	L○
#18	R	L○	R	L○
#19	R○	L	R○	L
#20	R	L○	R	L○
#21	R○	L	R○	L
#22	R○	L	R	L○
#23	R	L○	R	L○
#24	R○	L	R○	L
#25	R	L○	R	L○

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Conventional & Holistic Pediatric Medical Care
Dr. Lawrence Palevsky March 25-26, 2006 Los Angeles

Please answer the following question in essay form:

1. A mother has been bringing her 4 year old boy to you since birth. She rarely goes to the physician for medical care. Recently she reports that her son suffered a benign febrile seizure and was brought to the ER for observation. No tests were done. Her son's follow up appointment with her private physician one week later was normal. At your office, the boy is lying on the exam table and has another seizure while you are in the other room with another patient. Only his mother was with him. By the time you come into the room, the boy is lying still with his eyes closed. The mother had been told at her doctor's visit that she didn't need to rush to the ER if another seizure occurred. The boy appears to be sleeping. You assess the boy and he has an open airway, is breathing on his own, has a good heart rate and has good color.

    a. What findings in the history of this seizure in your office and from the exam of this boy would influence your decision to refer this family directly to their physician?

First, the assessment of the boy indicated no sings of cessation of the breathing, which needs to be confirmed before proceeding to any further assessment (i.e. presence of fever, post-ictal state, residual neurological findings, responsiveness). The doctor then need to ask the mother about the detailed description of the seizure occurred in the office (i.e. duration of the seizure, type of seizure) since the doctor was not present in the room when it occurred. The doctor should further ask questions regarding any past history of seizures and clinical visits associated with it, including the reason why the mother had been told at her doctor's visit that she did not need to bring her son to the ER immediately with another seizure occurrence. In this case, the vital sign

of the boy was stable, and if the doctor's further assessment in the office and the mother's description both followed the criteria of a benign febrile seizure, with no questionable past history of the patient, it was safe enough to consider that the boy had another episode of benign febrile seizure. Therefore, the doctor had no obvious reason to refer this family directly to their physician based on the findings above. In addition, it is always necessary to keep a good record of past history of any patients. In this case, it is essential to keep all the medical record from the birth of the patient so that the doctor would be able to make the most appropriate clinical decision.

b. Demonstrate an understanding of benign and atypical febrile seizures in children and what criteria you would use to influence your decision to refer the family right away?

Benign Febrile Seizure is a condition characterized by generalized tonic-clonic seizures which is seen in children of six months to five years of age. The seizure typically occurs once within twenty four hour period and lasts up to fifteen minutes with short or no post-ictal period. It is not accompanied by signs of CNS infection or residual neurological findings. Atypical Febrile Seizure is different from benign febrile seizures since it occurs more than once within twenty four hour period and lasts longer than fifteen minutes, and may have focal or partial seizure manifestations. Some of the criteria that indicate the needs to refer the family immediately are as follows: a patient with the characteristics of atypical seizures mentioned above and may accompanied by signs of focal or CNS infection, prolonged lost-ictal state, altered mental status or unresponsiveness. It is also necessary to refer the patient immediately when a seizure is seen in a child less than six months of age with/without fever manifestations.

2. A mother brings her 14 year old daughter to you for a routine visit. You see all members of the family for regular chiropractic care. The family rarely sees their family physician. The girl tells you that she has had occasional vomiting on and off for a month.
    a. What questions do you ask to figure out what is contributing to this problem?

The question needs to be asked in this specific case should be covering the causes of vomiting in wider range when considering the age, gender, and the manifestation with this patient. General questions focused on the common causes of vomiting which lasts only a day or two should be asked first. Common causes seen in both adults and children such as viral infection, food poisoning, motion sickness, coughing, and illness with high fever should be considered.

Furthermore, causes of recurrent, persistent vomiting (lasting more than one week) should be considered as well since the patient complains occasional vomiting on and off for a month. The questions are focused on the caused such as: side effects of certain medications (i.e. pain relievers, antibiotics, gastrointestinal medications), abdominal and gastrointestinal disorders (i.e. indigestion, constipation, regurgitation, peptic ulcer, gastroenteritis, appendicitis, pancreatitis), hormonal and metabolic disorders (i.e. parathyroidism, hyperthyroidism, diabetes), pregnancy (morning sickness), and psychological conditions or eating disorders.

b. What findings on history and physical might lead you to refer the family to their physician?

The family should be referred to their physician with findings on history and physical examinations such as: bloody vomit (coffee grounds appearance) or green color in the vomit, projectile vomiting, history of head injury and/or severe headache, history of notable weight loss, any possible signs of pregnancy, pain in the chest or lower abdominal pain, history and/or signs of diabetes (i.e. fruity breath odor), previous history of abdominal or any other surgeries, and change in mental status (i.e. confusion, decreased attention, drowsiness).

c. Demonstrate an understanding of the intra-intestinal and extra-intestinal causes of vomiting in children at this age.

Intra-intestinal causes of vomiting in children are such as viral infection, food poisoning, food allergy, indigestions, reaction to medication or supplement (especially at the first day of use), which typically results in vomiting for only a day or two. Other intra-intestinal causes which may lead to vomiting lasts longer that one week are: abdominal and gastrointestinal disorders (gastritis, gastroenteritis, appendicitis, pancreatitis, peptic ulcer), prolonged side effects from medications, effect of anesthesia following surgery, and obstructive conditions such as blockage of the stomach or intestines. Extra-intestinal causes of vomiting in children are: infections seen as in meningitis, hepatitis, urinary tract infection, sepsis, neurological conditions such as headaches, motion sickness, head injury or brain tumors, or any vomiting induced by bad smells or tastes. Hormonal and metabolic disorders (i.e. diabetes, thyroid disorders) may cause vomiting as well. Pregnancy and the associated hormonal change could be the cause of vomiting in case of adolescent female patients. Psychological disorders also need to be considered as extra-intestinal causes of vomiting, for example, eating disorders such as bulimia and anorexia nervosa.

ICPA 180 Hour Certification Examination

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The Fascial Link in Chiropractic
Dr. Carol J Phillips Dec 2-3, 2006 San Francisco

Please answer the following questions in essay form:

1. If you were to explain to a new patient the concept of the fascial link in chiropractic, how would you describe the following:
    a. the fascial system

The definition of fascia is layers of fibrous tissue that covers and separates all the muscles in our body. In fact, fascia is not divided into individual pieces, but it is one broad sheath wraps around and encapsulates all muscles in our body from the top to the bottom. This means, in other words, every single muscle is connected together through the fascia, no matter how far the muscles are located. For example, the muscles of neck and ankle are literally connected because of the fascia, and those muscles are connected to any other muscles in our body as well. In addition, every bone, joint, and organ has connection to some muscles to maintain the proper position and function. Although those bones, joints, and organs look like located independently, they are connected with each other by means of muscles, and as mentioned before, those muscles are connected altogether by means of the fascia. This means in summary, the fascia connects all muscles, bones, joints, and organs as a whole body system.

    b. the connection between the fascial system and energy conduction

The fascial system is the concept shows that every muscle, bone, joint, and organ is connected through one broad sheath of fibrous tissue called fascia. By means of the fascia, our body is able to function as a whole body system, and it is possible when the fascia is maintaining its balance

so that each component of the body is in balance and functioning properly. Additionally, this balance and function is maintained by uninterrupted energy conduction in every part of the body via blood vessels, lymph vessels, and nerves. These tracts are seen in every single muscle, bone, joint, and organ, literally throughout the body, and conducting essential energies such as blood, immune cells, and nerve signals. However, because of this nature of the fascia, any imbalance in one pare of the body could trigger an imbalance in any other parts of the body, and affecting the whole balance and function of the body as well. For example, when a person had an ankle sprain, besides the local damage to the structures and the fascia of the area, the damage can be transmitted through the fascial system and possibly causing imbalance in other parts of the body. Furthermore, this local damage may cause an interruption of energy conduction (i.e. lack of blood flow, decreased immune response, and interference in the nervous system), and thus leading to alteration from the optimum balance and function of our body.

c. the concept of tissue memory

Tissue memory is a memory held in the body and tissue of a person, and it is independent from the person's conscious memory. This memory can be associated with either favorable or unfavorable past events, but the greater significance is seen with the unfavorable memory causing any adverse effect on the person. For example, a baby who has a history of difficult birth and/or birth trauma, or a person who was involved in a motor vehicle accident, typically holds the tissue memory leading to various types of physical complications. These tissue memories have close connection with the fascial system since any negative past histories (i.e. physical injuries and/or emotional stresses) will cause both the fascial torsion and the accumulation of tissue memories. Upon unwinding the fascial torsion, the release of the tissue memory is triggered, and it is expressed by the person literally repeating the exact physical motion happened in the injury, and letting out the emotions. With a case of a baby, this is seen in a baby repeating the position and the movement from the birth and crying to let out the fear and anger from the birth, or a person repeating the whiplash motion and expressing the negative emotions associated with the injury. The concept of tissue memory emphasizes the importance of releasing the fascial torsion and the tissue memory, so that a person is out from the negative subconscious pattern, and will be able to step to the next stage of healing with a new pattern to a better memory.

ICPA 180 Hour Certification Examination

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Family Wellness
Dr Armand Rossi March 5-6, 2005 Los Angeles

Please answer the following questions in essay form:

1. Describe, in detail, three different ways of adjusting an atlas on a newborn.

a. Toggle Adjustment of Atlas

Patient placement is in neutral side posture position with the side of atlas laterality in "up" position. When placing the patient's head on the headpiece (i.e. Webster Infant Adjusting Headpiece), the mastoid process should be level to inferior tip of the headpiece. The patient can be held upright by the parent, with the atlas laterality facing toward doctor. The doctor uses the strap to hang the headpiece over his/her neck. The doctor stands anterior to the patient, and contacting the atlas transverse process with the tip of the first, second, or fifth digit. The Line of Correction (LOC) is right to left or left to right to correct the laterality, with minimum thrust just to cause the headpiece to drop. In case with a newborn, Toggle Set adjustment is done instead of recoil adjustment, since the development of the cervical musculature is not ready for the recoil component of the adjustment.

b. Sustained Contact Atlas Adjustment

Doctor examines and determines the atlas laterality. Patient placement is either supine or upright, whichever the patient is in comfortable position. The doctor contacts the atlas transverse process on the side of laterality, with any digit fits better depending on each patient. Sustained pressure is applied in the LOC, with the adequate amount of pressure measured by feeling the tension from the laterality and matching the pressure against it. The pressure is held until the doctor feels the release of the tension, or approximately twelve to fifteen seconds.

c. SOT Upper Cervical Adjustment with Indirect Technique

Cervical stairstep examination is preformed to detect upper cervical subluxation formation in a patient. Any positive findings at the upper step (step four) indicates the possibility of atlas/axis involvement, and the side of the involvement is determined by detecting swollen and tender muscle nodulations and/or restricted Range of Motion on one side. The patient is positioned supine, and the doctor places superior to the patient. The doctor uses the index finger to contact the lateral mass or transverse process of the atlas, and the lamina pedicle junction or transverse process of the axis at the involved side. The other hand supports the patient's head with shifting it laterally and slightly superior to the opposite side of the contact point. It is important not to rotate or laterally flex the patient's head and neck at this point. Next, the doctor gently puts motion on the patient's head and neck by rotating, side-bending, and extending the head while applying moderate pressure through the contact point. The pressure is applied until the doctor feels the release of the tension and restriction, and typically for about ten seconds to a minute. Post-adjustment recheck is indicated and it is done by performing again the examinations mentioned above.

2. Describe what you would do if you suspected that a child was a victim of abuse.

Reporting child abuse is the obligation for any doctor of chiropractic as a mandated reporter. All doctors needs to be aware of the background knowledge and typical indicators of child abuse for early detection, and the appropriate reporting action to prevent any further abuse when suspected. The victim of child abuse is described as a single person under the age of eighteen, who has been non-accidentally injured physically or mentally, treated negligently or sexually abused, or who dies as a result of abuse or neglect (1). There are no tendencies in races, religions, nationalities, and socio-economic status with people who was involved in child abuse. However, it is said that the largest group of child abusers have drug and alcohol problems (1), and people tend to abuse children when they do not have knowledge of normal child development and parenting, or they have unrealistic expectations of the child's ability regardless of their growth or development (1).

Physical abuse denotes any non-accidental physical injury caused by the parents or other caretakers. Possible indicators are: unexplained bruises and welts on different parts of a body in various stages of healing, unexplained burns such as cigarette burns, immersion burns, patterned burns, and rope burns, unexplained fractures and dislocations such as multiple fractures in any

part of a body in various stages of healing, and unexplained lacerations to mouth, lips, gums, eyes, genitalia, or any signs of human bite. Neglect denotes any negligent treatment or maltreatment of a child causing actual or risk of harm to a child's safety, life necessities, medical and health care, education, and growth and development. Some of the indicators are: consistent hunger, begging or stealing food, poor hygiene and clothing, obvious lack of supervision, prolonged stays at nursery or school, and sings of unattended physical/emotional problems or medical needs. Sexual abuse denotes the exploitation of a child for the sexual gratification of a person typically older than the child, but not always a crime of adults toward children (1). It includes not only the violent sexual behaviors and assault (i.e. rape, incest, and sodomy), but it may include variety of behaviors such as fondling, verbal assault, voyeurism, and sexual harassments. Possible signs and behavioral indicators are: self destructive behaviors (i.e. alcohol/drug abuse, eating disorders, and suicidal attempt), anxiety/panic attacks, dissociate phenomena, sleeping disorders, withdrawal/fantasy or infantile behavior, unusual fear of a person, unusual interest in or knowledge of sexual matters for a child of that age, and so on. Occasionally, a child reports sexual abuse by themselves, but usually many abusers use threats or other methods to force children not to tell, which makes it more difficult to detect the ongoing abuse (1,2).

When a doctor suspects that a child was a victim of abuse, he/she immediately needs to report the suspected case to, for example, state Department of Human Services, Juvenile Department, Police Offices, or to hospitals with a SCAN team (1,2). The initial reporting is considered as a request for an assessment of a suspected incident of abuse or neglect, and not as an established fact (1). The report should include the basic information of the child and the parents or the caretaker, evidences of abuse, any given explanation of injuries, and doctor's findings which might be helpful in the assessment of the abuse (1). The doctor also needs to tell the child that he/she needs to contact people who will help them. The details of the suspected abuse is not necessarily asked at this point, and the doctor should not display any shock, horror, or disapproval of parents/caretakers, child, or the situation. The doctor only needs to suspect abuse and initiate the report (1).

As a doctor practicing in Japan, I would like to mention one important issue regarding the Child Abuse Prevention Law in Japan. This law was revised in 2004 to ensure the protection of children and to offer more desirable consultation to parents. Each municipal Child Consultation Centers are in charge of these services, however, they are still not able to conduct those activities exclusively and independently from other legal authorities. This means due to the "bureaucratic" aspect of the involved processes, it may take unreasonable amount of time to take the actual actions for effective protection of the child and further preventions, although

immediate actions are essential for identification, stoppage, and prevention in any cases of child abuse.

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ICPA 180 Hour Certification Examination

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Diagnostic Imaging
Dr. Robert Schlampp Sep 23-24, 2006 Dallas

Please answer the following questions in essay form:

1. Discuss hip dysplasia. Include in that discussion:
    a. the difference between congenital and secondary hip dysplasia

Congenital hip dysplasia is a condition with abnormalities in the hip joint structures which are present at birth, or become evident soon after the birth. Recently, this condition has been termed developmental dysplasia of the hip (DDH) since more literature suggests that it often has a developmental etiology (1). Congenital hip dysplasia or DDH may result in hip joint instability and partial or complete dislocation of the hip with acetabular dysplasia (1), and may associated with leg length inequality and /or restricted range of motion. Studies have reported the increased risk with family history and/or breech intrauterine presentations, and obvious female predominance (2). Early postnatal diagnosis and treatment of DDH is highly suggested to reduce the potential of instability and dislocations (3). However, if DDH was not treated properly, it may result in hip dysplasia in later infancy or childhood, or further in adolescents and adults (2, 3). These conditions may be considered as secondary hip dysplasia including any abnormal structures of the hip joint. It may present as skeletal malformations (i.e. shallow acetabulum, flat femoral head, pseudo-joint formation) (3), gait difficulties, osteoarthritis, and may associate with prolonged pain.

    b. Explain how would you evaluate hip dysplasia from radiographic findings. Include a list of the lines of mesuration and explain these lines.

The classic radiographic findings of DDH are lateral displacement of the femur, an absent or small femoral capital epiphysis, and increased acetabular angulation (Putti's triad) (1). On an

anteroposterior pelvic radiograph, a horizontal line is drawn through both right and left triangulate cartilages (Hilgenreiner's line or Y-Y line) (1). Acutabular Index is the angle measured by drawing oblique line along the lateral and medial portions of both right and left acetabuli to Hilgenreiner's line (2). In newborns, the average angle is twenty eight degrees, and limits up to thirty five degrees (2). In one-year-olds, the average is twenty degrees, and limits up to twenty nine degrees (3). Shenton's line is another way of mensuration to detect hip dysplasia such as hip dislocation, femoral neck fracture, and slipped capital femoral epiphysis (3). The same radiograph is used, and a line is drawn along the medial and superior surface of the obturator foramen to the medial surfave of the femoral neck (1). The line should be smooth, and obvious interruption of the smooth line indicates hip dysplasia with any of the condition mentioned above.

2. Discuss Legg-Perthes disease. Include in this discussion:
    a. the average age of onset and sex predominance

Legg-Perthes disease is an avascular osteonecrosis of the femoral capital epiphysis seen in children (1). The clear etiology is not known, however, history of trauma, endocrine disorder, and infections are indicated as possible causes (1). The average age of onset is between three to twelve years, and most commonly among three to seven years age group (1, 3). There is certain predominance in male of 5:1 with this disorder (3).

    b. besides radiography, other studies may be beneficial in your diagnosis

Radiographies are commonly used for early detection of Legg-Perthes disease, and also assist in the evaluation of following progression (3). The radiography will provide typical findings such as soft tissue swelling, fragmentation of the epiphysis, osteosclerosis (snowcap sign), and deformities of the femoral head and neck (1, 3). MRI and bone scan will assist the diagnosis in early stage of disease, and in addition, MRI will exhibit the status of the articular cartilage and the degree of replacement of normal marrow by necrosis (1, 3). CT is useful in detecting the detail of the femoral head deformity (3).

c. If the deformity is present after healing, explain what secondary condition(s) is probable?

The most significant secondary condition associated with the prognosis of Legg-Perthes disease is osteoarthritis. This occurs due to inadequate revascularization and epiphysial remodeling, resulting in incongruent articulation formation and overall biomechanical alterations of the hip joint (1, 3). Some of the typical manifestations are: restriction and painful range of motion, contracture and atrophy of the surrounding musculature, leg-length inequality, and painful limp which is improved by walking (1, 3).

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Neuro Physiology and Nutrition
Dr. David Seaman Oct 14-15, 2006 Chicago

Please answer the following question in essay form.

1. Describe the neurogenic inflammatory process and how it drives chronic pain and subluxation.

The neurogenic inflammatory process exhibits the inflammatory/healing mechanism seen in,for example, a joint complex structure and through with the central nervous system (CNS). It is an intricate process involving various components such as leukocytes, pro/anti-inflammatory mediators, hormones, nociceptors, and nerve fibers influencing one another. This process explains how chronic pain is produced in a human body, and the consequential formation of spinal subluxations.

Injuries from macro/micro trauma and biomechanical stress to the body would trigger the inflammatory reaction in a joint complex structure (1). From this point, there are different processes which would lead to chronic pain manifestation. The inflammation triggers the release of bradykinin (a neuropeptide causes vasodilation) and the production of free radicals (hydrogen ions), which will excite the group Ⅳmechanoreceptors (nociceptors) and nerve fibers (1). This inflammation also activates the leukocytes to release substances such as pro-inflammatory cytokines and prostaglandins (i.e. IL-1, IL-6, and PGE2), leukotriene B4, thromboxane A2 (eicosanoid), serotonin (5-HT), and histamine. These substances again excites the groupⅣ nociceptive components (1). These reactions then leads to the release of substance P (transmits nociceptive impulses from peripheral receptors) and CGRP (Calcitonine Gene Related Peptide), which excites the nuclear factor-kappa B (1). Some of the leukocytes again starts the release of inflammatory mediators in response, and repeats the excitation of the groupⅣ components (1). The result of this neurogenic inflammatory process drives chronic pain due to the recurrent

excitation of the groupⅣ nociceptive components. In addition, the groupⅣ nociception is related to two more different processes leading to chronic pain. The groupⅣ nociception is transmitted to the Dorsal Lateral Funiculus and divided into two pathways. One is the pathway via white rami, paravertebral ganglion, gray rami, then reach to the terminals which triggers the synaptic transmission to the sympathetic nervous system, and activates the release of norepinephrine and prostaglandins (1). The other pathway is via the anterolateral tract of the spinal cord. The nociception is transmitted through Hypothalamus and Adrenal gland to stimulate the release of epinephrine (1). These two pathways in common releases substances which excites the groupⅣ components, and thus leading to the recurrent excitation and chronic pain.

When these neurogenic inflammatory processes and resulting chronic pain patterns were seen in a spinal joint, it may cause abnormal spinal joint complex afferentation, and further spinal dysfunctions/subluxations. Biedermann describes that the abnormality of afferentation occurs when the sensory innervation to a joint complex is disturbed due to, for example, abnormal increase and continuous nociceptive input and reduced input of other mechanoreceptions (2). This abnormal afferentation alters the normal sensory-motor functions of a spinal joint, and leading to a painful neck associated with restricted range of movement of the region (2), which can be interpreted as a typical manifestation of spinal dysfunction/subluxation. Another example which indicates the relation between the neurogenic inflammatory process and subluxaiton can be described based on the neuro-physiological model of Pickar (3). It exhibits the neuro-physiological mechanism of how the mechanical overload to a spinal joint complex leads to spinal dysfunctions such as tenderness, altered paraspinal muscle tone, altered vertebral movement, and abnormal reflex responses (3). This model notes the adverse effect on paraspinal sensory receptors and afferent nerve fibers, which may be linked to the abnormal afferentation, and resulting manifestations of spinal dysfunction/subluxation.

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2. Describe how the process of neurogenic inflammation is likely reduced by appropriate nutrition.

The appropriate nutrition to reduce the neurogenic inflammatory process is labeled as anti-inflammatory diet or supplements, and it recommends taking specific amount of nutritional substances per day either from foods or dietary supplements. The functions of those substances are to reduce the inflammatory process by inhibiting the pro-inflammatory substances, enhancing the anti-inflammatory substances, preventing cell damages and ATP depletion, and leading to overall reduction of chronic inflammation and prompting healing process(1). The basic anti-inflammatory nutrients/supplements are substances such as various vitamins and minerals, magnesium, eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), Coenzyme Q10, and nutrients contained in ginger and turmeric (2). Deficiencies of these important nutritional substances are reported to be linked with chronic inflammation and resulting various pathologies (3).

Magnesium deficiency, for example, is reported to be linked with symptomatic forms of central nervous system hyperexitability (CNSHE), and it is due to both direct cellular effects and local/systemic mediated effects of the deficiency (4). Those effects are such as increased cellular susceptibility to free radicals (peroxidation), increased activity of excitatory neuromidiators, increased production of inflammatory mediators, and decreased activity of inhibitory neuromediators (4). When considering the association of these substances with the neurogenic inflammatory process, appropriate nutritional intake of magnesium is expected to influence the activities of both pro and anti-inflammatory substances, and therefore leading to overall reduction of the inflammatory process. EPA and DHA are different examples which play an important role in preventing inflammatory responses. Research by Watkins et al shows that these substances act as anti-inflammatory agents in case with joint pathology (i.e. osteoarthritis or rheumatoid arthritis) (5). Pro-inflammatory prostaglandins and cytokines such as PGE2 and IL-1 play a major role in mediating inflammatory responses, inducing cartilage degradation, and thus results in exacerbating degenerative arthritis (5). The research further states that incorporation of n3 fatty acids into articular cartilage resulted in reduction of the expression of inflammatory cytokines and cartilage degradation (5). As shown in this research, the effect of n3 fatty acids toward pro-inflammatory substances is an example which provides a supporting factor that the process of neurogenic inflammation is reduces by appropriate EPA/DHA intake. Some other nutritional substances or food such as coenzyme Q10, ginger, and turmeric have been reported to function as anti-inflammatory factor as well (6, 7). Coenzyme Q10 mediates

ATP synthesis, and function as an antioxidant, while ginger and turmeric function as natural inhibitors of pro-inflammatory substances and reduce pain with musculoskeletal inflammatory pathologies (6, 7).

As seen in the examples mentioned above, the primary goal of proper anti-inflammatory diet and supplements are the reduction of inflammatory processes, and it is achieved by the interaction between pro and anti-inflammatory mediators, function of antioxidant, and the provision of the energy necessary for the healing process.

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ICPA 180 Hour Certification Examination

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SOT
Dr. Marty Rosen Feb 11-12, 2006 Los Angeles

Please answer the following questions in essay form regarding Sacro-Occipital Technique.

1. What are some of the indicators used to determine if the subluxation pattern is more meningeal versus structural in the pediatric patient?

There are two major divisions of spinal and cranial subluxation patterns, the meningeal subluxation complex and the structural subluxation complex (1). In pediatric patients, especially up to age of six months, it is said that the meningeal subluxation complex is the major component (1). Due to the fact that the cranium and its sutures, as well as the brain and other neural tissues are extremely soft and fragile, it tends to get influenced easily by forces from torsion or traction. This is one of the major factors leading to the formation of meningeal subluxation complex. In addition, when the skull starts to have more structural function after the closure of the fontanels, this meningeal subluxation could remain if uncorrected on earlier timing. The possibility of the meningeal involvement must be considered until a child is at six or seven years of age, to decide the most effective techniques both in the evaluation and the correction of it.

Positive findings in Condylar System (atlanto-occipital restriction) examination is one indication of meningeal subluxation pattern, since the atlas and atlas subluxations are always involved (1). Atlas involvement is also detected in examinations such as Atlas Occipital Decompression and Cervical Stairstep. Abnormal CSF rhythm is another indicator of meningeal involvement. Movement of the CSF is accomplished by the dural and the osseous motion upon exhalation (extension) and inhalation (flexion). The Reciprocal Motion (Sacro-Occipital Motion) and the Rotational Motion (rotation of the occiput and the sacrum) examinations are

good examples to detect any abnormalities in CSF rhythms. Noticeable cranial distortions such as flat occiput, depressed sphenoids, bulging of the frontal bones or the parietal sutures, and any cranial asymmetries also indicate meningeal subluxation complex (1). Visual analysis and palpation of the cranium needs to be performed with special caution since it indicates possible severe meningeal stress and CSF flow restrictions.

2. Name three evaluation techniques you might use in an infant to determine the subluxation pattern at the C1-Occipital level. What do these positive findings indicate about the direction of the subluxation?

1. Condylar System (atlanto-occipital restriction)

Doctor contacts the occipital bowl bilaterally (the index and the middle fingers are positioned medial to the mastoid processes of the temporal bone, and slightly lateral to the occilital condyles). The thumbs are contacting both right and left frontal bones at approximately half an inch lateral to the metopic suture. While holding the skull lightly, laterally flex the skull to the right and left with the angle of three to five degrees approximately. Make sure the cervical spine is not involved when side bending. Restriction in Range of Motion (ROM) in one side than the other indicates a positive finding of atlanto-occipital restriction and subluxation pattern either to the right or left.

2. Condylar System (High Occiput)

Doctor palpates the difference of tensions at the atlanto-occipital condyles bilaterally. Upon finding the increased tension on one side than the other, the ROM is checked to detect any restriction. When restriction is felt with lateral flexion into the side of more tension, it indicates the High Occiput in the involved side (i.e. increased tension with restricted ROM on the right side indicates High Occiput to the right). Visual analysis may also provide another indication of High Occiput when the patient is in prone or seated position. The chin of the patient will typically show deviation towards the High Occiput side in the prone position.

3. Atlas Occipital Decompression

Doctor holds the patient's occiput by using four-finger contact, and the thumb is placed around at the anterior side of the ears bilaterally. Next, the patient's head is extended then flexed with a gentle rocking type of motion, to detect any restriction when the head is moving into flexed position. If any restriction is noted, it indicates hyperextension of the condyles, which means the atlas condyles are posterior to the occipital condyles.

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Techniques:
Dr James Thompson May 7-8, 2005 Los Angeles

Please answer the following questions in essay form:

1. For each of the following five categories, give the method of finding the syndrome and the detailed method of correction, including line of drive.
    a. cervical syndrome
    b. bilateral cervical syndrome
    c. Derefield positive
    d. Derefield negative
    e. Derefield X

a. Cervical Syndrome

Patient lays down prone on the Thompson Terminal Point Table. One need to make sure the patient is positioned straight by checking the alignment of the External Occipital Protuberance (EOP) and the gluteal cleft. Doctor examines the leg length inequalities, and noting one leg is shorter than the other in extended position. Upon flexing both legs, the short leg becomes either longer, shorter, or stays the same. Upon rotating the patient's head to the right, and noting the short leg becomes even, this is the Right Cervical Syndrome (RCS). When the short leg becomes even upon rotating to the left, it is the Left Cervical Syndrome (LCS). Next, the doctor palpates the most cephalad tender mass and/or muscle knot on the opposite side of the cervical syndrome (i.e. the doctor palpates the left side in RCS, and the right side in LCS).

Detailed method of correction is as follows; patient is positioned prone, and doctor is positioned inferior and in close on the palpated side. Both the cervical and thoracic sections are set to drop

with eight ounces of pressure approximately. Contact point of the doctor's hand is the lateral aspect of the second or third joint of the index finger of the superior hand. The doctor sets the hand at the lamina-pedicle junction of the involved segment with medial to lateral tissue pull. The doctor stabilizes with the non-adjusting inferior hand contacting the segment above the involvement, and broadly the mandible and zygomatic arch of the patient. The Line of Drive (LOD) is posterior to anterior, inferior to superior and slight right to left of left to right, and perpendicularly to the facet plane of the involved segment. Recheck is done by checking the leg length equalities with patient's head turning.

b. Bilateral Cervical Syndrome

Doctor examines the leg length both in extension and flexion, and noting that the legs are staying even. When the patient turns the head to the right, and the right leg shortens, or turning the head to the left causes the left leg shortening, this is the Bilateral Cervical Syndrome (BCS).

Detailed method of the correction of BCS; patient position is prone, and doctor can stand either on the right/left side of the patient, while placing doctor's sternal notch over the patient's T5 level, or standing on a position that both the doctor's and the patient's shoulder becomes parallel. The doctor sets both hands with the thenar onto the occiput bilaterally medial to the mastoid process, or slight lateral to the EOP. The LOD is inferior to superior, slightly posterior to anterior, with the equal impulses right and left. While following the facet orientation, the adjustment is done about three times with the motion trying to open up between the occiput and the atlas, since the lesion in BCS is said to be an AS (Anterior-Superior) Occiput misalignment. Recheck is done by noting patient's head turning does not cause leg length inequalities.

c. Derefield Positive Syndrome (D+)

Before the examination of D+ syndrome, the examination of the cervical syndromes is done to see if there is any cervical involvement causing the leg length inequalities. If any cervical involvement is seen, it is corrected and rechecked before proceeding to examine the pelvic involvement. On D+ examination, doctor checks the leg length as follows; short leg in extension becomes long upon flexion of the legs, or short leg becomes even upon flexion of the legs, or even legs in extension becomes long upon flexion. Some findings associating the leg length inequalities are; increased resistance during flexion of the legs due to possible muscle tension and/or tenderness over the sacroiliac joint on the side of the involvement. Putting these findings

together, when the right/left leg is involved, it is named Derefield Positive on the right or left respectively (Rt D+, Lt D+).

Detailed method of the correction of D+; patient is positioned prone, with placing the anterior superior iliac spines just above the superior edge of the pelvic piece. The pelvic piece is set to drop down and caudad, and the lumbar piece to straight down. The doctor stands inferior to the sacroiliac joint either on the same or opposite side of the involvement. The doctor sets the fleshy pisiform of the contact hand on the patient's posterior-superior iliac spine (PSIS), while stabilizing the other side of the involvement by contacting on ischial tuberosity with the other hand. The LOD is posterior to anterior, and following the angle of each pieces drops. The adjustment is done usually three times. Recheck is done by noting any changes after the adjustment.

d. Derefield Negative Syndrome (D-)

Same as in D+ syndrome, and cervical involvement is examined before proceeding to examine the pelvic involvement. On D- examination, doctor checks the leg length as follows; short leg in extension stays short upon flexion. Some associating findings with the leg length inequality are; the lightness of the leg lift (facilitation), tenderness over the sacroiliac joint, pubic bone, ischial tuberosity, and the medial aspect of the knee of the involved side. On the other side of the involvement, tenderness is checked between T2 and T7 costo-vertebral junctions. Putting these findings together, when the right/left leg is involved with the additional findings, it is named Derefield Negative on the right or left respectively (Rt D-, Lt D-).

Detailed method of the correction of D-; on part one, the patient is positioned supine, with the involved leg flexed. The pelvic piece is set to drop down and cephalad, and the lumbar piece to straight down. The doctor stands on the side of the involvement, with contacting patient's ischial tuberosity with the inferior hand, and the patient's anterior-superior iliac spine with the superior hand. The LOD is inferior to superior with a "scooping arch" type of motion with following the angle of each pieces drops. On part two, the patient is positioned supine, with the leg flexed opposite to the involved side. Both the pelvic and the lumbar pieces are set to drop down. The doctor stands on the side of the involvement, with superior hand contacting the patient's middle and lateral portion of the inguinal ligament around the location of the tender mass. The inferior hand is placed in the flexed leg for stabilization. The LOD is anterior to posterior, with a torque action in clock-wise for Lt D-, and counter-clock-wise for Rt D-. Recheck is done by noting any changes in the leg length.

e. Derefield X Syndrome (Dx)

Same as in other Derefield Syndromes, and cervical involvement is examined before proceeding to examine the pelvic involvement. Doctor checks the leg length as follows; legs are even when extended, and upon flexion, one leg appears to be short. While the legs are in flexed position, the patient turns the head. Upon turning the head to the right /left, and the legs appears even, this is listed as DxRCS /DxLCS respectively. When turning the head does not cause any change in the leg length, suspect the possibility of Derefield Negative by checking the render spots seen in D-. If one of the five spots is found, it is listed as DxD-R or DxD-L depending on which is the involved side. The method of correction and the recheck is the same as the description written on each syndrome.

2. What is the meaning of "clear" in this method and how would you demonstrate it?

Here is one example describing the meaning of clear in this technique.
Before performing any procedure to detect the pelvic involvement in a patient, one needs to go through the examinations of cervical syndromes, and if needed, correction is done. When the recheck does not show any inequality of the legs, the cervical is clear and proceeded to check any pelvic misalignments. Upon examination, for example, D+ was detected and properly adjusted. If the recheck shows equal leg length, the cervical is clear and the pelvis is clear as well.

In Thompson Technique, first of all, the leg length is checked to see the balance of the spine. When the legs are even, the hips are well balanced, and no major tension is found in the neck, the spine is in balance and the optimum functioning of the nervous system is expected in the body. This indicates no necessity of an adjustment. Any indication of imbalance of the spine and nerve interference needs to be corrected until the doctor sees all the criteria are met.
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