THE CHIROPRACTIC REPORT

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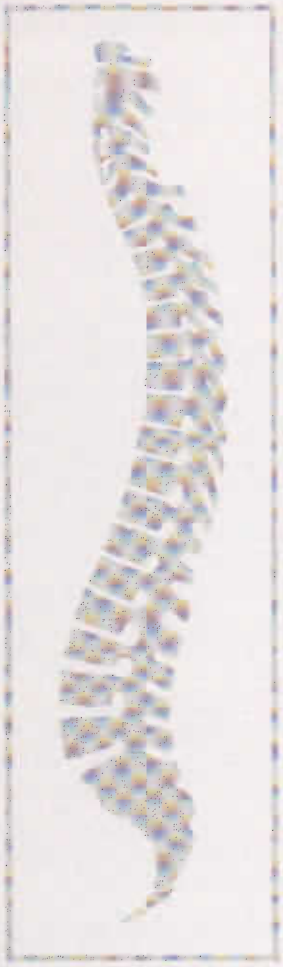

Professional Notes

Key Dates for Centennial Celebrations Established

David Daniel Palmer founded the chiropractic profession, and treated his first patient, in Davenport, Iowa on September 18, 1895. A year of centennial celebrations will commence with a major media event at Palmer College of Chiropractic, Davenport, on September 18, 1994

At its December meeting in Chicago, the Chiropractic Centennial Foundation's Board of Trustees established dates and venues for the two major educational and entertainment events for general attendance during 1995:

• Centennial Celebrations Part 1, Convention Center, Washington DC, Thursday July 6 to Saturday July 8, 1995. This will be the premier academic and research meeting, and will be combined with major entertainment and political events.

• Centennial Celebrations Part 2, Davenport, Iowa, Thursday September 14 to Saturday September 16, 1995. The academic program will focus on history, and again there will be major entertainment events.

Members of the profession will hear much more about the Chiropractic Centennial Foundation (CCF) and plans for 1995 during the first half of 1993. It is noted:

• The celebrations in Washington DC and Davenport are being administered by the CCF, whose Board of Trustees is Dr. Bill Holmberg,

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The Sacroiliac Joints Revisited

"The conventional wisdom is that herniated discs are responsible for low back pain, and that sacroiliac joints do not move significantly and do not cause low back pain or dysfunction. The ironic reality may well be that sacroiliac joint dysfunctions are the major cause of low back dysfunction, as well as the primary factor causing disc space degeneration, and ultimate herniation of disc material".[1]

Joseph Shaw MD, orthopedic surgeon, Topeka, Kansas.

"The sacroiliac joint appears to be the single greatest cause of back pain. The range of motion is small and difficult to describe but, when normal joint play is lost, agonizing pain can be precipitated ... (the sacroiliac) joints are complex and not fully understood, but it is clear to the authors that they can have a profound effect on body mechanics ... anyone who still holds the view that these joints are immobile can never hope to achieve control of common back pain".[2]

John Bourdillon MD and **Edward Day** MD, Canada.

A. Introduction

1. Prior to 1934 the medical profession thought that the sacroiliac (SI) joints were the source of most low-back pain.[3,4] In that year Mixter and Barr discovered the disc herniation, diverting medical attention from the SI and facet joints to the disc and surgery for 40 years.

Chiropractors, focusing on an integrated biomechanical diagnosis and manual treatments not surgery, continued to see the SI joints as pivotal in the management of back pain. Clinical experience, then research, confirmed this. Although details of structure, motion and etiology of pain remained unclear, there was attractive logic to support the excellent clinical results, namely:

a) The sacrum and SI joints are the literal basis of the spine.

b) All loads from above (spine, trunk, upper extremities) and all forces from below (the legs) are transmitted through the pelvic ring and SI joints.

c) The pelvis is intimately coupled with the lower vertebral column and legs by muscles, ligamental and fascial structures, and the coordinating nervous system.

2. Now the wheel has turned. Gray's Anatomy has reclassified the SI joint as a true synovial joint and acknowledges that it moves.[5] Much new research by basic scientists, chiropractic and medical researchers, physical therapists and others is better defining this movement and the important role of the SI joints.

The first quote above is from Dr. Joseph Shaw, a Kansas orthopedic surgeon, delivering one of the two opening papers at the `First Interdisciplinary World Congress on Low Back Pain and its Relationship to the Sacroiliac Joint' held in San Diego, California November 5-6, 1992. On the basis of a prospective study of 1000 consecutive patients with low-back pain at his clinic, Shaw concludes:[1]

• "98% of the patients had a mechanical dysfunction of the sacroiliac joints as a major cause of their low-back pain".

• "The most common finding was a right innominate anteriorly rotated fixation with locking or diminished motion in the associated sacroiliac joint."

• "Treatment of these patients by restoration of full sacroiliac joint motion, along with correction of other dysfunctions, led to relief of symptoms in almost all cases."

• "Most remarkable was the absence of need for surgery in these patients. In our series only two patients needed surgery for treatment of herniated or protruded discs. This represents a surgical incidence of 0.2%, 20 times less than the national norm of approximately 4% surgery in similar series."

• "We have come to realize that almost every patient with low back pain also has significant mechanical dysfunction of the cervical spine ... and the thoracolumbar spine ... it is very common to have dysfunctions of the lower extremities ... perhaps the most important and vital concept to understand is that the whole musculoskeletal system needs to be treated ...".

These results, coming from a clinical study of patients rather than a randomized controlled trial, seem a little too good to be true. Treatment was mobilization, massage, stretching and range of motion exercises - similar to chiropractic management but without specific joint adjustment or manipulation. However the results support earlier chiropractic research which has shown:

a) SI joint dysfunction is common, even in

This issue reviews the San Diego Congress on the SI joint. For an overview of anatomy, function and chiropractic management of SI joint problems see the March 1990 issue (Vol 5 No. 3).

quite young schoolchildren.[6] (In one recent study Mierau et al found that 29.9% (80 of 265) of pupils aged 6-12 in an elementary school, and 41.5% (56 of 135) of pupils aged 12-17 in a secondary school had SI joint dysfunction. Gillet's assessment methods were used. The 108 (26.3%) of students in both schools with a history of low- back pain, 88 (83.1%) tested positive for SI dysfunction).

b) That patients with SI dysfunction and back pain respond excellently to chiropractic management aimed at correcting biomechanics and balancing responses in the nervous system (arthrokinetic reflex - see para 13 below).

Kirkaldy-Willis and Cassidy in their study of 283 patients presenting to a Canadian hospital clinic with chronic low-back and leg pain, found that 117 (41.3%) had previously undiagnosed sacroiliac syndrome. Of these 117, who were totally disabled and had average duration of pain of approximately 8 years, 90% returned to normal activities of daily living after 2-3 weeks of daily chiropractic manipulations. This improvement was maintained at follow-up after one year.[7,8]

3. Co-chairs of the San Diego Congress, which had a distinguished faculty of experts from around the world and attracted an audience of 550 health professionals, were Dr. Andry Vleeming, Professor of Clinical Anatomy at Erasmus University, Rotterdam, The Netherlands and Dr. Vert Mooney, Professor of Orthopedics, University of California, San Diego. The meeting reviewed the evidence and the state-of-the-art with respect to the SI joints. This issue of the Report reviews the meeting.

For a summary of structure, motion and chiropractic management of the SI joint see the March 1990 issue of The Chiropractic Report (Vol. 5 No. 3).

B. Program and Purpose

4. The program for the two day Congress, which was well attended by chiropractors, orthopedic surgeons, osteopaths, physiatrists, physical therapists and others, appears in Table 1. There was consideration of fundamental anatomy, then biomechanical and kinematic factors, then imaging, then the clinical approaches of the various professions.

Chiropractors on the faculty were:

a) Dr. David Cassidy, now Director of Research, Department of Orthopaedics, University of Saskatchewan, Canada whose doctoral thesis was on fetal articular cartilage from the SI joint. He was one of the five speakers presenting fundamental data on anatomy.

b) Dr. James Wooley, in private practice in Irvine, California who described chiropractic management, including diagnosis and manipulative techniques.

5. Dr. Vleeming headed a large contingent of researchers from Erasmus University, Rotterdam, who have published a substantial volume of research on the SI joint in Spine and Clinical Biomechanics during the past five years. These included Anton Huson, PhD; Jan Mens, MD; Chris Snijders, PhD; Rob Stoeckart, PhD and Jan-Paul Wingerden, PT.

The professional background and country of other faculty members are given in Table 1.

6. The purposes of the Congress, set forth in the introduction to the written proceedings (600 pages),[9] were:

a) To bring the various health disciplines together, since the research is scattered throughout the literature of several professions and thus "is difficult to consult...this urged us to call a multidisciplinary congress."

b) To place emphasis on the fact that "the spine, pelvis and lower extremities are not separate skeletal entities". The medical approach to low-back pain and the spine has focused on separate anatomical levels and features. However the skeletal structures "are fully integrated from a neurophysiological, biomechanical and functional-anatomical point of view ... there is an inherent biomechanical complexity of the musculoskeletal system that convinces us that isolated pelvic problems are exceptions ... any distinction between SI joint function and low-back pain is based on a reductionistic anatomical model."

c) To review the current evidence on structure and function of the sacrum and its joints and various treatment methods.

By now it will be apparent why this Congress is of great significance to the chiropractic profession. Chiropractors had much to offer and to learn, and the meeting documented a worldwide resurgence of interest within the medical profession concerning the clinical significance of the SI joints - the conventional wisdom of the past 40 years is being rejected.

C. Vleeming - Mobility

7. Dr. Vleeming's general introduction and keynote address dealt with the history of sacroiliac research then the developmental biology, anatomy and mobility of the SI joints.

Following a detailed analysis of the existing studies of SI mobility, and defining 'nutation' as the movement in which the "sacrum tilts towards ventral" he concludes:

a) The movement of the sacrum that takes place in nutation, and shown in the studies, confirms SI joint movement.

b) Nutation can be regarded as the 'secured position of the SI joints'. The joints nutate whenever a position with lumbar lordosis is assumed. (This is typically seen when weightlifters prepare to lift a large weight).

c) The various studies suggest that SI mobility depends upon distribution of loa.d There are different degrees and directions of joint rotation and translation depending upon type of movement.

"In the upright position the sacrum nutates during trunk flexion, contra-nutates during trunk extension, and maximally nutates in maximal lordosis. In prone or supine positions, the position of the sacrum is relatively contra-nutated."

d) For those wishing to use mobility data in clinical testing of SI joint movement it should be noted "that there exists a large inter-individual variability" of motion.

e) There is still "limited information as to sacroiliac mobility in the elderly."

In summary, at the strict scientific level it is now clear that the SI joint moves and has varying planes and ranges of movement in

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San Diego Congress – How to Order a Copy of the Proceedings

The Proceedings (summaries of research presented – 600 pages – US$50.00) can be ordered from:

UCSD
OCME, SOM, 0617
9500 Gilman Drive
La Jolla. California
92093-0617

Visa and Mastercard accepted – mail orders only.

A limited supply only is available. If sold out, subscribers may obtain a copy of the Bernard and Cassidy, Mierau, Paris, Shaw, Sturesson and Vleeming presentations referred to in this Report for $20.00 (US and Canada), US$25.00 (elsewhere) from The Chiropractic Report, 3080 Yonge Street, Suite 3002, (Box 39) Toronto Ontario M4N 3N1, Tel: 416-484-9601, Fax: 416-484-9665. Send cheque or Visa/Mastercard number and expiry date.

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different postures and at different ages. However movement is variable for different people.

D. Mobility - Other Presentations

8. What is the clinical significance for chiropractors of the evidence presented in San Diego on mobility of the SI joints? The picture is confusing:

a) On one hand you have Bengt Sturesson MD of Malmo, Sweden describing his impressive studies of in vivo motion of the SI joint.[10] He implanted tantalum balls into the pelvis of each of 31 patients diagnosed with SI dysfunction. By roentgen stereophotogrammetric analysis, performed with patients in a variety of postures, he was able to show small rotations of the SI joints of 2.5 degrees during various patient movements. However, there was no difference between the amount of motion seen in symptomatic and asymptomatic joints.

His study would place in doubt the value of motion palpation of the SI joint, since the range of motion is too small to palpate and it is unaffected by dysfunction.

b) On the other hand Dr. Tom Bernard, an orthopedic surgeon from the Hughston Clinic in Columbus Georgia, showed some very dramatic videofluoroscopy of the SI joint moving during stress testing as used in chiropractic practice and similar to that performed on Sturesson's patients. Bernard then presented a case for management of SI joint syndrome together with Cassidy,[11] founded on the motion tests, manual treatments, and patient education as found in chiropractic practice (see para 13 below).

c) When clinical presentations commenced chiropractic, medical, osteopathic and physical therapy clinical researchers all described their favoured tests for measuring SI joint restrictions. Most have now been studied with some care, but in a strict sense none has yet been established as valid. Part of the problem, scientifically, is that there is no gold standard for diagnosis of SI syndrome.

However, from various professions worldwide there is now confirmation of excellent results with patients having low-back and leg pain (and problems elsewhere in the neuromusculoskeletal system) when:

• SI dysfunction is found.

• This is treated with physical measures such as manipulation, mobilization, massage and exercise.

9. If the research and definitive diagnosis remain unclear, the clinician's practical perspective, as was stated by Stanley Paris, PhD, PT from the Institute of Graduate Physical Therapy, St. Augustine, Florida,[12] is:

• "When the treatment does not work then both the diagnosis and treatment remain in doubt."

• "When the treatment works for one dysfunction then the diagnosis is somewhat confirmed - even if it is wrong we at least know how to treat the syndrome."

• "As inexact as this may seem to the scientist, to the clinical scientist it is more than just a beginning."

Paris, originally from New Zealand and a leading PT advocate of manipulation, presented essentially a chiropractic perspective. He lists myofascial states, facet dysfunction and sacroiliac dysfunction as the three major causes of back pain. Alteration in muscle tone "is usually secondary in response to underlying joint dysfunction." With sacroiliac dysfunction the SI joint may be "locked or subluxed" causing "displacement or subluxation."

E. Dysfunction v Instability

10. In an overview of the meeting, Cassidy[13] draws attention to the presence of two distinct schools of thought concerning SI treatment:

a) One group, already discussed, believes that SI dysfunction results from decreased mobility or subluxation/fixation of the joint. This groups prescribes manipulations, mobilizations and exercises.

b) The other group believes that most SI dysfunction is the result of instability, and prescribes belts, exercises, proliferant injections and even fusion. Cassidy's assessment is that "neither view enjoys better evidence than the other" and, the world being what it is, "a good number of participants at the Congress subscribe to both schools of thought" and use alternating treatment approaches.

Which injection techniques best stabilize the SI joint? The only new randomized controlled trial reported at the meeting, by Robert Klein, MD from Santa Barbara, compared 79 patients randomized to either xylocaine/saline or xylocaine/proliferant injections. Results favoured the use of proliferant injections.

The two papers presented on pelvic pain during pregnancy, by Jan Mens, MD from Rotterdam, The Netherlands and John Hansen ,MD from Tromso, Norway, suggested that this quite serious disability is often caused by strain of the pelvic ligaments. On the basis of quite large but uncontrolled studies both authors recommended, and reported good results with, immobilization with a belt.

F. How Does Treatment Work?

11. The traditional chiropractic explanation for the success of management based upon adjustment of the SI joint is that normal ranges of joint motion have been restored. This releases muscle guarding or spasm, and produces an overall biomechanical change that removes pain signals referred to the back and leg from the SI joint subluxation or dysfunction.

Is this hypothesis wearing well? After all, the San Diego Congress reveals:

a) Treatment approaches based on stabilizing the joint, such as use of proliferant injections and belts, work too.

b) Treatment approaches based on correcting dysfunction, but aimed at myofascial states rather than the joint and not involving manipulation, also produce good results. Shaw, who claims a 98% success rate in his study, says:[1]

• "It's our belief that the major cause of musculoskeletal dysfunction relates to fibrous tissue, or fascial connective tissue restrictions ... that

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prevent the normal stretching of muscle."

• "Restriction of the muscle in turn restricts joint motion and the joint becomes painful and stiff ... all our treatment methods are designed specifically to release these fascial or fibrous restrictions ...".

c) Various impressive new studies, including Sturesson's work from Sweden, show that ranges of SI joint motion are very small, particularly in the elderly where adjustment/manipulation also brings good results.

Here are two alternative hypotheses presented in San Diego. Both come from chiropractic researchers from the research team at the University of Saskatchewan, Canada.

12. Mierau - Inflammation

Dale Mierau, DC et al presented by poster a new study[14] funded by the Foundation for Chiropractic Education and Research (FCER) and being submitted to Spine for publication, in which:

a) 78 patients with chronic unilateral SI pain and tenderness were examined using standard chiropractic manual stress tests (Patrick's, Yeoman's, Gaenslen's) and Hibb's radiographs. They also received quantitative SI bone scans (scintigraphy) of both SI joints.

b) The purposes of this were to see:

• Whether the radionuclide uptake was elevated on the painful side - indicating inflammation at the joint itself.

• Whether the increased uptake of radioisotope could be predicted by the standard stress tests used in chiropractic clinical examination.

c) 20 of the 78 were excluded because of radiographic evidence of sacroiliitis and other abnormalities. For the other 58 patients the radionuclide uptake was significantly higher on the painful side. Most interestingly, the difference in uptake was greater for those patients with two or more positive stress tests than for those with less than two.

d) These findings not only suggest that SI joint syndrome is real, but also that an important source of pain may be inflammation in the joint. Relief will come from any treatment regime that reduces inflammation. Chiropractic management apparently does that, but whether this is through its direct effect on joint range of motion, or primarily through altered myofascial tone or reflex therapy is unclear.

13. Bernard and Cassidy - Reflex Therapy

In an impressive paper entitled '*The Sacroiliac Joint Syndrome: Pathophysiology, Diagnosis and Management*',[11] first published in 1991 as the chapter on SI syndrome in '*The Adult Spine*',[15] Bernard MD and Cassidy DC conclude that "the positive response to joint mobilization or manipulation must be through a mechanism other than the reduction of a subluxation." The degrees of movement and displacement, they suggest, are too small to support that hypothesis.

They see "rebalancing of the arthrokinetic reflex" as the likely mechanism. Manipulation works as a reflex therapy - as may other treatments. Figure 1 portrays this concept. In particular:

a) Problems in the joint and overlying muscles lead to an imbalance in the arthrokinetic reflex.

b) This opens the gate to pain signals (nociceptive input).

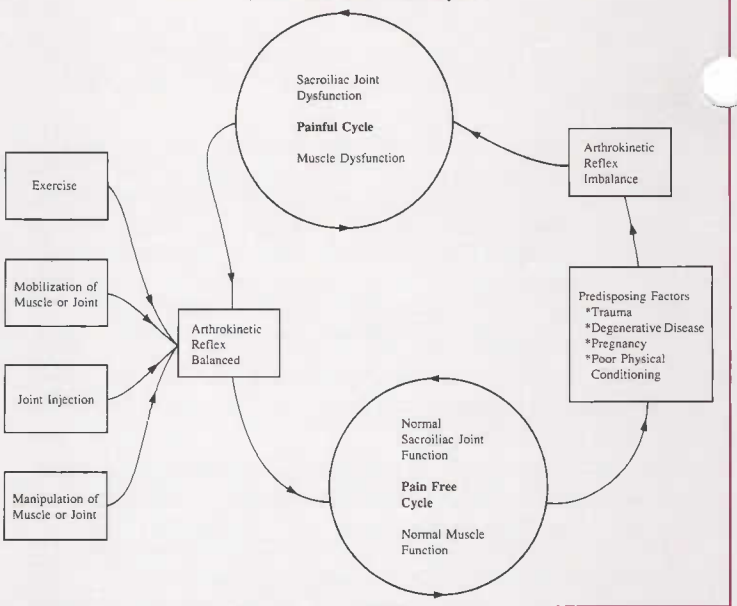
c) Manipulation, and other treatments, produce normal muscle tone and joint kinematics - rebalancing the arthrokinetic reflex and breaking the pain cycle.

Manipulation has better scientific evidence of effectiveness for treatment of low-back and leg pain arising from SI joint syndrome than any other treatment approach. In fact there are "no controlled prospective trials of the efficacy of any of the (other) commonly used treatment modalities such as bedrest, supports, exercise, medications, injections, or fusion".

Why do chiropractors focus on joint manipulation, and why does this seem to produce better results than joint mobilization and other

Figure 1: **The Arthrokinetic Reflex.**

(Bernard and Cassidy)



manual treatments? At the technical level, according to Bernard and Cassidy:

"One could hypothesize that high-velocity, short-amplitude manipulation forcefully stretches hypertonic muscles against their muscle spindles leading to a barrage of afferent impulse signals to the central nervous system. Hypothetically, reflex inhibition of gamma and alpha motor neurons therefore may lead to readjustment of muscle tone and relaxation.

It might, therefore, be possible that manipulation affects joints by stimulating type I and type II articular mechanoreceptors as well as type III mechanoreceptors in the overlying ligaments. These impulses travel along medium and large diameter nerve fibers and inhibit pain impulses travelling through smaller caliber fibers."

G. Innervation

14. Bernard and Cassidy's paper discusses SI joint nerves and pain distribution in some detail. In summary:

a) There are two types of articular nerves:

i) Independent branches of the posterior primary rami that provide specific pathways to the joint capsule and overlying ligaments.

ii) Non-specific branches coming from muscles overlying the joint. "These articular nerves are thought to have a unique feedback mechanism on the overlying muscles, which receive the same innervation. This arthrokinetic reflex exists because articular mechanoreceptors regulate muscle tone."

b) With respect to the former, the specific branches of the posterior primary rami (PPR):

i) Posteriorly the ligaments and joint capsule are supplied by the lateral branches of the PPR from L4 to S3.

ii) Anteriorly, innervation is from L2 to S2.

There is a wide range of segmental innervation, variable not only for different persons, but even to left and right SI joints within the same person. This accounts for the variable referred pain patterns seen in sacroiliac joint syndrome.

c) An autonomic nervous system supply to the SI joint has been postulated but not clearly defined.

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d) The SI joint and overlying ligaments have unmyelinated free nerve endings that transmit pain and thermal sensation, and both encapsulated and unencapsulated nerve endings providing information on pressure and position.

e) Pain from the SI joint, as with all structures innervated from the PPR, may be local only, or referred distally to an extremity. "This referred pain (splanchnic, pseudoradicular, sclerotomal) produces a deep, dull, and often ill-defined sensation that radiates in the sclerotomal distribution."

Referred pain is not associated with motor reflex or sensory deficits on physical examination except where infection of the joint causes swelling of the anterior joint capsule so that it contacts the lumbosacral plexus.

H. Conclusion

15. The San Diego Congress has a number of important messages. The first is that the modern health care world is now small and integrated. One profession in one country can no longer consider that it is master of its own fate. Increasingly health professionals must shape up by international, interdisciplinary standards.

In San Diego research from medicine in Norway, chiropractic in Canada, osteopathy in the United States, physical therapy in New Zealand and basic science in The Netherlands, was presented together and evaluated on a common standard. This is as it should be and, increasingly, as it will be.

16. In this instance the world's leading researchers and prominent clinicians looked at the relationship between low-back pain and the sacroiliac joint. As has been discussed they found:

a) The SI joint is enjoying a resurgence of interest in medicine and appears to have, as the chiropractic profession has always maintained, a fundamentally important role in low-back and leg pain.

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Table 1

SAN DIEGO CONGRESS – PROGRAM

November 5-6, 1992

General Introduction

Introduction: **V. Mooney**, MD – *San Diego, California, U.S.A.*

The use of anatomical models in relation to low back pain:
A. Vleeming, PhD – *Rotterdam, The Netherlands*

Low back pain and its relation to the sacroiliac joint:
J.L. Shaw, MD – *Topeka, Kansas, U.S.A.*

Fundamental Data

The evolution and comparative anatomy of the sacroiliac joint:
C.O. Lovejoy, PhD – *Kent, Ohio, U.S.A.*

Anatomical features stabilizing the sacroiliac joint:
J.D. Cassidy, DC – *Saskatoon, Saskatchewan, Canada*

The spine-pelvis-leg mechanism; with a study of the sacrotuberous ligament:
J.P. van Wingerden, PT – *Rotterdam, The Netherlands*

The outline, areas and planes of the articulations between the sacral and iliac bones and the consequences for the biomechanics of the pelvic girdle:
J.H. Hansen, MD – *Tromso, Norway*

Biomechanical and Kinematic Aspects

Mobility of the pelvis measured in living persons:
B. Sturesson, MD – *Malmo. Sweden*

Kinematic models and the human pelvis:
A. Huson, PhD – Maastricht, The Netherlands

Transfer of lumbosacral load to iliac bones and legs: its relation with self-bracing of the sacroiliac joint:
C.J. Snijders, PhD – *Rotterdam, The Netherlands*

Visualization Techniques

Radiology of the normal sacroiliac joint, congenital variations and imaging techniques:
P.F. Dijkstra, MD – *Amsterdam, The Netherlands*

CT Evaluation of the sacroiliac joint:
L. Friedman, MD – *Hamilton, Ontario, Canada*

Imaging of pathological conditions in the sacroiliac joint:
P.F. Dijkstra, MD – *Amsterdam, The Netherlands*

Clinical Applications

Differential diagnosis of sacroiliac from lumbar spine dysfunction:
S.V. Paris, PT – *St. Augustine, Florida, U.S.A.*

Sacroiliac dysfunction in the failed low back pain syndrome:
P.E. Greenman, DO – *East Lansing, Michigan, U.S.A.*

Current treatment concept for the sacroiliac joint:
M.T. Cibulka, PT – *Crystal City, Missouri, U.S.A.*

The role of anatomically specific injections into the sacroiliac joint:
C.N. April, MD – *New Orleans, Louisiana, U.S.A*

Sacroiliac joint: pain referral maps:
J.D. Fortin, DO – *New Orleans, Louisiana, U.S.A.*

The sacroiliac joint as a source of low back pain: An orthopaedic perspective:
T.N. Bernard, Jr., MD – *Columbus, Georgia U.S.A.*
Video presentation: Sacroiliac joint injections

Clinical Applications II

Can we measure function of the sacroiliac joint?:
V. Mooney, MD – *San Diego, California, U.S.A.*

A study of the interexaminer reliability of selected pain provocation tests of the sacroiliac joints:
M. Laslett,PT – *Auckland, New Zealand*

Manual therapy evaluation of the pelvic joints using palpatory and articular spring tests:
J. Hesch, PT – *Albuquerque, New Mexico, U.S.A.*

The interrelationship between the lumbar spine, pelvic girdle and the hip:
D.G. Lee, PT – *Delta, B.C., Canada*

Function and pathomechanics of the sacroiliac joint:
R.L. Don Tigny, PT – *Havre, Montana, U.S.A*

A report of the analysis of a two year study of the treatment of patients with pelvic instability:
J.M.A. Mens, MD – *Rotterdam, The Netherlands*

The clinical influence of dysfunction of the sacroiliac joint and the symphyseal articulation in peripartum women:
J.H. Hansen, MD – *Tromso, Norway*

Clinical Applications III

Towards a better understanding of the etiology of low back pain:
A. Vleeming, PhD – *Rotterdam, The Netherlands*

The problem of non-invasive assessment of spinal function: a system for automatic diagnosis of the mechanical etiology of spinal disorders:
S.A. Gracovetsky, PhD – *Montreal, Quebec, Canada*

Manipulative treatment and rehabilitation care of the sacroiliac articulation:
J. Wooley, DC – *Irvine, California, U.S.A.*

Randomized double blind trial of proliferant injections for chronic low back pain:
R.G. Klein, MD – *Vienna, Virginia, U.S.A.*

The tensegrity system in the pelvic theory and treatment of hind quarter pain:
S.M. Levin, MD – *Vienna, Virginia, U.S.A.*

Ligaments and fascia in the pelvis: their role in back pain: diagnosis and treatment:
T.A. Dorman, MD – *San Luis Obispo, California, U.S.A.*

** Primary professional designation given only.*

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b) However, there is no clear agreement on what constitutes sacroiliac dysfunction, and no gold standard for diagnosis.

c) There are two schools of thought concerning treatment. One believes that most SI dysfunction flows from instability, and prescribes treatments accordingly. The other group believes it is the result of decreased mobility and takes a conflicting treatment approach. Both groups report good results.

d) During the past 10 years there is a good body of research on the anatomy and biomechanics of the SI joint. This research is continuing. There now need to be more clinical studies. While there is more evidence for manipulation than anything else, no one can yet point to a compelling body of research supporting any treatment approach - or the diagnosis and mechanisms upon which it is based.

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11 Bernard TN in San Diego Congress Proceedings (Ref 9 supra), 'The Sacroiliac Joint as a Source of Low Back Pain: An Orthopaedic Perspective', 117-144.

12 Paris S in San Diego Congress Proceedings (Ref 9 supra), 'Differential Diagnosis of Sacroiliac from Lumbar Spine Dysfunction', 311-326.

13 Cassidy JD, personal communication December 3, 1992.

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15 'The Adult Spine: Principles and Practice' (1991) Editor-in-Chief, Frymoyer JW, Raven Press, New York.

Professional Notes: *continued from page 1*

President; Dr. Kerwin Winkler (ACA); Dr. Michael Hulsebus (ICA); Drs. Patrick Keefe and Roger Hulsebus (Palmer College); Mr. David Chapman-Smith (World Federation of Chiropractic); Dr. Carl Cleveland III (Association of Chiropractic Colleges); Dr. Louis Latimer (National Board of Chiropractic Examiners); Mr. Donald Petersen, Jr. (Trustee at large); Ms. Glenda Wiese (Association for the History of Chiropractic).

• The educational programs are being designed and administered by the World Federation of Chiropractic under the leadership of Dr. Scott Haldeman, Chair, WFC Research Council, in association with a CCF Education Committee chaired by Dr. Carl Cleveland III and the Association for the History of Chiropractic.

• A large CCF Advisory Committee that has responsibility for all fund raising, communications and special projects is chaired by Mr. Don Petersen, Jr., Editor/ Publisher of Dynamic Chiropractic. This has sub-committees on trade exhibitions (Chair, Dr. Jerilynn Kaibel, Past-President, California Chiropractic Association), communications (Chair, Dr. Juan Nodarse, Palmer College), media projects (Chair, Dr. Guy Riekeman, Colorado Springs), endorsements, sponsors and contributors (Chair, Mr. Rick Flaherty, CEO, Leander Products) and special projects (Chair, Mr. Michael Schroeder, Counsel, California Chiropractic Association).

•There will be one registration fee covering the celebrations in both Washington and Davenport, slightly discounted for attendance at one meeting only. The format of both meetings will involve morning lectures, a choice of workshops and lighter academic programming in the afternoons, and outstanding sporting and entertainment events.

• The address of the Chiropractic Centennial Foundation is c/o William F. Holmberg, D.C., President CCF P.O. Box 4522, Davenport IA, 52808-4522.

Faculty of Chiropractic at the University of Quebec

In Canada the Quebec government has announced the commencement of a Faculty of Chiropractic at the Trois Rivières campus of the University of Quebec in September 1993.

There is government funding and university affiliation for chiropractic educational programs in Australia, Europe and South Africa, but this is the first major university affiliation in North America. U.S. chiropractic leaders predict it will have a flow-on effect in the U.S., where advantages of university affiliation for some chiropractic colleges are seen as including better funding, lower student fees, enhanced research opportunities and greater acceptance of chiropractic as a necessary health care profession.