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"Aurum Nostrum Non Est Aurum Vulgi"

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The Diagnostic Validity Of Human Electromagnetic Field (Aura) Perception

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ABSTRACT

Background An increasing number of patients and health care practitioners rely on treatment and diagnostic systems that are based on the presence of a human subtle energy, or electromagnetic field. Such systems include acupuncture and energy healing.

Objectives To assess the ability of readers of human electromagnetic fields (HEFs) to detect spinal disk abnormalities associated with low back pain, and to predict subjective pain patterns.

Design Prospective case series of patients with low back pain, examined by 2 practitioners experienced in reading human auras. Practitioners were blinded to magnetic resonance imaging (MRI) results and were not permitted to communicate with patients or know patients' medical histories. Practitioners predicted the location of disk pathology. They also drew anatomical pain charts based on their perceptions of patients' HEF disruptions.

Patients and Setting Sixteen patients reporting low back pain were selected from those receiving low back MRIs at 2 major hospitals. The study was performed at a suburban, hospital-owned family practice office.

Main Outcome Measures Comparisons of predicted disk pathology by aura-reading with MRI results; correlation of pain drawings by practitioners and patients.

Results Probabilities of correct or nearly-correct assessments of the location of disk pathology ranged from P=.15 to .004. One practitioner correctly assessed pathology in 7 of 16 patients (P=.004). The practitioners' drawn pain charts were judged to be better depictions of patients' pain drawings than those predicted by traditional radicular neuropathways (P values ranged from .13 to .0001).

Conclusions The practitioners correctly identified disk pathology and pain patterns in a significant number of patients. Our findings support the existence of a human biofield and its relationship to pain. While this study is limited in size, the findings suggest that further research in this area is warranted.

KEY WORDS

Low Back Pain, Alternative Medicine, Human Electromagnetic Field, Aura, Healing Touch

INTRODUCTION

Recent studies have shown an increase in the use of complementary and alternative medicine in the United States. Eisenberg et al1 reported that 42.1% of the US population utilized these therapies in 1997, spending, conservatively, $27 billion.2 The study by Eisenberg et al1 showed that approximately 3.8% of the population used "energy healing," a modality purporting to both sense and manipulate the subtle electromagnetic field (also termed the "biofield" or "aura") in and around the body. Musculoskeletal problems, typically back pain, is cited as the most common condition associated with complementary and alternative medicine use.3

By sensing disruptions in the aura, practitioners are able to detect pain or illness. These therapies include Healing Touch, Therapeutic Touch, Reiki, Qigong, and multiple other therapies falling under the rubric of energy healing or laying-on-of-hands. The human electromagnetic field (HEF) presumably exists as an oscillating invisible energy field correlating with both health and disease in the body. (Other similar "invisible" phenomena occur in the heart and the brain and are seen on electrocardiograms or electroencephalograms.) A further analogy would be that of electricity traveling through a wire, and the resultant electromagnetic field that it produces. In this case, the wire would represent the meridian and the electromagnetic field, the aura.

While practitioners of energy healing believe that most people can learn to tacitly perceive this aura using their hands, some practitioners appear to have the ability to "see" it. They describe this as being able to see beyond the normal human visual threshold, as a dog can hear beyond the normal human auditory threshold. The art of energy healing lies in the ability to perceive4 and then change this energy field.5-8

Acupuncture achieves similar therapeutic results through the placement of needles at acupoints. Gerber states, "The acupuncture meridian system is an interface of energetic exchange between our physical body and the energy field which surrounds us."9

Hsu Ta-ch'un, a Chinese intellectual, physician-scholar, and medical writer, is quoted as saying, "Man's physical appearance consists of skin, flesh, sinews, and bone; these form the so-called physical shell. The empty space inside is filled by the viscera and bowels. The [viscera and bowels] are interconnected and communicate with each other through the conduits and network (meridians)...Hence, when evil influences harm man, they may settle in his skin and flesh, or they may settle in his sinews and bones, or they may settle in his viscera and bowels, or they may settle in his conduits and network (meridians)."10

Some scientific attempts have been made to measure the HEF and the meridian system. Hiroshi Motoyama, a Japanese researcher, developed the "Chakra Machine," the AMI machine (Apparatus for Measuring Functions of the Meridians and Corresponding Internal Organ), as well as EAV testing (Electroacupuncture According to Voll).9

The HEF may be used for diagnosis, treatment, or both.11 In this study, we examined only the diagnostic validity of HEF perception in adults with low back pain. Our objective was to assess whether individuals skilled in HEF or aura perception could predict objective clinical findings or duplicate subjective symptoms using this skill exclusively.

DESIGN AND METHODS

We conducted a blinded observational study of patients reporting low back and leg pain related to bulging lumbar disks or back pain not related to disk problems. The patients were consecutive individuals who underwent magnetic resonance imaging (MRI) for diagnosis of their pain. Radiologists were asked to refer patients with a single unilateral disk bulge. They were also asked to refer patients with complaints of low back pain with normal MRIs. Thus, 14 patients were recruited with MRI results indicating problems with a single disk between L1 and S1; 2 additional patients who were found to have no abnormalities in the L1 through S1 region acted as controls. Each MRI scan was interpreted by 1 or 2 radiologists who reported both the location and the lateralization of the disk bulge. The clinical investigators conducting the study, as well as the HEF practitioners, were blinded to the reports. Two practitioners with experience in the diagnostic use of energy fields were asked to examine each of the 16 patients. One of the practitioners was a local "medical intuitive" known for her proficiency in reading electromagnetic energy fields; the second was an internationally-recognized energy healer and researcher.

Table 1. MRI Results and Practitioners? Predictions of Disk Bulges*

Patient	MRI Finding	Practitioner 1	Practitioner 2
1	Normal	L2/3 L	L4/5 R
2	L4/5 R	L4/5 R	L4/5 R
3	L4/5 R L5/S1 R	L3/4 R	L5/S1 L
4	L4/5 R L5/S1 R	L3/4 R	L4/5 R
5	L5/S1 Central bulge	L4/5 L	L5/S1 L
6	Normal	L4/5 L	L4/5R
7	L5/S1 R	L3/4 R	Normal
8	L3/4 L	L4/5 L	L3/4 R
9	L5/S1 Central bulge	L5/S1 L	L3/4 L

10	L3/4 R	L3/4 R	L3/4 R
11	L5/S1 L	L2/3 R	L4/5 R
12	L5/S1 R	L3/4 R	L4/5 R
13	L5/S1 R	L3/4 R	L2/3 R
14	L5/S1 Bilateral bulge	L5/S1 L	L5/S1 L
15	L5/S1 R	L3/4 R	L4/5 R
16	L4/5 R	L2/3 L	L4/5 R
* MRI indicates magnetic resonance imaging; R, right; and L, left.			

Patients were told that they would be examined by 2 individuals who would attempt to identify the source and details of their pain. They were instructed not to converse with the practitioners during the examination, and were asked not to discuss their pain with anyone before, during, or after the examination. Patients were then escorted to an examination room by blinded 3rd-party recorders who ensured that there was no communication between the patient and practitioner. They were asked to wear an examination gown and were told that the practitioner would only lightly touch them. Each patient was asked to draw his/her pain on an anatomical chart and rate it on a 10-point scale prior to entering the examination room.

The practitioners were brought into the room individually and were introduced to the patients. To ensure that no discussions occurred between patients and practitioners, each encounter was videotaped for later review. Patients were kept apart from each other and randomly but sequentially assigned; the practitioners alternated in the initial evaluation of each patient. Each observation took 5-10 minutes. After each examination, the practitioners were asked to complete pain charts similar to those completed by the patients. They were also asked to identify the location and lateralization of the disk that was the source of the patient's pain. The practitioners were told that some of the patients could have no disk pathology.

Table 2. Probabilities of Correct Assessments and Near Misses by Blinded Practitioners

Practitioner	No. of Correct Assessments	P Value	No. of Correct Assessments + Near Misses	P Value
1	4	.15	8	.07
2	7	.004	9	.009

To rate the ability of each practitioner to predict pain patterns accurately, a further study was completed after the conclusion of the initial study. Copies of each patient's pain chart and a copy of pain as predicted by

usual neurological radicular referral pain patterns, were studied. Three independent evaluators were asked to compare the practitioners' ratings with those of the MRI-predicted radicular or neurological referral pattern. The evaluators were an orthopedic surgeon, a chief resident in physical medicine and rehabilitation, and an individual who had no medical training. The MRI-predicted radicular pattern was based on the classic dermatomal distribution (Keegan mapping) of pain due to the herniated disk shown on MRI.12,13 The 3 evaluators were asked to rate each practitioner's prediction as "better than," "the same as," or "worse than" the MRI-predicted pain pattern in duplicating the patient's own pain chart drawing.

Table 3. Evaluators' Ratings of Practitioners' Predicted Pain Patterns Compared With MRI-Predicted Pain Patterns*

Evaluator	Practitioner 1			P Value	Practitioner 2			P Value
	+	0	-		+	0	-	
1	12	4	0	0.0008	13	1	2	0.0001
2	8	6	2	0.13	10	4	2	0.02
3	12	3	1	0.0008	12	2	2	0.0008

* P values represent the probability of the "better than" (+) ratings compared with "same as" (0) plus "worse than" (-) ratings.

The Institutional Review Board of the Jewish Hospital of Cincinnati (Ohio) approved this study proposal. All patients gave written informed consent to participate in the study.

RESULTS

Of the 14 patients with confirmed bulging disks, 8 were clearly identified on MRI as being located at L5/S1. Two were identified at L4/L5 and 2 at L3/L4. In 2 patients, there was disagreement between the radiologists about the exact location of the bulging disk. In both of these cases, 1 radiologist identified the bulge at L4/L5 while the other reported the bulge at L5/S1. Nine of the 14 bulges were identified as being on the right side of the disk (Table 1).

Most of the MRIs had clear lateralization. However, some bulges were bilateral or located centrally. The probability of correctly identifying the problem disk and the side of the bulge was determined for each patient based on 5 potential disk joints, and left- or right-sided bulges. For patients in whom there was clear lateralization, the probability of correctly determining the location of the disk problem was 9% (1/11). That represented the left and right side of each of the 5 disk spaces plus the possibility of no disk problems. In cases where there was no lateralization, the probability of correctly determining the source of pain was 17%. In cases in which the practitioners identified more than 1 disk as the source

of the problem, the probability of correctly determining the source of pain was doubled: 18% for unilateral bulges and 34% for disks with central or bilateral bulges.

We also calculated the probability of near misses for each patient. A "near miss" was defined as the practitioner correctly identifying the side of the disk with the bulge, but targeting the problem as being 1 above or below the disk identified on MRI. The probabilities for near misses ranged from 10%-40%, depending on the lateralization and whether the observer identified more than 1 disk as being the source of pain. The locations of the lesions according to radiologic interpre-
tation and practitioners' perceptions are shown in Table 1.

The 1st practitioner correctly identified the problem disk in 4 patients, and made near-miss assessments in 4 additional patients. The 2nd practitioner correctly assessed 7 of 16 patients, and had near misses in 2 additional patients. The probabilities associated with the number of correct assessments and near misses for the 2 practitioners is illustrated in Table 2. The 2nd practitioner had an assessment rate much higher than could have been expected by chance, while the 1st had a combination of correct assessments and near misses that could have been achieved by chance only approximately 7% of the time.

Examples of the pain charts drawn by patients and the 2 HEF practitioners are shown in Figures 1 and 2. Also included in these figures are the pain patterns predicted by the MRI findings.

Measures of agreement were calculated for each practitioner. These statistics were calculated only for the correct assessments since the statistic is based on practitioner concordance in a matrix of responses. The agreement values for both practitioners generally corresponded to the probabilities described earlier (practitioner 1: k= 0.19, P=.11; practitioner 2: k= 0.32, P=.03).

The pain drawings were analyzed using a nonparametric sign test. The 3 evaluators' ratings of the practitioners pain drawings were tested separately. Five of the 6 ratings analyses were found to be statistically significant at the .02 level or better (Table 3). These results indicated that the practitioners' drawings more closely approximate those of the patients than the MRI-generated radicular patterns.

Figure 1

DISCUSSION

Measurement of back pain is typically subjective, with no clear correlation shown between objective data and subjective symptoms. It is important to note that although MRI is currently the standard used by physicians, radiological disk disease may not correlate with clinical symptoms.14 A number of studies have validated the use of pain drawing as a diagnostic tool.15-17

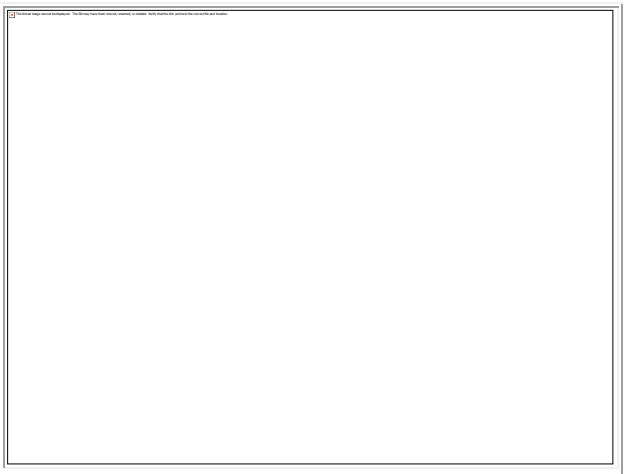
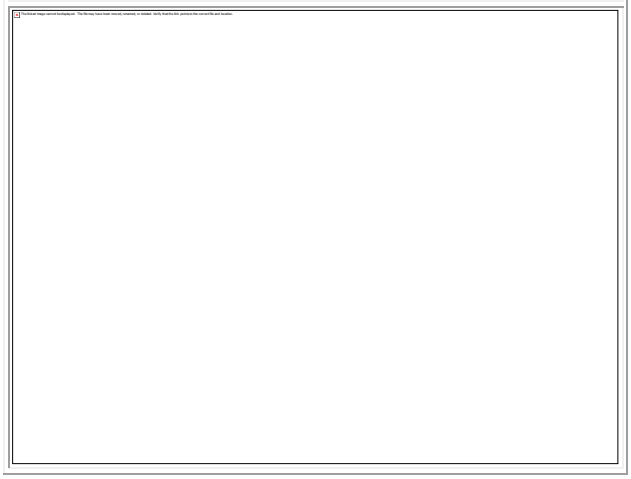


Figure 2



The inclusion of near misses in this study reflects our belief that the practitioners' lack of anatomical training may have resulted in misidentification or misclassification of disk problems. An examination of the distribution curves of the MRI predictions by the 2 practitioners indicated a higher frequency of pathology in the lower disks. Analysis of the practitioners' distribution curves revealed similar curves that were shifted approximately 1 disk higher than those of the MRI.

In this study, the results correlating objective data with prediction of disk disease shows an accuracy rate of 54%, including correct assessments and near misses. This is better than chance but falls short of the diagnostic capabilities of MRI, which is reported to be greater than 90%.18,19 Although the positive predictive value was only 54%, comparative data in the literature are no better. The closest model to this study that we found showed that when given a pain drawing, back pain experts and computer model assessments as to the origin of back pain were 51% and 48%, respectively.20 The difference between our study and the aforementioned is that the practitioners in our study had to "predict" the pain pattern by observing the patient's HEF, with no history or physical examination information. In addition, our practitioners were only briefly shown how to identify the level of disk disease. This appeared to skew

some of the results.

In our study and in other reported research, subjective pain patterns often bear little resemblance to classic radicular pain patterns. Therefore, the striking correlation in the pain drawings between patients and practitioners makes it all the more unlikely that an understanding of neurophysiology could allow for guessing at the location of a patient's pain. These findings are in sharp contrast to a study suggesting that claims for the existence of energy fields are "groundless."21

Examination of Figures 1 and 2 reveal the dilemmas facing practitioners in real situations. Patient 2 shows almost perfect correlation between the patient, practitioner, and MRI-generated (classic textbook) neuroradiologic radicular pain pattern. This is ideal, but not always the case. The subsequent patients reveal this point. Patient 12 had a normal MRI scan, yet both practitioners were able to correlate the patient's subjective feelings of pain. Patient 14 showed a bilateral disk bulge at L5/S1 on MRI, yet the patient clearly had pain down the left leg only. The practitioners both concurred with this patient's subjective feeling of pain. Patient 3 demonstrated an unusual low back pain pattern, with the pain extending up to the neck and down the left leg, in contrast to the MRI findings (L4/5 and L5/S1 on the right side). The practitioners in this case had differing yet remarkable observations as to the pain distribution.

In reviewing the limitations of this study, we looked at various parameters. First, although MRI is used as the gold standard of disk pathology diagnosis, false-positives may preclude this test from always correlating with pain patterns.14 Second, radiologists did not always agree as to whether there was laterality of the disk bulge, or the exact level of the disk bulge. Although 95% of disk bulges occur at the L4/5 and L5/S1 levels,22 the practitioners were not aware of this. Someone with reasonable neuroradiological training could rightly guess at these 2 levels. However, if medically trained observers were then asked to produce a correlative pain pattern, they would just as likely be wrong.

CONCLUSION

The practitioners in our study showed interesting correlations with patients' subjective viewpoints. Patients often drew lines to describe the pain. Similarly, there was an apparent correlation between diamonds, boxes, circles, and other depictions of pain. Although this study focused only on pain and disk pathology perception, the practitioners also were able to simultaneously describe spinal misalignments as well as chakra, aura, and meridian imbalances in these patients.

The results of this study support the existence of the ability to perceive the HEF. The practitioners' measurements appeared to correlate both the

subjective feeling of pain, a physiologic process, and an anatomical abnormality. This skill could be particularly valuable if it could be taught, and may thus be a potential source of information in helping to identify and evaluate pain in patients who either cannot definitively articulate, or in those who have a psychosomatic overlay. In addition, this skill may be a valuable adjunct in integrating various subsystems of healing, such as acupuncture, chiropractic, and energy healing. Further research in this area is warranted.

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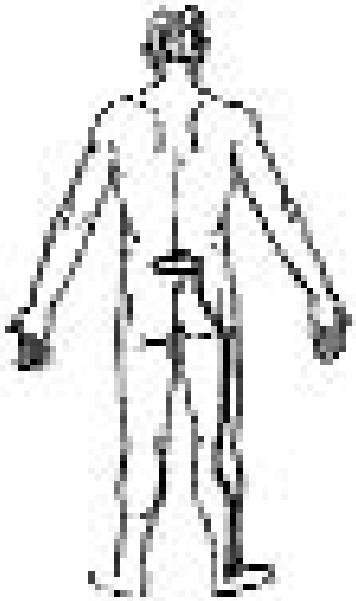
Patient 7



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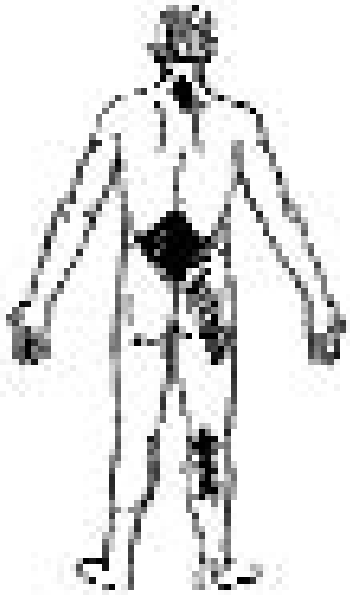

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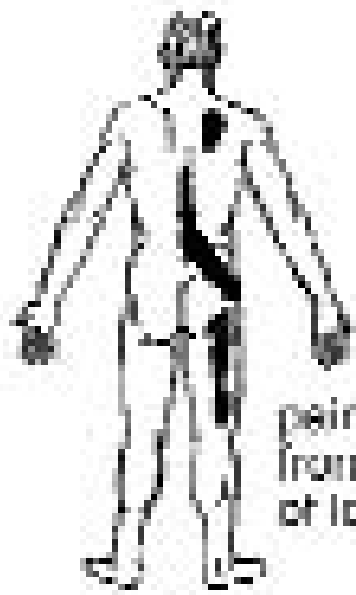

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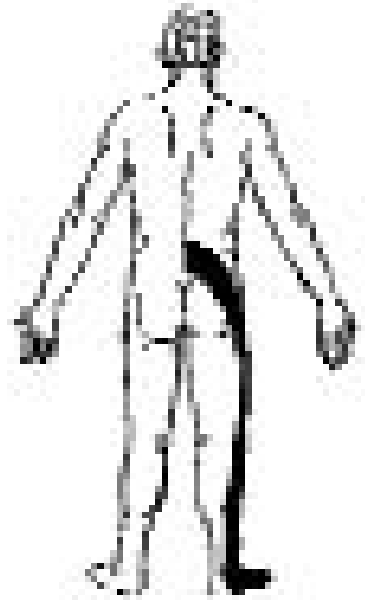

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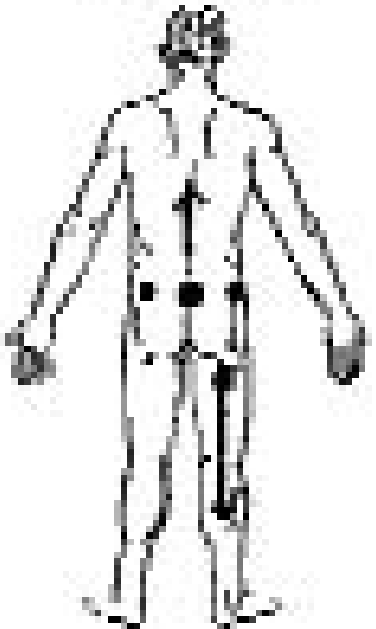

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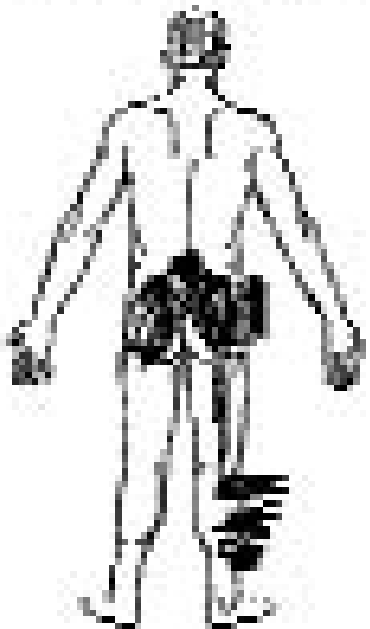

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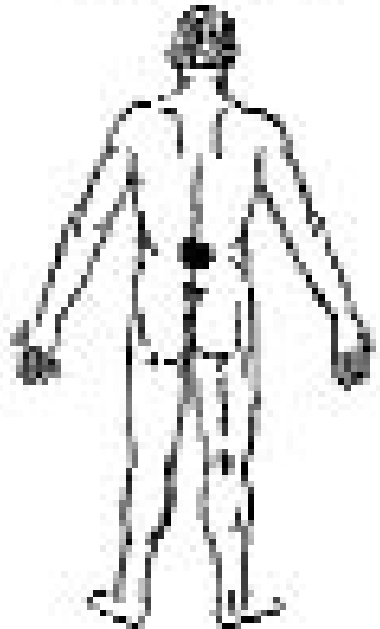

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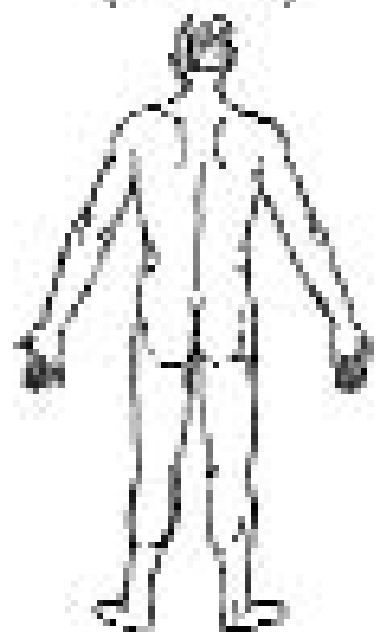

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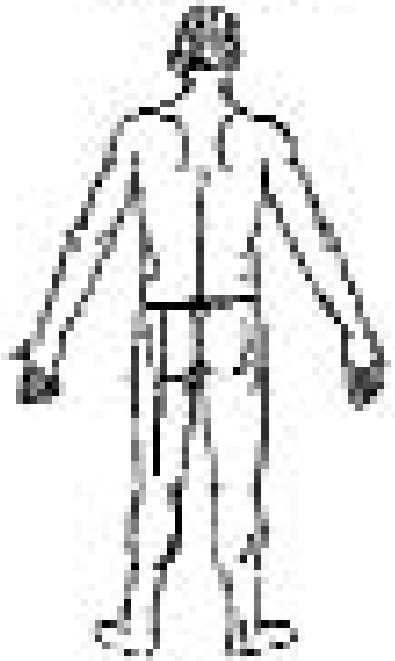

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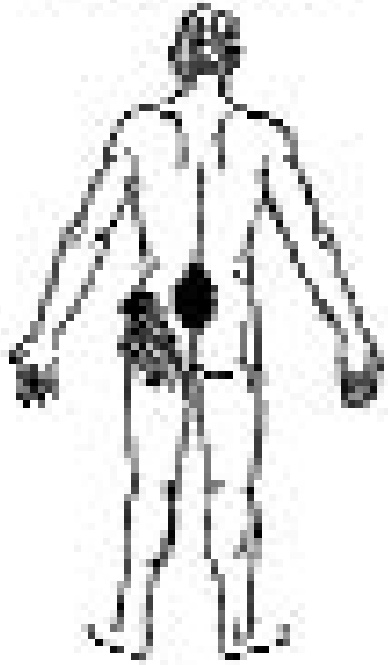

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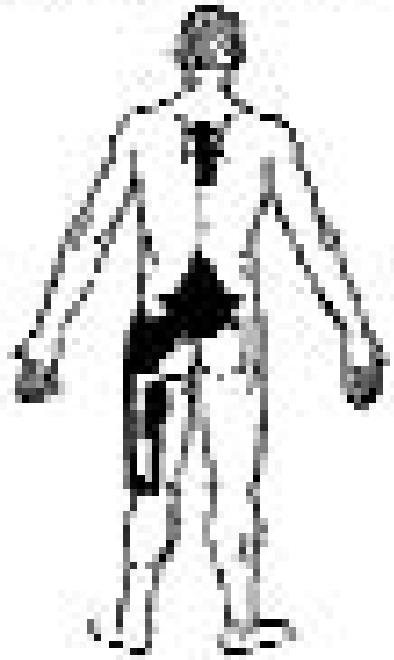

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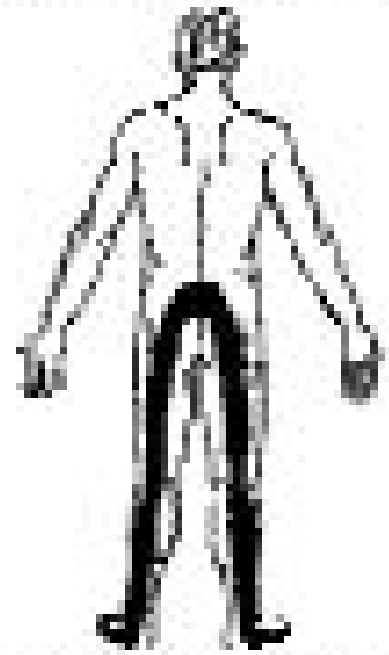

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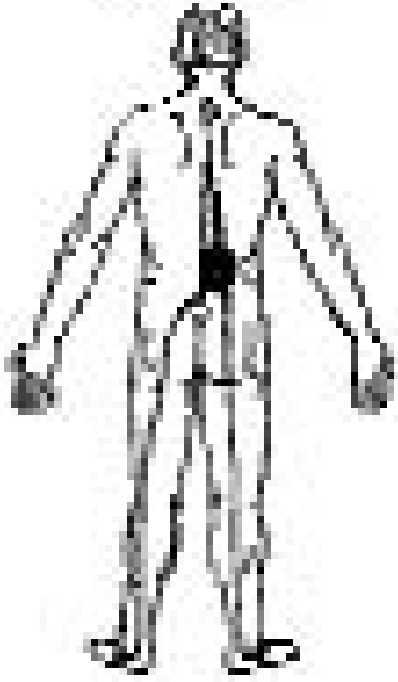

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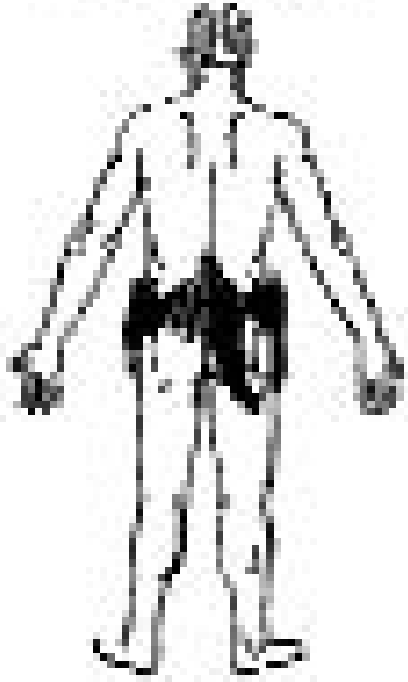
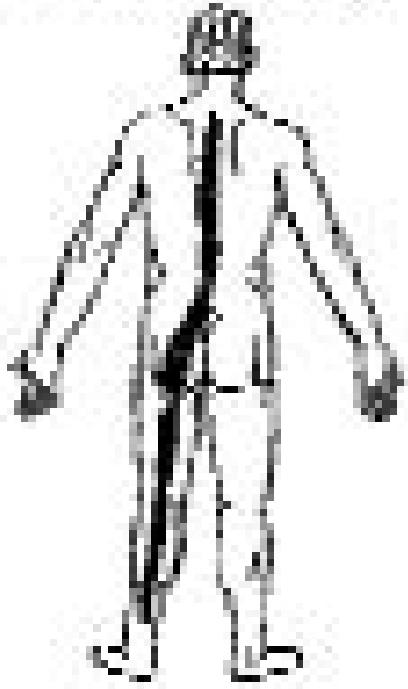


Practitioner 2



MRI Generated (L4/5R-L5/S1R)