

Caduceus



A PUBLICATION OF THE MEDICAL DIVISION OF THE AMERICAN TRANSLATORS ASSOCIATION

FALL-WINTER 2005

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TERMINOLOGY

Fall-Winter 2005



Caduceus is a quarterly publication of the Medical Division of the American translators Association, a non-profit organization dedicated to promoting the recognition of translating and interpreting as professions.

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Caduceus is split in two

You have noticed that this issue is divided in two parts. This follows the comments from division members who experience problems in receiving and downloading large size files like Caduceus. Thus, we have decided to divide the issue in two parts for ease of sending and receiving. Let me know how this works.

A hard copy of Caduceus may be hard to get

First of all, many thanks to all who approached me in Seattle to express their enjoyment of Caduceus and their good wishes for continuing the high quality of our newsletter.

Preliminary conversations with headquarters at ATA did not altogether discard the possibility of producing and sending a hard copy of Caduceus by regular mail - but that would be quite difficult to obtain. Costs of printing a color publication, packaging, and mailing over 600 copies would be quite high - plus a lot of labor would be involved. Again, the issue is not off the table. Your ideas are welcome. It's your publication.

Salud,
Rafael

Instructions to Authors

Submissions for publications must be sent electronically in Word format. The deadline for submissions for the Spring issue of Caduceus is 15 March 2006.

Caduceus carefully reviews its content in order to eliminate any textual errors. Nevertheless, we apologize for any errors in grammar, punctuation, typography and the like which may inadvertently appear on our pages.

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EXPERIENCES TERMINOLOGY CAUSES DIAGNOSIS MANAGEMENT

By Rafael Rivera, M.D.

The experience

Is it possible not to feel pain? There is, indeed, a very rare, progressive and fatal genetic disease in people of Ashkenazi Jewish descent called familial dysautonomia (FD), also known as Riley-Day syndrome or hereditary sensory and autonomic neuropathy (HSAN). (1, 2) Part of the wide range of unusual problems associated with this disease is the decreased, sometimes absent, ability to sense pain and temperature. They have multiple complications and early death. There are other rare human examples that also come to early death because injuries that normal people would attend to go unattended and develop into more serious problems. Otherwise, the rest of us are susceptible to pain, it is a universal human experience. It's a protective mechanism that gets us out of trouble every moment of the day. Let's see how this works.

Pain is a perception. It is entirely dependent on sensation, the ability to feel. At the anatomical level it starts with the stimulation of special peripheral receptor neurons called **nociceptors** (noci - L. *nocere* to injure). Nociceptors pick up up noxious stimuli and transmit it instantaneously through the nervous system to the brain. These receptors are of four different kinds:

- **thermal** - sensitive to high or low temperatures
- **mechanical** - sensitive to pressure
- **polymodal** - sensitive to pressure, heat, cold, chemical stimulation
- **silent** - these stay quiet but respond to surrounding inflammation

The transmission of these various stimuli goes from these nociceptors - which as a protective body system is called the **peripheral nervous system** - up the spinal cord into the lower brain, specifically the **thalamus**. From there they are distributed to higher brain centers, among others: the **reticular formation** which governs alertness, the **amygdala** (do not confuse with *amígdalas*, tonsils, in the throat) which is

involved in emotion and the frontal cortex which, as much as possible, tries to make sense of the experience from its stored memory banks. The response will return to the injured area and our awareness in less time than it takes to say "*ouch!*" or something stronger.

Beyond the preceding simple explanation, the pain perception and transmission environments get quite complicated by the presence of other substances and influences. Interestingly, one of these substances, internally produced, is called **capsaicin** which is what makes hot peppers so "hot". Another one is **histamine** which mediates allergic responses and makes our noses run. When histamine stimulates nociceptors, it is experienced as an itch, rather than pain. All of us use antihistamines, of course, to "relieve itch". When there is significant damage to tissues there is an abundance of chemicals often called an "inflammatory soup", a mixture that stimulates and sensitizes the nociceptors into a state of **hyperalgesia** - excess or greater pain / sensitivity.

Finally, like other forms of perception, pain is sometimes perceived when there is no corresponding biological basis.

Causes of pain

Pain is part of our life, from bumping into something, having a stomach ache, menstrual cramps, a headache, a toothache, a chest cold or pain in the shoulder after a game of tennis and many other instances of a temporary nature. It is the recurrence, persistence or magnitude of pain and its association with other symptoms that requires medical attention.

Other than obvious trauma, or exposure to heat or cold, tissue **infection** or **inflammation** are at the root of most instances of pain or discomfort. Lack of circulation, known as **ischemia**, to a body part invariably brings about pain because tissue starts to deteriorate and possibly die. Such is the case in a heart attack wherein a blocked coronary is no longer able to

irrigate the corresponding heart muscle. Poor arterial circulation to any other body part - legs, intestines, lungs or brain leads to tissue injury resulting in pain.

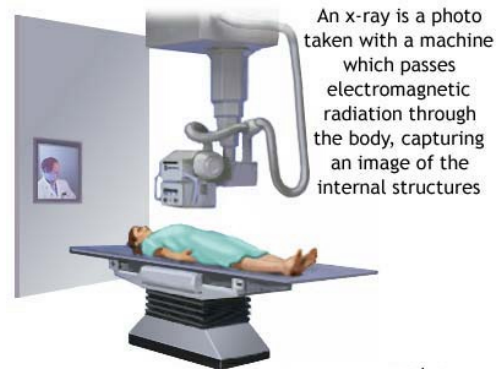
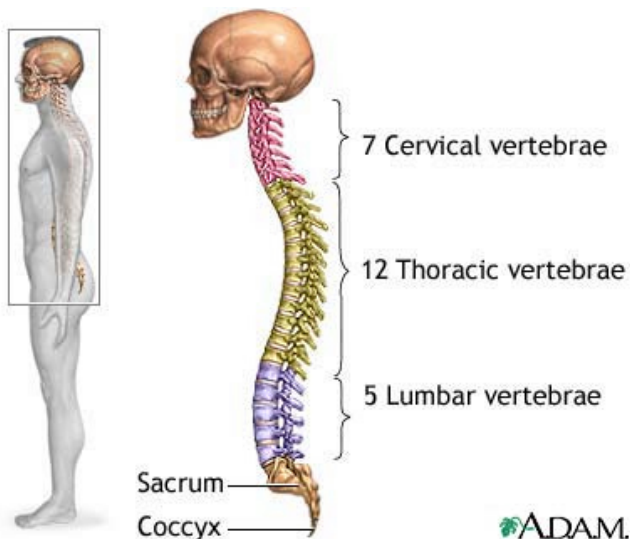
Stretching and **tears** of musculo-skeletal structures: muscles, ligaments and tendinous structures - which we know as **strains** or **sprains** - are invariably associated with pain and muscle spasm. Inflammation of the articular surfaces of joints, as is the case with **arthritis**, is also a very common cause of pain.

Cancer may be entirely silent until it becomes large enough to impinge on neighboring structures, particularly nerves or spreads (metastasizes) to other tissues such as bone.

A good example

Let's take low back pain (LBP) - a universal experience, from minor to incapacitating, and second only to colds and flus as the number 2 reason for Americans to see a doctor. The possible reasons are multiple and the specific structure within the lower back anatomy is hardly ever identified. Possible sources include: small fractures, muscle spasm, ruptured or degenerated disks, poor alignment, strains or tears of the muscles and ligaments supporting the back, misalignment of curvatures or primary muscle conditions such as fibromyalgia. Bad posture, pregnancy, obesity, arthritis, osteoporosis are always contributors and referred pain from separate or distant organs such as kidney, ovaries, uterus, bladder, even testicular torsion could be etiological.

Tests may include plain x-rays or images from CT scans, MRIs or myelography (following the injection of contrast into the spinal canal) and nerve conduction study.



ADAM.

Terminology

nociceptors - special receptor nerve cells that pick up noxious stimuli and transmit them to her brain.

peripheral nervous system (PNS) - the network of receptors of all kinds that serve as a protective boundary between the environment and the body. Stimuli are transmitted to the CNS.

central nervous system (CNS) - formed by the spinal cord and the brain. All perceptions travel to or go directly (visual and auditory) to the brain for interpretation and response.

infection and inflammation - both are tissue responses characterized by four distinct features:

- n **pain**
- n **redness**
- n **heat**
- n **swelling**

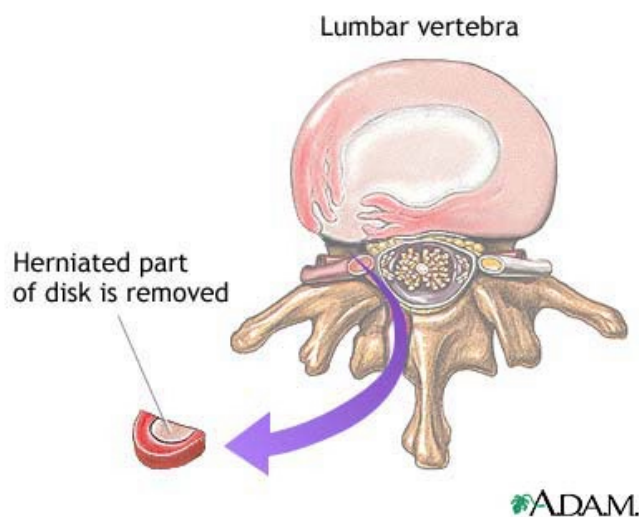
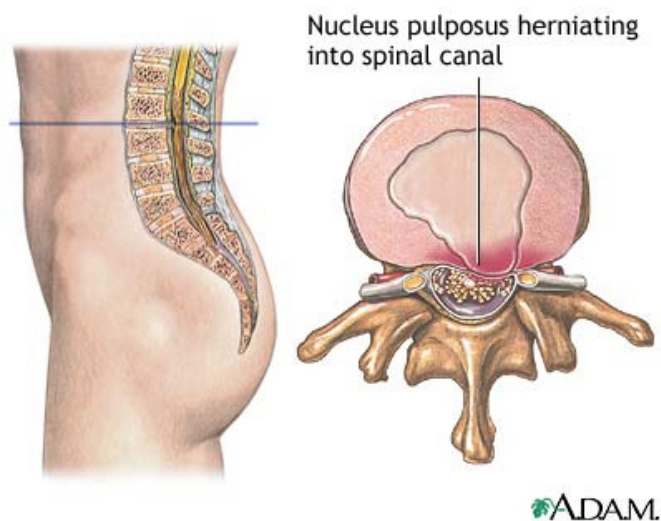
When an infectious agent (virus, bacteria, other) is identifiable as the cause it's an infection e.g., tonsillitis, pneumonia, abscess; immune responses and other mechanisms are involved in non-infectious inflammatory processes. The same condition e.g., arthritis maybe infectious such as with gonorrhea or syphilis, or autoimmune as in rheumatoid arthritis or degenerative such as osteoarthritis. Infections can respond to antibiotics, inflammatory processes can respond to anti-inflammatory medications.

strain and sprain - are both the result of stress and overexertion of a musculoskeletal area. **Strains** result from overstretching of some part of the musculature. **Sprains** result from injury to a joint in which fibers of the supporting ligaments are ruptured.

ischemia - insufficient flow of blood

.. algesia - pain / sensitivity

- n hyper .. greater
- n hypo .. lesser
- n an .. absent

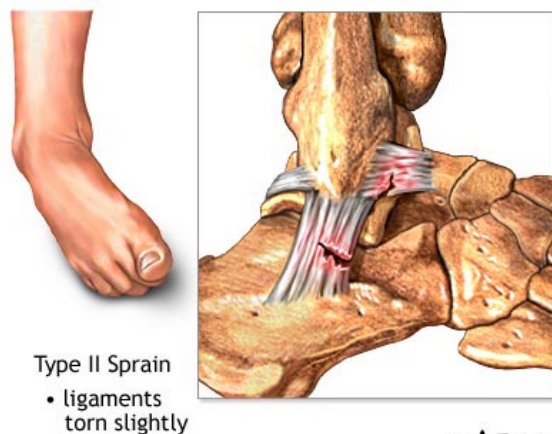
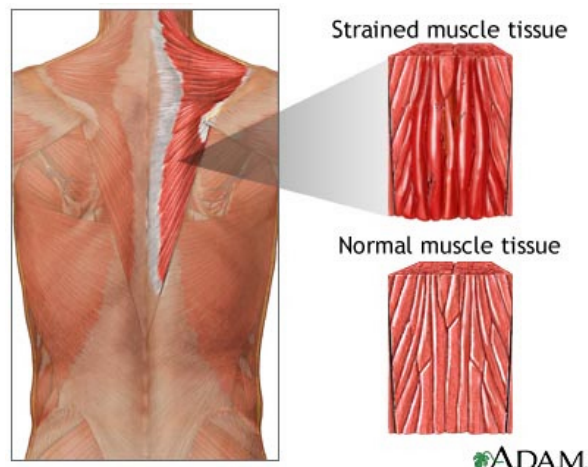


A disk (or disc) is a circular pad of fibrocartilage found in the intervertebral spaces. When the soft, gelatinous central portion of an intervertebral disk is forced through a weakened part of a disk, it is a condition known as a **slipped or herniated disk**. Most herniations take place in the lumbar area of the spine, and it is one of the most common causes of lower back pain. The mainstay of treatment for herniated disks is an initial period of rest with pain and anti-inflammatory medications followed by physical therapy. If pain and symptoms persist, surgery to remove the herniated portion of the intervertebral disk is recommended.

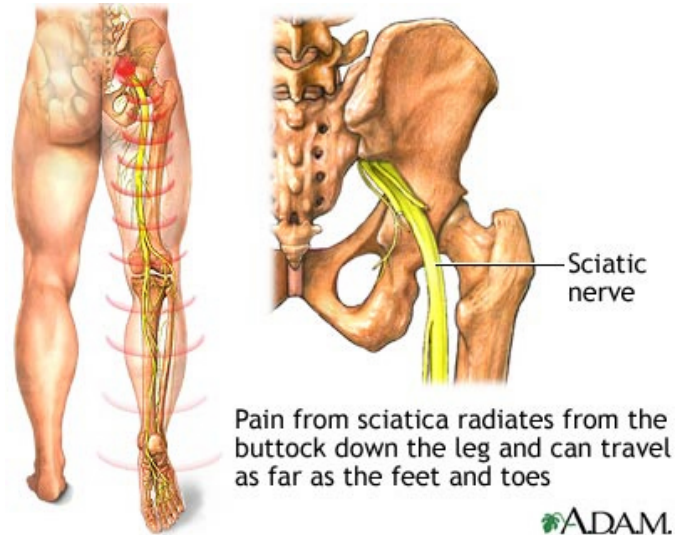
TREATMENT OF PAIN

Besides trying to ascertain the underlying structural causation of pain, it is a standard approach to use rest, heat, analgesics, muscle relaxants and anti-inflammatory medications to treat pain of an acute nature.

STRAIN VS SPRAIN



When nerves coming out of the spinal cord are involved pain may radiate down the course of the nerve. The classical example is that of **sciatica**, a form of neuropathy caused by impingement of the sciatic nerve, the largest nerve of the body, formed by a confluence of nerve roots from the lumbo-sacral plexus (L-4 to S-3). Typical sciatic radiation involves the low back and coursing down the buttock, back of the thigh and leg.



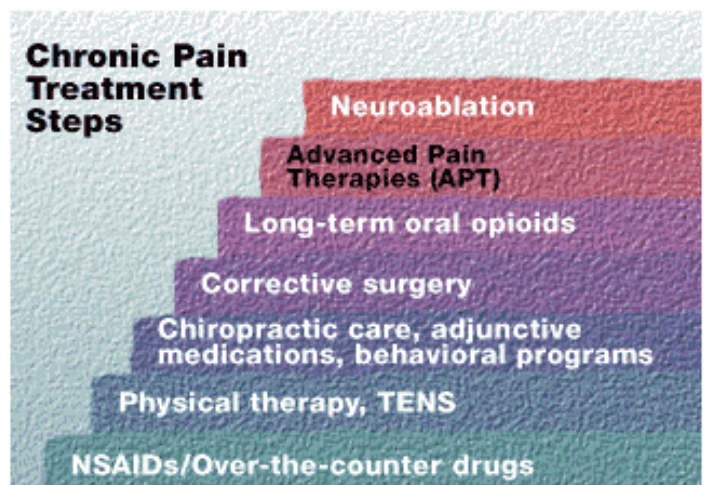
ACUTE

The word acute merits separate mention because of its various meanings. Medically speaking, acute is part of scale of duration of symptoms or disease that highlights acute vs chronic and has subacute in between. Acute means happening right now, of sudden or recent onset, like a heart attack, a stroke, appendicitis, asthma, a seizure, and other conditions that present abruptly.

However, it is quite frequent, particularly in Spanish, to use the word *agudo* meaning an intense or severe characterization of of pain.

CHRONIC PAIN is a subject by itself. Suffice to say that pain often extends its presence because of the advent of muscle spasm, restricted motion, and increased sensitivity of adjoining structures which occurs in an attempt to protect and alert the person. In addition there are emotional factors to contend with which further aggravate the experience.

When pain becomes chronic it is customary to include in the evaluation certain questionnaires (5) about the nature, location and severity of the experience; what makes it better and what makes it worse. Also the characteristics of the pain as perceived and the words to describe it become important.



The terminology of pain is extensive. A few salient terms are:

Gate theory - it seems that some non-painful stimulation can sometime interfere, to the patient's benefit, with the experience of pain. This explains the relief obtained by rubbing a painful area, use of hot or cold compresses, acupuncture, acupressure or the use of a **TENS** (transcutaneous electrical nerve stimulation) instrument.

Neuroablation - destruction of sensory nerves to control pain, accomplished in various ways:

- n **rhizotomy** - simple neurosurgical cutting of nerve roots
- n **cryoablation** - injecting a freezing liquid in the nerve
- n **radiofrequency** - done by radio waves

Neuroablation is not as effective as one would expect, probably because by the time it is done there are neurological circuits established and "hard - wired" that maintain the experience alive, so to speak, even though the flow of sensory impulse is destroyed. (see phantom limb)

NSAIDs - non-steroidal anti-inflammatory drugs e.g., ibuprofen (Motrin), naproxen (Aleve). NSAIDS are probably the most common over the counter (OTC) pain relievers. NSAIDS were prescriptions drugs until their patent expired when they became OTC.

Opiate - a natural or synthetic derivative of opium e.g., morphine, codeine, heroin.

Opioids - body produced opiates -like substances, like endorphin and others, that when released diminish the level of pain like opiates.

Phantom pain - the pain felt by an amputee when the leg is missing. Even though nociceptors are damaged or missing, the corresponding neurons in the spinal cord keep transmitting pain messages to the brain.

Referred pain - such as the pain felt in the arms, neck or jaw when having a heart attack due to the way nerves come together in the spinal cord.

English > Spanish glossary of subjective pain characterizations.

- n aching - adolorido, doloroso,
- n burning - quemante
- n cramp (abdominal) - retortijón
- n cramp (muscular) - calambre
- n cramping - acalambrado
- n colicky - tipo cólico
- n deep - profundo
- n dull - romo, sordo
- n exhausting - agotador
- n gnawing - que corroe
- n griping - apretante
- n miserable - miserable
- n nagging - molesto
- n numbing - adormecido / entumecido
- n penetrating - penetrante
- n pressuring - presionante
- n radiating - irradiante
- n sharp / stabbing - punzante
- n squeezing - que aprieta
- n throbbing - pulsante
- n unbearable - insoportable

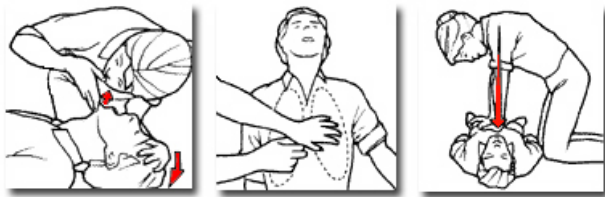
References:

1. <http://www.ninds.nih.gov/disorders/dysautonomia/dysautonomia>.
2. [http:// wikipedia.org/wiki/Familial_dysautonomia](http://wikipedia.org/wiki/Familial_dysautonomia)
3. <http://www.ship.edu/~cgboeree/pain.html>
4. <http://www.spineuniverse.com/displaygraphic>
5. http://www.amstat.org/sections/srms/Proceedings/papers/1987_076.pdf
6. <http://www.medlineplus.gov>. This is a comprehensive medical resource site in both English and Spanish. Most illustrations in this article are present there.

A little bit of everything

THE CURRENT STATUS OF CPR

• **Outcomes** - Have you wondered what is the outcome of people who have CPR (cardio-pulmonary resuscitation)? The Research section of the National Registry of CPR - NRCPR - www.nrcpr.org/research - sponsored by the American Heart Association has an international database of in-hospital resuscitation events. Between January 1, 2000 and June 30, 2002, 14,720 cardiac arrests met inclusion criteria in this database. The three most common reasons were (1) *cardiac arrhythmia* (disturbance in heart rhythm), (2) *acute respiratory insufficiency* (sudden inability to breath properly) and (3) *hypotension* (low blood pressure). All of which means the heart loses its ability to pump blood and erratic, ineffective heart actions develop which can not sustain life. These are - *ventricular tachycardia and ventricular fibrillation* - *ventricles*, the powerful lower chambers of the heart that pump blood to the body; *tachycardia*, very fast, ineffective ventricular pumping; *fibrillation*, fast and erratic ventricular pumping



Overall, 44% of adult in-hospital cardiac arrests had a return of spontaneous circulation ; however only 17% survived to leave the hospital. This may not seem much but compared with outcomes of events outside the hospital it is. Results of CPR outside a hospital setting are generally poor, almost 95% never make it to the hospital. People who experience traumatic cardiac arrest - blunt trauma or penetrating wounds - rarely survive. Efforts to collect meaningful data on events outside the hospital have always been hampered by difficulties in standardizing definitions and methods of data collection. Too much variability is unavoidable under emergency circumstances.

• **Changes to CPR protocol** - The American Heart Association has recently changed its recommendations. Instead of 15 chest compressions followed by two mouth-to-mouth breaths followed by 15 chest compressions and so on, the new guidelines raise the number of compressions to 30 while keeping the two breaths the same. These new guidelines emphasize the strength and speed of the pumping action - “push hard and push fast”. If a

defibrillator is available: deliver one shock followed by 2 minute of CPR followed by another shock and so on.

• **Defibrillators** - defibrillators of increasingly smaller sizes are available in most public places. With a prescription from a doctor and \$2500 or so you can buy a defibrillator for your home, office, automobile. Of course, such an investment would be worthless if there is no one available in the premises who can operate the machine in time of emergency. More recently, it has become possible for heart patients to have an *internally implanted cardioverter /defibrillator* (ICD). These devices sense the difficulties immediately and are capable of converting the abnormal rhythm or restarting an arrested heart.

Two Major Diseases Redefined

1. **Hypertension**: Under the old guidelines published in 1977, our blood pressure (BP) was considered normal if: the systolic (the top one) was under 140 and the diastolic (the bottom one) was under 90 i.e., 140/90. The Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC 7, for short) now defines normal, meaning optimal or healthy, as a **BP under 120/80**. A systolic between 120-139 or a diastolic between 80-89 is called pre-hypertension. See box

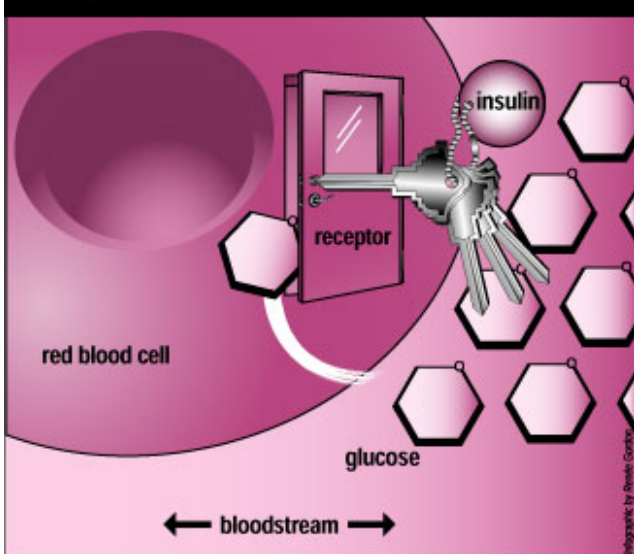
Blood Pressure Categories

	Systolic BP	Diastolic BP
Normal	< 120	< 80
Pre - hypert	120 - 139	or 80 - 89
Stage I hypert	140 - 159	or 90 - 99
Stage II hypert	>160	>100

As confusing as it might seem, the term “high blood pressure” covers any blood pressure above 120/80, while the term hypertension refers to pressures of 140/90 or above.
 < = less than > = more than

Harvard Heart Letter, Aug 2003
 Caduceus, Winter 2003-2004

The Role of Insulin



2. Diabetes: Previously, there were two major types of diabetes - the **juvenile**, also known as **Type I** and the **adult onset** or **maturity onset** known as **Type II** - varieties defined, obviously, by age of onset of disease. The juvenile variety is much more difficult to control, prone to manifest earlier and with more severe organ-specific complications of diabetes. The adult variety, in general, is a less dramatic, more controllable illness which permits a near normal life with a slower, though variable, advent of complications.

The diagnostic tests for diabetes are: a fasting blood sugar = FBS (nothing by mouth for 10-12 hrs) and a glucose tolerance test = (GTT) wherein you are given a standardized sugar drink in which the expected rise in blood sugar is promptly brought down to acceptable levels in response to the body's production and use of the hormone insulin 🏹

Normal

FBS = fasting blood sugar < 100 mg / dL
GTT = glucose tolerance test < 140 mg / dL

Pre-diabetes

FBS = at least 100 but less than 125 mg/dL
GTT = at least 140 but less than 200 mg/ dL

Diabetes

FBS is 126 /dL or higher

Caduceus, Winter 2003-2004



The eyes have it ..

Optician

Ophthalmologist

Optical technician

Ophthalmic dispenser

Optometrist

Oculist

Ocularist

Do you know whom these various professionals are? Answers in the next issue.

Doctor vs Physician: What's the difference?

In ordinary daily conversation there is no difference, the words are used interchangeably by both lay and professionals. The distinction in the United States is a medico-legal one. *Doctor* refers to a professional degree i.e., Doctor of Medicine. *Physician* is a Doctor of Medicine who is licensed - legally authorized - to practice medicine. Whenever there is a question of malpractice the first question raised is: Is he / she a "licensed physician"? This would seem like a redundancy to the cognoscenti; however, it drives home the difference quite well. These legal definitions are usually spelled out in the statutes of each State



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By Leon McMorrow.

Neologisms or borrowed words

When and how should we use these transferences from other languages?

One of the constant and controversial issues confronting anyone working with languages is neologisms and linguistic borrowings in the target language, your own native language that is supposedly familiar to you. We use tools of course to widen the scope of our personal vocabulary – dictionaries, glossaries, online searches, etc. But what if none of your dictionaries or reputable glossaries turns up a translation but an online search does so? Can you simply say: ‘Great! I’ve found the word I need’? Two possible but contrary approaches come to mind.

Rule 1 is to check the value of your source, as in all scientific investigation. I have some hesitancy accepting English medical words that are used *solely* by non-native authors while the main body of native literature in the language seems either to ignore or reject them. Most of the sources for such words will result from searches on MedLine / PubMed or online journals or sites where the names and affiliations of the authors are listed. You can see at a glance that the authors or publications are “foreign” sources. So ask yourself: ‘Why can’t I find a domestic source that has this term?’ This type of situation will be encountered mostly by native English medical translators.

Rule 2 is not to be a language snob and use the word if a reputable native source uses it. This is a much greater challenge for languages other than English that have to borrow heavily to handle new knowledge and technology. Whom do you follow as a guide? Who is “reputable”?

Here is an example of the quandary and a solution. The term, closest English equivalent, and source document are given.)



Crossectomy

English equivalent: “incomplete long sapheno-femoral high ligation”; or “high ligation of the sapheno-femoral junction.” These are definitions given by two of the authors using the term.

- Source: 61 PubMed abstracts. The authors using the term are mostly German, Russian, French, and Italian speakers writing in English. No native English source is found.
- USE IT? – In this case, I would not yet approve it for use. It may be accepted in the future; so, like the dictionary publishers, I keep it on a waiting list.

Paravasation

- English Equivalent: extravasation
 - Source: German authors writing abstracts or full articles in English, and German publishers. The word is a direct cognate of the German word Paravasation (cf. Paravasat). However, a Brigham Hospital/Harvard website uses [it:brighamrad.harvard.edu/patients/education/ct/ctguide: CT Scan – A Guide for Patients](http://it:brighamrad.harvard.edu/patients/education/ct/ctguide:CTScan-A-Guide-for-Patients)).
 - USE IT? – A simple yes, since translators are not trendsetters, but are allowed to repeat what is already in the reputable literature.
3. **Perforazione pothole** (in the stapedial footplate of the ear)
- This occurred in an Italian ENT manual which had to be translated into English and German. I worked on the English version. The surgeon had used a lot of English borrowings throughout his manual, so the term “pothole” was no surprise to me. I used his English borrowing without a second thought.

• However, the Italian-German translator now had a major problem. He could find no Italian variant to get more information on the meaning, nor any medical German use of 'pothole' as a borrowing. He did not know anything about its history in English.

Walk in his shoes for a moment and suggest an answer. What should he do? (ProZ.com and Translation Inquirer experts welcome!).

TIP:

If you are unsure about the acceptability of a word or phrase in medicine, even though you have consulted dictionaries and Google, you can still refer to two useful publications.

- One is **Lorenzini & Ley MEDICAL PHRASE INDEX**, which is excellent for many situations, and the other is
- **Stedman series of WORD books**, which have been published and updated for over 20 years and cover about a dozen specialties. These were written by and designed for medical transcriptionists and contain words found in no other source. They are the closest mirrors of current medical usage in the U.S. One caveat – they are not available online, so you still need to build up an old-fashioned medical library.

CCCS *presents*

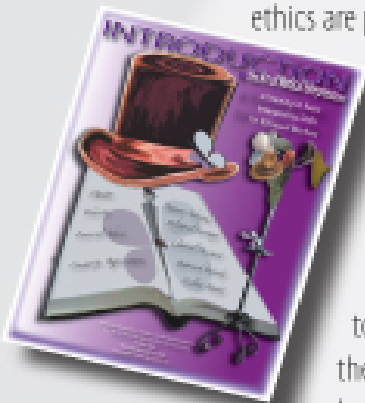
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By Dr. Maria Rosdolski.

Presentation at the ATA Annual Conference 2005

This article is an introduction into the broad area of epilepsy and its terminology. It is an attempt to provide translators with basic knowledge of this condition, and the problems they may face when confronted with a document on epilepsy.

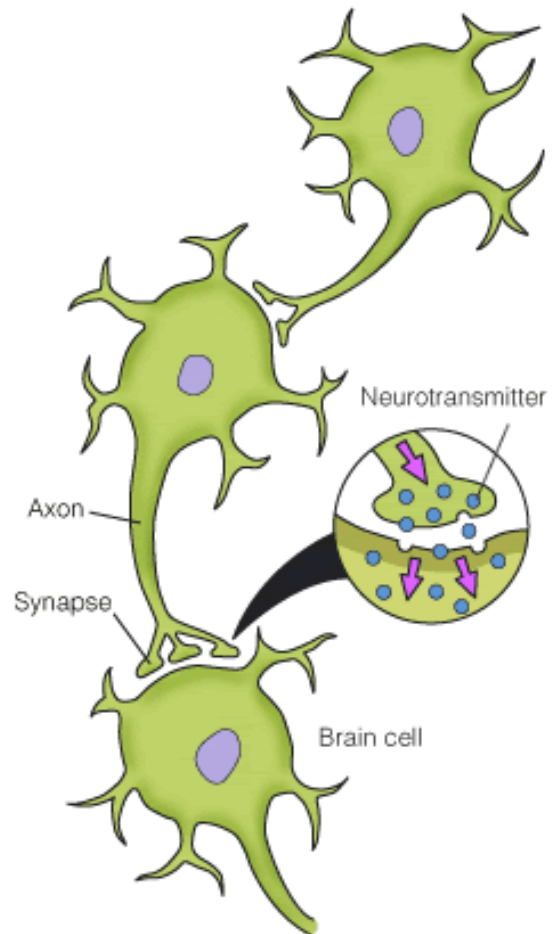
Definitions

Epilepsy is a disorder associated with seizures, and *seizures* are the clinical manifestation of epilepsy. In April 2005, the most recent definitions were proposed by the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE), in an article published in *Epilepsia*. In this article, *epilepsy* is defined as “a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures and by the neurobiologic, cognitive, psychological, and social consequences of this condition. The definition of epilepsy requires the occurrence of at least one epileptic seizure.” An *epileptic seizure* is defined as “a transient occurrence of signs and/or symptoms due to abnormal, excessive or synchronous activity of the brain.” In the definition of epilepsy, the “enduring predisposition” is relevant. In the past, the question of how many seizures constitute epilepsy was debated and the answers were inconsistent. With the new definition, a single seizure would indicate epilepsy if it is due to an enduring abnormality, and would not indicate epilepsy if an enduring abnormality is not present. The definitions were prepared “in a way applicable to translations into all languages.” [1]

The **International League Against Epilepsy (ILAG)** was founded in 1909 in Budapest at an international congress of medicine. The objectives of the ILAG include advancement and dissemination of knowledge on epilepsy, promotion of research, as well as public and professional education about epilepsy, identification of the needs of epileptic people, and improvement of treatment and care of epileptics. The **International Bureau for Epilepsy (IBE)** was founded in 1961 as an organization of laypersons and professionals to improve the quality of life of people with epilepsy and those who care for them. The two organizations work closely together, and their cooperation may help to improve the diagnosis and management of epileptic persons. [2,3]

Highlights in the History of Epilepsy

The term “epilepsy” was derived from the Greek “*epilambanein*”, which means “to seize”. Throughout history, numerous synonyms have been created. Of these, *sacred disease* and *falling sickness* are the best known.



The earliest description of an epileptic seizure was found on Babylonian tablets, created in the middle of the first millennium BC. On these tablets, focal and generalized seizures were described including comments about demons, who were believed to induce seizures. People thought that demons could be driven out if the patient was conscious but could not be removed if the patient lost consciousness. Physicians of the Hippocratic School realized around 400 BC that the sacred disease was a physical disease with its origin in the brain, as described in the book *On the Sacred disease*, which is part of the Hippocratic collection. Around 200 AD, Galen introduced the term “aura”, derived from the Greek, meaning “breeze”, described by a patient as a sensation before he lost consciousness and had an epileptic seizure. Later, this term was used for any occurrences such as motor or sensory symptoms at the beginning of an epileptic seizure. [4]

In modern times, there were two major breakthroughs with regard to epileptogenesis and diagnosis of epilepsy. The first

one was the works of John Hughlings Jackson (1835-1911), and the second one was the discovery of electroencephalography by Hans Berger (1873-1941).

Jackson defined epilepsy as “a name for any sort of nervous symptom or group of symptoms occurring occasionally from local discharge.” He stated that the paroxysmal appearance of symptoms is decisive, not the presence of convulsions. He described unilateral motor seizures that he called epileptiform seizures. Later, these seizures were called jacksonian seizures. He assumed that these seizures originated from a circumscribed area in the brain, which led him to the implication that motor functions were localized in the cortex of the cerebral hemispheres. Animal experiments with electrical stimulation of the cortex, conducted by Fritsch, Hitzig, and Ferrier, provided support for Jackson’s assumptions. Jackson’s studies provided insight into epileptogenesis, and his definition of epilepsy, is, in principle, still in use. [4]

Berger made recordings, first in 1902, from the cortex of patients with skull defects, then during World War I, from patients with head injuries, and later, from the scalps of his son and a student volunteer. In 1929, he published his first article on this new technique with the title “Über das Elektroenkephalogramm des Menschen”. Electroencephalography (EEG) findings during and between seizures significantly contribute to the diagnosis of epilepsy, the determination of the seizure type, the location of the seizure-causing lesion, and the management of the seizures. [5]

Classification of epileptic seizures and syndromes
The first international classification of epileptic seizures was proposed by the ILAE in 1964. The classification was based on

clinical seizure types, EEG findings, anatomical lesions, and etiologies. In later revisions, advancements in brain imaging techniques and EEG recordings, results of research in genetics, and new information on the pathophysiology of epileptic seizures have been taken into consideration.

The latest classification of the ILAE includes a classification of seizures and epilepsy syndromes. The headings in the classification of seizure types and epilepsy syndromes are summarized in table 1. A distinction between generalized and focal seizures was maintained throughout recent classifications. *Generalized seizures* originate in the middle part of gray brain matter and are associated with a loss of consciousness. The two most common generalized seizures are tonic-clonic seizures (grand-mal seizures) and childhood absences (petit-mal seizures). *Focal (partial) seizures* (simple partial seizures and complex partial seizures) originate in one brain hemisphere, in many cases in the cortex, the outermost structure of the brain. Focal seizures may become secondarily generalized seizures. A *status epilepticus* is a condition with continuous seizure activity or repeated seizures with brief intervals. *Reflex seizures* are seizures induced by stimuli such as flickering light (e.g., TV), eating, reading, and listening to or thinking of music. *Epilepsy syndromes* are disorders with specific patterns of seizures and other symptoms such as behavior, learning disabilities, or physical appearance. The onset of such a syndrome is usually in childhood, and in many cases, heredity of the syndrome can be identified. An example is the Lennox syndrome with so-called drop attacks (sudden falls), a typical EEG pattern, mental retardation, and a positive family history. Epileptic seizures that do not require a diagnosis of epilepsy include seizures under certain circumstances (e.g., reflex, alcohol withdrawal, or febrile seizures) and rare seizures. [2]

Table 1. Classification of epileptic seizures and syndromes

Seizure Types

EPILEPTIC SEIZURE TYPES AND PRECIPITATING STIMULI FOR REFLEX SEIZURES

Self-limited seizure types

Generalized seizures

Focal seizures

Continuous seizure types

Generalized status epilepticus

Focal status epilepticus

Precipitating stimuli for reflex seizures

Syndromes

EPILEPSY SYNDROMES AND RELATED CONDITIONS

Clinical manifestations of most common seizures

Primarily generalized tonic-clonic (grand mal) seizures are characterized by a sudden loss of consciousness, a fall to the ground often with a cry, followed by rigidity of the entire body and then by jerking of the face and all four limbs. The patient may urinate involuntarily, bite his tongue and temporarily stop breathing. Sometimes bloody foam can be seen around the mouth. The event lasts a few minutes and is followed by a short-lasting coma and, in some cases, by confusion for several hours. *Typical absence (petit mal) seizures* (staring spells) are primarily generalized seizures, occur in childhood, and are associated with a characteristic EEG pattern. During such a seizure, the child is unresponsive for several seconds but does not fall. The seizures may be accompanied by facial twitching or lip smacking. Children with these seizures are often wrongly considered to be “absent minded”. *Focal motor seizures with elementary clonic motor signs or sensory symptoms* (simple partial seizures or jacksonian seizures) are characterized by clonic contractions or paresthesia or both, starting on one finger, one toe, or one side of the face, and spreading (moving up the extremity and to the other extremity of the same side and/or the face, called jacksonian march). These seizures may spread to the other side and become generalized. *Temporal lobe seizures with sensory or motor symptoms* (complex partial seizures) manifest themselves by a variety of symptoms. Sensory symptoms (aura) may include olfactory (smell) or gustatory (taste) hallucinations or illusions (false interpretations of a real sensations), auditory (hearing) hallucinations, visual illusions, psychological phenomena such as déjà vu or jamais vu (sense of familiarity or unfamiliarity), depersonalization (feeling of detachment from oneself) or derealization (feeling of unreal surrounding), anxiety, and other symptoms. Motor symptoms are characterized by automatisms such as lip smacking or any repetitive movement of a body part. Temporal lobe seizures may spread to other brain regions and/or become generalized.

Diagnosis

A very important part of the diagnosis of epilepsy is the *patient’s history*, in his own words and the description of seizures by persons who observed them. If reliable descriptions are available, the seizure type and frequency can be determined. *The neurological examination* may provide information on the location of the epileptogenic lesion and possible causes of seizures, as well as associated signs leading to the diagnosis of an epilepsy syndrome. The *EEG* and *video telemetry* (ambulatory EEG plus recording of a video) may provide evidence of the seizure type and/or suggest possible causes. *Neuroimaging procedures* such as MRI may detect the location and type of lesion that is responsible for the seizures.

Causes

An epileptic seizure is triggered by a sudden and excessive burst of electrical activity in the brain. In principle, any alteration in the brain may cause epileptic seizures. Genetic factors may play a role, and in people with close relatives who have seizures, the probability of seizures is increased. In persons with a genetic predisposition, other factors are more likely to induce seizures. Further causes include (but are not limited to) birth injuries, tumors, vascular alterations, stroke, infection of the brain and its membranes (encephalitis, meningitis), and head injuries. Seizures may be induced by illicit or therapeutic drugs, alcohol, drug or alcohol withdrawal, chemicals, fever, hypoglycemia (low blood sugar), and various stimuli (see reflex epilepsy).

Treatment

The first choice for prevention of seizures is *antiepileptic drugs (AEDs)*. The goal is to eliminate seizures or at least reduce the frequency of seizures with few and tolerable side effects. Compliance of the patient and a constant blood level of the drug(s) is very important for controlling seizures. If seizures cannot be controlled with AEDs, *vagus nerve stimulation (VNS)* in addition to medications may be considered. For this purpose, a small battery-operated device is implanted in the neck. The device stimulates the vagus nerve, and the vagus nerve stimulates the brain. The mechanism of effect is not yet known. Side effects of VNS are milder than those of AEDs. If seizures are intractable, i.e., occur frequently under treatment with AEDs and VNS, *surgery* may be considered. The damaged or abnormal area of the brain where seizures originate is removed or disconnected from surrounding regions. In some cases of intractable seizures (mostly children), functional hemispherectomy (disconnection of a hemisphere from the other one) may be performed. Indications for surgery must be considered very carefully, avoiding, as far as possible, areas that would impair the person’s functioning such as areas that represent speech, movement, sight, or hearing. Management of epilepsy also includes improving the quality of life of epileptics by finding a balance between restricting and allowing certain activities such as exercise, driving a car, or operating a machine. Laws on driving cars by epileptics are different in different countries. Children need special attention and support in school, and parents of epileptic children need education and advice. [6,7]

Translating documents on epilepsy

In general, terms related to epilepsy should be translated as accurately as possible, and adjusted to the terms of the source language. This means, if old terms are used in the source text,

the translation should contain the equivalent old terms. For example, if “temporal lobe seizures” is used in the source text, an exact translation of this term, and not a translation of “partial complex seizures” should be used. Using new terminology in a translation of a text that uses old terminology involves the risk of using wrong terminology. I once received a document for editing in which the translator used new terms for old terms in the source language, but was not able to translate old terms of the source language correctly into new ones of the target language. The result was a confusing text that had to be retranslated. The terminology of epilepsy is such that equivalent terms in the target language can easily be assumed and then confirmed by Internet searches. When the translation of a term cannot be assumed, definitions in both languages must be read, if not known by the translator, to make sure that the equivalent term is used in the translation. If translating material for laypersons, it is important to translate non-medical terms with equivalent

terms into the target language. Finding the appropriate terms may be more difficult than finding equivalent medical terms. The word “seizure”, for example, may be used by medical personnel as well as laypersons but “attack” or “fit” is mostly used by laypersons. For these three terms, there may be only one term in other languages. If the source language uses the only term available for “seizure” or “attack” or “fit”, in a translation into English, the appropriate term must be determined from the context. Some terms may be offensive in one language and not offensive in another language. For example, the term “epileptic” is considered offensive by some patients. Therefore, “person with epilepsy” should be used in materials for laypersons, even if the source language contains the equivalent of “epileptic”.

Since medical translators do not receive documents on epilepsy every day, it is important to keep a record of useful material. For some translators, it may be useful to maintain glossaries.

REFERENCES:

1. RS Fisher, W van Emde Boas, W Blume, C Eigner, P Genton, P Lee, and J Engel Jr. Epileptic Seizures and Epilepsy: Definitions Proposed by the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE). *Epilepsia* 46(4):470-472, 2005.
2. <http://www.ilae-epilepsy.org>
3. <http://www.ibe-epilepsy.org>
4. MJ Easie, PF Bladin. *A Disease Once Sacred*. John Libbey & Company Ltd., 2001.
5. Bernt Karger-Decker. *Die Geschichte der Medizin, von der Antike zur Gegenwart*. Albatros Verlag, Düsseldorf, 2001.
6. <http://www.vagusnervestimulator.com>
7. <http://www.epilepsynse.org.uk>

RECOMMENDED MATERIALS FOR TRANSLATIONS:

1. Glossary of descriptive terminology for ictal semiology: http://www.epilepsy.org/ctf/over_frame.html
2. Epilepsy – Internet Handbook of Neurology:
<http://www.neuropat-dote.hu/epilepsy.htm>
3. Peter W Kaplan, Pierre Loiseau, Rober S Fisher, Pierre Jallon. *Epilepsy A to Z. A Glossary of Epilepsy Terminology*. Demos Vermande, 1995 [not the latest terminology but very useful. Very cheap at amazon.com]