

# Regeneration / Regrowth Page. The Register

## Tissue / Limb

### REGENERATION

[www.GordonWayneWatts.com/regeneration.html](http://www.GordonWayneWatts.com/regeneration.html)

This page is about an (obviously) important subject: Scientific Study of regrowth of tissues AND! limbs! **Animal and HUMAN Limb Regeneration:** The five factors influencing this are genetic makeup (to a small degree -- all human genetics are uniformly marvelously powerful given the right circumstances!) and four environmental factors (to a much larger degree): the "Big 4": (1) eating; (2) sleeping; (3) exercise; and, (4) stress. Psst. Here's an "Alert" section from another page of this site:

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**\*\* Stress \*\* Alert! \*\* \*\* I forgot to mention one major thing in my quest to offer a top rate product, and that is this: besides food, exercise, and rest, important to health even more is \*stress\*, or more accurately the way we handle it.**

Doctors, now-a-days, generally accept that dealing with stress is an important factor in both mental and physical health -- if not the most important factor. I Can't count the number of studies that indicate that STRESSFUL events -- such as being fired from a job, or a divorce or death in the family -- NEGATIVELY influence the health! Different color: Now, we all also recall how good events AND a good outlook on life can \*\*-> HELP <-\*\* one's health, right? In fact, the old Bible people had it right in Proverbs, Chapter 17, Verse 22: "A merry heart doeth good like a medicine: but a broken spirit drieth the bones." Hmmmm...

Also, exercising is important to raise the metabolism. Why? Well, consider a dead person: the metabolism is at the EXTREME low end, thus he/she can sleep ALL DAY LONG and STILL not heal up! So, don't have a metabolism on the "dead" end, like a sick person. So, exercise safely, and ingest good food while you are alive and able. Then, when you sleep or rest, you can heal up! Also, a faster metabolism aids in digestion. You'll probably feel better too. Oh, here is a Bible verse that seems to make scientific sense:

**Ecclesiastes, Chapter 5 and Verse 12: "Sweet is the sleep of a laborer, whether he eats little or much; but the surfeit [the disgusting excess of riches] of the rich will not let him sleep." I guess the old Bible people knew that we would get good exercise -- and help our health, physical, mental, and Spiritual -- if we worked hard, eh?**

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I also should mention that things like insufficient lighting, such as winter months produce, are linked with depression, so doctors prescribe a full spectrum light for patients to relax under (but not to look right at). -- A few hours of this and the STRESS diminishes. As well, sound (soothing nature sounds like frogs, the ocean, birds, rain, etc.) help. And, the sense of touch indicates that a good, warm bath or massage is A OK. (It is.) There is even such a thing as "aromatherapy." Is there "taste therapy?" (OK: I've covered all the bases for stress relief except that one should be smart, flexible, and honest, and pick mates, jobs, college, etc. that MATCH the interests of oneself -- no that stupid opposites attract method: the dating services had it right when they got the 'similar interests' method going!

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Yeah, yeah, I know what y'all are all thinking: this 5-pointed approach (genetics-eat-sleep-exercise-stress) sounds too simplistic. Yet, sometimes it's the simple things that are what's needed. In any case, let me share with you some findings about this cool subject ( \*VV\* yippee! \\*\*\*\*/ I finally get to post some cool research that is more or less universally accepted as important & interesting). And hopefully, my sources will not fabricate data from "false" experiments. (Please excuse the little outbreak above: I'm just an overworked college student who doesn't have as much time to update this site as would normally be pleasurable. But on the other hand, my studies bring me closer to helping humans be able to emulate -- imitate -- dumb animals who have NEVER taken a hard biology class but which can still somehow regenerate limbs and tissues!!!)

OK, Ok, enough hip hip hoorays! On with the show. Well, here's what I've found:

## I. Animal Tissue & Limb Regeneration

The website: <http://unisci.com/stories/19992/0428992.htm> discusses scientists' interest in fast regrowth by flatworms as it applies to us humans. If you click on their link, you may be able to see articles such as the one at <http://unisci.com/stories/19991/0129993.htm>. It which features spinal cord regeneration (which is HARD to do in humans).

Wow. Another page with the regeneration.html file name. (Ha, you thought of it first, but I thought of it INDEPENDENTLY. -- I didn't cheat.) Anyhow, <http://www.indiana.edu/~pietsch/regeneration.html> is all

about that stuff. <http://lux.ucs.indiana.edu/~pietsch/independence-zook.html>, a related site mentions salamander regeneration, an animal one of my professors told me about. He says that frogs are similar amphibians but can't regenerate limbs as do their salamander cousins. Huh. "Fascinating," as Spock (of Star Trek fame) would say. (I'll bet that when a limb is regrown, it is CANCER FREE, AIDS FREE, healthy, and young. So, cell regeneration is knocking three! (3) birds with one stone: i. regrown/replaced; ii. youth/young; and, iii. healthy/functional. Wow! But, we ask "why?" Below is an possible explanation:

The Cancer Connection It has long been known that cellular regeneration is due to de-differentiation of the cells into the more primitive types, perhaps more basic than stem cells (which scientists are discovering are the precursors to the healing of body parts/organs). These basic de-differentiated cells are no longer differentiated (specialized) to serve specific purposes such as skin or bone cells. So, you ask, "what is the connection?" Well, when the body goes about regeneration, its cells appear as those of a new born fertilized egg: they are rapidly multiplying and greedy for energy/food resources. And, the connection? So, is cancer. It too is rapidly dividing and sapping food (as does a baby the womb of its mother, but more out of control). In fact, it is known that when embryos are transplanted into living animals, the embryos sometimes become cancerous. Then, if the animal is able to beat the cancer, the cancer cells become normal again and integrate into the host tissue. I recall reading of a study that Dr. Becker did in which, according to a book he wrote, the embryonic cells of a frog were placed into a salamander. Then, when the salamander developed cancer (which is rare for salamanders), if left untreated, the animal died. Yet, if the animal were given an amputation on the limb where there was cancer LEAVING SOME CANCER INTACT, do you know what happened? The regeneration process turned the clock back on the cancerous cells that were once frog embryo cells -- and then, the de-differentiated cells re-differentiated into stuff like muscle or connective tissue cells. Later, the scientist could tell that the body was successful in its battle due to subdue the cancer and change the growth of the foreign frog cells back to that of normal cells: the size and shape of different parts of the frog cell, such as the size of its nucleus were enough different from that of the salamander that it was obvious which cells came from which animal.

Thus, the theory that cancer is a cell confused on its role seems more correct than the currently held theory that cancer is a cell born out of a genetic alteration. Proof: it is very commonly known by scientists that some cancer causing agents DO NOT cause genetic changes. Then, what is it? Perhaps, the genetic makeup remains the same, but the cell gets confused on its role and tries to de-differentiate. Remember, if this happens it is still genetically the same just as the hair on someone's head has the same genetic code as his/her blood. (This is what allows police to identify a crime suspect based on either hair, blood, skin, or whatever evidence!) The cell's role orders obviously got confused.

For you science buffs, click on: [http://www.basilisk.com/B/biomorphic\\_regeneration\\_252.html](http://www.basilisk.com/B/biomorphic_regeneration_252.html) for a blast of a paper by another scientist. Yet another paper, even *more* scientific and esoteric, is found at: <http://www.indiana.edu/~pietsch/orbit.html>. Wow, again. More salamander stuff.

Oh, here's even MORE stuff: <http://darwin.bio.uci.edu/~mrjc/regen.html> shows a time-lapse movie of

some poor amphibian growing back an arm. Pretty informative. And, it alleges that ALL tetrapods (that's including US HUMANS) can regenerate to some extent. One more:

[http://www.answersleuth.com/science/brain/growth\\_cones\\_and\\_axons.8.shtml#D73](http://www.answersleuth.com/science/brain/growth_cones_and_axons.8.shtml#D73) features adult crayfish, which I think is intriguing because this regenerative ability is known to drop off as the animal matures! Their related link, <http://usa.biologists.com/JEB/201/11/jeb1262.html> has the paper.

## II. Research (and success!) in humans

Here is where it gets interesting. In short, my research indicates that the following (environmental) factors are particularly important in limb regeneration in both humans and animals:

The area where regrowth must take place must [a.] remain moist to allow [b.] electrical currents (and possibly [c.] magnetic fields in the body or in the earth) to influence regrowth. About magnetic fields: the research I've read indicates that AC (alternating currents) between 0 and 100 Hertz (that is, cycles per second) were the most interfering to the human bio-chemical processes of life. Now, on to the *real* interesting stuff...

For my references, I cite the following books:

Barefoot, Robert R. and Carl J. Reich, M.D. *THE CALCIUM FACTOR: The Scientific Secret of Health and Youth* Published by Bokar Consultants (US) Inc., P.O. Box 21270, Wickenburg, Az 85358, U.S.A. (C.I.P. 92-90529)(ISBN 0-9633703-2-4) Library of Congress Catalog Card Number 92-90529 pp. 96-106.

Barefoot, Robert R. *Death by Diet* Published by Bokar Consultants Publishing at the above address. (C.I.P. 96-84395) (ISBN 0-9633703-3-2) Library of Congress Catalog Card Number 92-90529 pp. 95-100,119-126.

What these books tell us is that **Becker** and other pioneers in regeneration found that "the regeneration of amputated limbs was proportional to the current of injury." (p. 103 The Calcium Factor)

My comments: I found info about a Dr. Robert O. Becker, M.D., a retired New York orthopedic surgeon and scientist/researcher, allegedly studying negative electric energy as the healing force for mending broken bones. This info was gleaned from numerous web sites, just to make sure that it was correct.

It is not clear to me whether the current produced the limb regeneration or the other way around, but I do recall reading that these regenerations were speeded up by applying a small current to the area of injury. Barefoot claims that Becker has a book, *The Body Electric* published in 1985 by Morrow, New York. He goes on to say: "Despite results that technically could be classed as exciting, research funds were cut off and huge establishment roadblocks were put in the way to further research. Both the regulatory medical elite and orthodox biologists did not like the concept that something they knew very little about could have such major consequences on something about which they were supposed to be the world authorities." (Ibid.) **The very next quote is shocking to say the least:**

(This is a long quote, but only a 'teaser,' so it does not violate the copyright rule and so on. Read the book for the details, and check out my legal page for the pertinent laws, federal, state, and (gasp!) international.)

"Also, another major biological event went ignored by most of the medical community. In the early 1970's, the surgeon Cynthia Illingsworth of Sheffield Children's Hospital in England accidentally found that when a young child's finger is sheared off beyond the outermost crease of the outermost or last joint, and the wound is dressed but not closed, **the finger will grow back** perfectly within three months. By 1974 Illingsworth documented several hundred regrowth fingertips. Other pediatric surgeons, like Dr. Michael Bleicher of New York's Mount Sinai Hospital, have become confident of the infallibility of the process. Yet few hospitals accept this natural replacement procedure, as it has not been endorsed by the medical cartel, who are not swayed by visible facts that they do not understand. Further research in this medically forbidden field, as Dr Becker explains in his book *The Body Electric*, will one day lead to the regrowth of other human limbs, such as arms and legs." (Ibid.)

### III. Why the Cover Up?

Ok. Why all the alleged cover-up by the medical community? Apparently, Barefoot thinks that doctors want patients' symptoms to be treated only, while allowing the disease to remain, ensuring a steady income for the 'good' doctors. He quotes Dr. Carl J. Reich, M.D., the co-author of his *Calcium Factor* book, as saying that " *these Doctors know what's in the **best interest of their careers, even if it's not in the best interest of their patients***". " (Death by Diet, p. 126.) That makes sense. Doctors are kind of rich, you know. They're not all bad, but they do, in fact, have a vested interest in keeping you sick. I think that I've heard that Iceland or Finland or some other country lets doctors only get paid if the patient gets well. Hmmmm... Besides, we remember when scientists thought that the earth was FLAT! and that it was the center of the universe. Let us not forget that Galileo Galilei, of Pisa, showed that the sun was the center of the universe. He was persecuted and condemned by the church. The media reports that the church did not 'officially' forgive him until 1992! This is the same church that does many good works and real charity. Imagine how much worse the government persecuted him and many others that decided to "challenge the establishment." (You can't win against City Hall... unless your help comes from the Almighty Creator God! I mean, really, can YOU create a dinosaur?!? Yeah, baby: GOD wins! And He loves us to have created, service/work on, and test drive the human existence -- He experienced human form in the Person of Jesus the God/Man. Wow. Ok, enough religion for now. Back to the studies.) So, you still need more proof? You remember when scientists & doctors claimed that it was not necessary to wash one's hands after handling dead bodies and before operating on patients, right. (If not, look it up on the Internet, or visit the local library.) Of course, we all remember cases in which the government covered up or lied, right? Click on: [the abuses.html page](#) for a little reminder.

Let me just end sector III. with the following quote from one smart cookie:

"Great spirits have always found violent opposition from mediocre minds. The latter cannot understand it when a man does not thoughtlessly submit to hereditary prejudices but honestly and courageously uses his intelligence." (Albert Einstein)

... or sometimes quoted with the verb "encountered" instead:

"Great spirits have always encountered violent opposition from mediocre minds."(Albert Einstein)

## IV. A bit more on magnets

Some companies market (sell) magnets and "magnetic beds" for health. Yes, that's true! And, what's more, when I recently called all the local bed stores here in Tallahassee, Florida, U.S.A., I discovered the surprise of my young life: almost ALL of these vendors (salespeople) knew NOTHING about the marketing or sales of magnets or magnetic beds for health. For that reason, I must include a few obligatory websites to prove that they really are sold for this purpose:

This next site is by Gary Null, a Ph.D. in one of the Health Medicine related fields and a former track star, reportedly setting some American Records:

<http://www.garynull.com/Documents/magnets.htm#INTRODUCTION>

Dr. Bruce Eric Hedendal, D.C., F.I.C.S., D.A.A.P.M, Ph.D. warns about potential dangers of magnets: This is a link to a web page with a link to a real audio file of one episode of his radio show.

<http://www.natures-tools.com/nutrition/radio.html#7nov98>

This is that ".ram" link:

[http://www.broadcast.com/shows/wcma/altmed/altmed\\_110798.ram](http://www.broadcast.com/shows/wcma/altmed/altmed_110798.ram)

Here are mirror sites about Dr. Hedendal:

<http://alternativestomedicine.com/hedendal.html>

<http://www.alternativestomedicine.com/hedendal.html>

Here is another site "for" magnets:

<http://www.betterhealthsupplies.com/magnets.html>

And one more site:

<http://www.homewatmagnet.com>

### My interpretations

**At first**, I thought that this magnet stuff was a lot of bull, if you know what I mean.(Junk, garbage, a bunch of hogwash: idiomatic words for "useless stuff" or "false claims".) After all, you know, we're NOT MADE OF METAL!!! Huh! Just another panacea (supposed cure) from charlatans and snake oil salespersons (idioms for people trying to cheat naïve people who will believe anything -- hustlers trying to get your dollar -- or yen, or mark, or peso, depending on where you live). But, as I studied this further, I found

some possible evidence that this magnetic stuff might actually work. First, there is anecdotal testimonials from people claiming to derive benefit /or/ heal up more quickly. And, then, there are a few scientific studies that indicate that magnets actually affect health and effect (cause) physiological changes. But HOW does this stuff work -- if it even works at all?

I find about four (4) possibilities:

1. Charged particles traveling under the influence of a magnetic field -- if there is a perpendicular component of travel -- are affected by the Hall Effect (it's a Physics thing). For example, a positive ion, such as Na<sup>+</sup> or K<sup>+</sup> traveling from left-to-right in the presence of a magnetic field going from front-to-back (front being "North") will feel a torque force from bottom-to-top. A negative point charge will torque -- or spiral -- downward. Also, if the particle is not going exactly left-to-right, but instead bottom-left to top-right, then only the l-to-r component (the base of the triangle with the direction vector being the hypotenuse) will factor in. This "one way" twisting might be significant because many molecules, such as DNA and proteins, twist one way -- like a left hand compared to a right.

2. Secondly, some molecules which are charged on both ends may bend in the presence of a magnetic field and break, thus releasing an (OH<sup>-</sup>) or hydroxide group, which would become more soluble than before. For example, Calcium Bicarbonate {Ca<sup>++</sup> [O(COOH)-]<sub>2</sub>} is said to break into Calcium Hydroxide {Ca<sup>++</sup> (OH)<sub>2</sub>} and two Carbon Dioxides {2CO<sub>2</sub>} under the influence of a magnetic field. Likewise, it is claimed in Dr. Reich's book, *The Calcium Factor* (pp. 101,105) that water with a pH of 7.5 becomes more alkaline -- to a pH of about 9.2 -- 7,000 Gauss (0.7 Tesla) magnetic field. I don't recall how long it had to stay under this magnetic field, but I either recall from somewhere or inferred what seemed insinuated or hinted: it seemed like several hours was or would be the time needed here. This is the opposite of "acid rain" in which water **\*\*absorbs\*\*** CO<sub>2</sub> (instead of releasing it) and becomes acidic.

The Calcium Bicarbonate molecule, normally straight, is bent in two as the positive (+) Calcium is pulled towards the negative (-) North Pole. The two Carboxyl groups (COOH or CO<sub>2</sub>H), which are negative, are repelled. They are on either end, and the Calcium is in the middle, popping the molecule in two pieces!

This would, of course, lower acidity (raise pH levels); and, it is a commonly known fact that the human body is healthier at a slightly higher (more alkaline) pH. The only exceptions are the digestive acid of the stomach and the urine, and possibly some parts of the body temporarily becoming acidic to kill invading germs, microbes, viruses, and bacteria.

3. The third possibility recalls that we have a little bit of iron in our blood, and trace amounts of other magnetically influenced things, even the diamagnetic water, which repels slightly and tends to move at a right angle under the Hall Effect mentioned above. Of course, here, the magnetic fields might pull the needed nutrients into other areas or small blood vessels and capillaries -- perhaps by pulling them to the surface of the skin under a magnetic field.

4. Fourthly and lastly, like #3 above, the magnetic elements and components of the blood and other

bodily fluids might heat up under movement of a magnetic field. It is known that movement of a piece of wire in a magnetic field *\*WILL\** induce a current. The circulating Faraday Currents (magnetically induced electrical Eddy currents) will, of course, internally short circuit and generate heat. When the field is moving and the object is stationary//still, the effect is the same: imagine a person moving and the wind is still -- or the wind is blowing & the person is still. Same difference. Same same. (It's an Electric thing.) The moving electric fields of a microwave heat up food even though it's only a little bit magnetic, like we are. Metal, like tin or aluminum foil, or spoons, knives, & forks, are REALLY affected by a microwave. So, don't, I repeat, **DO NOT** place metallic objects into a microwave which is to be turned on, except under the guidance of a trained Electrical Technician. Even then, I would think twice, as many accidents and explosions have been known to occur from dummies putting metallic objects into microwave ovens!

Thus, the slight heat that might be generated by such magnetic field influence on the trace metals and metalloids in our bodies might be therapeutic (beneficial for health). Even non-magnetic conductors (metals such as aluminum, tin, copper, and zinc) will be induced to force electrical Eddy current flow. That is how little bicycle generators work. The metal usually used for the generator/alternator armatures is copper, a non-magnetic metal that is an effective conductor of current. (Alternators are like generators, but the permanent magnets are replaced with strong electromagnets. This is why a car without a battery can STAY running -- by feeding the primary alternator windings, but, if it has only an alternator for battery charging, then it CAN NOT be push started (that is, if it doesn't have a battery), even if it used a standard transmission (the type with a manual clutch) -- as opposed to the automatic type: it will have 'lost charge' or 'lost its field.')

By the way, did I say that I have an Associate in Science degree in Electronics Technology from United Electronics Institute in Tampa, Florida? An image of my report card was once a clickable on the front page. Maybe one of these days, I'll post the degree and other miscellaneous awards that I was awarded/earned.

## V. UPDATES on magnets - Sun 27 June 2004

I shall explore a little more on magnets:

Here, at: [http://patricia\\_pr.blogspot.com/2003\\_08\\_01\\_patricia\\_pr\\_archive.html](http://patricia_pr.blogspot.com/2003_08_01_patricia_pr_archive.html), we find, [Patricia's Blog](#).

She summarizes the hypotheses of how magnet pads may work. The theories she reports are:

1. A Placebo effect -- that is that it's all in the mind;
2. An effect on the nervous system; or
3. The "Lorenz Effect," which she says increases blood flow (healing) and helps the lymphatic system to carry toxins away (cleanup).

While Patricia does not explain the effect on the nervous system, number three bears some more time:

As I explain above, in section "IV.," the Hall Effect occurs. I add now that the force felt on the charged particle is called the Lorentz Force, "F."

$F = qvB \sin(\theta)$  where  $q$  is the magnitude of the charge in Coulombs,  $v$  is the velocity in meters/sec,  $B$  is the magnetic field in Tesla, and  $\theta$  is the minor (less than 180 degrees) angle between  $v$  and  $B$ .

Note:  $F$  is felt perpendicular to the plane made by  $v$  and  $B$ . (This means that if the charge is stationary -- or traveling parallel to the magnetic field, then there will be no torquing effect here.)

So, can the Lorentz Force of the Hall Effect cause an increase in blood flow as Patricia reports that some theorize and hypothesize? I don't know, but any moving ions in the blood stream will certainly get pulled in ways that might cause a little more spreading or dissipation.

**A little word on the geomagnetic field of our home planet, Earth:** A Tesla is 10,000 Gauss, and the magnetic field of the earth is about 0.5 G, which is not a lot!

Now, why do I mention that? Well, the earth's magnetic field has been declining for the past several hundred years. So, why do I even mention that?

Well, the "cosmic radiation" from the sun and from outer space would normally be fatal to us humans, and, in fact, when planning trips to the moon and mars, scientists often run into this problem! So...

The earth's magnetic field is weak but huge, and, when the radiation (which are charged particles) tries to hit us, it is torqued at a right angle and flies away harmlessly, and, in fact, in some cases, produces the "Aurora Borealis," also known as the "Northern Lights," in the Northern Hemisphere. (In the Southern Hemisphere, it is called the "Aurora Australis," or the "Southern Lights.")

So, perhaps we should make ways for the earth to boost its magnetic field back to the levels it was in Christ's time...

The way that the field is dropping, I am concerned at the "cosmic radiation pollution" that might occur.

Coincidentally, I have just replaced my full-sized bed with a twin-sized one to save space, and have pulled my old magnetic mattress out of mothballs and put it on my bed. (Am I more protected against radiation?) Ironically, both this time and when I originally got my magnetic bed down, I seemd to start having a whole lot of dreams that I could remember upon waking. This, however, is anecdotal, not scientific evidence, subjective, not objective.

However, most of my observations above seem to be based on objective fact, or so I hope --and I hope you have enjoyed your stay on my huge website.

\*\*\*\*\* **-LINKS TO EXPLORE MY SITE-** \*\*\*\*\*