My Drift

Title: The Human Hand

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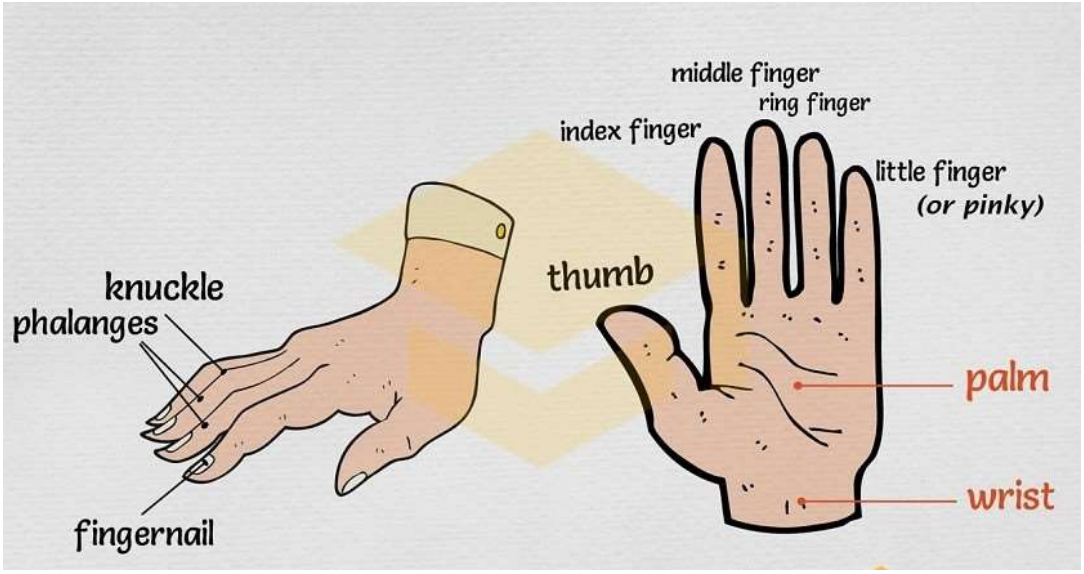
Date: 23 July 2019
Article Number: 314-2019-12

The hand is one of the most complex and beautiful pieces of natural engineering in the human body. It gives us a powerful grip but also allows us to manipulate small objects with great precision. This versatility sets us apart from every other creature on the planet.

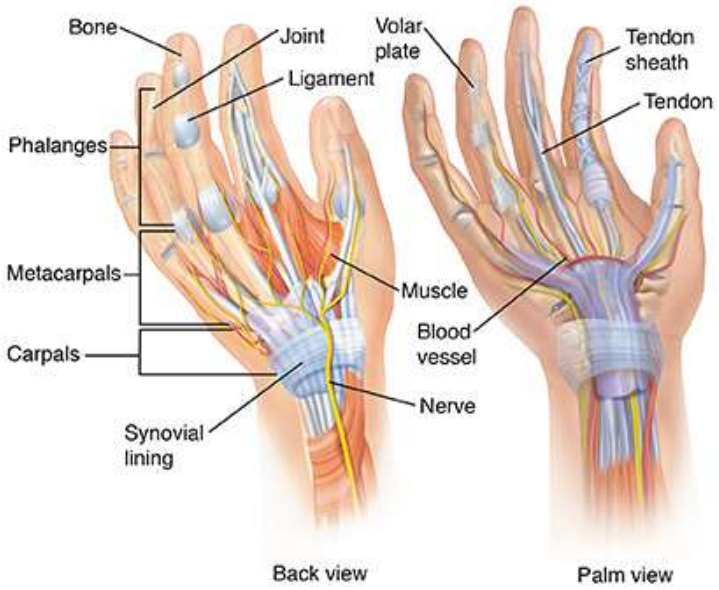
Hand Parts



The hand has one of the strangest arrangements of muscles in the body. Most of its movements are controlled by muscles that aren't located in the hand at all, but in the forearm. The muscles of the forearm connect to the finger bones via long tendons that pass through a flexible wrist.

This remote musculature gives the fingers movement and strength that wouldn't be possible if all of the muscles had to be attached directly to them. In effect, the hand is simply a bony puppet, lashed together by ligaments and controlled by the forearm via the brain.

Ligaments, Tendons, and Nerves



But that arrangement allows us to do so much. At one extreme is the impressive strength of a climbers' hands. Through habitual use and training even a single finger can support the entire body weight. At the other extreme a concert pianist needs great finesse, and this comes from muscles within the hand called intrinsic muscles.

Rock Climber

Some of these muscles specifically control the thumb and little finger while others such as the lumbricals (named for their worm-like shape) are not directly attached to bones but to tendons and allow wonderful subtlety of movement.

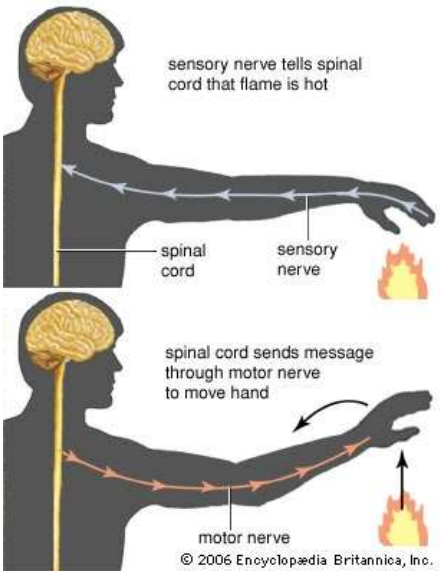
No one would doubt that thumb is the most important digit of all. It accounts for 40% of the hand's capabilities and unsurprisingly if you lose one, surgeons will happily amputate your big toe and use it to create a new thumb, sacrificing one body part for the greater good.

But which finger could you most afford to lose? Most people get this wrong when asked. I thought the little finger (pinky) would be dispensable, but the little finger is actually very important - second only to the thumb. Oddly, the finger you can lose with minimum inconvenience is the index finger. It can be included or excluded from most everything we do with our hands.

How in the world could you do the Hawaiian SHAKA without a Pinky Finger?

How do you know if something is smooth or rough, wet or dry, hot or cold?

The skin at the tips of our fingers is very specialized. If you slice down the middle of a fingertip you see closed cells of fat, which act as a protective cushion for the enormous number of nerve endings underneath. There are four main types of skin receptors and these respond to light and deep pressure, touch, pain and temperature. The fingernails play a crucial part as well. If you didn't have a rigid structure against which to press you wouldn't be able to judge how firmly to hold anything.



Make-up of the Hand by the Numbers

Each hand contains:

- **27 major bones**
- **29 major joints**
- **123 ligaments/tendons**
- **35 muscles to move the fingers and thumb:**
  - **17 in the palm of the hand, and 18 in the forearm**
- **48 nerves:**
  - **3 major nerves**
  - **24 sensory branches**
  - **21 muscular branches**
- **30 main arteries**
- **The thumb is controlled by:**
  - **9 individual muscles and all 3 major hand nerves**

Bones

The human hand is made up of a total of 27 individual bones: 8 carpal bones, 5 metacarpal bones and 14 "finger bones" (also called phalanges) are connected by joints and ligaments. About one quarter of all our body's 206 bones are found in our hands. The hand can be divided up into three different areas based on the joints:

- **Carpus (wrist bones)**
- **Metacarpal**
- **Phalanges (fingers)**

Your fingers are called phalanges, long bones in the middle of your hand are called metacarpals, and the wrist bones are called carpals.

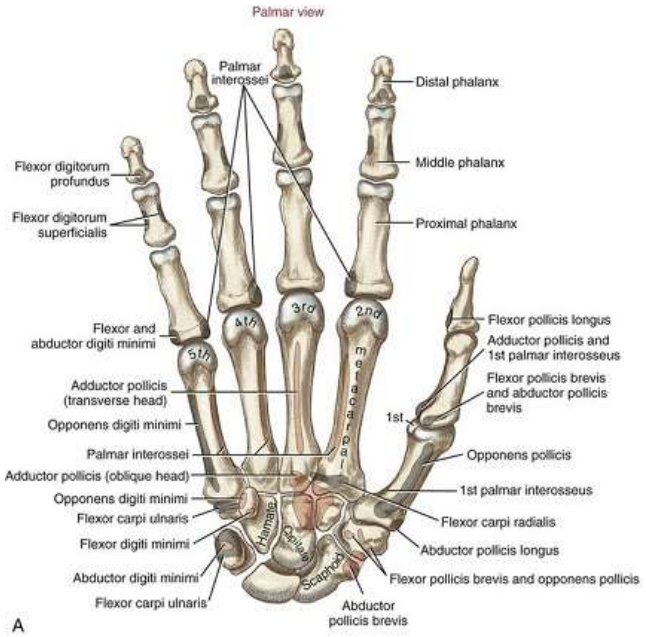
- **There are 14 phalanges (bones) in the thumb and fingers.**
- **The thumb has two bones and two joints.**
- **Each of the other four fingers in each hand has 3 bones (phalanges); The distal phalanges (distal meaning further away from the body); the middle, a.k.a. medial phalanges; and the proximal phalanges (proximal meaning closest to the body).**
- **There are 5 long bones, metatarsals, in each hand, that connect the fingers to the wrist.**
- **There are 8 wrist bones (carpals).**

Joints

The 29 joints in each of our hands are made up of cartilage surfaces that cap the bones. Cartilage is a smooth surface that allows for gliding. When cartilage is healthy, there is a cushioning effect of the cartilage that absorbs and evens out the forces across the joint. Our joints typically have a capsule of tough, but flexible, fibrous tissue that helps hold the joints together and an inner lining of synovium. The synovium has multiple functions including to help provide fluid for lubrication of the joint. The tough fibrous tissue is often what is injured when you have a sprain of a joint.

Each of these joints has a name most of which I can't even pronounce, but here is a picture of them. Notice how complex the bone and joint structure of the wrist is.

DIP and PIP Joints



Ligaments

Ligaments are tough bands of tissue that connect bones together. Two important structures, called collateral ligaments, are found on either side of each finger and thumb joint. The function of the collateral ligaments is to prevent abnormal sideways bending of each joint.

In the PIP joint (the middle joint between the main knuckle and the DIP joint), the strongest ligament is the volar plate. This ligament connects the proximal phalanx to the middle phalanx on the palm side of the joint. The ligament tightens as the joint is straightened and keeps the PIP joint from bending back too far (hyperextending). Finger deformities can occur when the volar plate loosens from disease or injury.

Tendons

The tendons that allow each finger joint to straighten are called the extensor tendons. The extensor tendons of the fingers begin as muscles that arise from the backside of the forearm bones. These muscles travel towards the hand, where they eventually connect to the extensor tendons before crossing over the back of the wrist joint. As they travel into the fingers, the extensor tendons become the extensor hood. The extensor hood flattens out to cover the top of the finger and sends out branches on each side that connect to the bones in the middle and end of the finger.

The place where the extensor tendon attaches to the middle phalanx is called the central slip. When the extensor muscles contract, they tug on the extensor tendon and straighten the finger. Problems occur when the central slip is damaged, as can happen with a tear. This can cause difficulty straightening your fingers.

Muscles

Many of the 35 muscles that control the hand start at the elbow or forearm. They run down the forearm and cross the wrist and into the hand. Some control only the bending or straightening of the wrist. Others influence motion of the fingers or thumb. Many of these muscles help position and hold the wrist and hand while the thumb and fingers grip or perform fine motor actions.

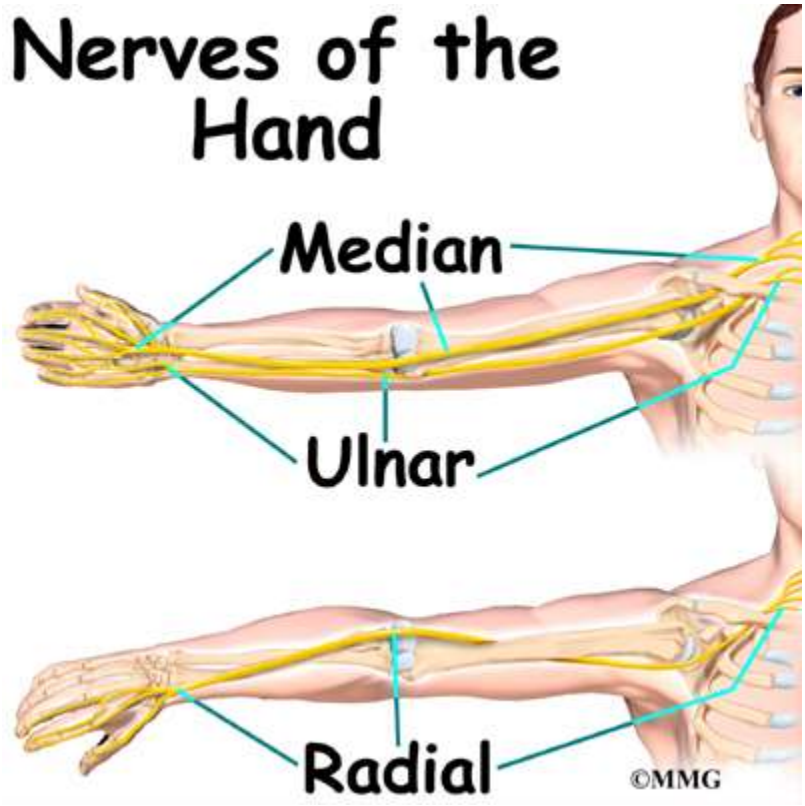
Most of the small muscles that work the thumb and pinky finger start on the carpal bones. These muscles connect in ways that allow the hand to grip and hold. Two muscles allow the thumb to move across the palm of the hand, an important function called thumb opposition.

The smallest muscles that originate in the wrist and hand are called the intrinsic muscles. The intrinsic muscles guide the fine motions of the fingers by getting the fingers positioned and holding them steady during hand activities.

Muscles in the Forearm and Hand

Nerves

All three of the major nerves that travel to the hand and fingers begin together at the shoulder: the *radial nerve*, the *median nerve*, and the *ulnar nerve*. These nerves carry signals from the brain to the muscles that move the arm, hand, fingers, and thumb. The nerves also carry signals back to the brain about sensations such as touch, pain, and temperature.



The radial nerve runs along the thumb-side edge of the forearm. It wraps around the end of the radius bone toward the back of the hand. It gives sensation to the back of the hand from the thumb to the third finger. It also supplies the back of the thumb and just beyond the main knuckle of the back surface of the ring and middle fingers.

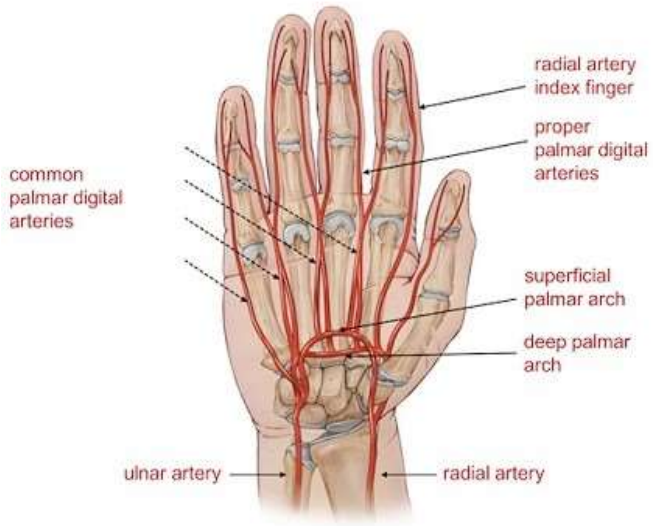
The median nerve travels through a tunnel within the wrist called the *carpal tunnel*. This nerve gives sensation to the thumb, index finger, long finger, and half of the ring finger. It also sends a nerve branch to control the *thenar muscles* of the thumb. The thenar muscles help move the thumb and let you touch the pad of the thumb to the tips each of each finger on the same hand, a motion called opposition.

The ulnar nerve travels through a separate tunnel, called *Guyon's canal*. This tunnel is formed by two carpal bones, the *pisiform* and *hamate*, and the ligament that connects them. After passing through the canal, the ulnar nerve branches out to supply feeling to the little finger and half the ring finger. Branches of this nerve also supply the small muscles in the palm and the muscle that pulls the thumb toward the palm.

The nerves that travel to the hand are subject to problems. Constant bending and straightening of the wrist and fingers can lead to irritation or pressure on the nerves within their tunnels and cause problems such as pain, numbness, and weakness in the hand, fingers, and thumb.

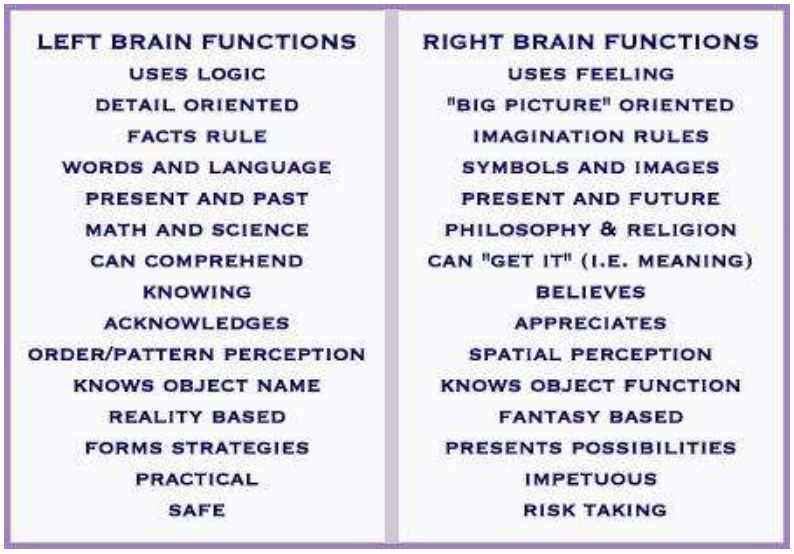
Blood Vessels

Traveling along with the nerves are the 30 blood vessels that supply the hand with blood. The largest artery is the radial artery that travels across the front of the wrist, closest to the thumb. The radial artery is where the pulse is taken in the wrist. The ulnar artery runs next to the ulnar nerve through the ulnar canal in the wrist. The ulnar and radial arteries arch together within the palm of the hand, supplying blood to the front of the hand, fingers, and thumb. Other arteries travel across the back of the wrist to supply blood to the back of the hand, fingers, and thumb.



Fascinating true facts about the human hand

- **You cannot get a tan on your palm and underside of your fingers.**
- **There are no muscles inside the fingers.**
- **One out of six disabling work injuries involve the fingers, most often due to the finger striking or being struck against a hard surface like a hammer.**
- **One fourth of athletic injuries involve the hand and wrist.**
- **Children under the age of six are at the greatest risk for crushing or burning injuries of the hand.**
- **No two human beings in the world has the same fingerprints.**
- **The average hand length for adult women is 6.7 inches - The average length for men is 7.4 inches.**
- **Men tend to have longer ring fingers than index fingers—girls vice versa.**
- **Our fingers are even more sensitive than the eyes—the fingertips have a large number of receptors responsible for sending messages to the brain.**
- **It takes up to 6 months for a fingernail to grow from root to tip.**
- **About 11 percent of the American population is left-handed (with slightly more men (12%) than women (10%)). Yes - left-handed people think different!**



LEFT BRAIN FUNCTIONS	RIGHT BRAIN FUNCTIONS
USES LOGIC	USES FEELING
DETAIL ORIENTED	"BIG PICTURE" ORIENTED
FACTS RULE	IMAGINATION RULES
WORDS AND LANGUAGE	SYMBOLS AND IMAGES
PRESENT AND PAST	PRESENT AND FUTURE
MATH AND SCIENCE	PHILOSOPHY & RELIGION
CAN COMPREHEND	CAN "GET IT" (I.E. MEANING)
KNOWING	BELIEVES
ACKNOWLEDGES	APPRECIATES
ORDER/PATTERN PERCEPTION	SPATIAL PERCEPTION
KNOWS OBJECT NAME	KNOWS OBJECT FUNCTION
REALITY BASED	FANTASY BASED
FORMS STRATEGIES	PRESENTS POSSIBILITIES
PRACTICAL	IMPETUOUS
SAFE	RISK TAKING

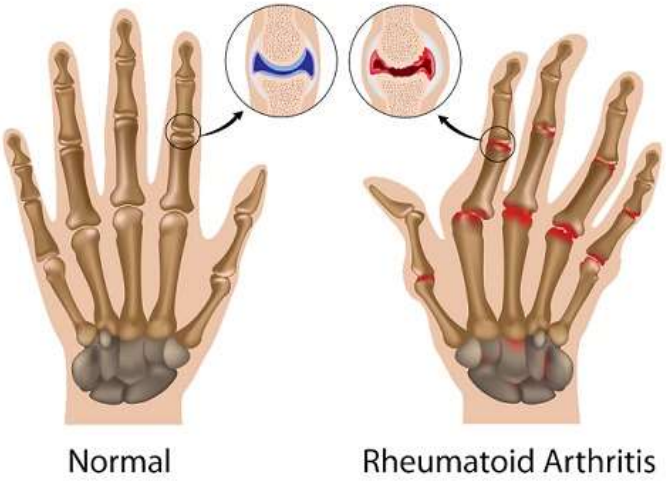
- **About 2 percent of people are mixed-handed - that means they do somethings left-handed and somethings right-handed. (I'm mixed-handed since I write and eat left-handed – throw and do most other things right-handed)**
- **A little less than 1 percent of people are ambidextrous - that mean they can do any task equally well with either hand.**
- **Fingernails grow about twice as fast as toenails, at .14 inches per month compared with .07 inches per month.**
- **Cracking your knuckles doesn't cause arthritis - the popping noise you hear isn't bone on bone -- it's the bursting of small gas bubbles in the joint.**

Hand Diseases and Conditions

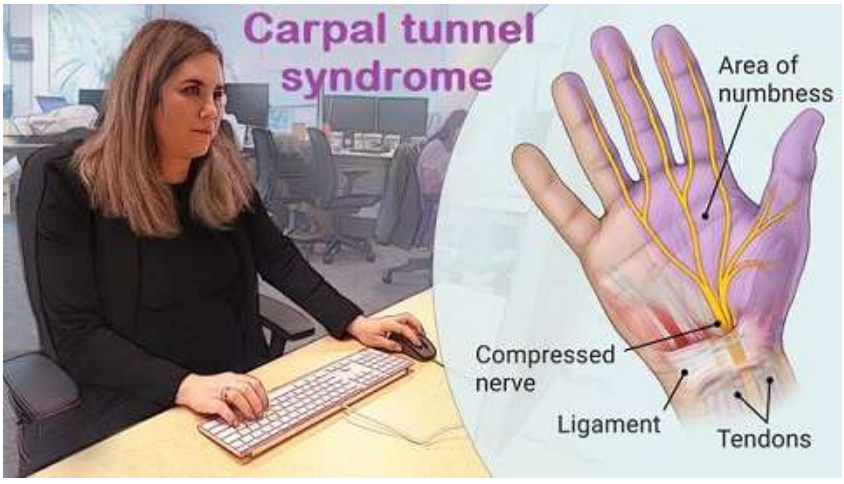
Hand conditions may affect bones, nerves, muscles, tendons or other tissues of the hand. These conditions may be congenital (present at birth) or may develop later in life due to trauma, overuse or other causes.

Hand conditions include, but are not limited to:

- **Fractures of the bones of the hand and wrist.**
- **Rheumatoid arthritis or Osteoarthritis**



- **Tendonitis (Inflammation or irritation of a tendon)**
- **Stiffness of the joints (Most old people like me suffer this condition)**
- **Cysts or noncancerous lumps**
- **Nerve compression (This condition caused by direct pressure on a nerve)**
- **Carpal tunnel syndrome (This is a common condition that causes pain, numbness, and tingling in the hand and arm. The condition occurs when one of the major nerves to the hand — the median nerve — is squeezed or compressed as it travels through the wrist)**



- **De Quervain syndrome (Inflammation of two tendons that control movement of the thumb)**
- **Raynaud syndrome (Spasm of arteries cause episodes of reduced blood flow to the fingers)**
- **Complex regional pain syndrome (Pain in the hand/fingers caused by damage to, or malfunction of, the nervous systems)**
- **Trigger finger (Causes pain, stiffness, and a sensation of locking or catching when you bend and straighten your finger)**
- **Kienböck disease (Condition where one of eight small bones in the wrist, loses its blood supply, leading to death of the bone)**
- **Finger clubbing (A deformity of the finger or toe nail associated with a number of diseases, mostly of the heart and lungs)**
- **Infections (Common infections include cellulitis, necrotizing fasciitis, paronychia, pulp space infection (felon), pyogenic flexor tenosynovitis, deep space infections, septic arthritis, and osteomyelitis)**

Your fingernails can show your state of health

Yes, they can indicate problems such as mineral or vitamin deficiencies, liver trouble, thyroid or anemia. Some warning signs of deficiencies that show up on your nails may be that they are brittle, pale or spotted. The color of the nails and those small "moons" on each nail can identify the quality of oxygen level of the bloodstream and blood circulation.

Laying on of Hands for Healing

Do you believe this is possible? Well, Jesus healed many people with his hands. My research shows that the laying on of hands for healing happens many times a day all around the world. I believe! Here is how it is done:

We all have powerful healing chakras (energy centers) in the palms of our hands. This is one of the gifts of being in a human body. You can use the energy that emanates from the center of the palms to support healing in any part of the body which is in pain or has other need of support. The process is simple - Here are the steps:

1. **Place your hands a few inches away from your body near the afflicted area. Here you will be touching the etheric body, which is holding most of the pain.**
2. **Allow your attention gently to be in the area of your heart.**
3. **Ask lovingly that the presence of the Divine within you produce the quality of energy required to heal the body or body part.**
4. **Feel the awakening of this energy in your heart area.**
5. **When the heart is very full, use intention to direct that energy from the heart chakra down through the arms and out from palms of your hands into the area that needs attention.**
6. **With the pure intention of loving, forgiving and healing the area, this energy will do wonders for repairing tissues, removing pain, eliminating infection, etc.**

I believe it is possible to heal with the hands, but I don't think I have what it takes to heal anybody.

Massage Health Benefits

Speaking of laying of hands on your body, a massage can be a powerful tool to help you take charge of your health and well-being.

What is massage?

Massage is a general term for pressing, rubbing and manipulating your skin, muscles, tendons and ligaments. Massage may range from light stroking to deep pressure. There are many different types of massage, including these common types:

Swedish massage. This is a gentle form of massage that uses long strokes, kneading, deep circular movements, vibration and tapping to help relax and energize you.

Deep massage. This massage technique uses slower, more-forceful strokes to target the deeper layers of muscle and connective tissue, commonly to help with muscle damage from injuries.

Sports massage. This is similar to Swedish massage, but it's geared toward people involved in sport activities to help prevent or treat injuries.

Trigger point massage. This massage focuses on areas of tight muscle fibers that can form in your muscles after injuries or overuse.

Benefits of massage

Massage is generally considered part of complementary and integrative medicine. It's increasingly being offered along with standard treatment for a wide range of medical conditions and situations. Studies of the benefits of massage demonstrate that it is an effective treatment for reducing stress, pain and muscle tension. While some doctors question the benefits of massage, recent studies have found that massage may also be helpful for:

- **Anxiety**
- **Digestive disorders**
- **Fibromyalgia (widespread musculoskeletal pain)**
- **Headaches**
- **Insomnia related to stress**
- **Myofascial pain syndrome (a chronic pain disorder)**
- **Soft tissue strains or injuries**
- **Sports injuries**
- **Temporomandibular (pain in your jaw joint and in the muscles that control jaw movement)**

Beyond the benefits for specific conditions or diseases, some people enjoy massage because it often produces feelings of caring, comfort and if you are lucky - a feeling of being happy.

So, when was the last time you had a nice refreshing massage? Let me think – oh yeah, about 10 years ago in the Far East. I need another one!

Palmistry

I saved this subject for last since I find it quite interesting. In my younger years, I studied Palmistry enough to be able to read people's palms. I just did it for fun – mostly in bars. Here is some basic information:

History

Palmistry, also called chiromancy, reading of character and divination of the future by interpretation of lines and undulations on the palm of the hand. The origins of palmistry are uncertain, but it probably begun in ancient India and spread from there. It was probably from their original Indian home that the traditional fortune-telling of the Roma (Gypsies) was derived. The chiromantic art has been known in China, Tibet, Persia, Mesopotamia, and Egypt, and it underwent significant development in ancient Greece.

Medieval palmistry was pressed into service by the witch-hunters, who interpreted pigmentation spots as signs of a pact with the Devil. After a period of disrepute, palmistry flourished again in the Renaissance. In the 17th century, attempts were made to develop empirical and rational foundations for its basic principles. After a second ebb, during the Enlightenment, it underwent a popular revival in the 19th and 20th century.

Questions

Is Palm Reading True?
How accurate is palmistry?
Is palm reading real or fake?
Is there any truth behind palm reading?

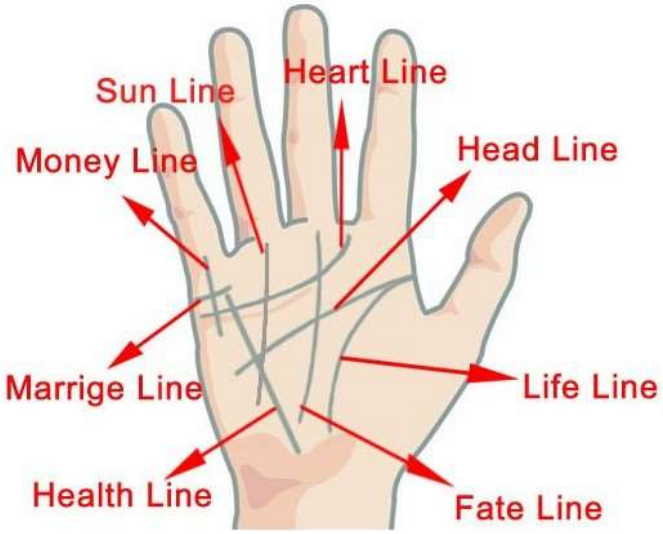
Here is what most scientists and doctors say:

Although there is no scientific support for the contention that the physical features observed in palmistry have psychic or occult predictive meaning, the human hand does show evidence of the person's health, cleanliness, and occupational and nervous habits (e.g., as evidenced by calluses or nail-biting). Hands are routinely examined in medical diagnosis and provide clues with which the palmist may often astound the unsophisticated.

Well, here is what I say:

I believe there is an element of truth in Palm Reading. I believe it is more accurate than Astrology, Tarot cards, Tea-leaves and Crystal-ball Fortune-telling. It is definitely not as accurate as a proven physic for telling the future. Handwriting Analysis is the most accurate, but it doesn't tell the future – it tells you the character and personality of the writer at the exact time of the writing.

Let’s take a look at the basic hand lines:



Life line: This line begins between the index finger and the thumb and continues downward toward the base of the thumb and the connection to the wrist. It reflects a person's physical vitality and life energy. It is also used to see the length of one's life.

Fate line: This line stretches from the wrist to the middle finger. If your fate line is clear, deep and straight without crosses, you are regarded to be bestowed with a good luck and fortune.

Health line: This line (if present) usually starts below you little finger and run fairly straight toward the wrist. It indicates the health condition of a person. A missing health line or a straight line without touching the life line usually indicates a good health condition. A wavy, broken, or crossed line could mean health issues.

Marriage line: The line(s) of marriage are found on the sides of the hand under the little finger. It reflects one's love life and attitude. One straight long marriage line indicates deep and long love. Multiple lines means many love affairs, etc.

Money line: This line runs vertical under your little finger. If line is clear and straight, it shows you are smart, good at investing and could make a fortune. Wavy or broken line can spell trouble with your finances.

Sun line: This line originates from the base of the palm, little finger side and goes upward toward the ring finger. The sun line mainly shows the capability, talent and popularity which may lead to success.

Heart line: This line begins near the middle of your hand at the edge of your palm under your pinky finger and extends across your palm towards your index finger. If your heart line ends between your middle and index fingers you are trustworthy, considerate and kind to others and tend to easily give your heart to another.

Head line: This line stretches from the middle of the thumb and index finger to the palm's other side. It usually looks like it's dividing the palm and reflects a person's mentality and personality.

Just in case you are interested in this kind of stuff:
I wrote an article about palmistry back on 10 December 2006.
I wrote four articles about handwriting analysis in February 2007.
There are hundreds of websites on the Internet you can Google.

Okay, let's do a quick summary
I think by now you should have gotten the message – those two funny looking things dangling from the end of your arms are very important.

Think about it – what activity you do that doesn't involve the use of the hands?

One last thing – keep your hands clean. Wash often! Dirty hands can cause you to get sick and spread diseases.

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