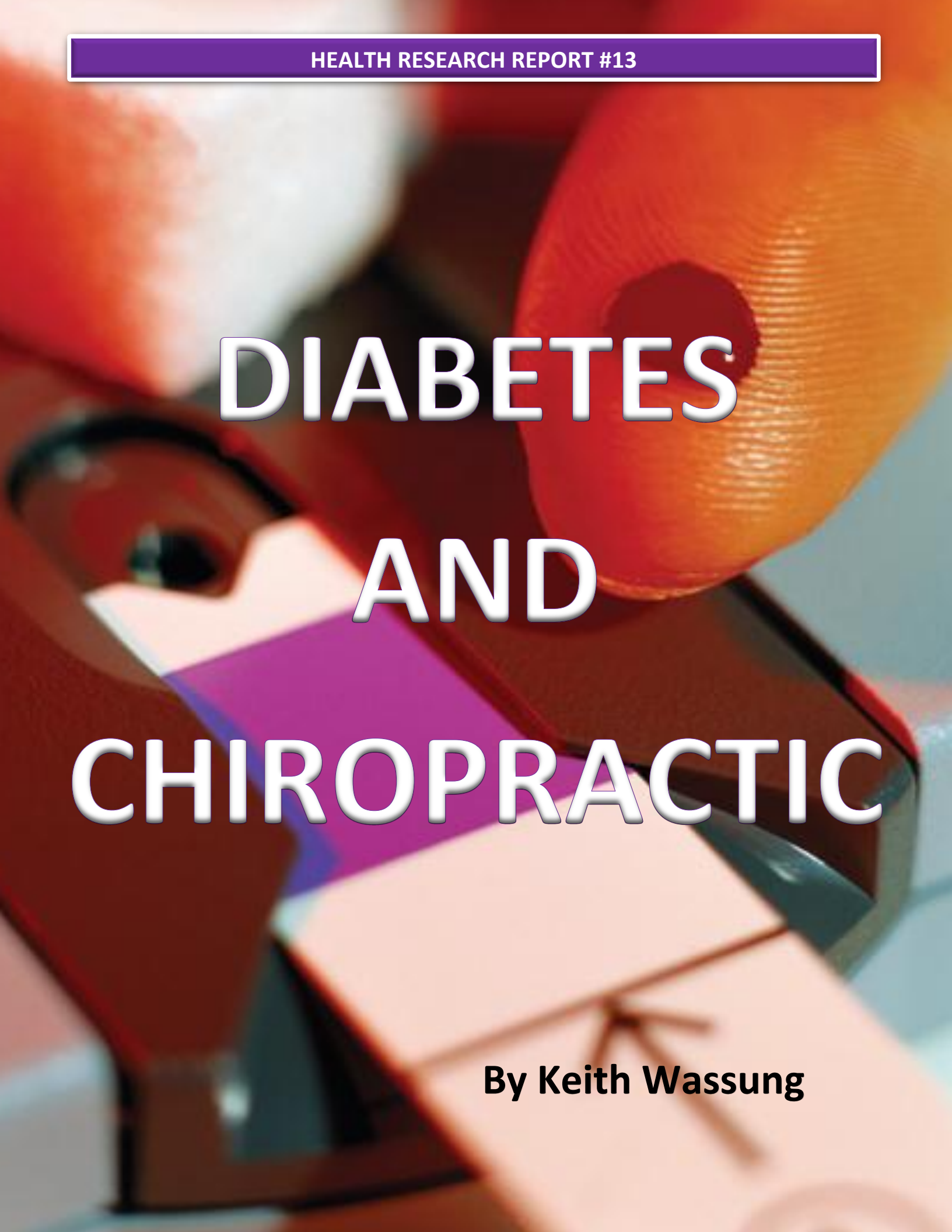
HEALTH RESEARCH REPORT #13



DIABETES AND CHIROPRACTIC

By Keith Wassung

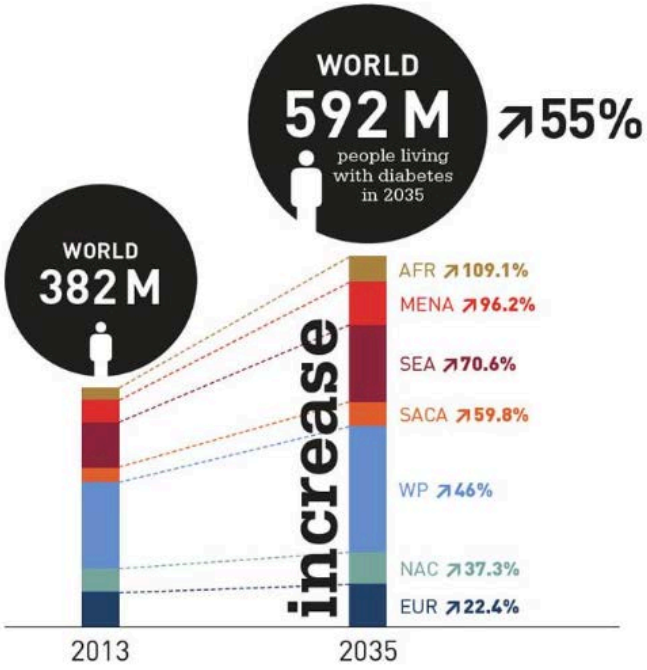
Over twenty million people in the United States have diabetes mellitus, half of which are undiagnosed. In both human and economic terms, it is one of our nation's most costly health conditions.

Diabetes is the leading cause of kidney failure, blindness in adults, and amputations. It is a major risk factor for heart disease, stroke, and birth defects, shortens average life expectancy by up to 15 years, and costs the nation in excess of $100 billion annually in health- related expenditures.

At present, more than one of every ten health-care dollars and about one of every four Medicare dollars are spent on people with diabetes

Over the next decade, these numbers will grow as the number of people afflicted by diabetes continues to increase at an accelerating rate.

At present, there is no method to prevent or cure diabetes, and available treatment have only limited success in controlling its devastating consequences.

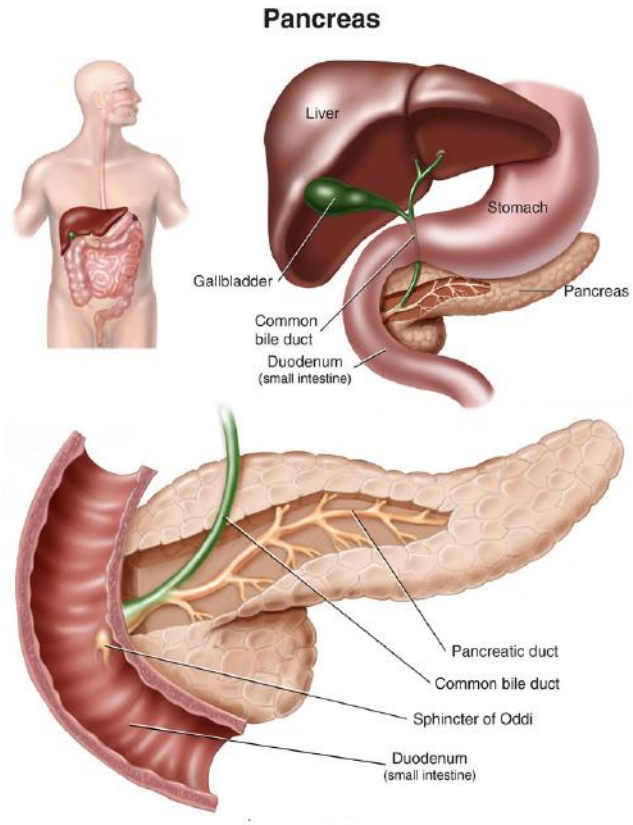


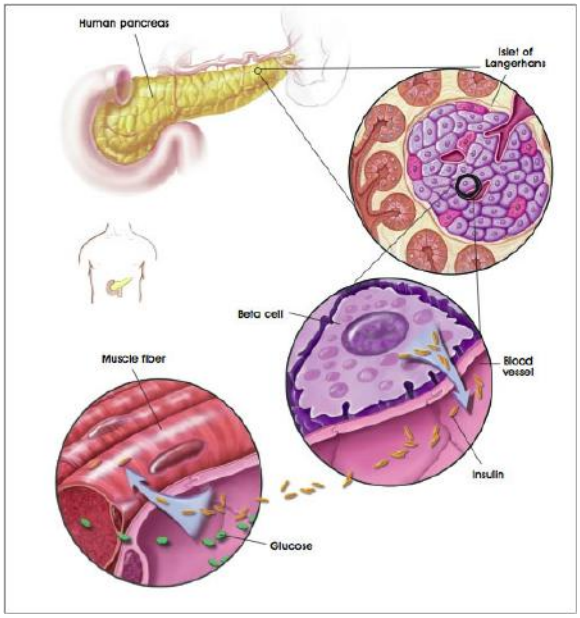
The facts about diabetes leave no doubt about its seriousness. It is the seventh leading cause of death in the United States, currently, an estimated 18 million people in the U.S. have been diagnosed with diabetes – a six fold increase over the past four decades.[1]

Center for Disease Control

Diabetes mellitus is a disorder of metabolism that results from a deficiency of insulin, a hormone secreted by the beta cells of the pancreas. Insulin is required for the removal of sugar (glucose) from the blood by muscles after a meal and to prevent the over secretion of glucose from the liver during periods of fasting

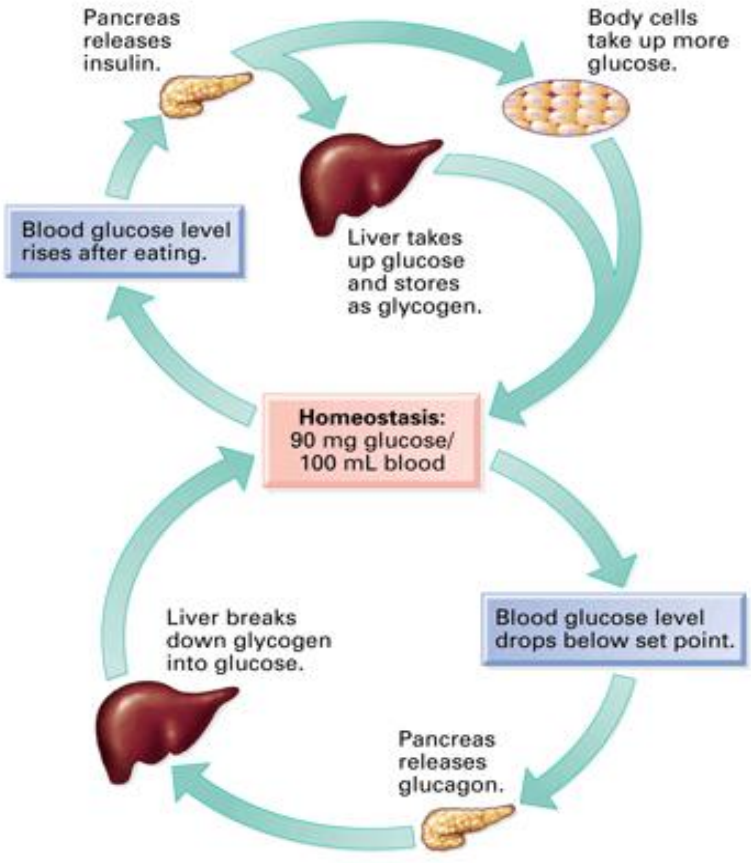
Insulin transports glucose into the cells for use as energy and storage as glycogen. It also stimulates protein synthesis and free fatty acid storage in the fat deposits. When a person lacks sufficient insulin, body tissues have less access to essential nutrients for fuel.





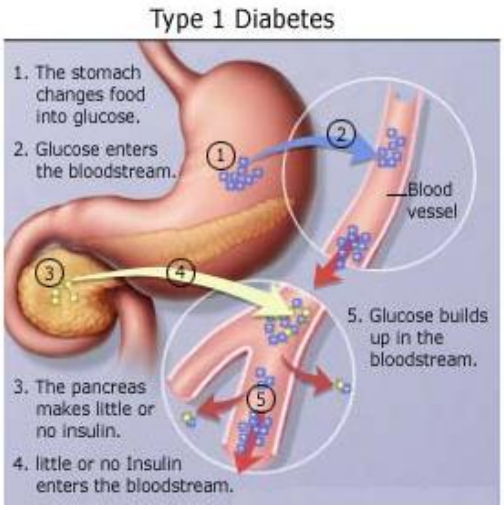
An inadequate amount or inefficient action of insulin leads to elevated blood levels of glucose, the hallmark of diabetes.

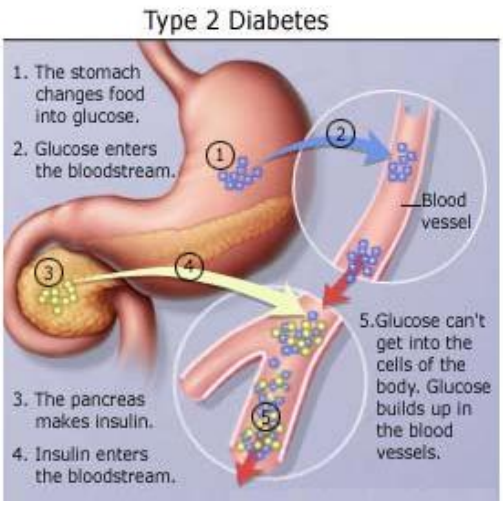
This problem is made more complex by the fact that diabetes mellitus is not a single disease, but occurs in several forms, and has complications that affect virtually every system of the body.



The most common forms are Type 1 (insulin- dependent) diabetes, which usually starts in childhood or adolescence, and Type 2 (non-insulin dependent) diabetes, which typically affects adults and increases dramatically with age and obesity

Other types include gestational diabetes mellitus (gdm), which occurs during pregnancy, and “other specific types” which include people who have diabetes because of a genetic defect, endocrinopathologies or exposure to certain drugs or chemicals.

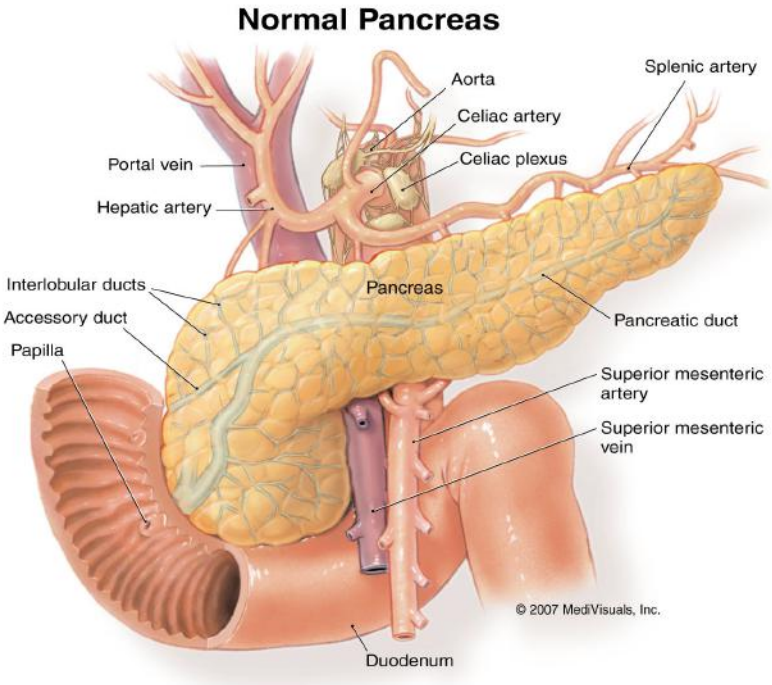




Type 1 diabetes is due to destruction of the beta cells of the pancreas by an autoimmune reaction (an attack on these cells by the body’s immune system that normally works to fend off infections).

Type 2 diabetes results from a combination of chronic resistance to the biological action of insulin and the body’s inability of the pancreas to produce enough insulin to overcome the resistance

Diabetes insipidous is a disorder of water metabolism resulting from a deficiency of the hormone *vasopressin* and has no relationship to diabetes mellitus.

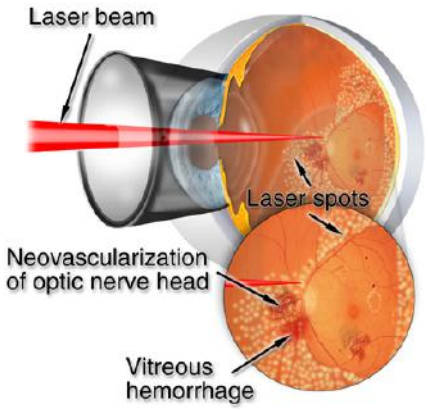


Traditional Approach to Diabetes

The objective of diabetes treatment is to normalize blood sugar levels. In type I this is achieved with insulin injections, diet and exercise.

The individual may receive insulin in a single dose, mixed dose, split-dose, or multiple-dose regimen. A diabetic with kidney failure may require dialysis or a kidney transplant.

A person with retinal abnormalities may undergo a procedure called photocoagulation, in which a laser or xenon arc light is used to cause condensation of protein material in the eye. Blood vessel disease may require vascular surgery.



New Treatments for Diabetes

Sandimmune Therapy aims to prevent the destruction of islet beta- cells. This drug may prevent circulating islet-cell antibodies in the blood from attacking islet cells. However, the drug can also be harmful to the liver and kidneys.

Pancreas Transplants are an option but because of the high risk of immune rejection, people receiving a pancreas transplant must take drugs that suppress the immune system. Unfortunately, these drugs eventually can cause more problems, including infection and damage to the liver and kidneys. Patients also face a greater health risk of diabetic complications from long- term immune system suppression.

Stem Cells have the potential to develop into any tissue or organ in the body and yet cannot develop into a full human being. Moreover, these cells could be engineered in such a way that people who receive them might not need highly toxic immunosuppressive drugs, which prevent the body from rejecting “foreign” tissue currently an obstacle to successful islet transplantation

“Recent observations have suggested that common infections during the first year of life have a protective effect. A study of 58 insulin-dependent children was matched with 172 non-diabetic children. Analysis of both groups showed that respiratory infections had the most marked protective effect later in life. Infections during the first year may protect by modifying the lymphomatic response to subsequent immunological challenge. A link with decreasing early exposure to common infectious disease could account for the rise in the incidence of diabetes over the past 30 years” [2]

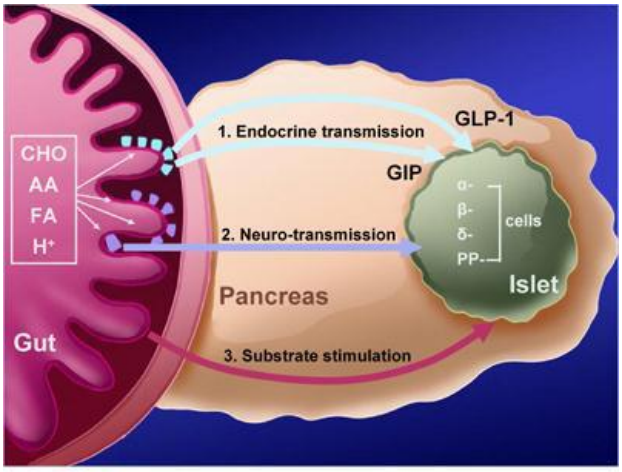
Archives of Diseases in Childhood

“Epidemiologic studies have demonstrated that children who acquire natural infections develop immunity to subsequent infections, with the protective effect increasing with each natural infection.”

Pediatric Infectious Disease Journal

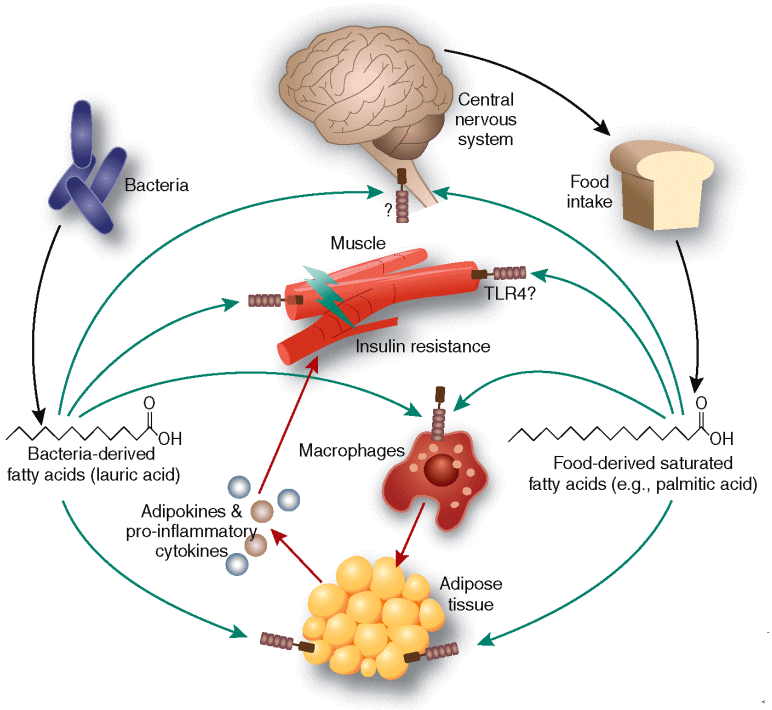
Diabetes and Signaling

Recent advances in the fields of molecular biology and neuro-endocrinology have revealed that insulin deficiency may be due to a breakdown in the communication and signaling mechanisms associated with the central nervous system and metabolism.



“Intracellular and intercellular are the basic mechanisms for the regulation of all cells. Disturbances in cell signaling are central to disturbances in insulin secretion and action, which lead to diabetes and to both micro- and macrovascular complications.”[3]

American Diabetes Association



"Insulin receptors and insulin signaling proteins are widely distributed throughout the central nervous system. New evidence now indicates that insulin participates in the central nervous system control of food intake and body weight, and the stage is now set for studies to determine if impaired central nervous system signaling contributes to the pathogenesis of two common metabolic diseases, obesity and type-2 diabetes." [5]

Science Week

Health care is slowly changing its focus from treatment of metabolic disorders with drugs and chemicals to shifting towards procedures that restore and maintain the normal communication and control systems of the human body.

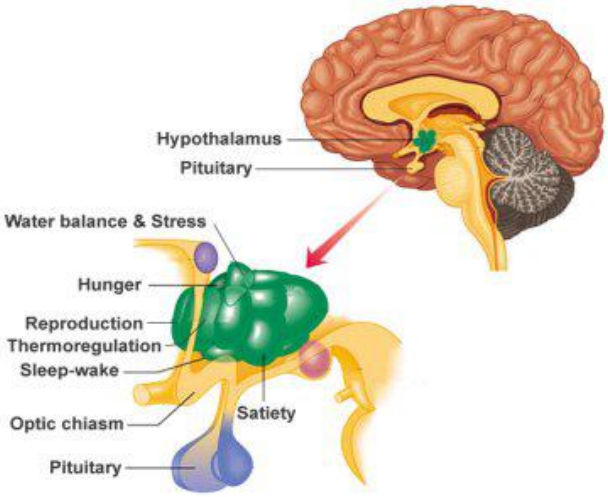
Central Nervous System & Metabolism

The central nervous system in the master control system in the body and every single function reflects it's activity.

Nerve impulses travel from the brain, down the spinal cord and out through nerves to all parts of the body. Nerve impulses than to the brain through return pathways.

There are in excess of one hundred billion neurons or nerve cells in the human central nervous system and the number of possible interconnections between all of these cells isgreater than the total number of know atoms in the universe.

Recent research has clearly shown that even activity that occurs at the cellular and molecular levels are controlled and coordinated by the central nervous system.



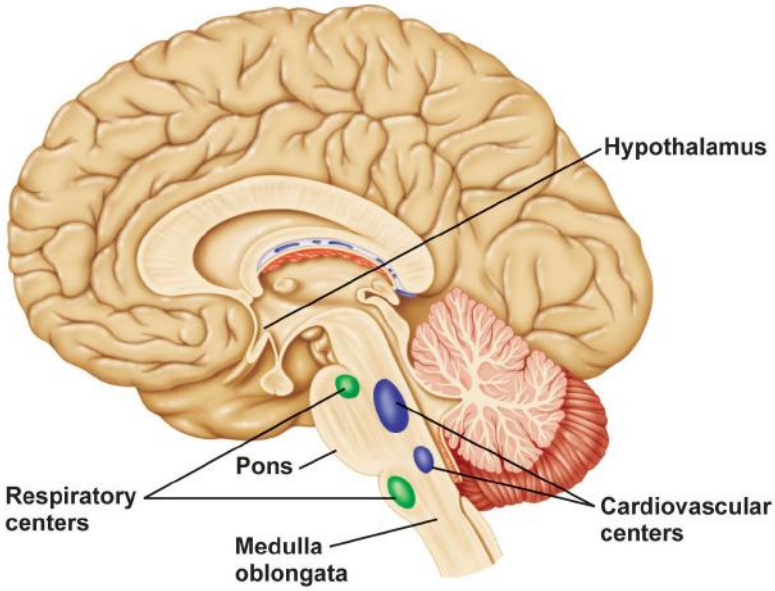
The nervous system does much more than transmit sensory information to the brain or control motor functions. It actually controls the peripheral organs, including its biomolecular environment. The central nervous system is involved in all disease conditions as the cns not only processes incoming physical and chemical information from the body, it actually controls organs and cells to maintain health and homeostasis.[6]

Medical Hypothesis

Metabolism: The sum of all physical and chemical changes that take place within an organism; all energy and material transformations that occur within living cells.[7]

Tabers Medical Dictionary

The limbic system is the area of the brain that maintains homeostasis and the hypothalamus is perhaps the most important part of the limbic system. It is the “brain of the brain” and is without question the single most intricate and complicated part of the brain. The hypothalamus controls homeostasis in the brain by way of feedback loops. The combined neurological and endocrine function of the hypothalamus allows it to play a prominent role in the regulation of numerous bodily functions including the control of metabolism.



Factors such as blood sugar levels, temperature, fluid and electrolyte balance, blood pressure, and body-weight are held to a precise value called the set-point, and though it can migrate from day to day, it usually remains remarkably fixed

To achieve the task of maintaining metabolic balance, the hypothalamus must receive inputs about the state of the body, and must be able to initiate compensatory changes as needed.

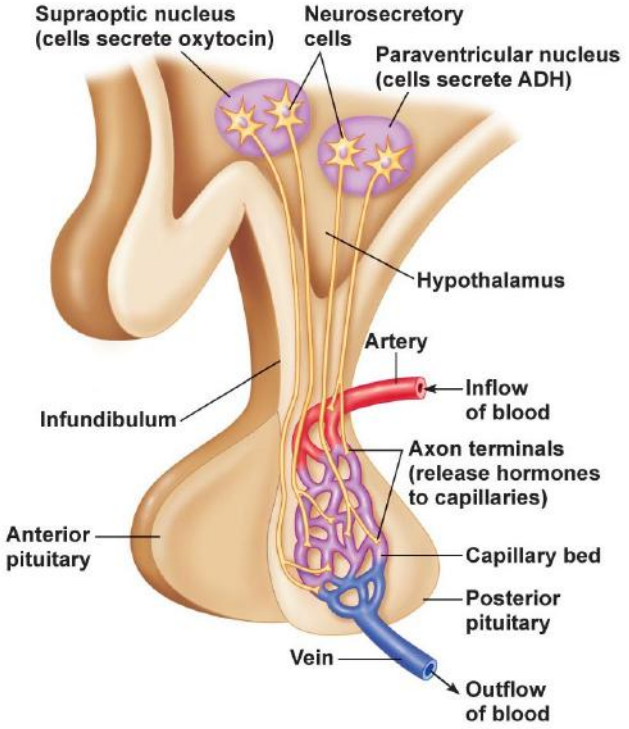
The hypothalamus receives millions of nerve messages from complex areas of the rest of the nervous system including the **nucleus of the solitary tract, reticular formation, the retinas, circumentular organs, the limbic and olfactory systems, sense organs, neocortex, osmoreceptors, as well as numerous touch receptors through the body.**

This input into the hypothalamus allows it to regulate and integrate heart rate, blood pressure, respiratory rate, digestion, emotional responses, behavior, sex drive, body temperature, appetite, sleep cycles, blood sugar levels, metabolism, and much more.

When the hypothalamus senses any type of imbalance, it corrects it by one of two ways.

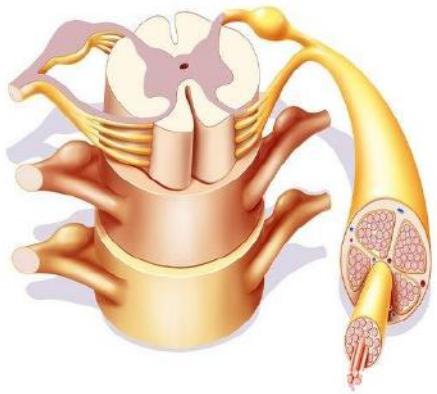
1. **Sending nerve signals to the autonomic nervous system.**

2. **Sending endocrine signals to the pituitary gland.**



The effectiveness of the hypothalamus to control metabolism and other functions is directly related to the functional capability of the nervous system to be able to send and receive nerve messages and especially to maintain the integrity of those nerve messages as they travel along the spinal cord.

Spinal Cord and Nerve Interference



The spinal cord is both a cable and a switchboard. As a cable, it connects the brain with the rest of the nerves in the body. As a switchboard, it coordinates muscle movements, reflexes and other activities under its direct control.

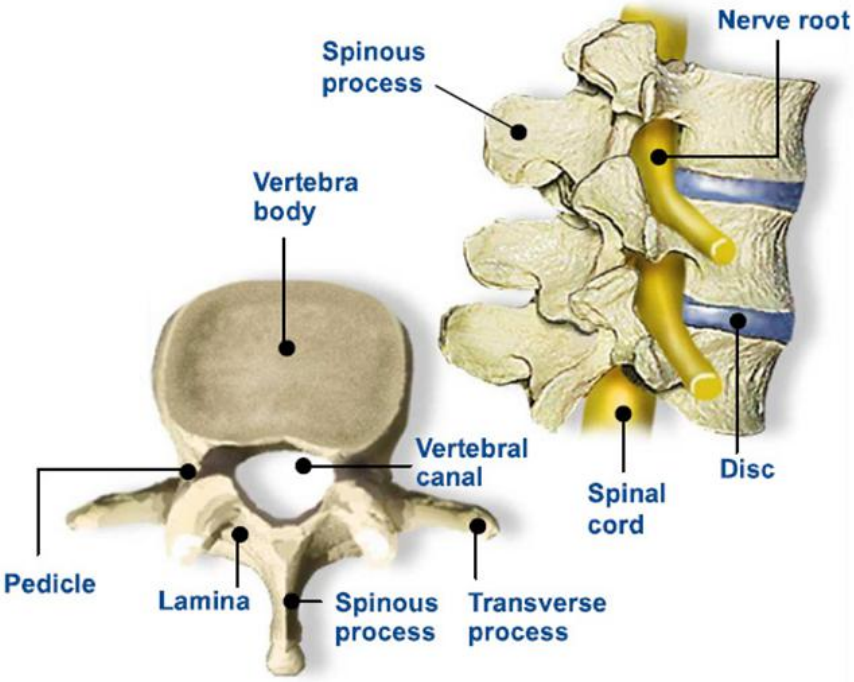
The spinal cord is a direct extension of the brain, composed of the same kind of nerve cells, fibers and supporting glial cells as those of the brain.

The spinal cord is composed of 24 individual vertebra, stacked on top of one another. The spine is straight when viewed from the front or the rear. When viewed from the side, it forms a series of geometric curves or arcs. This arrangement of spinal curves is much stronger than a more rigid straight column.

When the spine is in its optimal structural position, the nervous system pathways are protected, and the integrity of nerve impulses traveling to and from the brain at an optimum level. This is when the nervous system can best achieve homeostasis and maintains its metabolism.

Because the vertebrae are moveable, they are also susceptible to various stresses and forces, which can cause them to lose their proper position. This condition is called a **vertebral subluxation.**

Subluxations interfere with the normal flow of nerve impulses and can cause an increase or decrease of nerve activity.



This is why metabolic disorders are often related to imbalances in the endocrine system.

Vertebral subluxations may be referred to or described in scientific literature by a variety of names including: spinal lesions, nerve dysfunction, nerve impingement, axillary nerve dysfunction, sciatica, dystrophic axon disorder, double crush phenomena, neuritis, dysponesis, neuropathy, nerve entrapment, as well many others.

Spinal nerve interference has been documented by leading scientific researchers to be a contributing factor of endocrine and metabolic disorders including diabetes.

"Lesions of the hypothalamic input region may produce a variety of symptoms, including diabetes, obesity, sexual dystrophy, and loss of thermal control." [8]

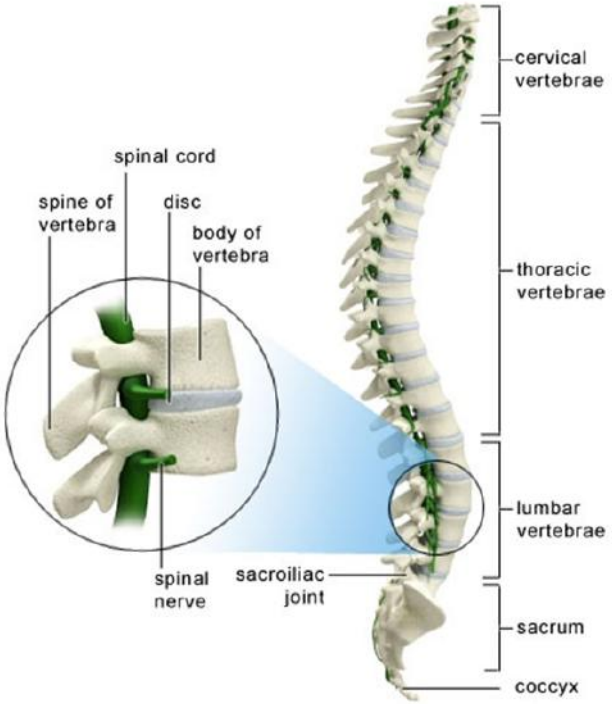
Correlative Neuroanatomy & Functional Neurology

"Research at the Still Institute showed that spinal lesions resulted in pathological changes in the blood, urine, and tissue fluids. Spinal lesions of the atlas & axis (C1 & C2) were associated with abnormal function of the pituitary gland, resulting in abnormal hormone secretions." [9]

Still Research Institute

"Hyper functional or Hypo functional neurons along a neural chain prevent normal nerve transmission causing disturbances in the homeostasis of the cells, tissue, and organs." [10]

Dr. T.N Lee, Academy of Pain Research



"Nerves branch at specific levels of the spinal column, thus dysfunction of visceral organs may be associated with spinal nerve dysfunction at certain branches or levels of the spine. Because of compensation, the primary level of spinal somatic dysfunction may be at a level different from the level of the nerve root innervating the dysfunctional organ or system." [11]

U.S. Medicare Policy

"Abnormalities of central afferent and efferent pathways have been revealed by evoked potential studies in diabetic patients. Central nervous system abnormalities are more frequent in patients with peripheral neuropathy, but evoked potential can be abnormal even in patients without neuropathy." [12]

Clinical Neuroscience

"A study of 46 insulin-dependent patients, who had had no indication of neurological pain, was compared with 46 age-matched control subjects. Spinal somatosensory evoked potentials were recorded from various segments of the spine. The study revealed that patients with juvenile diabetes without clinical evidence of neuropathy can have defects in spinal afferent transmission." [13]

Annals of Neurology

Oral glucose tolerance testing was performed on 201 subjects with spinal cord trauma. The dependent variables included the values from the oral glucose tolerance test, (glucose, insulin) and diagnostic classification (i.e. Diabetes Mellitus) along with impaired glucose tolerance. The study concluded that patients with the greatest levels of neurological deficit have increased risk of developing disorders of the metabolism. [14]

SPINAL CORD

Chiropractic Health Care

Chiropractic is a health care system that is founded on the premise that a proper functioning nervous system is essential to overall health and function of the human body. Doctors of Chiropractic detect and correct vertebral subluxations by physically adjusting the spine. This restores the nervous system to an optimum level of function, which maximizes the body's inherent healing potential.

Chiropractic adjustments restore normal nerve function; improve spinal biomechanics, range of motion, reflex arcs, and posture, all of which are essential to proper metabolic balance. Doctors of Chiropractic have never claimed that they can "cure" diabetes and other related conditions, and not all cases of diabetes can be attributed to vertebral subluxations, but clinical and case study research has demonstrated that correcting subluxations can lead to an improvement and restoration of metabolic functions.

An investigation was undertaken to study the circumstances of life of 115 families with children aged 0-7 years suffering from asthma, diabetes, and epilepsy. Their contacts with traditional and alternative health care systems were investigated. In addition, 317 families with healthy children were also investigated. One-third of the sick children had received alternative treatment. The majority had consulted chiropractors. 73% of the parents reported that the treatment had been of benefit to their child. [15]

National Library of Medicine

"Subluxation alone is a rational reason for Chiropractic care throughout a lifetime from birth"[16]

Dr. Lee Hadley, Syracuse Memorial Hospital

Case Study: An 80-year-old man with a history of Diabetic Mellitus complained of low back pain along with burning pains in the lower extremities and poor balance. Joint dysfunction was detected in the mortise and intertarsal joints and myofascial trigger points were found in the quadratus plantae muscles. The patient was treated with chiropractic manipulations 18 times over a period of 4 months. The treatments brought about drastic improvements in both symptoms and clinical signs of nerve function.[17]

Journal of Manipulative and Physiological Therapeutics

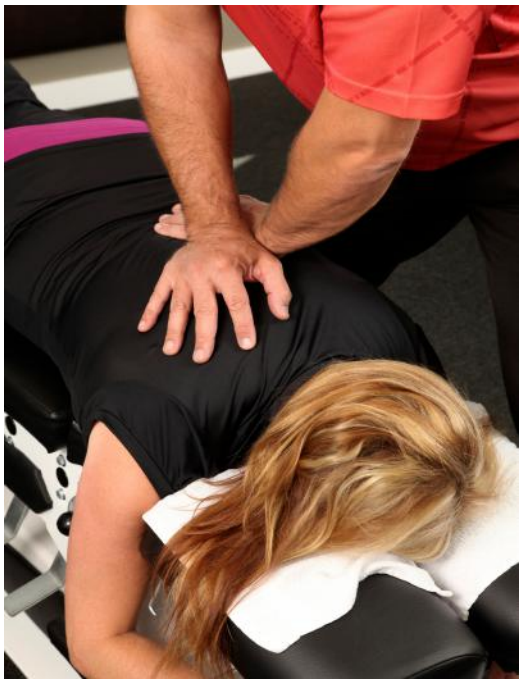
Doctors of Chiropractic are experts in spinal structure and body mechanics.

Chiropractic adjustments are aimed at restoring and maintaining the structural integrity of the body by correcting spinal and postural distortions

Chiropractors emphasize the importance of posture to overall health, a concept that has been often overlooked in traditional methods of health care.

“The beginning of the disease process starts with postural distortions” [18]

Dr. Hans Seyle, Nobel Laureate



POSTURE AND HEALTH

Posture and normal physiology are interrelated.

Posture affects and moderates every physiological function from breathing to hormonal production.

Abnormal posture is evident in patients with chronic and stress related illnesses.

Homeostasis and nervous system function are ultimately connected with posture.

Despite the considerable evidence that posture affects physiology and function, the significant influence of posture on health is not addressed by most physicians. [19]

American Journal of Pain Management

CHIROPRACTIC FACTS

Training to become a Doctor of Chiropractic requires a minimum of six years of college study and clinic internship. Training includes two years of the basic health sciences and the remaining four years focusing on the correction and prevention of spinal and structural problems that affect the nervous system.

A four-year DC degree course averages 4,485 hours, which is comparable with medical curriculums.

A Chiropractor must pass difficult state and national boards to obtain licensing. Chiropractors are licensed in all 50 states.

Chiropractic services are covered in most major health insurance programs, Medicare, Medicaid, as well as state and federal workman's compensation programs.

CONCLUSION

Doctors of Chiropractic have been correcting vertebral subluxations in patients for over 100 years, resulting in the recovering and improvement of almost every known health problem. In 2014, more than one billion dollars was spent on diabetes research in the United States, none of which was spent on research related to Chiropractic. Given that recent findings in molecular and genetics research clearly shows that molecular signaling breakdown is a critical component of diabetes, Chiropractic must be explored and researched as a way of both preventing and improving Diabetes.

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THE EDUCATION AND TRAINING OF A DOCTOR OF CHIROPRACTIC

Educational requirements for doctors of chiropractic are among the most stringent of any of the health care professions. The typical applicant at a chiropractic college has already acquired nearly four years of pre-medical undergraduate college education, including courses in biology, inorganic and organic chemistry, physics, psychology and related lab work. Once accepted into an accredited chiropractic college, the requirements become even more demanding — four to five academic years of professional study are the standard. Because of the hands-on nature of chiropractic, and the intricate adjusting techniques, a significant portion of time is spent in clinical training.

Doctors of chiropractic — who are licensed to practice in all 50 states, the District of Columbia, and in many nations around the world — undergo a rigorous education in the healing sciences, similar to that of medical doctors. In some areas, such as anatomy, physiology, rehabilitation, nutrition and public health, they receive more intensive education than their MD counterparts.

Like other primary health care doctors, chiropractic students spend a significant portion of their curriculum studying clinical subjects related to evaluating and caring for patients. Typically, as part of their professional training, they must complete a minimum of a one-year clinical-based program dealing with actual patient care. In total, the curriculum includes a minimum of 4,200 hours of classroom, laboratory and clinical experience. The course of study is approved by an accrediting agency which is fully recognized by the U.S. Department of Education. This has been the case for more than three decades.

Records from insurance and court cases have constantly shown that chiropractic is the safest portal of entry health care available to the public today. Although no healthcare procedures are 100% safe, chiropractic stands on its record of safety and effectiveness unmatched in healthcare.

The chiropractic adjustment is a safe, efficient procedure which is performed nearly one million times every working day in the United States.

There is a singular lack of actuarial data that would justify concluding that chiropractic care is in any way harmful or dangerous. Chiropractic care is non-invasive, therefore, the body's response to chiropractic care is far more predictable than its reactions to drug treatments or surgical procedures. Of the nearly one million adjustments given every day in this country, complications are exceedingly rare.

COMPLIMENTS OF

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