

CELLS

by

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Cells are considered to be the smallest units of life. They can perform all of the necessary functions of life, which include the intake of nutrition, the excretion of waste, growth, and reproduction. Each cell in our body has the capability to perform these functions to one degree or another, throughout or at some key point in their individual life. Our lives, as human beings, depends not only upon the ability of cells to carry out these roles, but upon them happening at the appropriate time. It is a mind boggling scheme of actions and interactions occurring on a scale beyond the comprehension of our imaginations.

The complexity of cellular life is truly amazing. The sheer number of cells that make up our bodies is in itself astounding. There are more cells in the average newborn's hand than there are people living in New York City. There are more cells in the average eight year old's brain than there are people living in the United States. There are more cells in an average sixteen year old's leg than there are people on this planet. And there are more cells in the average adult's body than the total number of people who have lived since the beginning of time.

The average adult's body is comprised of between fifty and one hundred trillion cells. That is an amazing number. In my daily experience I have a difficult time visualizing what one million of anything looks like. It takes one million millions to make one trillion, and our bodies have between fifty and one hundred trillion cells. It's incomprehensible for me to truly grasp the number of cells required to make me. The only thing I can honestly say about this is wow!

These numbers alone display the gravity of our situation. You are responsible for the well-being of more individual cells in your body than the total number of citizens who depend upon the president of the United States. In fact, your body is a society of cells far outnumbering the total number of people living on this planet. You command more cells than the number of soldiers any ruler in history, current or past, ever commanded, and all of these cells are fighting for you. It is, therefore, your responsibility to fight for them.

The daily functions of life are many and complex. In addition, there are many factors in our lives which we have no control over. Yet, let us focus solely upon areas in which we make conscious decisions about our lives. These decisions, in turn, impact the lives of each and every cell in our body, all fifty to one hundred trillion of them. Ultimately, our health is no more than a reflection of the total health of our individual cells. Anytime we hurt them, we hurt ourselves, and anytime we help them we help ourselves. The connection is direct, unbreakable, and crucial to the quality and continuity of our survival as individuals and as a species.

Understanding the enormity of the cellular society your body represents brings appreciation for the role each of us plays in our own health care. We live with and within these tiny units of life on a daily basis. We are bound to them as inescapably as we are bound to time, and what we do with that time defines their lives and ours. Every action we take is an opportunity to improve the quality of life for these trillions of individuals which live to keep us alive. Every moment we have the ability to choose between doing things to help our microscopic citizens, or hurt them. They, in turn, are born, live and die in the environment which we provide for them. True, we as people do not have total control over the circumstances in which we find ourselves. This may often hinder our ability to provide as good and nurturing an environment for our tiny residents as we would like. However, each of us, even with our limitations, still has some degree of choice which we can express. It is our job to discover what that degree is and how we can best use it to benefit the cells which depend upon us daily for their lives, as we depend on them for our own.

The process of discovering choices is a process of understanding our limitations. Someone who lives in a city may not have the choice to breath fresh mountain air every day. Someone who works in a textile factory may not have the choice to avoid potentially toxic fumes while at work. A person living in an isolated rural region may not have access to the wide variety of fruits and vegetables that urban life provides. Yet, each of them still has better and worse choices which they can make through the day. The person living in the city can go to a large city park on a regular basis and at least breath the best air the city has to offer. The worker in the textile mill can be conscious of the hazards in their workplace and thereby avoid them or wear protective gear whenever exposed. The person living far off in the middle of nowhere can learn about the variety of foods available in their area, thus increasing the array of available nutrition. For sure, the average person does not live in the Garden of Eden, but each of us can do our utmost to make where we live as garden like as possible. It is our choices which refine the world we must live in, and, therefore, the world in which our microscopic citizens survive. These two worlds are as indistinguishable and inseparable as are we and our cells.

There are two ways in which we learn to make choices in our lives: passively and actively. The passive ones are those we make when we do as we are told to do by others. These are the times when someone else says, "Do this," and we, from amongst a host of possible choices, do as we are told. This is the way in which children are raised. Parents tell their children what to do, and for the most part children do so. Most often this is a good thing, as most parents love their children and tell them to do things which are in their own best interest. Passive choices, however, are not restricted to just childhood, as they are also the basis upon which people obtain and keep their jobs. Our bosses tell us what to do, and we, for the most part, just do it. Therefore, at any age passive choices represent a vast amount of the decisions we make in our daily lives.

Passive choices reflect our understanding of how the world wants us to be. In contrast, active choices reflect the way we wish to be in the world. These are the choices we make independent of outside intervention. Active choices are decisions which are based solely upon our own wishes and desires, and they express the things we do for ourselves because we want to, not because someone else told us to do them. These decisions are made in areas of our lives where we have the control to define the quality of the environment in which we live. In the most strict sense, passive choices define the limits and restrictions the world places upon our lives, while active ones define our ability to manipulate that world for our individual purpose.

The difference between active and passive choices is not always a clear cut one. In daily life, seldom are any of our decisions purely passive or active. Usually, our actions are based upon a combination of many active and passive options, the final outcome being a compromise between the driving forces behind all those choices. For example, when you were a child you went to bed when your parents told you. Not only did you do what you were told, but you also went to bed where you were told. The majority of these decisions were passive, your parents deciding where and when you should sleep. However, as an adult your array of sleeping choices increased. Now, you can choose the time when, and to some degree the place where you will go to sleep. Maybe you will go to bed an hour later so you may watch the end of a wonderful

movie on television. Maybe you will go to bed an hour early so you will be better rested for that special job you have to do at work tomorrow. You might even go to bed over a friend's house because you want to be together. Unfortunately, maybe your television is on the blink and there is nothing to stay up for and watch, or the neighbor's are being loud and you cannot get to sleep early, or your friend has a headache and does not feel up to your company. So even as an adult, when your degree of freedom places many more active choices at your disposal, the world you live in still demands its say in what you do.

Growth is a process of learning, and learning is a process of distinguishing between choices. At birth we have a very limited ability to manipulate our world, and our choices are restricted. We are highly dependent at that point on others to make decisions for us. They manipulate the world we live in, hopefully for our benefit. As we grow, we become larger and stronger, and our ability to influence our world increases. Now we begin to see ways in which we may change our environment to benefit us as we see fit. This happens at an extremely early age, a time which most parents call the terrible two's. Here the once docile and dependent infant changes into a rampaging toddler. For many of us, it is the most demonstrative period in our lives, and a trial for both our parents and ourselves. It is now that the concept of punishment begins, for we as toddlers have begun to make our own decisions and must, therefore, bear the consequences. Not that all choices made by toddlers are bad, but simply that here, for the first time, we are throwing active choices into the mix and learning how they can change our lives. Not only are we doing what mommy wants, we are also doing what we want, too.

As adults, we have been through decades of trial and error, learning which choices determine our best actions. The precise balance between choosing what others want versus what we desire is a complex mixture that is continually being refined as we continue to grow. Our happiness, and the happiness of those in our life is directly dependent upon that balance. Our health, and the health of our trillions of cellular citizens is also directly dependent upon that balance. You must continually strive to perfect this mix until the day you die. As the world about us is in continual flux and change, so is the world within us. Our individual cells, like our bodies as a whole, grow and change year to year, day to day, and even moment to moment. You can never be sure that the decisions which worked for you one day will be successful for you the next. You can, however, try to be constantly aware of what is happening around and inside of you, thus preparing yourself to act appropriately in ways which benefit both your micro and macroscopic worlds.

Life gives us the opportunity to make choices and gain knowledge from the choices we have made. Add to this our ability to assess life's status from moment to moment, and we possess the three key elements for successful living: awareness, decisions, and learning. First we must be aware of our inner and outer surroundings. We must be able to interpret them and understand the needs of the world about us, as well as the world within us. Next, we must decide from amongst the many choices we have what we will do to meet those needs. Some may have to be met immediately ("Oh boy, do I have to go to the bathroom"), others may have to be put off for a while ("I cannot wait to go home when work is done"), and some are definitely best not done at all ("I am so mad I could just kill you"). However, no matter what we finally do, our growth depends upon our learning the consequences of our actions.

Whatever we do, we must always think, then act, and finally rethink our actions based upon their results. In this way we learn to improve our behavior and its outcome. We live in a constant cycle of deciding then doing again and again, with the goal being to improve our actions each time. It is like a never ending journey in which you first determine where you are, and then decide where you want to be, yet with each step you take towards that destination your surroundings change. This requires you to reassess where you are with every move you make, repeating the cycle of deciding then doing over and over until you finally reach your goal. People who are good at this process can effectively adapt to both the short and long term changes in their development. Those who lack the confidence and motivation to react in this manner tend to develop unproductive habits which slow their growth and negatively impact their lives.

Bad habits are often difficult to see in oneself. These behaviors originally developed in response to life stresses, and at their time of origin they may have seemed like good ideas. However, between that

time and the present, things changed and now these behaviors are maladaptive instead of beneficial. Smoking is a prime example. Most smokers begin as adolescents in response to peer pressure and the desire to create their own identity. When they start, the nicotine rush feels good and the friends they smoke with think it is a fun thing to do. Also, they are actively choosing to do something that their parents, who might even smoke themselves, tell them not to do. Active choices are much more attractive than passive ones at any age, so teenagers start to smoke - it feels good, it is fun, and it is an active decision. Unfortunately, the down side comes decades later with respiratory problems, cancer, and premature death. By that time the smoker is so strongly addicted to nicotine and the smoking ritual that the average person finds it near impossible to quit. It becomes a kind of marriage: a life long commitment until death do you part.

As difficult as it may seem to identify and correct bad habits in one's own life, it is not hard to find behaviors in anyone's life which can be improved upon. If changing a bad habit is like learning to walk, then one should first learn to crawl. Instead of tackling a large adjustment, why not first accomplish something simpler which will provide practice and experience at successful behavior modification. For example, I remember when I was nineteen I wanted to stop eating garbage such as fast foods, processed foods, and desserts. However, before taking on such a major dietary overhaul, I first decided to give up adding salt and sugar - both of which I consumed regularly - to any of the food I did eat. It took over one year to accomplish this first goal. Yet, once I completed it I was able to overhaul all my other dietary habits in a matter of months. A smaller first step provided the self-confidence and reassurance I needed to create larger changes in my life.

The same principle is the basis of many stop-smoking programs. Rather than quit cold turkey, the smoker slowly reduces the amount of cigarettes they consume, and often uses cigarette substitutes such as nicotine gum or patches to lessen their urge to smoke. When the day finally comes for them to totally stop, it is much easier to do than if they had tried to quit while still smoking up to one or two packs per day.

An amazing thing often happens when someone eliminates a bad habit from their life. Due to their success and increased self-esteem, they become compelled to seek out and eliminate other maladaptive behaviors. The person who manages to stop smoking may later decide to eat a better diet. The person who manages to eat better may then choose to exercise more. The person who starts to exercise more may also prefer to drink less alcohol. The combinations are endless, but the end result the same. Improving one area of your life makes you appreciate the possibility of improving others. Thus, I do not recommend that a smoker who eats garbage food, drinks a six pack of beer each day and does not work out to suddenly quit cigarettes and alcohol, join a gym and become a vegetarian. Instead, I suggest they smile more often and say a friendly hello to strangers they pass each day for the next few weeks. This is usually a fairly simple thing to do, and it helps to initiate in them the confidence they will need to tackle the larger issues in their life.

Self-confidence is a critical component of any attempt to change behavior. Nobody likes to throw themselves off a cliff knowing that they cannot fly. But if one possess a parachute to safely guide you towards a desired landing, then you are much more likely to tackle the challenge. Along with confidence, however, one must also possess motivation. No matter how confident anyone is, they will not think, act and then rethink their actions if they lack motivation. Heroin addicts are classically trapped in this position. During the high, heroin is probably the most enjoyable experience anyone can have. However, between highs it is so physically draining that they have little energy to do much beyond thinking about their next high. A typical heroin addict will even forego food in the pursuit of this most wonderful of self-destructive habits. It is not that they cannot see the negative side effects of their addiction, it is just that they are motivated more towards the great feeling they get from heroin than they are towards improving their lives and getting off the drug. They lack the motivation to quit. I could teach a heroin addict to smile at every person they see from now until doomsday, yet all the confidence this gave them would be for naught if they lacked the motivation to break their addiction.

Motivation is a funny thing. It can make you do amazingly good things or horribly bad things. Hitler

was a very motivated individual, though the world would have been a much better place had he been more of a slacker. In biological terms, the thyroid gland, located in the front of our necks, is the seat of physical motivation for our bodies. It is there that we produce thyroid hormone, a kind of super charging substance which regulates how fast the cells in our body work. People who have abnormally low amounts of this hormone in their blood are usually very tired and sluggish, while those with too much are often jittery and quite irritable. Today it is possible to treat people with these conditions by giving hormone pills to boost those with low blood levels, and surgically removing part of the thyroid gland to lower the amount produced in those whose blood levels are too high. We can medically control, with a fairly high degree of accuracy and success the body's physical motivation to carry out the cellular functions of life. Unfortunately, it is not as easy to control the mental motivation needed to change behaviors which impede or impel our daily lives.

The presence or absence of motivation in any individual is determined by their assessment of the risks and benefits of pursuing a particular action. If they believe the results of their effort will somehow improve their world physically, emotionally or spiritually, then they will be motivated to action. If, however, they see the outcome of their action as ultimately deteriorating what they already have, then their motivation to strive towards a goal will be absent, regardless of how confident they are of conquering a challenge. It does not even matter what others think of a situation, for it is the individual's assessment of the risks and benefits of their behavior which determines their motivation.

It becomes easy to see that motivation and confidence provide the framework for applying the three key elements of successful living: awareness, decision, and learning. No matter how perceptive you may be, or what you might choose to do, or how much you may have learned from what you have done, without adequate confidence and appropriate motivation you will not properly apply these skills. Though crucial to any achievement, these two foundation ingredients can be rather elusive. You cannot find confidence on a store shelf, you cannot order motivation from a catalogue, and they do not grow on any tree. They come from within and are the product of your values and self-esteem.

Self-esteem is something which grows with us as we grow. Like the smoker who learns to smile at strangers before quitting cigarettes, if we accept and accomplish small life challenges, then our self-esteem grows and we become confident in our ability to overcome larger obstacles in our lives. The greater the number and size of our successes, the greater our self-esteem. Conversely, if our failures outnumber our successes, we may lose our self-esteem and, thus, lack the confidence necessary to take on any further challenges. Self-esteem must not only be acquired little by little over time, but, given the constant challenges everyone faces in daily life, it must also be maintained by carefully choosing the problems we attempt to solve. If we choose too many goals which we cannot attain then our confidence will slowly and surely be whittled away. If, on the other hand, we nurture self-esteem by pursuing challenges appropriate to our abilities, then self-esteem and confidence will flourish.

Values, like self-esteem, develop over time. They represent the things which are important to us, and give us motivation to do the things we do. I am very motivated to write this for you because I value its message and the benefits it offers others. However, though important to me, not everyone may share its value with me. Just as everyone's face has a nose, eyes, ears and mouth, but no two faces are put together quite the same, we each have similar values, though in unique combinations. There are biological values for food and sex, physical values for possessions and property, intellectual values for knowledge and understanding, emotional values for friendship and love, and spiritual values concerning life and death. Depending upon where, when and to whom we were born, how we were raised, and what we have learned from our life experiences, each of us uniquely weighs and balances the values in our lives. Like self-esteem, values are fluid and can change over time: what may have been important to us at age twelve may no longer be a priority in our lives when we turn thirty. Also, as our values span the gulf from primitive biological drives to ephemeral spirituality, it is improper to say someone has no values. Another's values may be different from yours, but everyone has values that are uniquely their own. Thus, it is our individual values which make each person's behavior special.

What makes a good commander, a magnificent ruler, a great president, king, queen, sultan, chief, ... is their ability to do what is best for those who follow them. They are the leaders who must ultimately choose which actions are best for the masses. Historically, these individuals have been extremely confident and highly motivated people. Their abilities to make beneficial choices for their followers was manifest in the prosperity and well-being of their societies. Good decisions by leaders lead to beneficial actions by followers, improving the quality of life for all concerned. Bad choices, however, inspire self-destructive behavior which deteriorates society and the lives of those living in it. It is little wonder that we value leaders who can make good decisions for us.

You are a leader. You have at your command far more cellular citizens than any general in history ever had soldiers. These citizens are obedient and skilled, each trained and prepared to perform a specific function necessary to maintain and protect you as a society. Legions of nerve cells criss-cross your body providing communication services from the top of your head to the tips of your toes. Millions of blood cells travel through some sixty thousand miles of arteries, veins and capillaries in your body, carrying nourishment to every nook and cranny of your being. Billions of muscle cells push, pull and pump in every way imaginable, regulating bodily functions and turning your thoughts into actions. Trillions of these followers are at your disposal every day, constantly ready to do your bidding for better or worse. They are yours to use as you see fit, and they are stuck with you, in as much as you are stuck with them.

Having a body is an awe inspiring responsibility, when one appreciates the complexity of the cellular society within. Your arm is not just an arm. It is a struggling mass of countless cells, each performing some specific function so as to support, maintain and carry on your life. Without them you are nothing (or at least absent one arm). It is the sum of their ability to accomplish individual tasks which determines how well or poor you are as a total being. A job well done ensures your being well, while a job poorly performed engenders illness and disease. It is, therefore, in everyone's best interest that all members of your bodily society work together to guarantee a good state of health.

As leader of your body, you must take charge by making the best possible choices. Every waking moment of your life is a chance to do something, an opportunity to choose from amongst limitless actions. Improve the environment in which you and trillions of cells must operate, and you improve the ability of your citizens to perform for you. Value this improvement and the health benefits it brings, and you will have the motivation for action to achieve this improvement. Attain this improvement steadily over time and your enhanced self-esteem will give you the confidence to create further improvements in your life. With confidence and motivation, you will become increasingly aware of your condition, actively decide which behaviors are of greatest benefit to you and your cells, and then learn from your choices ways to continually improve the quality of your life. This is the role and responsibility of any great leader, a greatness we can all aspire to in leading the millions upon millions of cells who must follow us.

Leadership is not inherited, it is learned through experience. All leaders must take chances and risk failure in an effort to explore new ideas and new ways of meeting challenges. Sometimes they make the wrong choices. However, if their bad choices are not too severe, then they will have the opportunity to correct their mistakes, learn from them and thereby lead better in the future. A repetitive cycle of trial and error is continually employed to refine and sculpt any great leader. From amongst the great ones, none has ever been perfect, yet all have tried to do their best for the benefit of those who depended upon them. Trillions are dependent upon you this and every moment. Your overall health is a reflection of your ability to properly lead and govern them.

The manner in which you govern your cellular society is manifest in your behavior. Based upon your values and self-esteem, your daily actions determine whether your cells and, therefore, you are in a state of improving or declining health. Health, like self-esteem, is a fluid and constantly changing state. You may be perfectly well today, but if you do not behave in ways which maintain that status, then your well-being will start to decline. It takes constant awareness by you as a leader to not only maintain but improve the state of affairs in your body. Begin by assessing the condition of your health on a daily basis. Then choose to

behave in ways which will improve yourself. Finally, learn from your past actions ways in which to make better decisions for yourself in the future, and you will keep heading towards a better quality of life.

If you value your body and the individuals who live there with and for you, then you will be motivated to make yourself as healthy as possible. If you carefully plan in a realistic manner the ways in which you overcome obstacles to your improved well-being, then you will be confident in your ability to make that body a better place. If you are both motivated and confident, then you will think about how your habits affect you and take action to improve your behavior, learning through trial and error how to be a healthier society of cells. With confidence and motivation you can learn to behave like a great leader.

Personal greatness is at everyone's doorstep: that inner sense of satisfaction you get from reaching an important goal. Though we each are born with different abilities and limitations, within those boundaries each of us can strive to maximize our well-being. There is no doubt that you can achieve personal greatness. The question is how do you start? The fact that you are interested enough to read this is proof that you value your health and are, therefore, motivated to improve it. Your confidence, however, may not be so apparent. Self-esteem is often fragile and, at times, elusive. Whereas our values tend to be relatively constant from year to year, the circumstances we find ourselves in can often change our self-esteem overnight. Sometimes, it only takes one bad choice, one mistaken action, to shatter the self-esteem you have built up over years, and without confidence your motivation is like a car without gas, a campfire without a match, or a body without a great leader. It takes both parts to make a working, vibrant whole. So though your motivation is evident, how do we define your confidence and assure that you have a complete foundation upon which to successfully build a healthy future?

As the baby who learns to crawl before it can walk, we must first look at simpler tasks before attempting the harder ones. Pick a goal equal to your ability and your self-esteem will grow. Choose one beyond your grasp and, like the baby who fell on its bottom, you will cry. Confidence grows as we learn to make and benefit from appropriate decisions. Where then do we start? Once born, the baby that wishes to walk must first learn to crawl. Before crawling, however, it must first learn to sit up. Prior to sitting up, it must first learn to raise its head, and so on. In fact, there appear to be so many antecedent tasks to the final goal that we might as well stick the baby back in the womb since learning to walk is simply too difficult.

Fortunately for us, there is an answer for this dilemma of antecedents. The solution is so simple, though paradoxical, that it is as good a starting place for someone with total self-esteem as it is for someone with no self-esteem at all. Before learning how to take action, before learning how to do things successfully and boost your confidence, let us concentrate on learning how to do nothing at all. If you can do nothing at all to the best of your abilities, for the best benefit possible to your body, your cells and your health, then you will have begun to create the self-esteem needed to do anything. For this reason, the next reading you receive will be dedicated to rest and learning how to sleep.