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Session 2: Applications of Lucid Dreaming

Potential Effects of Lucid Dreaming on Immunocompetence

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(Stephen LaBerge: There have been anecdotes and suggestions that lucid dreaming might be of some value for healing. Based on experiments conducted in the past showing a very strong correspondence between tasks performed in the dream state and effects on the brain and to a lesser extent the body, the suggestion that specific lucid dreams could facilitate the healing processes of the brain has been made. Dr. Andrew Brylowski has made a first pioneering step in developing a procedure for studying what may happen to the immune system during a lucid dream. Unfortunately a poverty of information on the immune system during sleep has required a very basic approach.)

The concept of lucid dream healing is not a new one, and anecdotal reports abound. In my own experience, I have had one lucid dream opportunity to practice adjunctive physical healing. I had some minor surgery and the bleeding would not stop. I decided that this would be an opportunity to try a lucid dream imaged healing. I made the suggestion while awake and in the dream state that I would affirm that area of the body finally heal. In a complex lucid dream I was able to lay my hands on that area and essentially affirm my intention for healing. I awakened with the oozing continuing, but it stopped approximately 10 to 14 hours later. Whether this would have happened without the lucid dream I don't know. Another interesting report is from an intern at a hospital in New York. He had a cough that seemingly would not go away for about three months, and made plans to have it investigated. He had a lucid dream and apparently in part of it saw "Psychosomatic Asthma" written on a board. The next day his problem cleared up. It should be noted that the full report took ten to twelve pages and this is an oversimplification.

The physiologic basis of why lucid dreaming may be related to healing can be extrapolated from the psychophysiologic parallelism that LaBerge, Fenwick, Worsley, myself and others have shown. Experiments where, for example, respiration patterns follow dream imaged patterns, dream sexual activity can parallel body autonomic activation, and obviously lucid dream eye signal parallelism have laid the ground work for postulating the possibility of psycho-immunologic parallelism to lucid dream imaged activity. A brief reflection on evidence linking psychologic, neurologic, and immunologic disciplines is in order before the rationale for lucid dream psycho-immunologic parallelism is discussed.

A recent development in medicine is the field of psychoneuroimmunology, Which assumes that the psyche, nervous and immune systems can be understood integratively in addition to independently. For example, a maximum innoculum or a minimum innoculum consistently produce disease or not, respectively, in lab

animals. With a moderate amount of innoculum, though, the development of disease or not is dependent on a stress level reproducibly generated. Since lucid dreaming is in essence a multi-perceptual phenomenon, how could it be that perception somehow effects the immune system? A third year medical student, who is an asthmatic patient, taught me that the perceptual and immune systems could be related. She would have her reactive asthma whenever the pollen would start coming out in the spring. The interesting thing she said to me was, "you know, sometimes I can just look out the window and I will have a reaction to just seeing the plants out there beginning to bloom". Was this *just* psychogenic? My feeling was that it sounded like a wise process to evolve because if you actually have a genetic predisposition which makes you sensitive to a particular allergen, your body could clue into the fact that you are headed for trouble before you actually come in contact with that allergen. If you see it and it registers as sensory information and you elicit an immune response, you may avoid a full blown allergic response by modifying your behavior. A sort of psycho-immunologic defense mechanism. The complicating factor, though, seems to be discriminating a genetic predisposition versus developmental conditioning or both. Evidence suggests that conditioning of immunity can take place. Experiments pairing saccharin with immuno-suppressants or with substances that activate the immune system, visa-vie classical conditioning, have shown suppression or activation of immunity with saccharine alone when the active substances are removed.

The hypnosis literature also suggests psychoimmunologic mechanisms. The primary factor in producing physiologic changes in this work seems to be the ability to modulate blood flow, essentially through partial volitional control of autonomic activity. This is important because delivery of white cells, platelets, coagulation factors, tumor necrosis factors etc., are all in part dependent on getting the products there through circulation.

It is at this juncture that one can postulate how lucidity may help in healing. The physiologic activation of lucid dreaming may allow for targeting specific body areas in the subjective experience, with the resultant biologic enhancement potentiating the healing process. Whether or not lucidity in and of itself could have an impact would also be of interest. With the autonomic activation and probable cortical activation of lucidity documented, and with animal studies showing that the neocortex and hypothalamus may modulate immunity, parallel reasoning linking lucidity and immunity seems sound.

In developing a monitoring system to assure relative accuracy of objective data gathering, multiple parameters will need evaluation. One important variable is obviously the subjective experience. Since brain cortical activation and hypothalamic activation are important in lucidity and immunity, these will need to be monitored. Brain electrical activity mapping as described earlier in the symposium, may give clues to any subtleties between lucid dreams with and without attempted healing activities. Polysomnography with temperature, respiration, pulse amplitude, heart rate etc. will monitor autonomic variability, or hypothalamic changes. A difficult question is what part of the immune system are we going to monitor.

The whole field of immunology is relatively new. It's only been in the past fifty

or sixty years that the field has taken off. Classically immunology is viewed as an independent system. Descriptively we find two populations of cells: the T cells and the B cells. For both of these cells, in the adult, the precursors are derived from the bone marrow. The T-cells migrate to the Thymus where they undergo maturation, and the B cells migrate to different Lymphoid organs in gut, spleen, lymph nodes etc. where they reside. What both of these systems need is to have an antigen, a foreign protein, presented to them by another part of the immune system, the macrophage. A simple analogy is thus; there is this policeman that brings in the foreign body and it presents it to these other immune products and they go ahead and destroy it through different mechanisms. Both of these descriptive systems require some sort of time frame to develop. One of these systems, the B cell system, has memory of foreignness analogous to nervous system memory, that is why we get immunized as children, to remember what to fight. We get a little bit of harmless antigen that is similar to the foreign protein that would actually do us harm so that the B cells that produce antibodies to these antigens can remember what the antigen looks like. If you ever become exposed to the harmful antigen, lets say polio virus, the B cells can very rapidly expand, produce antibodies, and control the invasion of the polio virus. It takes time for these immune systems to work so in order to see if lucidity can effect immunity, we need an immune system parameter that can respond almost instantaneously without priming.

In the early 1970's, researchers noticed another type of immunity that is still controversial. Whether it can be described micro-anatomically, as an actual cell type or line, or whether it is solely a functional property in a lot of different sub-types of cells in the immune system, thereby a functionally heterogeneous immune phenomenon is an ongoing question. It's called natural killer (NK) cell activity or function. The NK cells are white blood cells, or apparently, they can be other cells, that have the ability to recognize foreignness or non-selfness without any type of previous overt immunization or priming for memory as in the above example. In other words, you don't need apriori exposure to a foreign protein to stimulate this type of activity. It appears to automatically recognize what is not supposed to be there and then kill it.

There is a lot of evidence with animals and NK cell activity that structures of the brain modulate this type of activity. For example, left neo-cortex ablation decreases activity, whereas right neo-cortex ablation does not; sham operation does not. Also, ablation of various structures of the hypothalamus decrease NK cell activity, actually eliminate it. The parallels here to lucid dreaming can be made by linking various structures in the brain involved with lucidity to those involved with immune modulation. We saw evidence earlier that there is some left hemispheric activation in lucidity, and we know that the hypothalamus is important in modulating many autonomic variables, temperature, and sleep, is also activated in lucidity. Now it appears that these areas of the brain are important in modulating NK cell function as well.

What was needed to begin to explore possibilities of lucidity and healing, was to develop a multidimensional approach that could be used, not just for lucid dreaming, but for other psycho-techniques that may potentiate healing processes.

What we did in addition to brain mapping, monitoring rectal temperature, and

multivariable polysomnography, was to draw blood. An intravenous (IV) catheter was inserted into my arm and every hour throughout the night, starting at 10:00 p.m. and ending at 10:00 a.m., we drew 10 cc's of blood which was put on ice, walked over to the immunology lab where technicians began processing immediately. The white cell population and plasma were saved for analysis.

We looked at NK activity with sleep, and particularly with lucid dreaming. To the best of my knowledge, there has only been 5 nights run where the NK cell cytotoxicity parameter was evaluated. These researchers found that NK activity decreases with sleep paralleling cortisol levels. So we also measured cortisol. In addition, other hormones fluctuate with brain state, sleep and immunity. Therefore we measured Growth hormone, known to surge with sleep onset, and endorphins, known to affect immunity.

Results

There are two general conclusive statements to be made about this exploratory work. The first is a technical one. It appears that it is entirely feasible using existing technology and the protocol in this pilot effort, perhaps with some variations, to begin integratively investigating lucidity at a psychologic, neurologic, endocrinologic and immunologic level.

The second statement is a discussion of my impression of the data, refinement of hypothesis and qualification that is highly speculative without statistical analysis or an adequate sample size and controls.

Natural K cell function is expressed as a percent cytotoxicity. This means a percentage of a clone of leukemic cells killed by a given population of my white cells. I found great variability in my sample results; from approximately 28% to 58% in one of the 13 hour sampling periods. This could be due to technical error.

Another interesting observation, consistent with the previous study mentioned, is that NK activity decreased during the night and surprisingly remained suppressed even with periods of wakefulness up to an hour. It seemed, and this was only on one night, that NK activity increased to waking levels following lucidity, and decreased to sleep levels before returning to awake levels in the morning. This seems to necessitate a refinement of a simple hypothesis that NK activity will increase with lucidity to one more congruent with the limited information. I postulate that NK cell activity will decrease with sleep and the implicit inactivity of lying in bed, or with lying in bed without sleeping. And that NK activity will increase with movement, whether real physical movement, or with the perception of real movement as in lucid dreaming. What this purely physiologic hypothesis leaves out though, is the subjective experience of what you do in the dream state to effect healing. On the given night I mentioned above, not only did I move about a lot in the dream environment, but I laid my hand on the dream site corresponding to the actual site of the plastic catheter; my forearm. In addition, a person I associate as impacting me in a very special teaching and healing way, also placed his hand over mine and affirmed the healing in unison, of the plastic catheter site. By

association, recollection and reflection, it seemed that this particular lucid dream was subjectively different in some subtle way than the 2 or 3 other healing experiments I attempted while participating in this study.

Realistically, although a technical approach has been successfully worked out to investigate lucidity and a component of healing, any improvements, stasis, or detriment reported about lucid dream healing experiments needs to be treated at strictly on an anecdotal level. Definitive, conclusion though not yet possible, should most certainly be available within the next 8 to 16 years or so, given adequate technical, financial, and psycho-spiritual support.

(Editors Note: Healing the body within the lucid dream is one of the most exciting potential applications of this dream state. I encourage readers to send any anecdotal evidence they may have as well as their thoughts about this potential of the lucid dreams for possible publication in Lucidity Letter so that others interested in the question can draw on these experiences.)