Control Therapy is based on a biopsychosocial model of control. Investigating the biological correlates of control, one study investigated the functional neuroanatomy of the relationship between having control and losing control. Normal male subjects were injected with 18 F D-deoxyglucose during rapid eye movement or non rapid eye movement sleep. When subsequently awakened, subjects reported their dreams and mentation which were tape recorded, transcribed and then coded along dimensions of perceived control.

Non parametric correlations between these verbal reports and localized cerebral glucose metabolic rates obtained from Positron Emission Topography (PET) scores revealed significant positive and negative correlations throughout the brain.

As can be seen from the table above and brain scans below, having control was positively associated with activation of frontal cortex components and negatively correlated with limbic system activation. Showing internal consistency, there was a significant positive correlation
between loss of control and limbic system activation, and a significant and a significant negative correlation between loss of control and the frontal cortex (right).

Qualitatively, below are two dreams, one which received the highest positive overall sense of control score; and one which received the lowest positive sense of control score and a slide showing the high and low glucose metabolic rate of the amygdala as a function of high and low sense of control during dreaming.
**Dream With Lowest Overall Positive Sense of Control**

My dad was chasing me around the house swinging a pick at me. I was just trying to help out my mom. The pick kept going lower and lower. It was dark. I was scared. Our house seemed to be on the other side of the street. The houses were the neighborhood where I grew up my first sixteen years of life, but I was as old as I am now. Then my brother was flying down the street, soaring higher than a telephone pole and trying to catch green fluorescent tennis balls. I was fearful that he was going to get hurt. We all ended up at a meeting with business men. I was faking that I hurt my leg at this meeting. Somehow they found out that I was faking it. There was one guy who was really heavy and a crooked type guy type that you could not trust over nothing. Then I did some flying around. All the places just appeared all of a sudden.

**Dream with Highest Overall Positive Sense of Control Score**

I went into the house where I used to live ten years ago. I remember recognizing the house ... it was really homey ... the Lakers were there, Kareem Abdul Jabbar and Magic Johnson. The Lakers and the people in the house were festive because they won the championships ... we were in a good mood. Their speaking was "Oh, hi, good to see you." We then went outside and I ended up in this mission thing where I was flying around. I felt good just flying around. I was trying to catch a car or dune buggy or something ... there were dark colors of night, purples, blues, dark reds, browns, grays. It was the thrill I was feeling.
Correlations between relative metabolic rate during dreaming and having control, losing control, and overall global "sense of control" for the 10 positron-emission tomography (PET) levels assessed. The cortical surface areas (32) and medial areas assessed with regions of interest (126) were evaluated. Each PET slice was visually matched to the Matsui and Hirano atlas (1978) which is redrawn here. Slice height is in percentage of head height above the canthomeatal line.
Active Control

1. Dreamer absent, unmentioned in the dream content. The action takes place without him and may be minimal.
2. The dreamer is implicitly or explicitly mentioned in the dream. He is present in the dream, but does not manifest himself by his action or by what he says ('I know I was present, but I was only watching'). He is passive, undergoing an experience. He is an observer of what is going on or of what the other characters are doing, but he, himself, says practically nothing and hardly acts ('I was lying still and a lot of people were moving around').
3. The dreamer is present in the dream but says and does relatively little. The dream's action is little influenced by what he says or does. He may or may not be concerned by the action of the dream which is carried on by the other characters.
4. The dreamer is active. He converses with the other characters; he acts and moves, and by his action affects the events of the dream.
5. The dreamer is very active. His actions or words clearly dominate the scene. He controls events and plays a dominant role with regard to the other characters who are dim figures in the background. (Gaillard JM, Phelipeau M, 1977)

"Volitional control, at least phenomenologically, immediately implies reflectiveness, i.e., one part of the mind tells another part where to go, observes its progress, and corrects its deviations." I expect that correlation of active control (AC) score and lucidity (L) score will be high. Lucidity score contains ability to control events in the dream.