Consciousness...What is it? Where is it?

How do we get consciousness out of those 100 billion neurons....consciousness is sooo much greater than the sum of the parts!

Philosophers have struggled with answering this question for more than 2000 yrs...they call it the mind-body problem...how do we get consciousness out of this flesh? It had been assumed by most early philosophers that our mind (psyche/spirit) resides somewhere else (this is actually biblical), perhaps in the spiritual realm, AND SOMEHOW, this spirit is attached to our earthly body...

Socrates (400BC) – finally concluded that he knew nothing (it was unknowable)...and in knowing this it actually makes him the wisest of all.

Rene Descartes (1600s) – I think Therefore I am (Cogito Ergo Sum) ...also believed the point of connection between our mind and body was the PINEAL GLAND (many believed this to be the THIRD EYE...)

Interesting that he chose this gland:

Secretes Melatonin the sleep hormone (definitely changes consciousness)

Also secretes DMT (DiMethylTryptamine) – when given intravenously, subjects consciousness become separated from their body (disassociates)...also think that DMT may be responsible for the dreams you have at night!

So, what is consciousness? ... HOW DO YOU KNOW THAT YOU’RE CONSCIOUS RIGHT NOW (and not in a coma or having a really boring dream)?

Okay, try this instead? HOW DO YOU KNOW YOU’RE DREAMING?

...YOU DON’T REALLY KNOW, AND CAN’T BE COMPLETELY CERTAIN!
So let’s assume that this IS NOT a dream...

- What are dreams (biologically)?
- How do they differ from reality?
- Why do we sleep and dream?

**What are dreams:**

Dreams occur ~90mins (generally in REM sleep) ...In other words, we go thru an entire sleep cycle every 90mins

...we spend ~1/3 nite in REM sleep (dreaming)

...eye movement (**Rapid Eye Movement**)  

...inc heartrate, breathing, sweating

...erections (and wetness)  (yes, erections occur every 90mins, not just a morning thing..can use this to diagnose causes of erectile issues...tumescence monitor)

...paralysis (Why paralysis?  So we don’t act out our dreams!)

REM BEHAVIOR DISORDER is a sleep disorder in adults where the paralysis is NOT in place so they act out their dreams!

SLEEP PARALYSIS (prev called night terrors in adults) is a feeling of being conscious but unable to move. It often occurs when a person becomes conscious in REM sleep. Some may superimpose dreams visions on top of reality and many feel pressure or a sense of choking.

SLEEP WALKING/SOMNAMBULISM in children and young adults can occur during any stage of sleep, including REM, because body paralysis make not be fully functioning. In adults (those over age 25), occasional episodes of sleep walking probably result from dreaming in nREM sleep!

...very active brain!  (PARADOX OF REM SLEEP=very active brain with paralyzed body)

EEG looks like a person who is awake (with exception of PGO spikes)

Lucid Dream studies have shed some light on what is happening (example...so then **HOW DO DREAMS DIFFER FROM REALITY?**  As far as your brain is concerned, THERE IS NO DIFFERENCE! So then how do you know that this is not just a dream?)
Why do we sleep and dream?:

Freud (wish fulfillment)

Late 1800’s, sought a paradigm based on medical science, but there was really no medical science of the brain (no imaging devices), so he relied on the next thing at his disposal...his own logic and intuition (remember our lecture on common sense knowledge)! He started meeting with people, and began to notice a similarity between peoples dreams and certain forms of “madness” He came to believe that he could cure some mental disorders if he was able to decode and interpret the meaning of people’s dreams! NOTE: we have a full lecture on Freud later, but he had some issues: male chauvinist, advocate of Cocaine use for about a yr, saw sex and sexuality in EVERYTHING, believed we struggled with sexual issues from birth on...

LEVELS OF CONSCIOUSNESS

1- Conscious – contains thoughts and feelings that you are fully aware of
2- Pre-conscious (kind of a transitional area) – contains thoughts and feeling that you are not immediately aware of, but could be with a little help or effort
3- UNCONSCIOUS (this area is the entire basis for Freudian Psychoanalysis)- contains thoughts and feelings that you are NOT conscious of YET MOST OF YOUR BEHAVIOR is controlled and motivated by stuff happening in this area of your mind...AND there is no direct way for you to access this information!

However, there are 3 INDIRECT WAYS of a therapist tapping into the unconscious:

1. Hypnosis
2. Word association
3. Dream Analysis!

DREAM ANALYSIS

There are two main components to analyzing dreams:

1- Manifest Content – the specific and important details of the dream (without interpretation)
2- Latent Content – the meaning (symbolism) of the manifest content

NOTE: it is very important to have CONTEXT in order to do an accurate analysis, without context, the dream interpretation will probably tell you more about the interpreter than the dreamer!
PROBLEM SOLVING/MEMORY MAINTENANCE (Dement)

Have you ever dreamt about something that you have been working on?

Often dreams reflect things that happened during the day.

Sometimes dreams involve old memories, perhaps memories about to be forgotten, so the brain triggers them to keep them active and accessible for a while longer!

We know that there is something happening with memory maintenance during sleep:

REM=long-term memory consolidation occurs and deprivation of REM sleep will cause LTM issues!

nREM=deprivation of this stage of sleep will affect short-term memory abilities

RESTORATIVE / REST & RELAXATION (Oswald)

1/3 night=very relaxed body (paralyzed during REM!)

2/3 night=more relaxed brain (slower wave activity, uses ~2/3 the amt of energy compared to waking or REM)

...even experientially, when you have a good nights sleep, you awake feeling rested and restored!

ACTIVATION SYNTHESIS (Hobson)

Interesting theory that may explain those weird, totally random dreams that seem to make no sense at all

The brain becomes ACTIVE and begins SYNTHESIZING new information. The brainstem begins randomly firing off neurons related to visual memories, smells, sounds, etc, the higher brain experiences this random activity (and the brain does not like randomness...remember pattern seeking), so the higher brain takes these strange sensations and memories, and weaves them into a narrative of sorts, that seems to flow and make sense while we’re in the dream state.

SO WHICH THEORY IS CORRECT? They all are correct, as is often the case in social science, there are many theories from different perspectives explaining a particular phenomena. One or more of these explanations may describe a particular dream. Think about dreams that you have had, and see which theories best explain them.
HOW MUCH SLEEP IS ENOUGH SLEEP?

What have you heard? **8 hrs**

This 8 hr figure is based on many years of research, research conducted here in the West...and come to find out, we sleep differently than the rest of the world, and even differently than we used to sleep.

Anthropologists have gotten in on the sleep game, doing cross-cultural studies, and the new, good number is... **about 10 hrs!**

Most of you are not getting even 8 hrs, but for most of us, the 10hr figure is a good one! If I were to take you away from electronics, away from school and work, and place you in an environment where I could supply you with 12hrs of light and 12hrs of dark, with no other cues as to the time, you would fall into about a 10 hr sleep, and at approximately the same time every night.

Most of the world sleeps this way, even we slept this way a little more than 100 yrs ago (based in peoples diaries and journals)

How many of you feel sleepy around 1-2pm, just after lunch?

This is called your 2nd sleep. For most of the world, and even Americans 100 yrs ago, the 2nd sleep would occur right after the 1st (combining to 10hrs total sleep per night). Most people would go to sleep a couple of hours after dark, then sleep until 2-3am, at which time they would awake (go to the bathroom, read bible, make love...bed based, sedentary activities), then fall back asleep for 2 hrs until sunrise (their 2nd sleep)

**How many of you are getting anywhere near 10hrs of sleep?**

Most of us don't, but sleep is a basic need. I notice that all of you are wearing clothes...everyone here is probably eating a few times a day...you have a place to keep your stuff and sleep...but sleep is a need like food, shelter and clothing, yet due to our culture, we have come to believe that it is just minimally important, expendable...AND IT'S NOT!

**SLEEP DEFICIT QUIZ**

Issues with sleep debt: 1- mood, 2-memory, 3-accident prone