Psychiatry an Overview
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Module-04
Psychiatric Disorders and their treatment-2
Lecture-15
Adolescence

Welcome again, so if you remember I we left at talking about the definition of generational conflict I am starting the slide from there itself.

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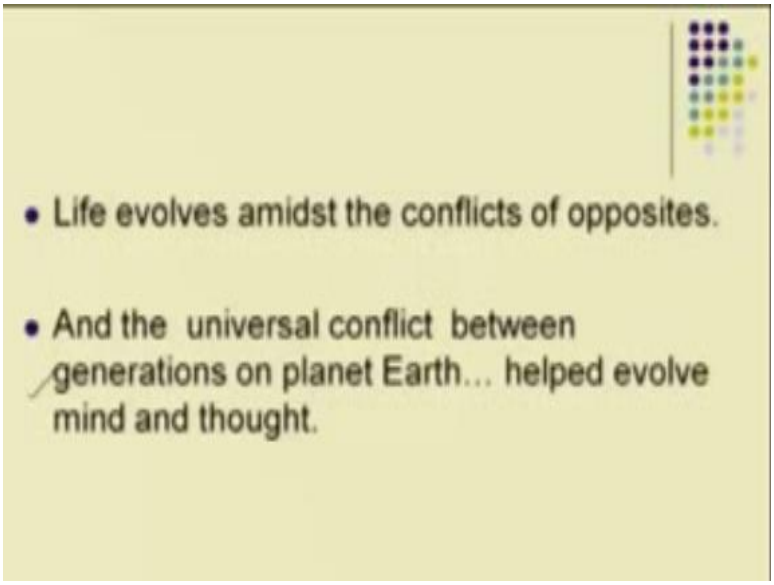

And as I said that we have evolved the mind part because of this conflict, so what we term in generational conflict, is just point views.

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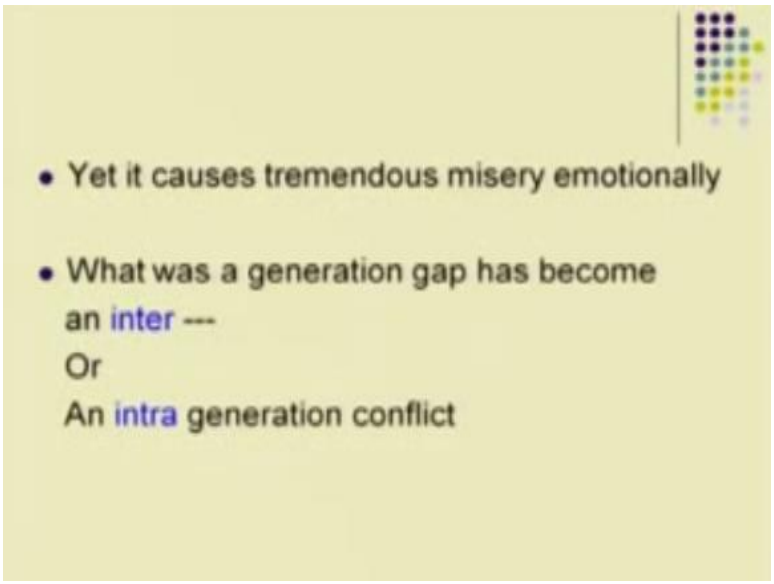

But it is still causes tremendous misery emotionally, now if you look at it because of certain changing technology and information boom what used to be an intergenerational thing, like between grand father and son and the grandson has become almost like within the generation, between the father and son gaps, which called cause generation gaps and the conflict within one generation within one generation that means elder brother and a younger brother between them say in a gap of 10 years the technology and information changes in such a way that there is a conflict then.

The number of slightly elder brother so get worried about younger brothers is becoming.

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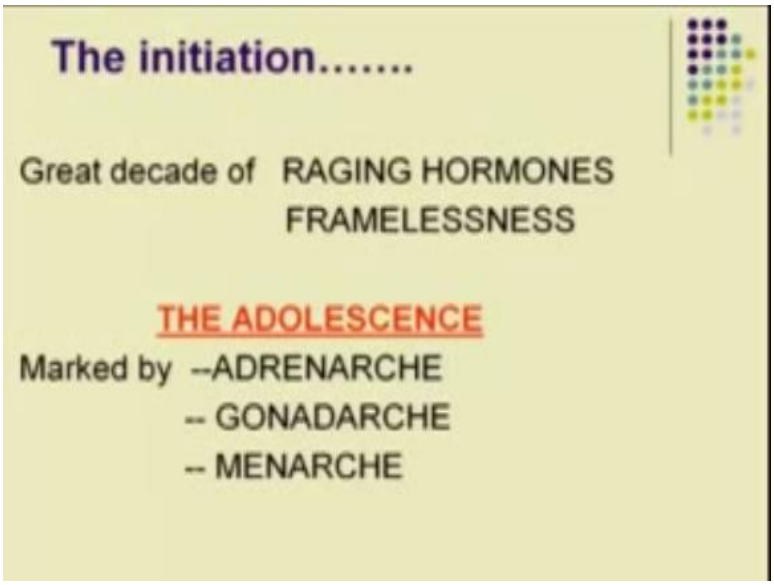

More and more, so why does it happen what we know now that adolescent is marked by.

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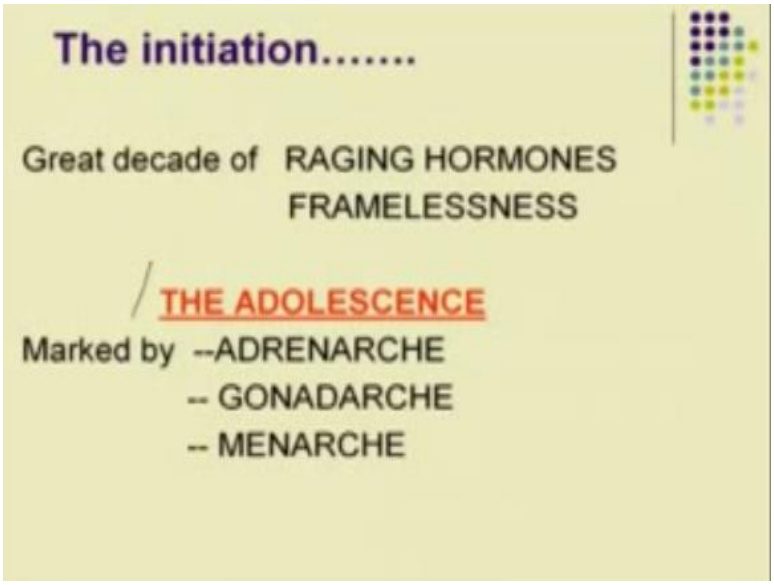

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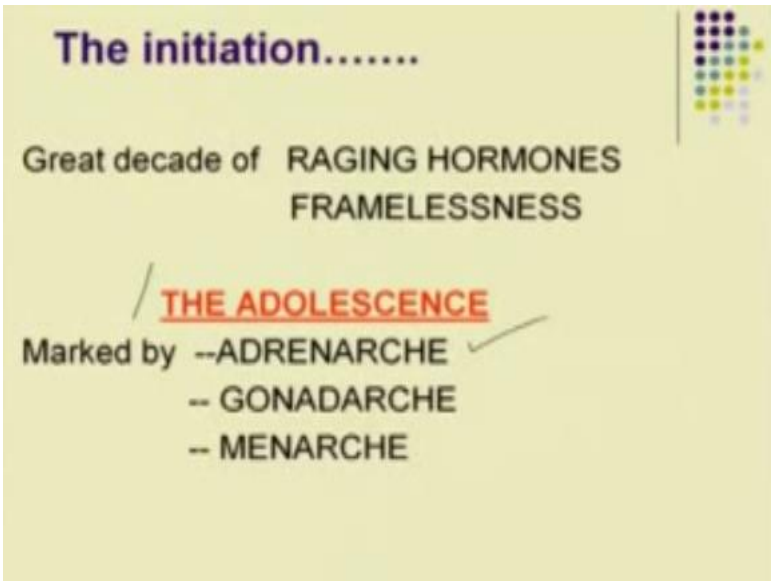

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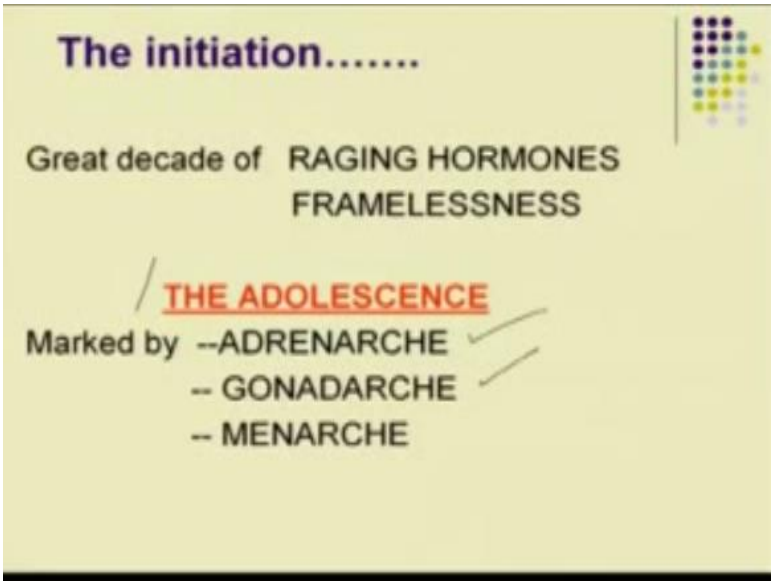

These three things.

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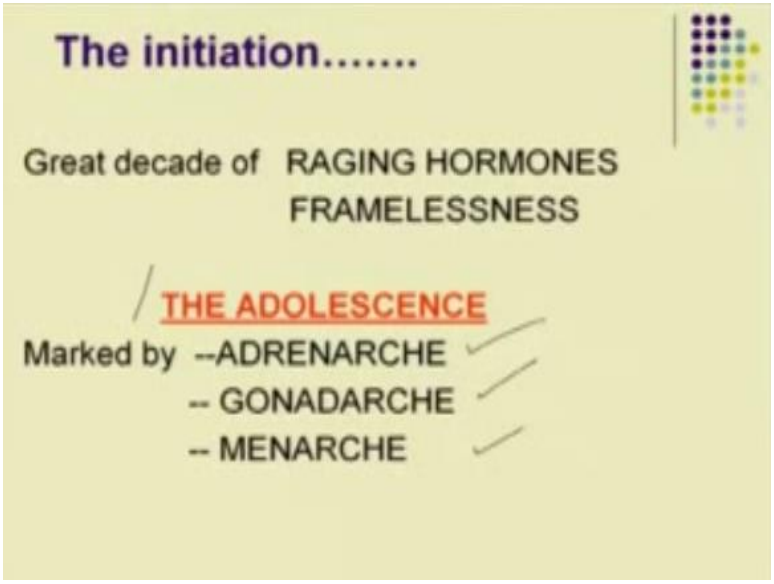

Menarche is the onset of menstrual cycle.

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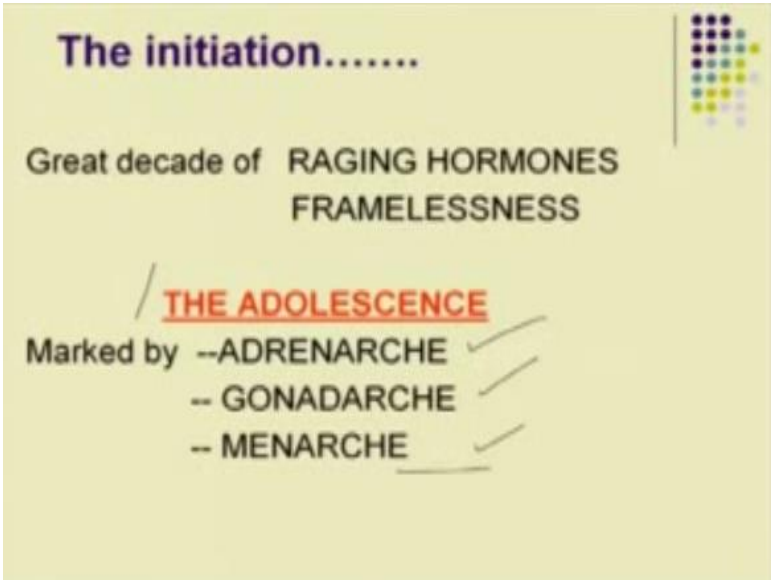

Gonadarche is.

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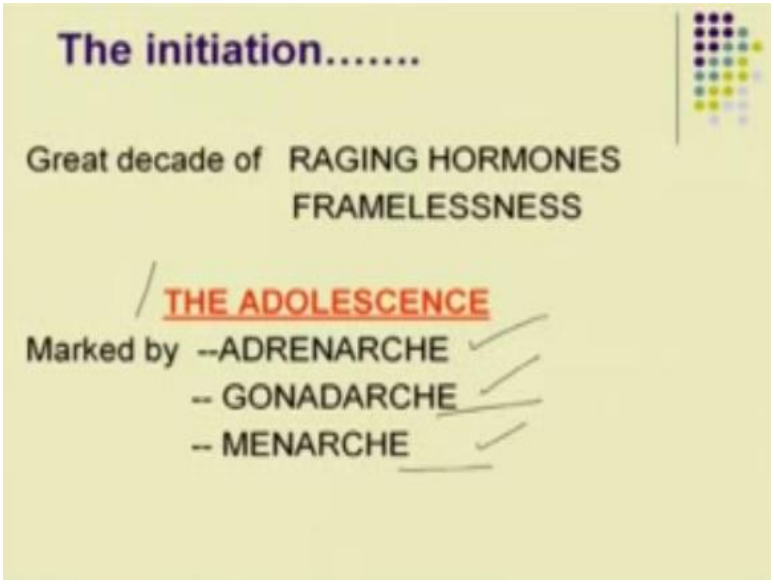

Changing of secondary sexual character and there is jump.

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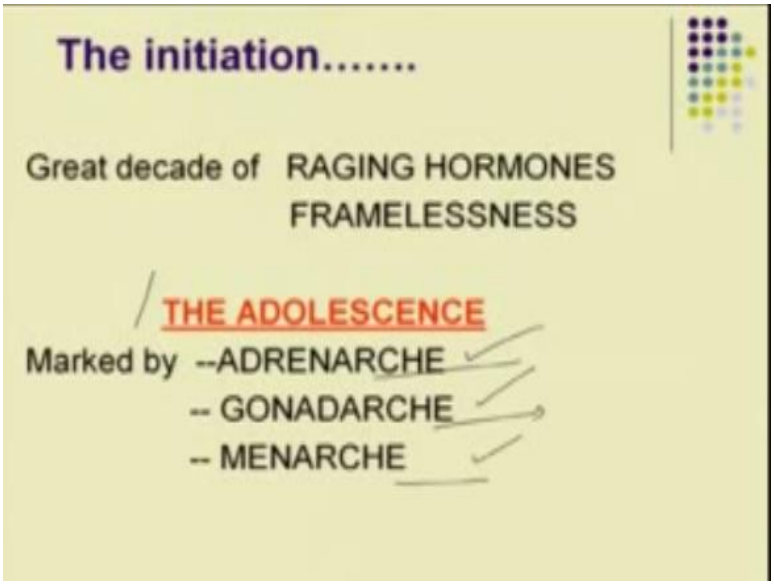

Huge surge of adrenaline which makes us aggressive so this is a great decade which starts for safer from around 11-12 to around 20 or something.

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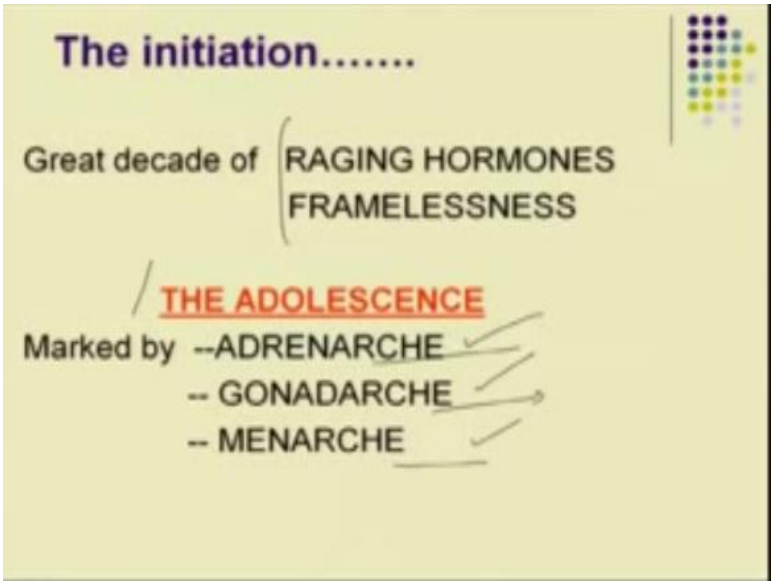

Hormones are raging there is, are.

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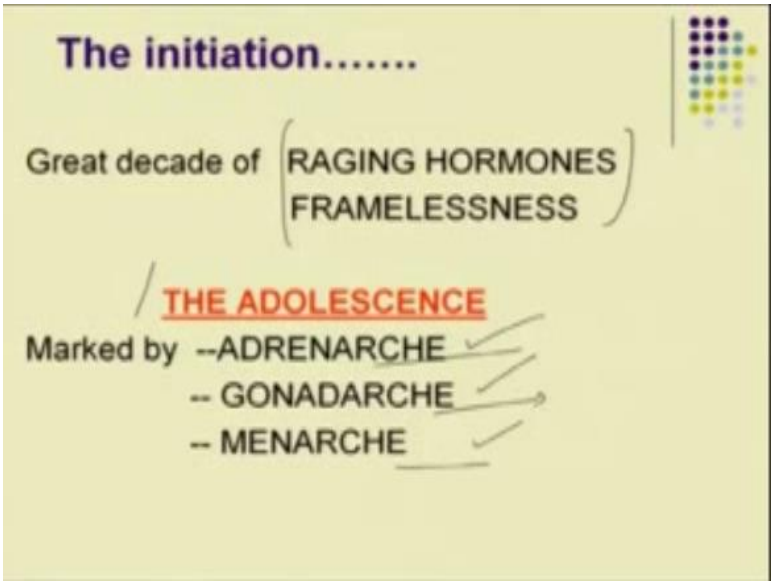

Certain amount of framelessness.

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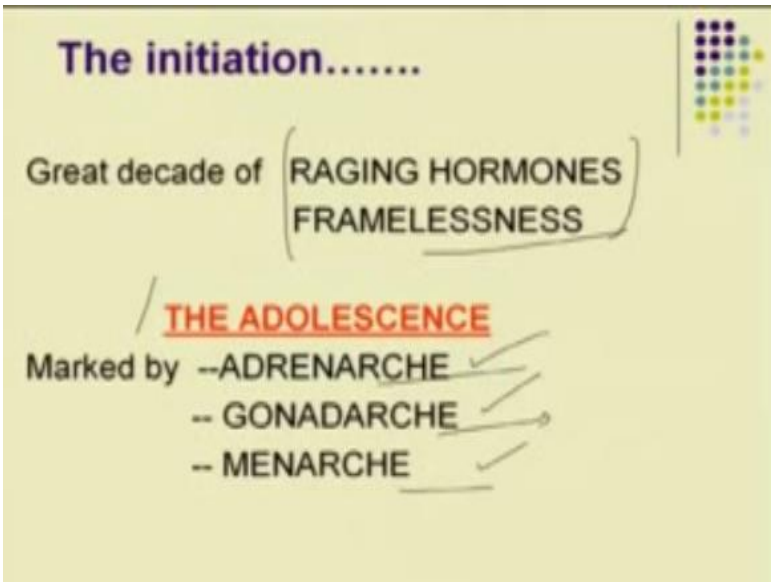

This framelessness if you ask me normally see human brain receives so many inputs within a given day and know just multiplied with a number of years number of seconds when you are awake on even when you are sleeping the whole thing is human guess, for the brain to handle this brain just has one trick, it has to take all data remove the uncertainty and ambiguity of it and make certain things and central to your living, make it certain so mind is always aspiring to look for certain frames.

Frame not in the sense of a very rigid frames, that but if you have a broad certainty broad idea broad direction almost making it a linear so it is a whole process of a non linear existence going into a linear existence this framelessness is compounded by a sudden change in your body, when you hormone, hormones are actually changing are all this hormones are being regulated by the brain chemistry which and it is not a linear thing again.

It may appear linear but the whole feedback system, so you have neurotransmitters in the brain.

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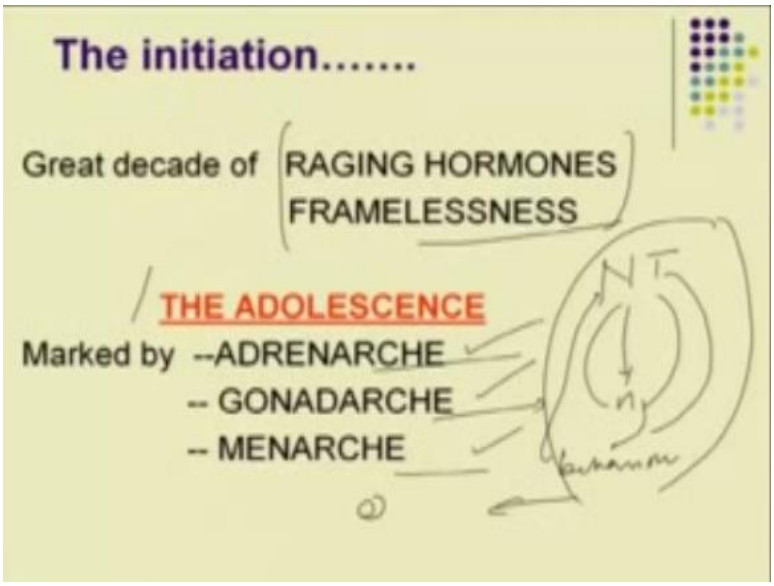

With secret hormone this hormone, actually affect behavior is behavior goes back here and this, a whole feedback system multiple feedback system, so in the already existing plethora of information, this type of processes the compound the whole thing.

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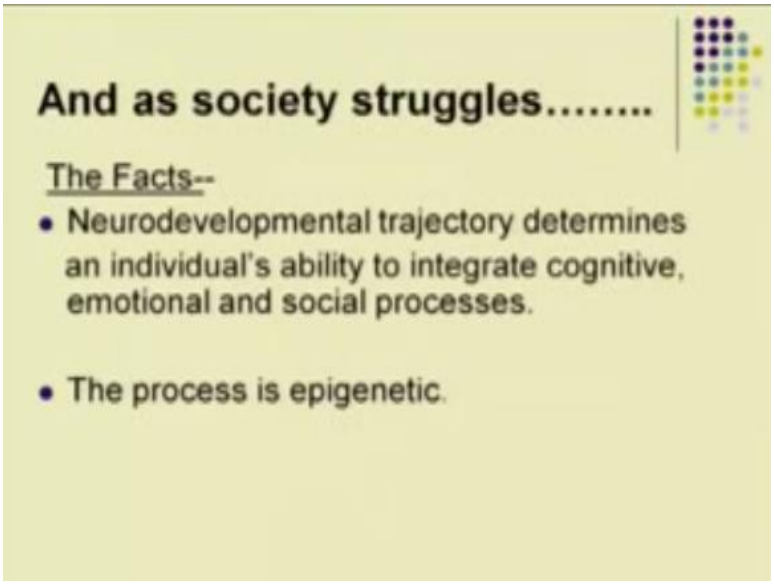

So as I said society struggles to handle and understand what exactly is happening to this cage they are certain facts and the facts are that we are talking about development that the neurodevelopment.

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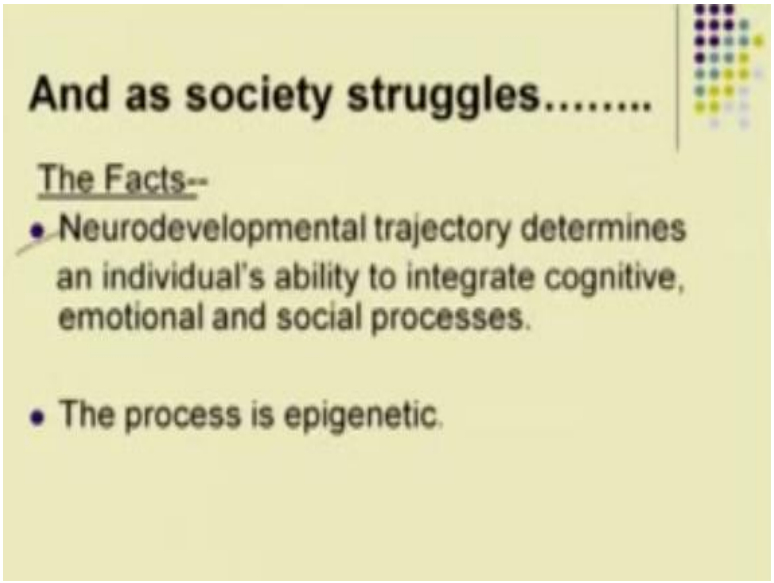

Trajectory determines and individual's ability to integrate.

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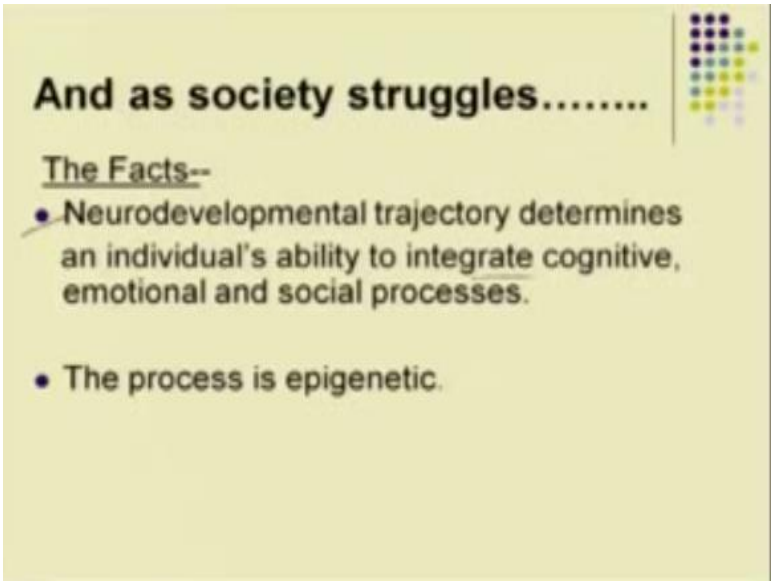

Cognitive

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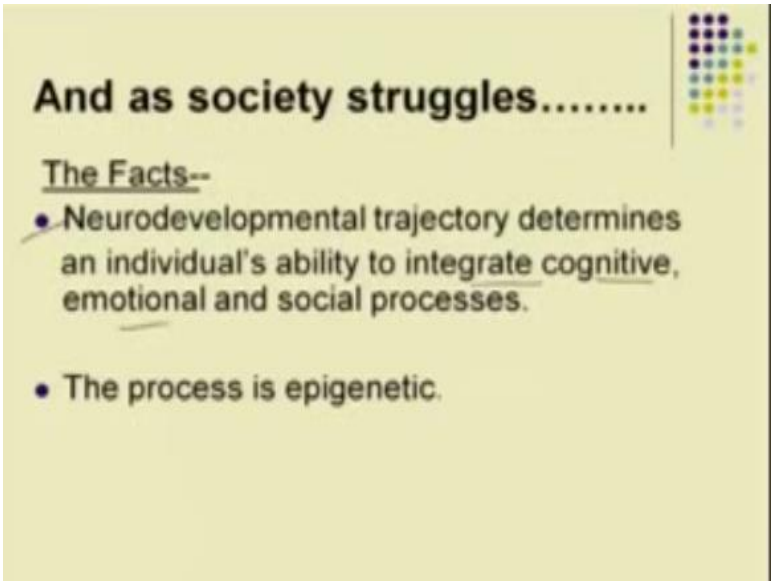

Emotional and.

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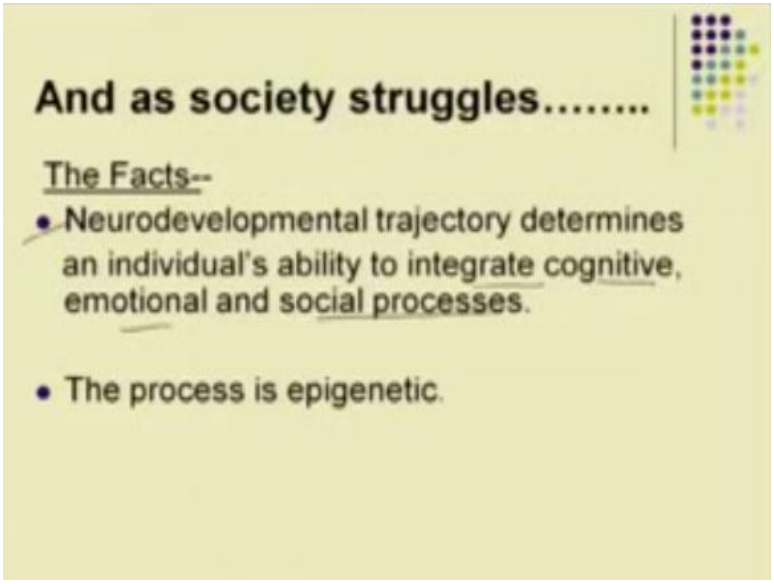

Social processes this is saying another word that as you are growing as your brain is taking information, what trajectory your mind takes in integrating this huge data processing, it trying to form of frame of your life to create certainties in a world which is still uncertain for you, this a great dread in which way you are, going the societal pressures of achievement of and these are external things of handling parental pressure of handling education of planning for career making a secure future and making, the basic needs of food, security and at the same time you are trying to handle, your becoming sexually aware of yourself you are becoming conscious of yourself.

At the same time you have to handle the elements of a opposite sex because harmonies have a started razing and they are pushing you towards attract attraction towards opposite sex been male or female, so much if you try to draw on some axis this things huge complex network I made this you have to remain yourself here to make yourself and everybody you meets you ask, so what are you going to do future and so on so forth.

All this have to be integrated within the brain, so Brain is doing a pretty good job of keeping most people all right, because we look at this process from outside you will still wonder how is, it happening.

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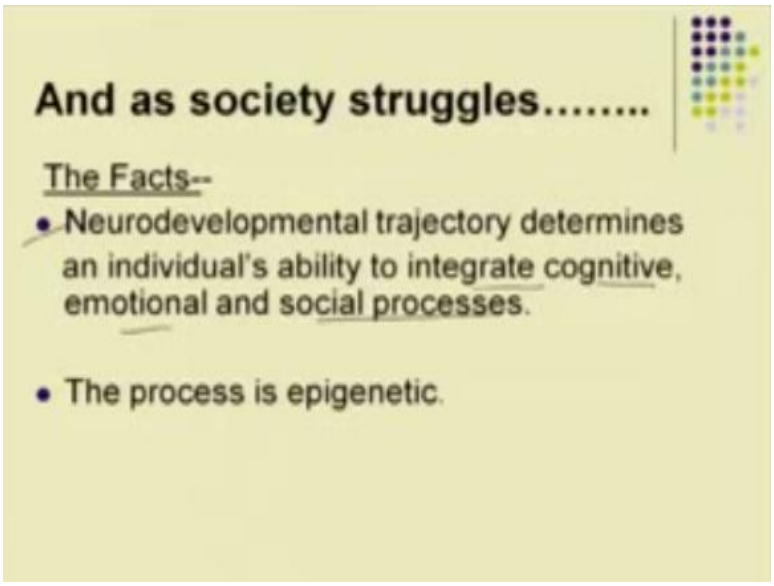

So the larger processes on a genetic temperament.

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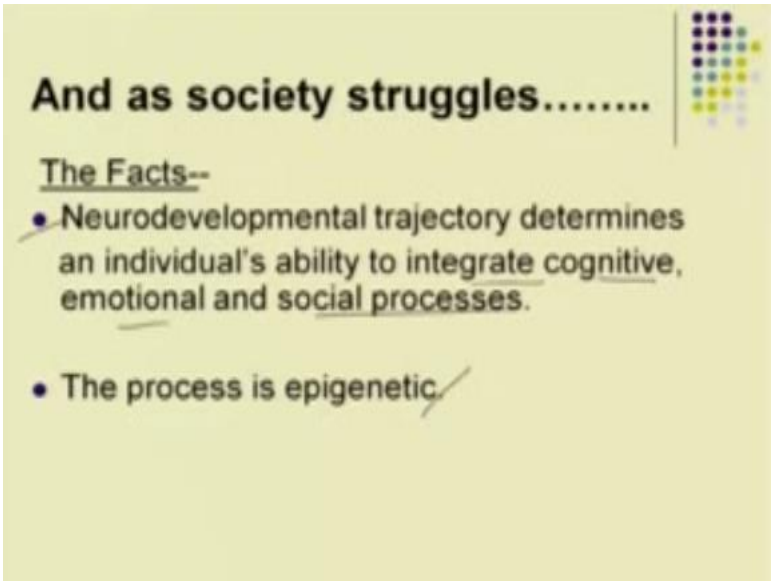

As I said.

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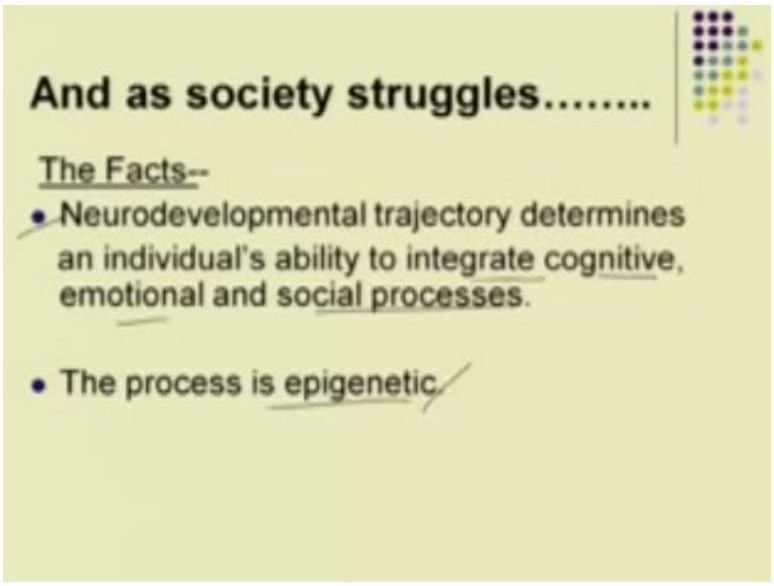

Is epigenetic.

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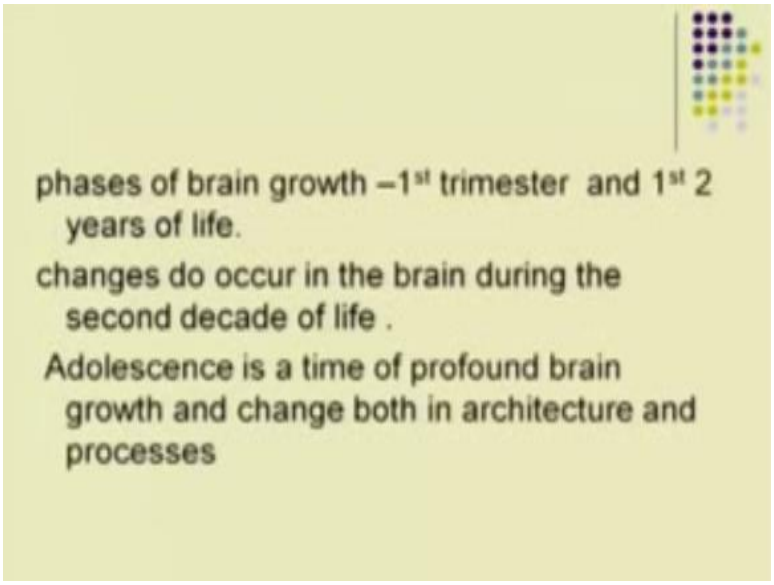

So just revising what I was thinking the faces of brain growth is the first trimester.

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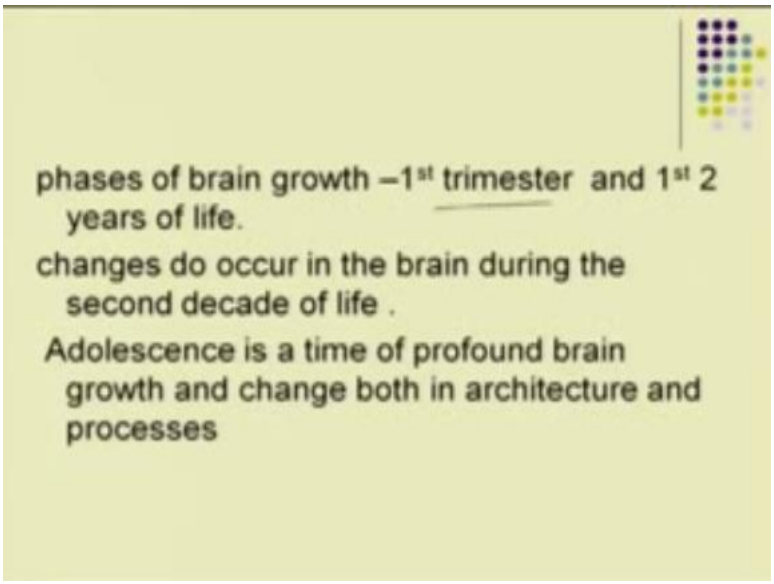

And the first two years of.

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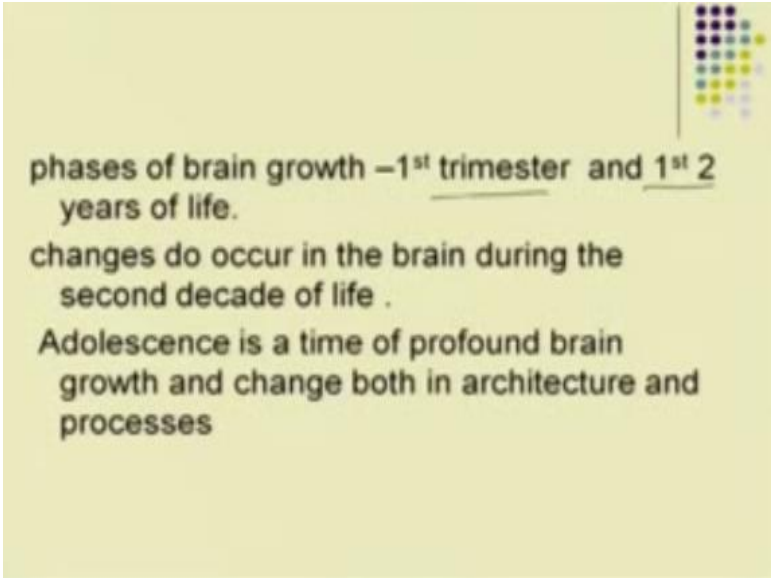

Life largely with the brain is a splurge of growth of neurons.

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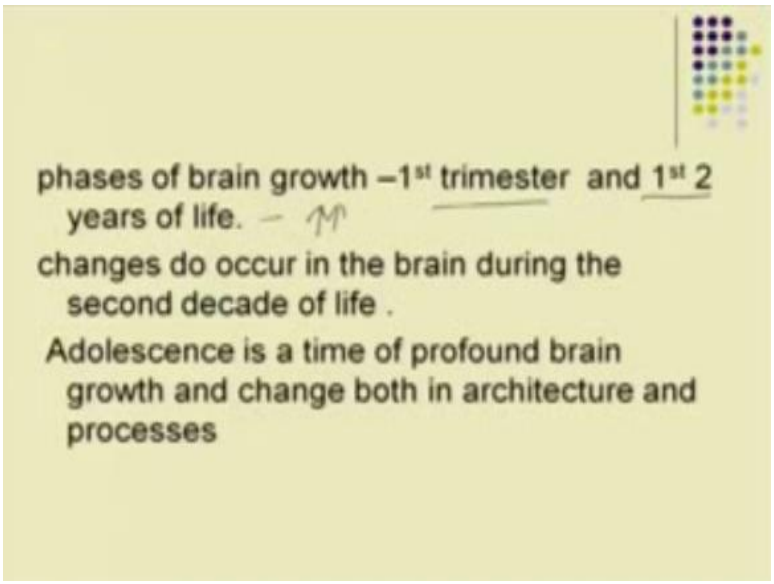

Changes do occur they just do again the second decade.

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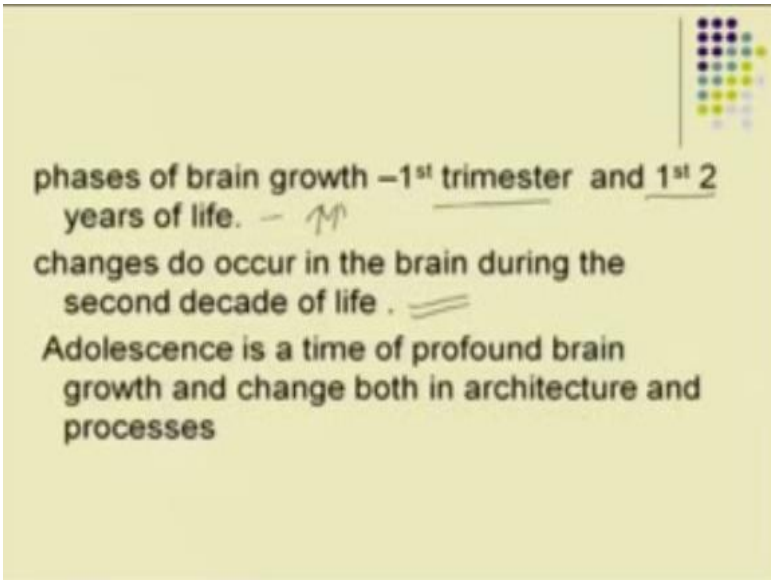

Which is starting from a adolescent but adolescent is a time of profound brain growth.

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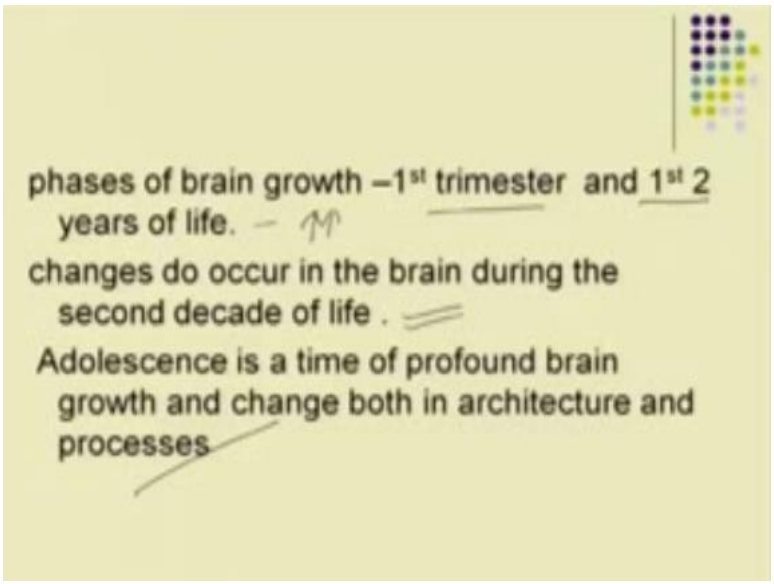

But the change is not so much in the number of neurons. The changes in the architecture.

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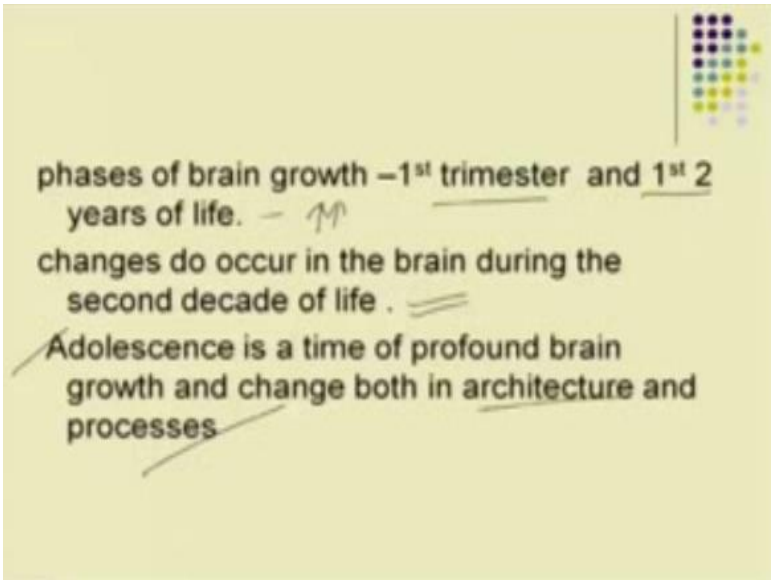

And processes.

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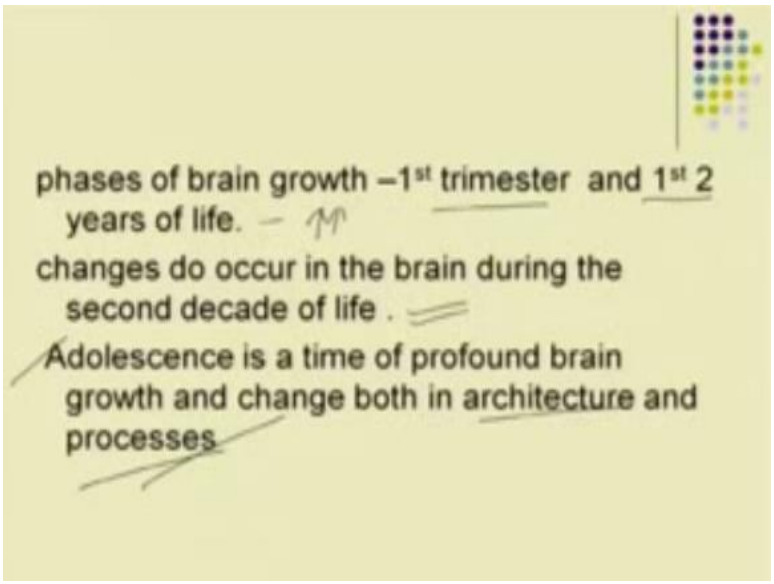

If you remember from the neurophysiology and we said it is a huge network if you look at it and the way it is connected on multiple access.

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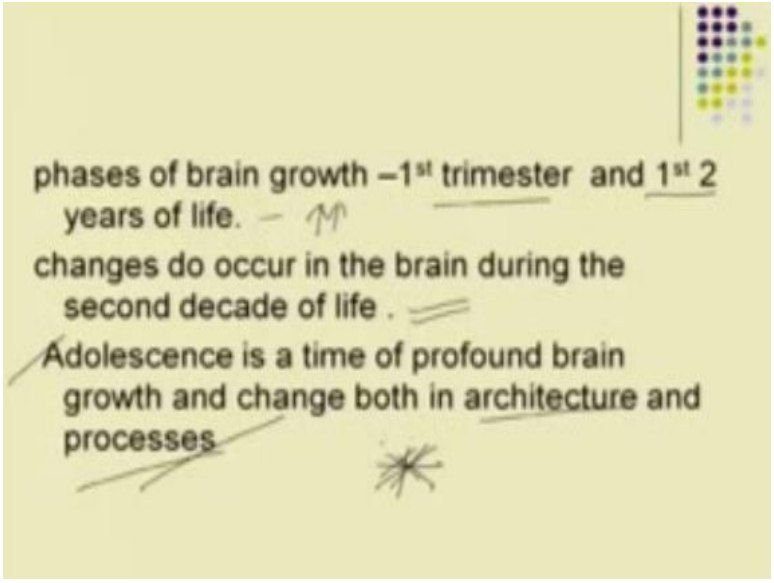

From if you just look at this.

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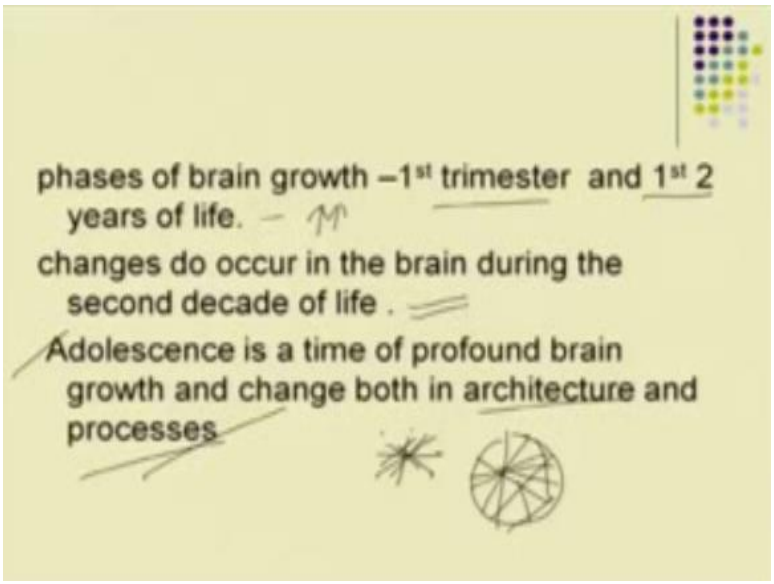

Anybody brain diagram will tell you huge even multiple access they are not going through some centralized process is no centralized process their neurons are activated the connect and this is just a very simplified thing. And all this points have to be connected and if anything can be connected to this type of connections are formed architecture and this architecture is affected by processes if you remember what I said.

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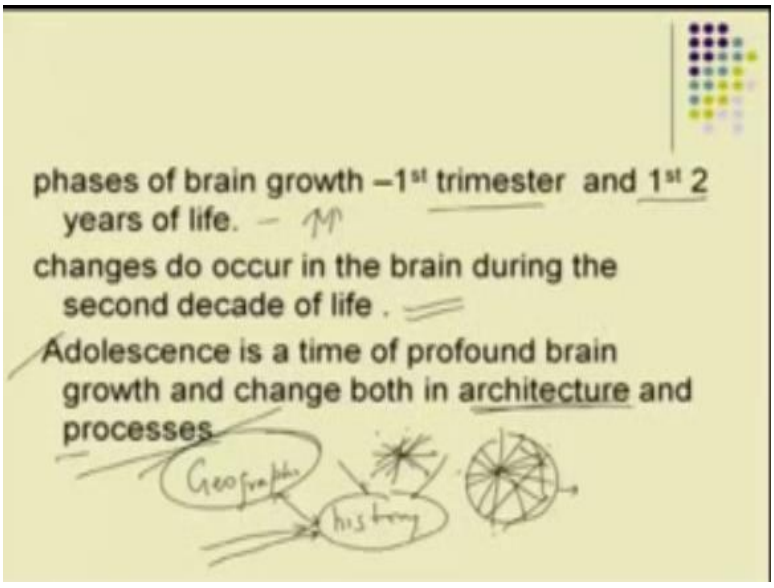

If we look at geography which is anatomy has a reciprocal connection with history this is function. This is function architecture, so both affect each other in the way that the

processes are reactions that stimulus from the environment everything going on and this alters the architecture.

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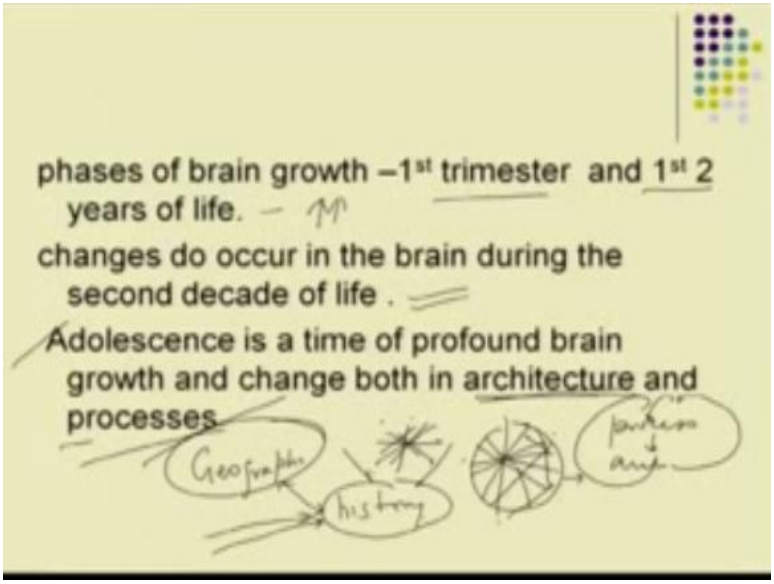

The process alters architecture, which in turn gives rise to new behavior which again or does the process so this is a huge treat loop which is going on and that determines the trajectory of growth, so I hope you understand this so I will say it once more the brain has neurons which are firing they are creating certain behavior you do a certain behavior and act on the environment there is a consequence of it.

The consequence pass back on your brain may good or bad way, if it is good you keep repeating if it is bad you do not repeat it that s a learning but this learning comes from change in the connections between neurons in the brain called synaptic plasticity.

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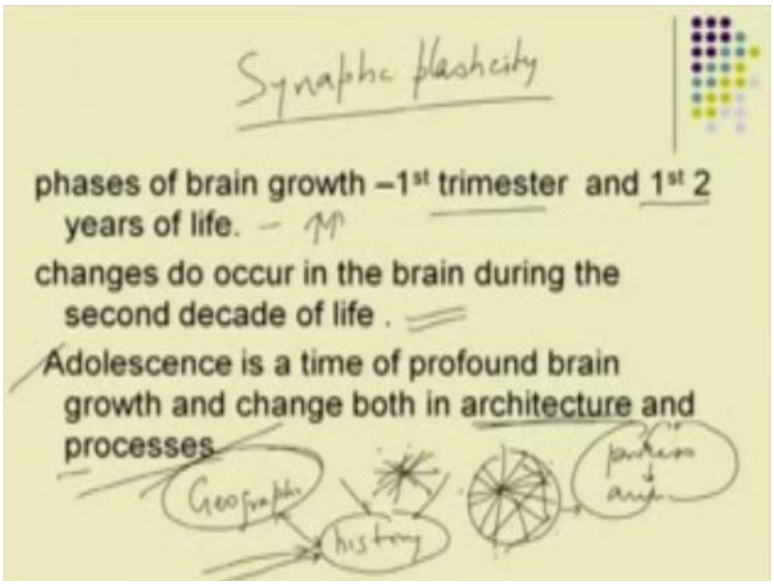

I will write it here it is called synaptic plasticity the capability of the brains synaptic to change through feedback learning memorizing from the environment.

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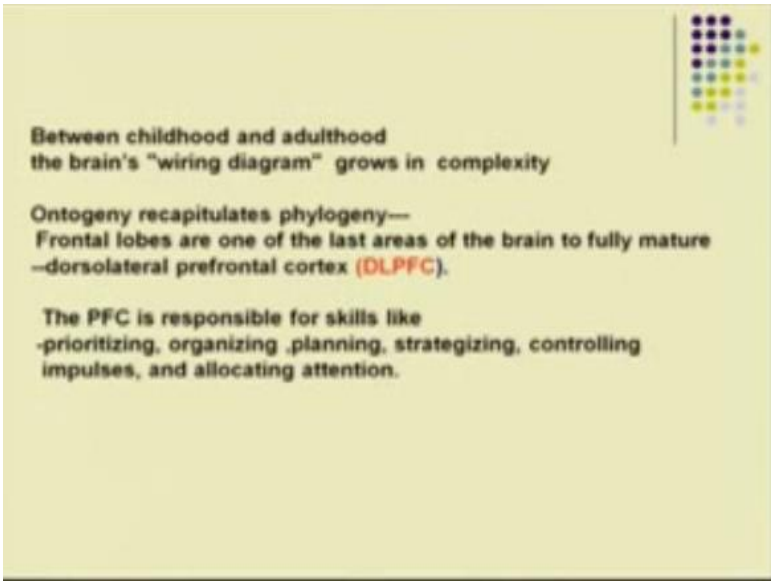

So between that at childhood and adulthood the brain's of wiring diagram grows in complexity.

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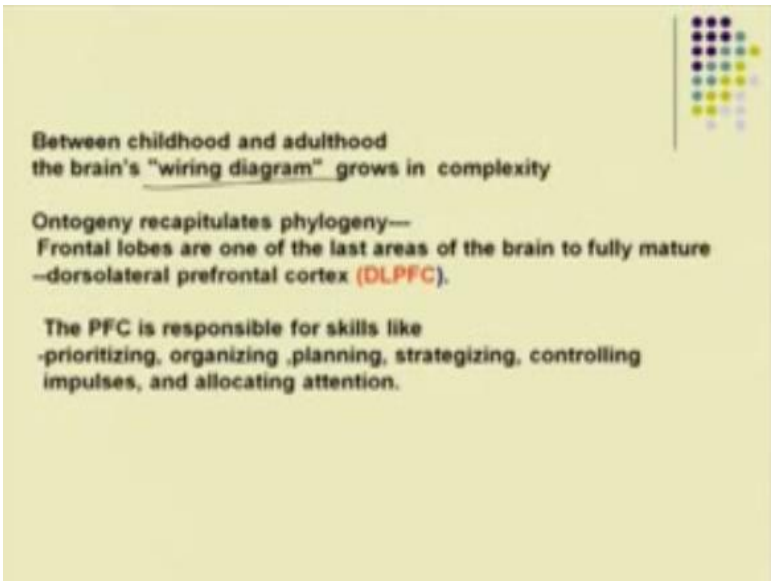

So what are the simple thing when you were born and the first two years when the stimulus where less when your body was not active you in the first year of life normally you do not poke the environment you have want you food by crying or doing all the things but you still are not very active but as you go active in the two years and three years you go and start poking the environment.

Environment keeps poking you back and does the neurons which were lying in simple connections they growing complexity, so what maybe it just in a very simple way what may be a two neurons connecting to two when there is no activity. They become 2000 later on with the increasing complexity, so it up its interface of what is happening, and the reflection of the brain in the form of a connection.

Ontogeny recapitulates phylogeny anybody studies evolution and human anatomy and embryology knows it. The thinking brain was the last to develop it was like.

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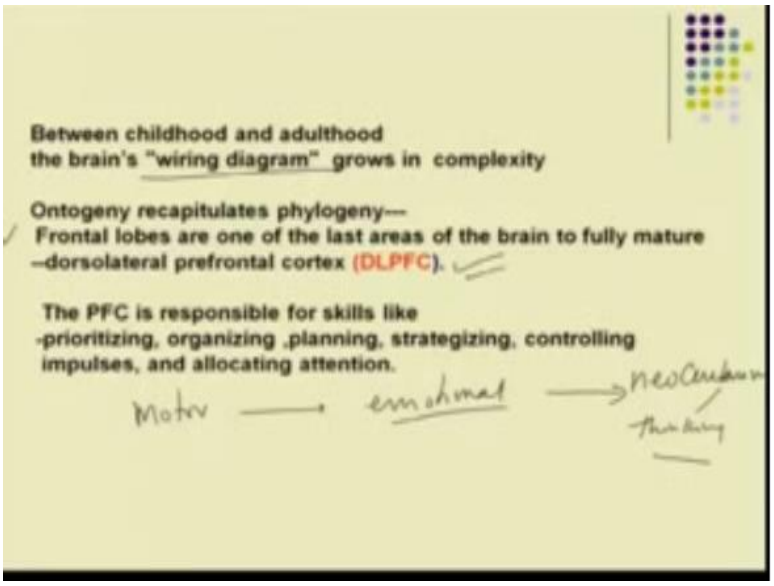

Motor brain which even reptiles here to emotional brain lot of primates, have the emotionality like us they are known noon and there is a neo brain, neo cerebrum which we call which is thinking brain. Frontal lobes have been assigned what you understood in the last hundred years from psychology, from imaging, from electrophysiology the frontal lobes other last areas of the brain to fully mature.

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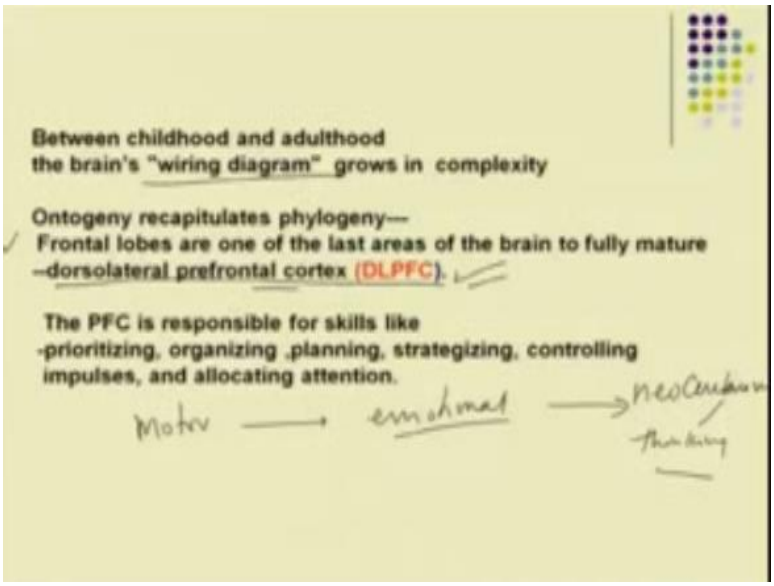

Especially this area called dorsolateral prefrontal cortex. The dorsolateral be for

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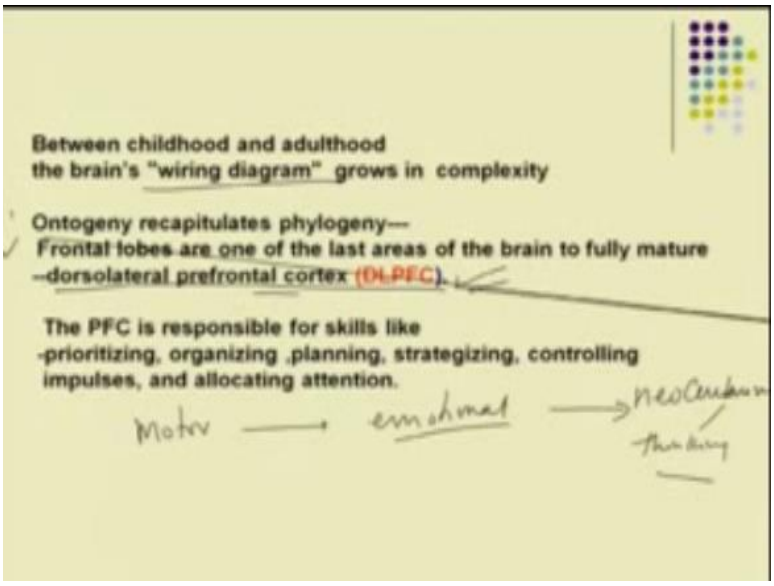

Ontogeny is individual development phylogeny the development of the species, so individual development is almost like development of the, species this is a phylogeny reptiles primates man if you look at the development like this is the same thing happens in the brain with individual development. The individual development is

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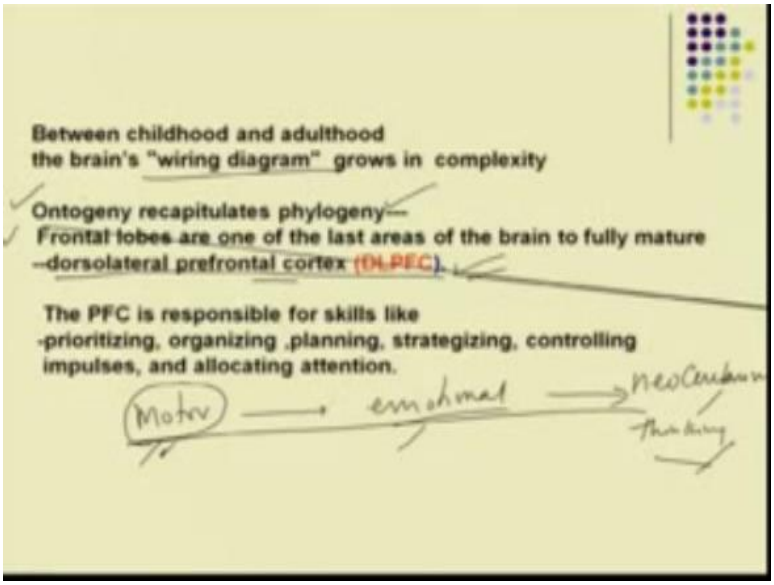

Motor development when you are a kid you are moving your hands.

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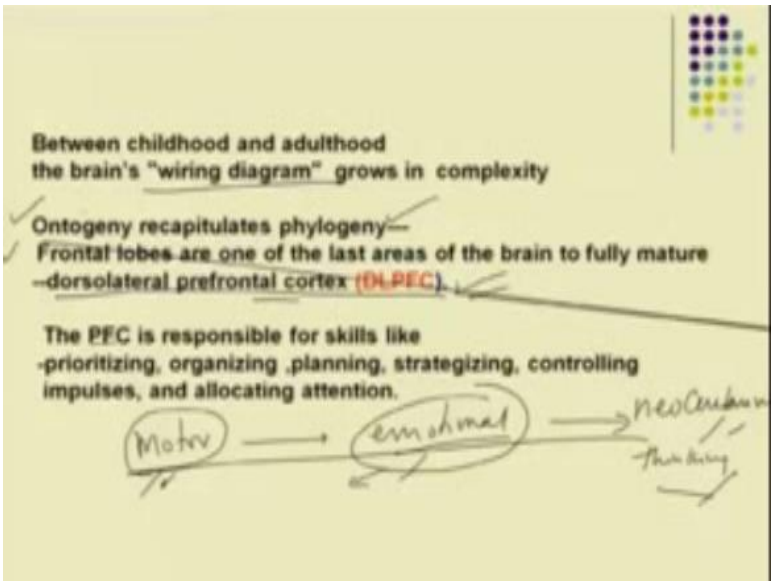

Emotional develops as you are born and, and thinking develops much later but the rationalize thinking.

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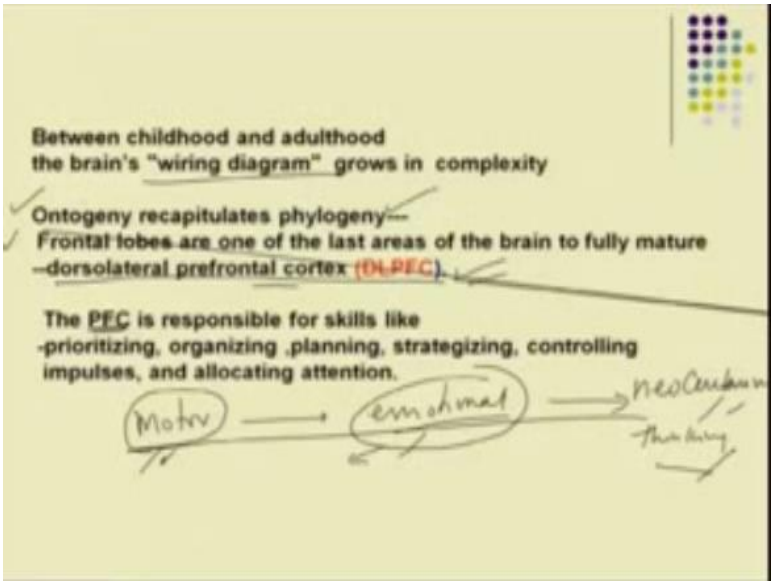

Which dorsolateral prefrontal cortex does is responsible for his skills like prioritizing, organizing, planning, making strategies, controlling impulses and allocating attention which is a function of.

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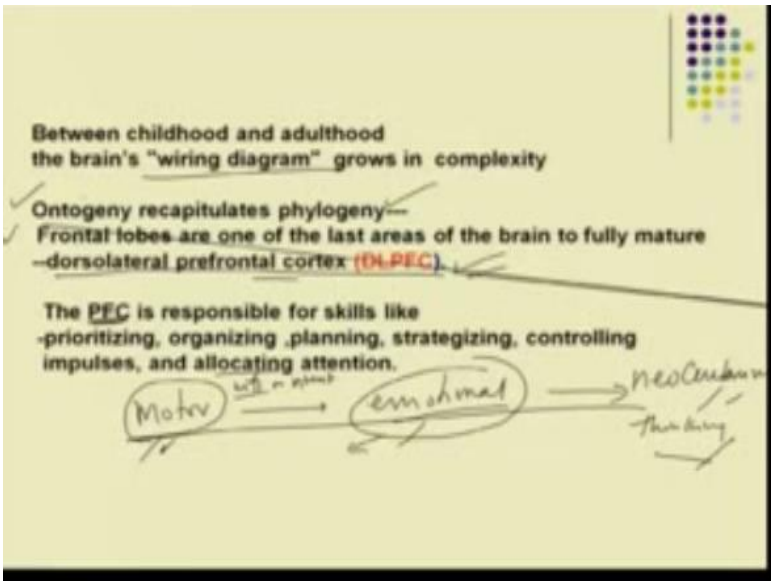

Will or intent this is the last development if you ask me ask a small commercial thing and not being able to make this is and 13, 14, which is slightly unfair to them because this area of the brain develops somewhere under 18 and 19.

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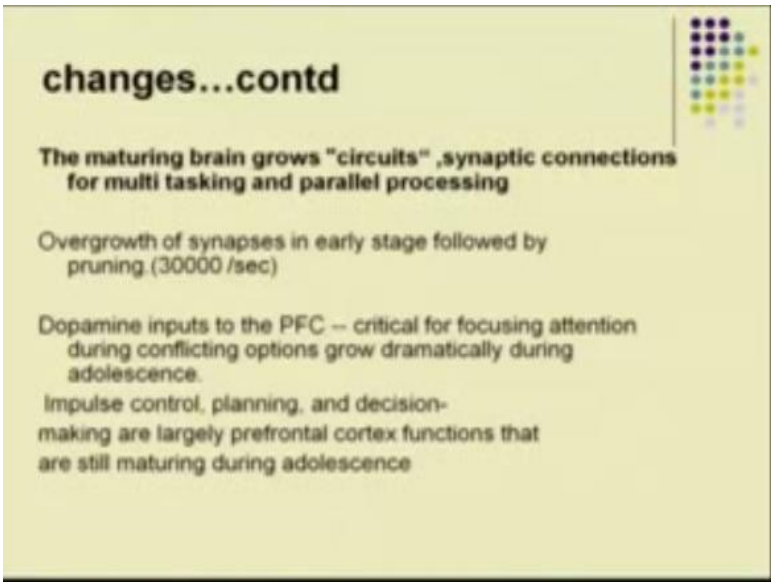

So the measuring brain grows circuits.

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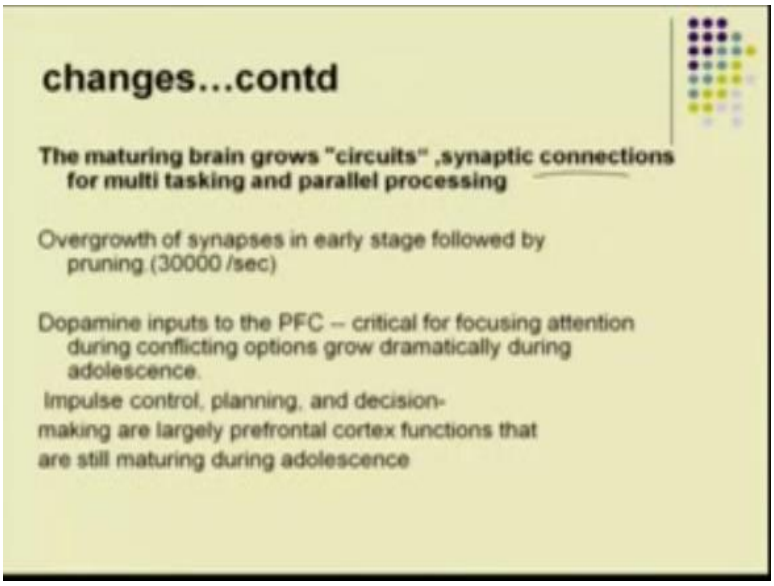

Synaptic connections for.

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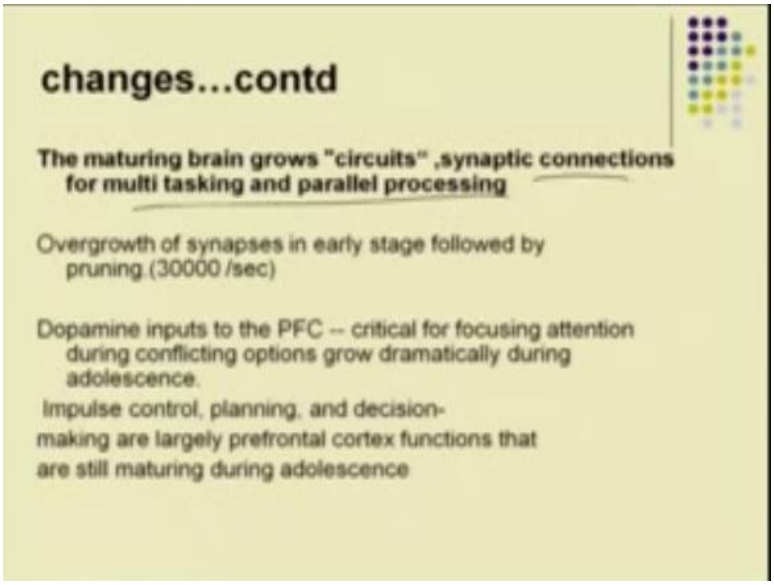

Multitasking and parallel processing, when you are a kid you do simple things you start doing one act and keep playing it, nobody bothers you so the process still reminds you but as you grow the complexity of the acts increase and when you are an adult you are expected to do a do a lot of multitasking you have to do your office worker is still worried about your family have to keep worrying about income your safety security and

what not and take all the you are supposed to know about the world and the politics and some sports and have not we all know it is our life.

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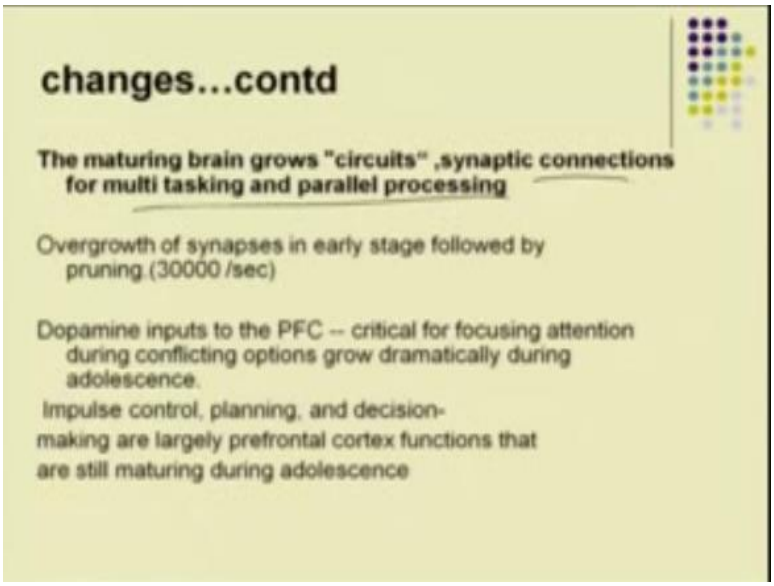

So brain cannot take one by one and keep doing a linear processing otherwise we will never move, so brain is also developing to do multitasking this it does it again by synaptic connection, so as I said in the release is the.

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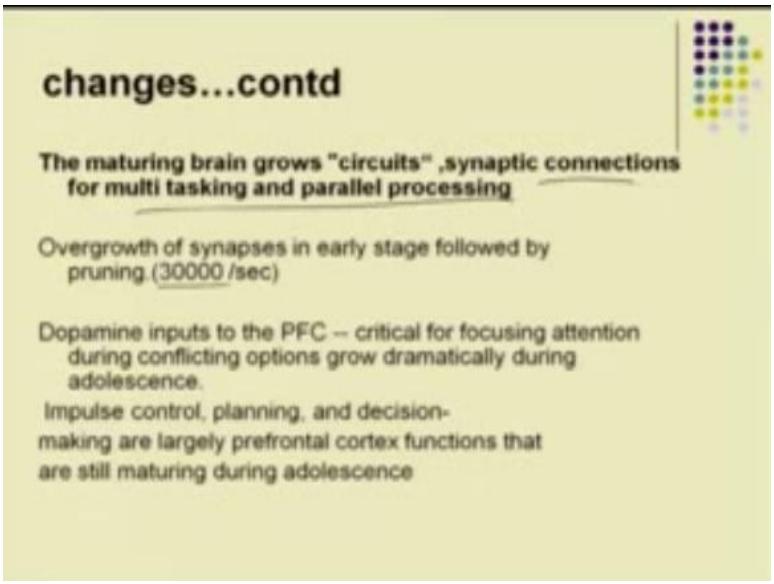

Brain grows like.

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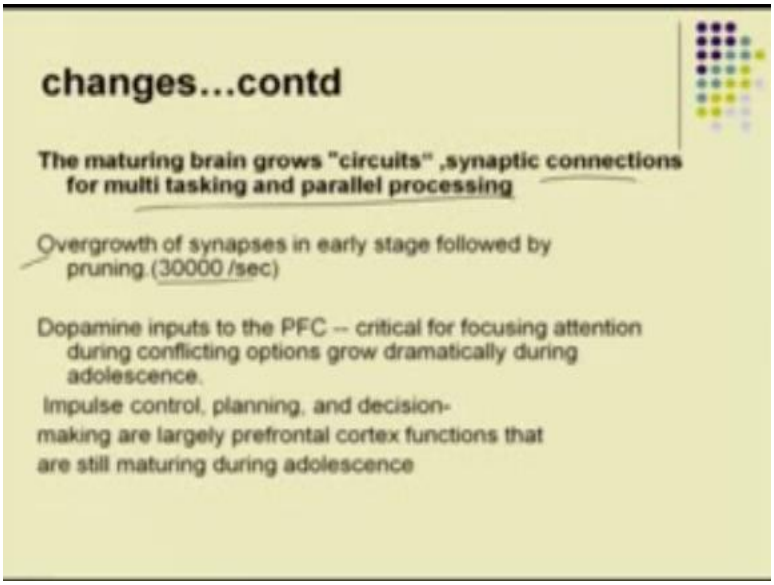

Is a overgrowth then there is a pruning happening around 15,16 years of age and that is the time and most of the illness is also start. The pruning goes on this rate, so the brain has already grown into billions 10 to the power 10 to 10 to the power minus 11 neurons, within 10 to the power 14 synaptic, the pruning happens almost 30,000 neurons per second.

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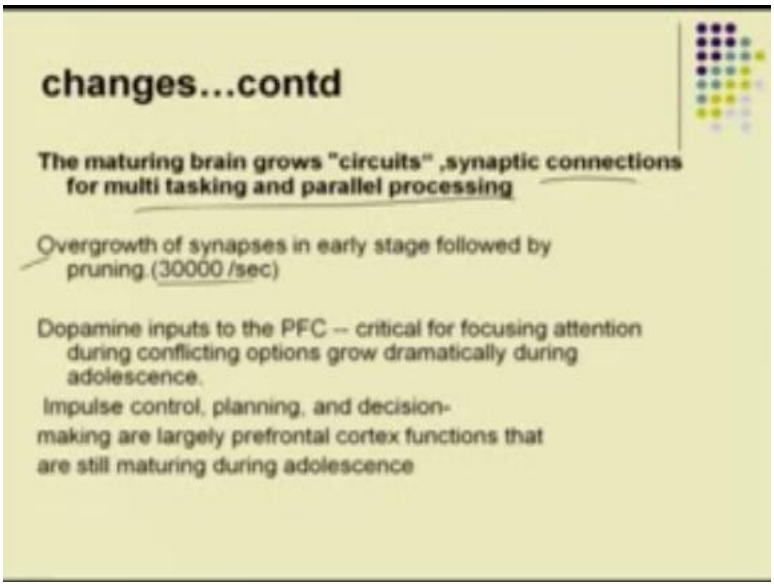

So the where there is a less being triggered in certain areas the pruning happens faster so Dopamine inputs to the dopamine if you remember is one of the.

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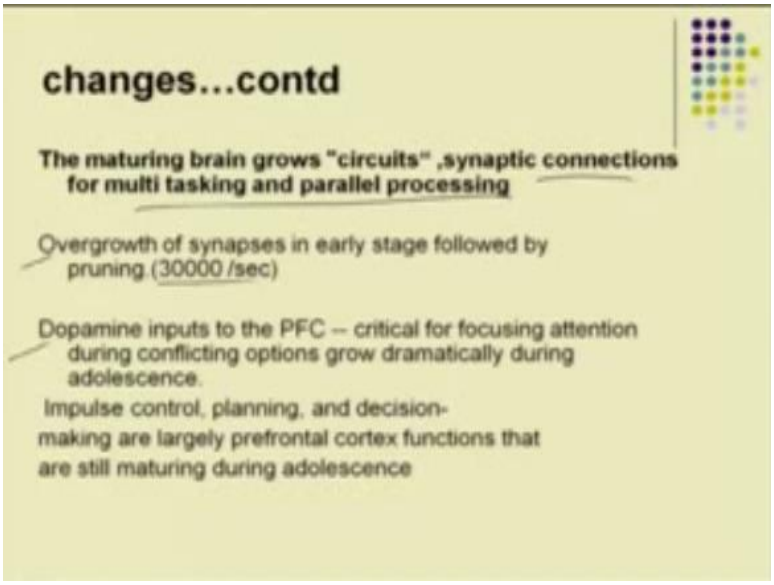

Neurotransmitters is very.

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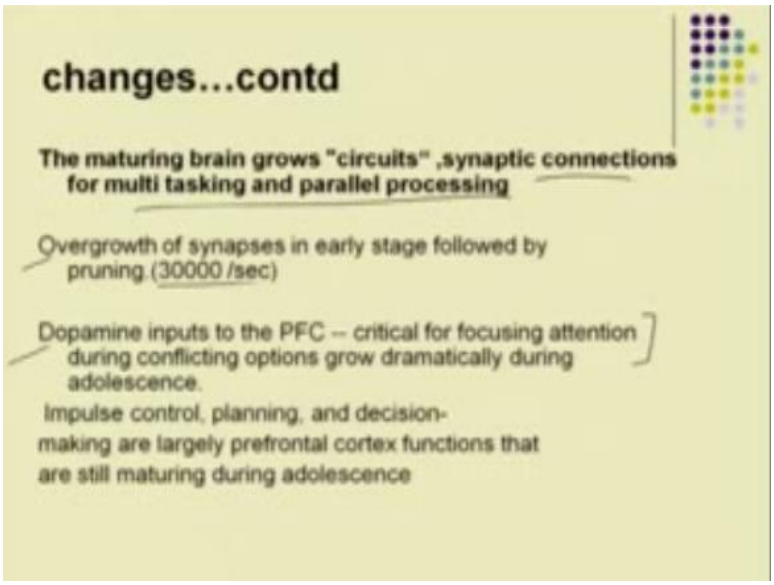

Critical for focusing attention.

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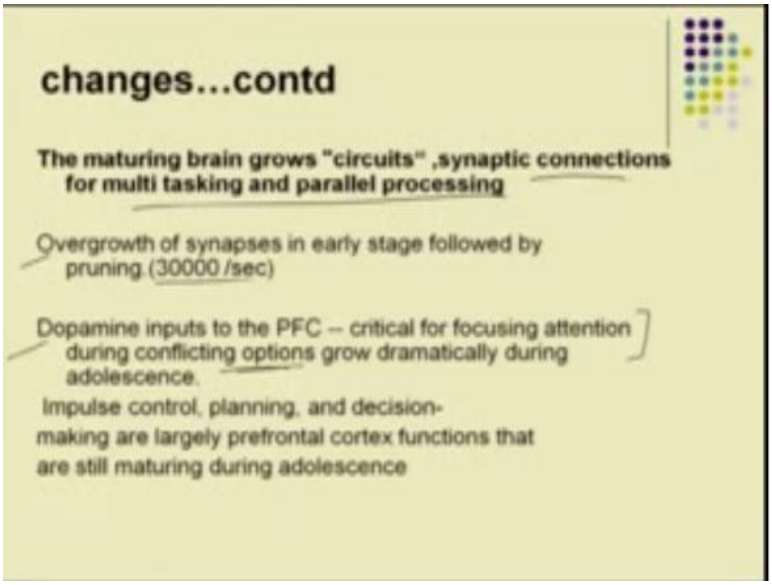

During conflicting options.

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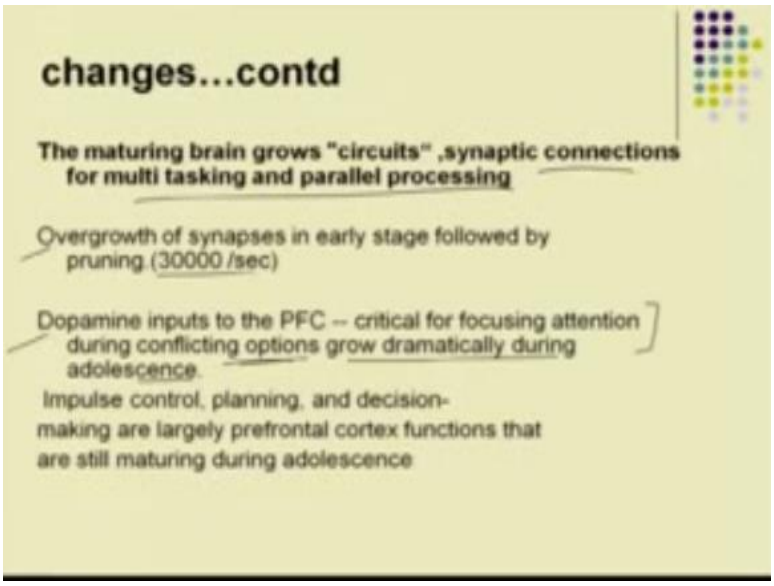

They grow dramatically during adolescence, so you understand what I am saying your brain was taking in inputs was developing in complexity trying to do multitasking but when you start becoming a thinking individual now this you can compare it with the psychological models of fraud and PRG and Ericson, if you look at the list which I will probably have in the slides.

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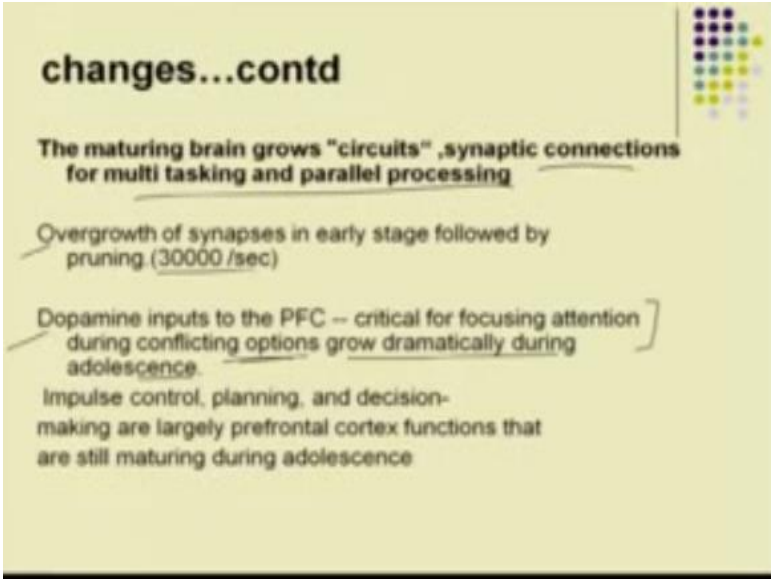

Look around this age of around 16, 17 to 18, 19; this will almost correspond to the thinking task which the brain is developing psychologically. So what do you observe in the external world as being a psychological thing and so you observed behavior you have a psychological theory for it now compared with biology it is all fits well the dopamine inputs are very important, for focusing attention during conflicting option means that you developed.

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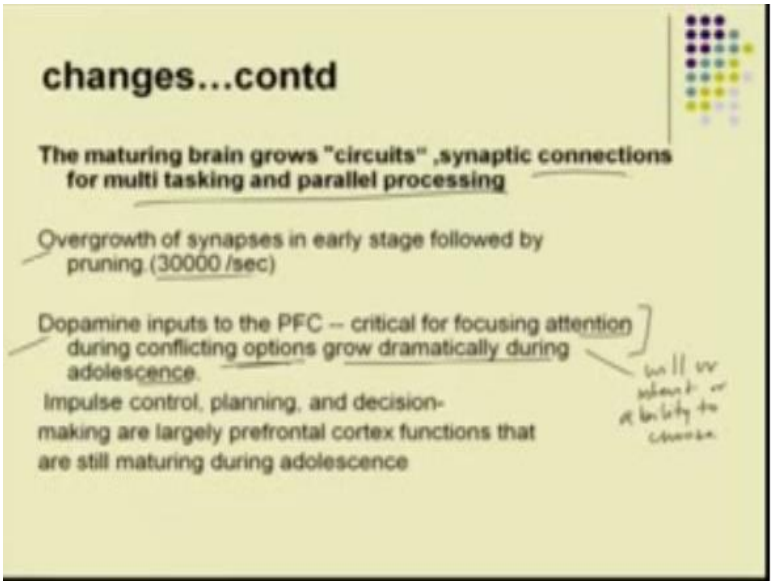

A will or intent or ability to choose this is the thing which you call as developing judgment criticality really growing up.

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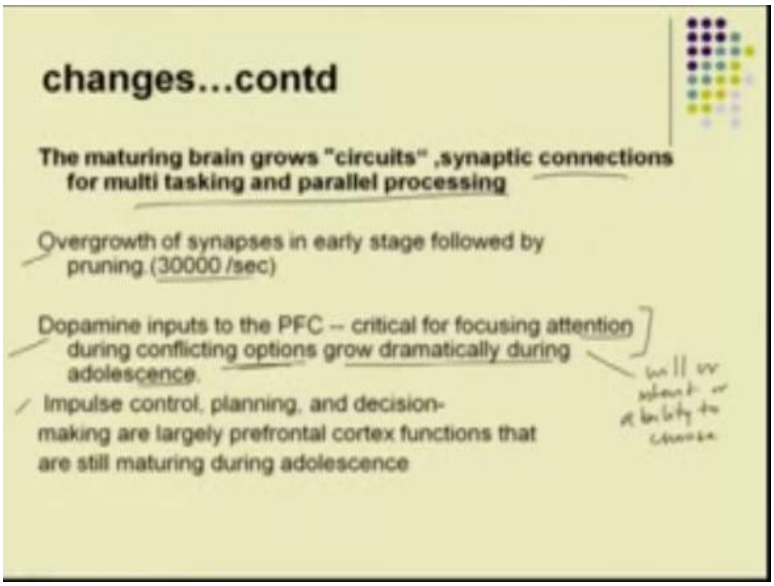

Impulse control when you were a child you do a lot of things impulsively nobody bothers nobody expects you to take decision on that, but as an adult if we start doing the same thing like snatching some bodies ball they will be sever re-precaution that a kid snatches it is all expected.

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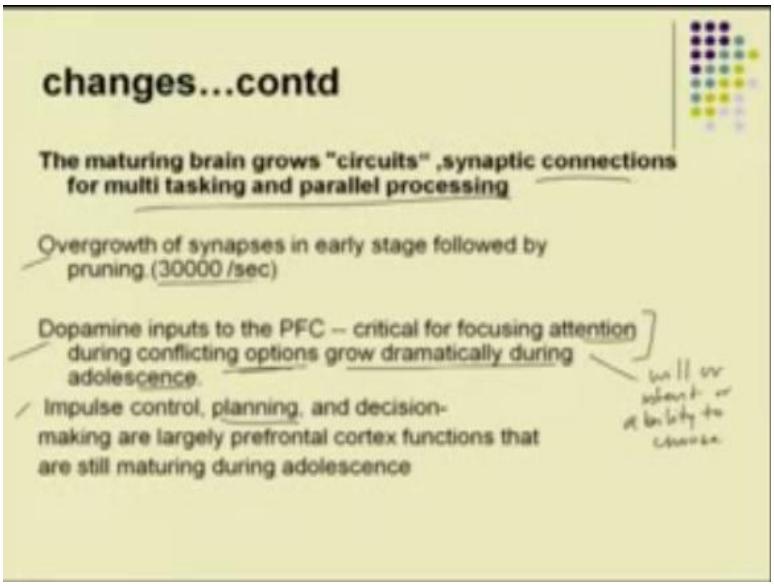

Planning half the problem in the mission conflict is that all parents feel the kids are not planning although they may be planning in a different way.

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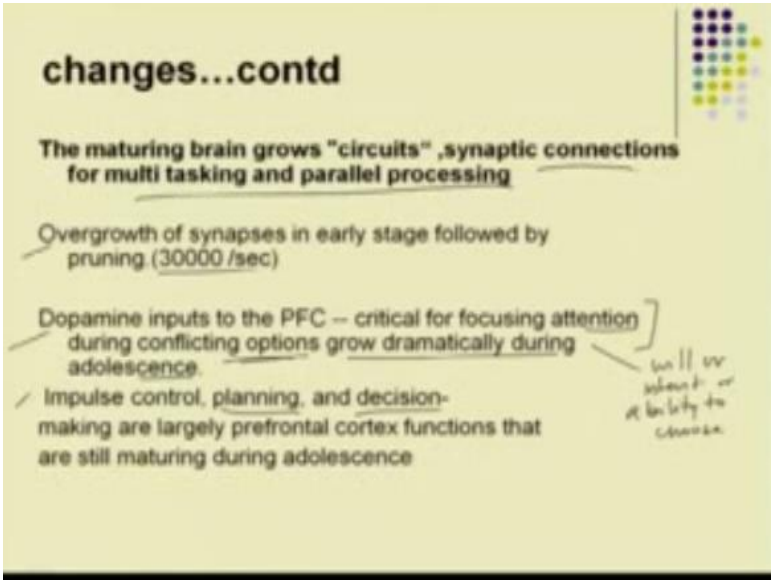

Decision-making no adult believe.

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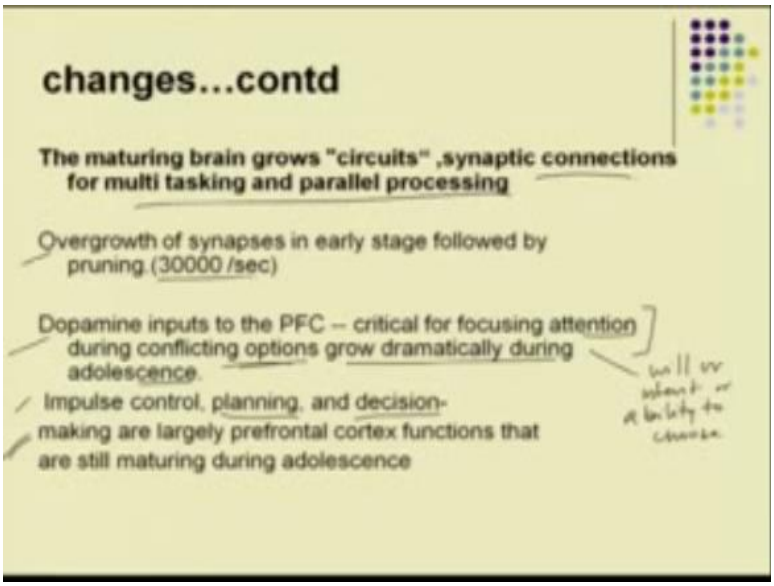

That a adolescent child can decide but they are

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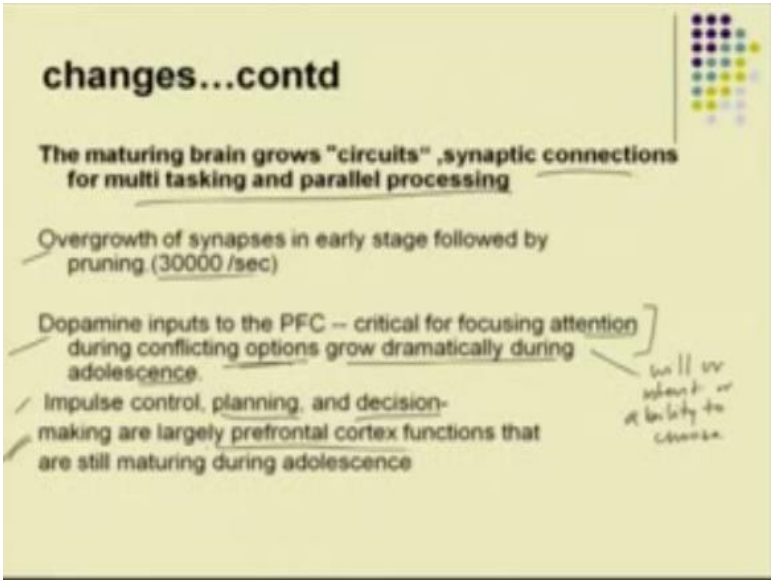

Largely prefrontal cortex phenomena they are still maturing during adolescence and it will go up to whatever time till it all develops but essentially the growing means that in simplest word they think the adults think that now you can think judge decide for your own benefit and for societies benefit but that age is not before 18 or 19.

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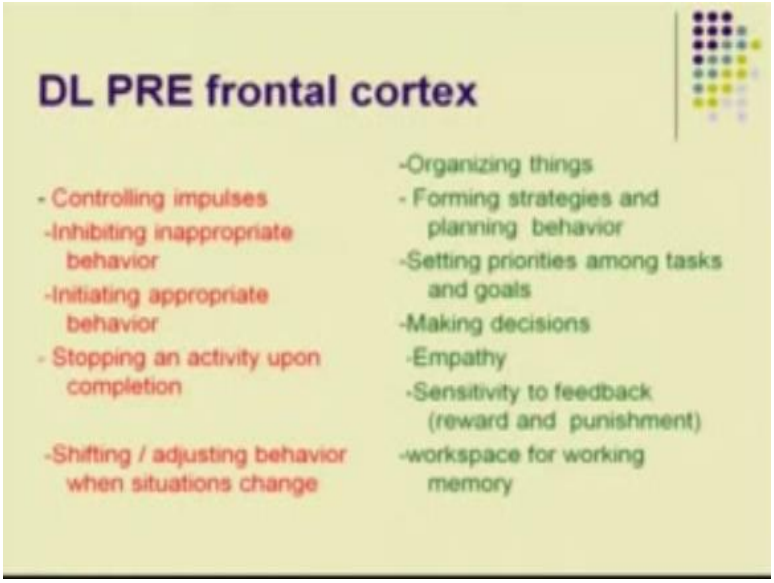

Again as I said controlling impulses.

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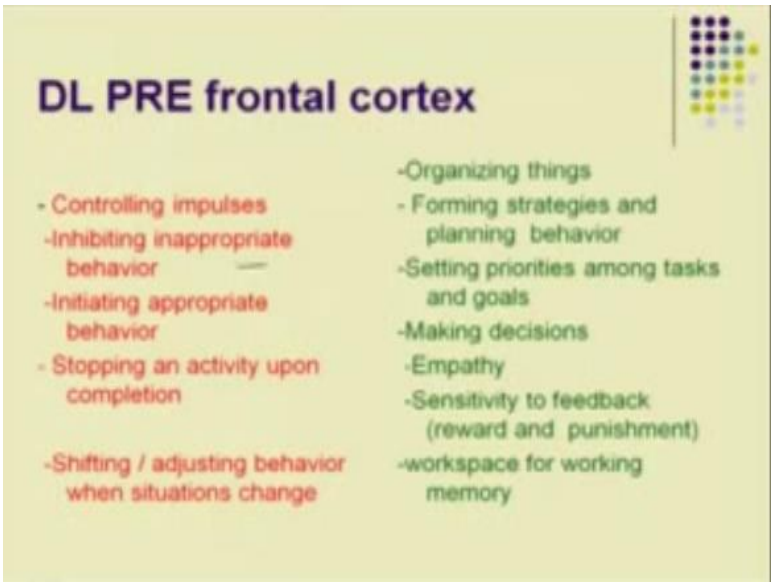

Inhibiting behavior what you are expected to do adolescent is different from childhood those same things are not forgiven are excused appropriate behavior is

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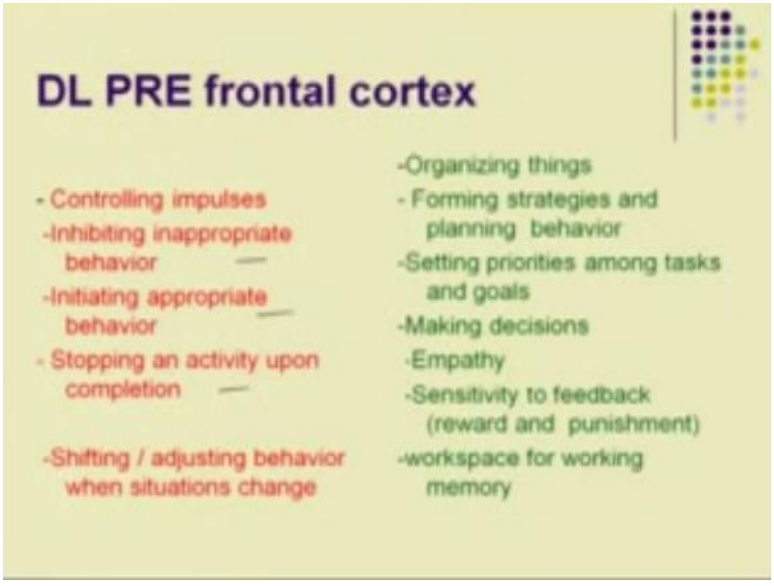

Stopping an activity of on completion you can, not keep doing and that is one of the so the there is a lot of disturbance with.

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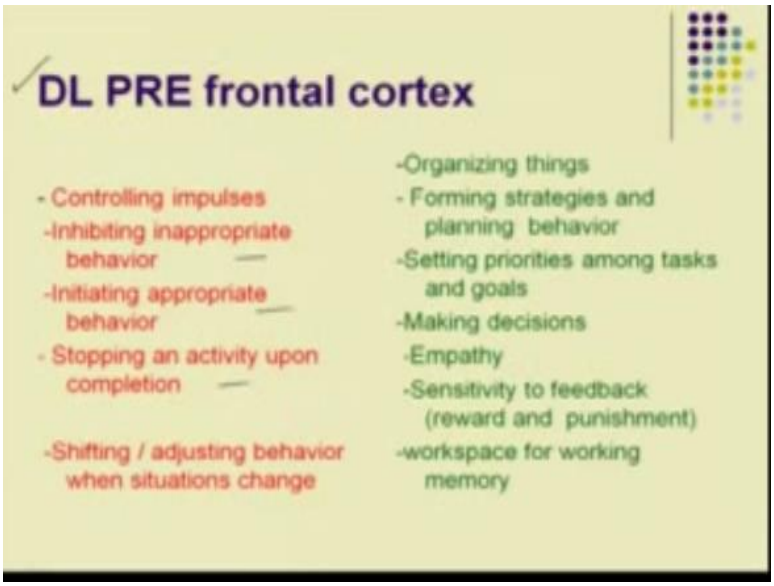

Dorsolateral prefrontal cortex fondant illnesses like schizophrenia and OCD and impulses control.

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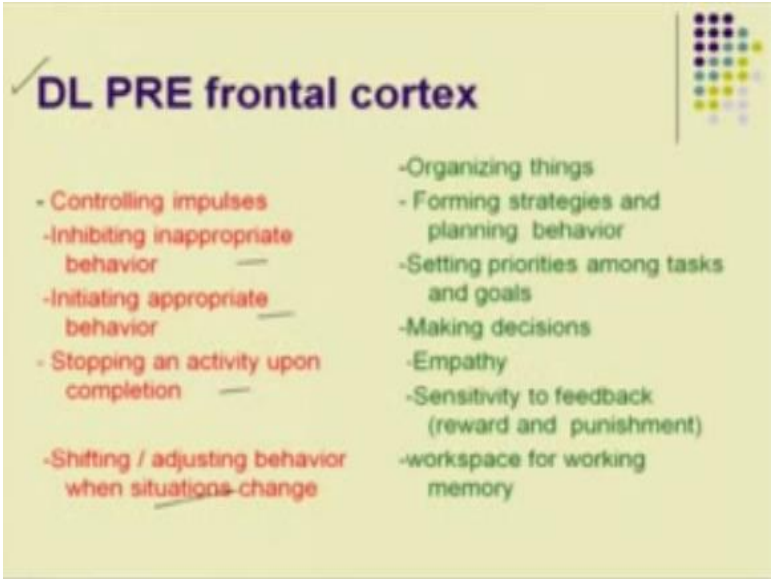

Shifting adjusting behavior in situations change.

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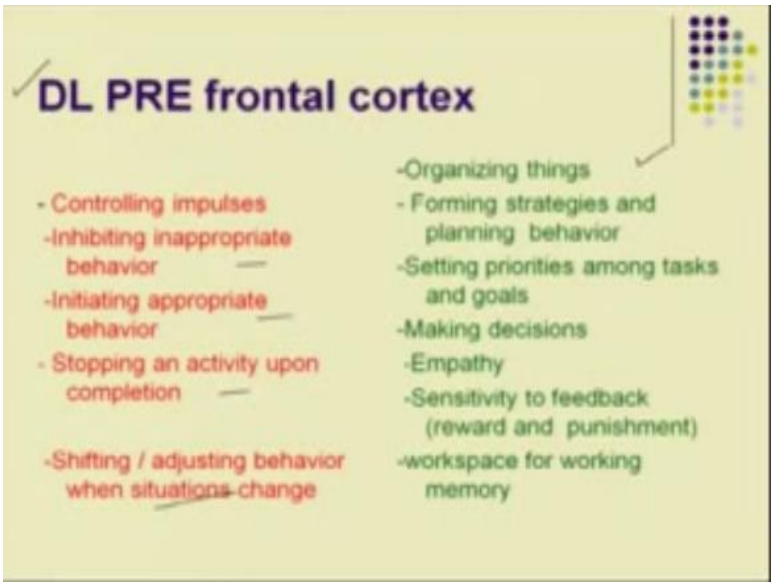

Organizing things forming strategies.

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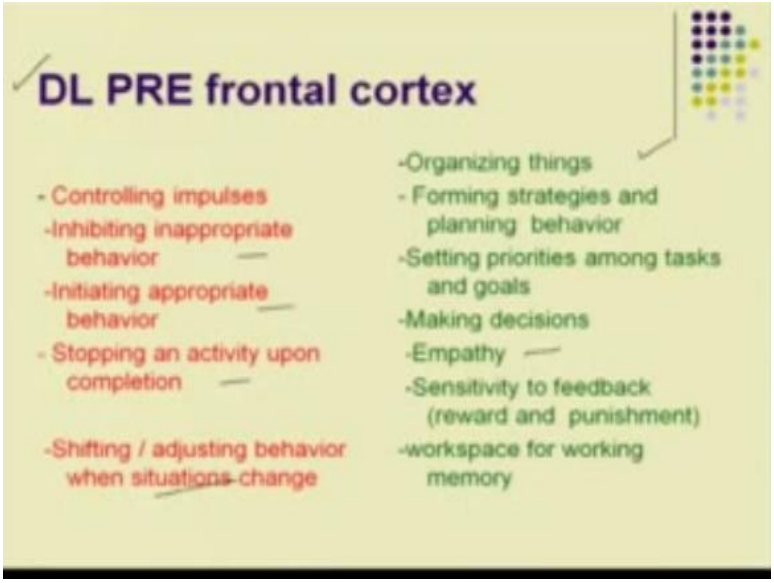

Making decisions empathy when you are a kid you really live your own narcissistic world till a certain age if we will look at in the psychological theories also that the world you are the center of the world and the whole world is revolving around you. You do not have to sacrifice for anybody, but as you grow one sign of the growth is you start shifting your position you start adjusting you start giving place to the others that is also part of the growth of the brain.

So brain is starts developing certain amount of empathy in the sense that you understand that other person is also a person and his requirements his sensitivity.

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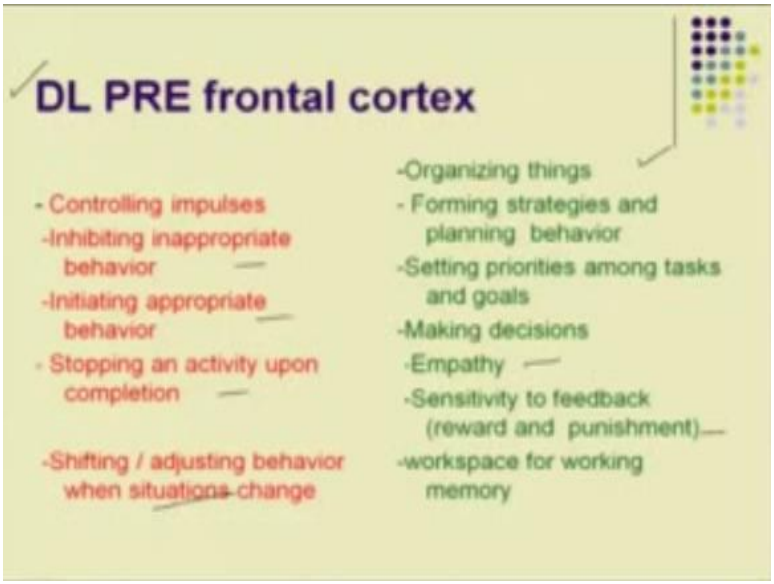

Reward and punishment lot of kids

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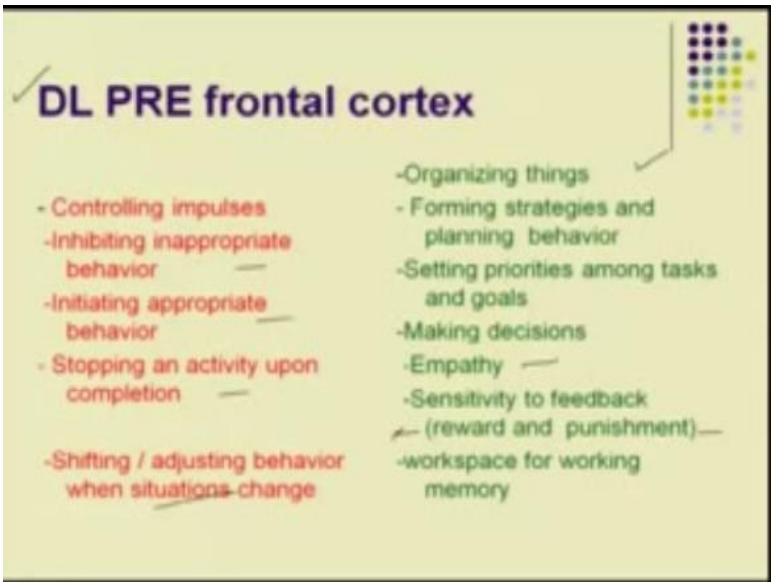

And when we were also kids used to never bother about punishment you have punishment you will again go and do the repeat the same thing or if you get if you feel happy about something we will keep doing it all that is expected in the childhood because your dorsolateral prefrontal cortex not that they knew it now we know it but as you grow up you also expected to be sensitive, sensitive to the feedbacks.

That if you have been reprimanded and that is how law works one think of the law and crime and all that is that people feel to understand the repercussions of their act, so law punishes them and they are supposed to learn from the punishment, some of them do not learn to the they are the breed of hardened criminals or antisocial people.

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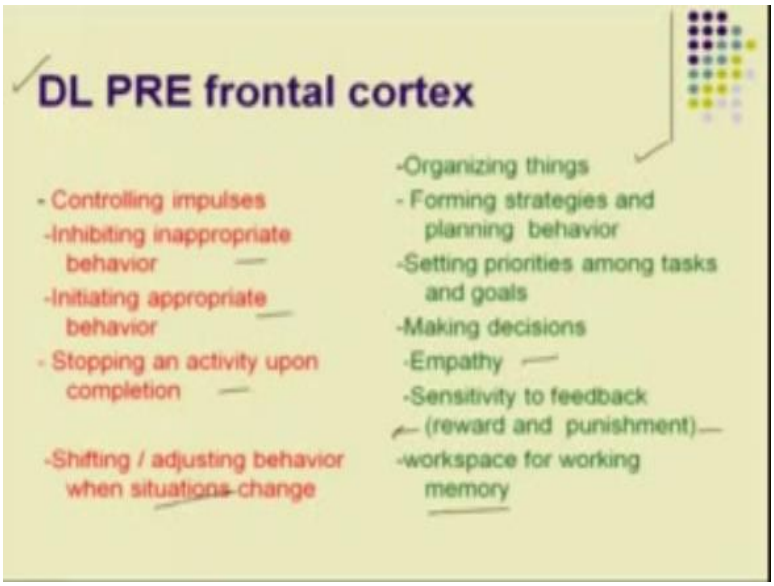

And working memory that what has been told to you what you are doing you can bring out things to your memory and really keep working on them.

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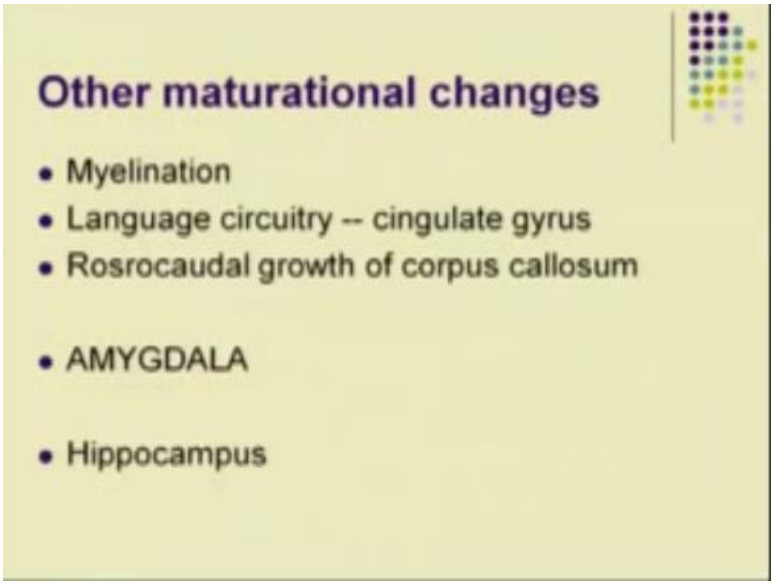

Other changes which are happening in the brain these.

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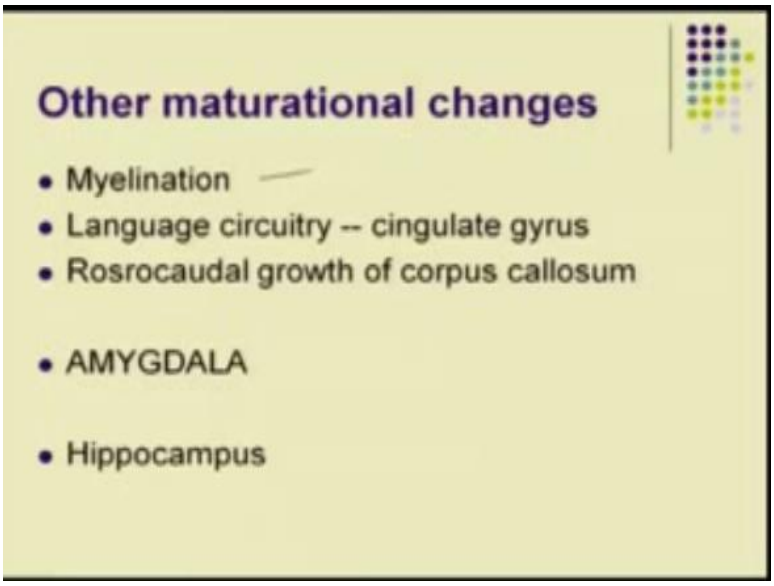

Myelination the exhaust if you remember from the anatomy which really transmit information they are the immaturity of the brain is because there is a lack of myelination, so in some areas as Myenation approaches the axons mature the signal patterns do not defuse they do not keep running here and there are more or less there in certain form of a pattern.

But this certainty of firing, so imagine there is no certainty of firing even the brain is not mature myelinatonis not complete that too much of information the dorsolateral prefrontal cortex is not developed as it grows there is a myelination so the pattern firiging the speed of the firing is more or less settle that is assigned to work certainly.

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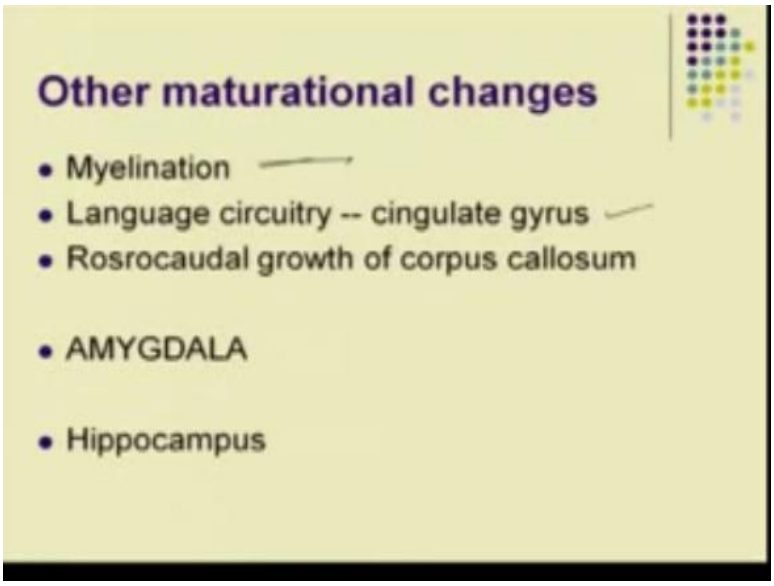

There is a language circuitry which develops, if you go back and look at PRG the faces of abstract handling and cognitive development language is one of the big, big tool for expression and kids must although they learn a lot of words vocabulary develops fastest in the time when the brain is overgrowing will probably as the debate people say the language is a tool for expression where as people like jobs he say that language is primarily in it

It is the Language development of language in human beings which has created the complexity, so the development of the language which creates the circuitry of the brain rather than that the circuitry develops and that talks that takes the language is not that so that debate is you can choose whatever way but the fact is that language circuitry is a big flip to the corpus corpus callosum from front to back corpuse callosum is the think Bush of fibers between the two.

So that means the left and right brain which were running in two separate direction has also coming together in a single form of

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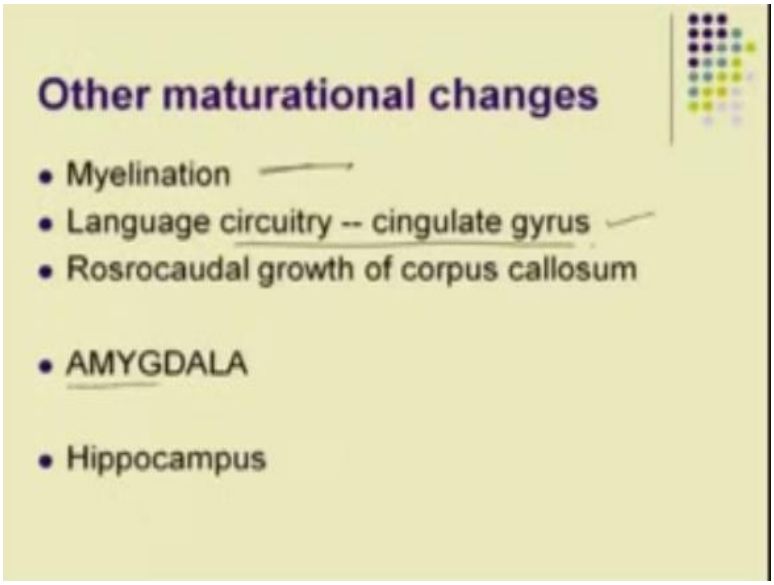

Amygdala the area with controls fear and emotions.

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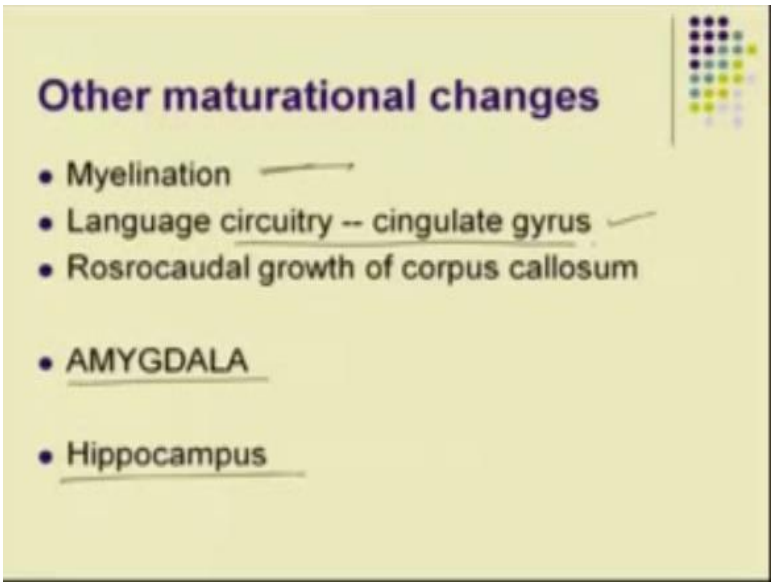

Hippocampus the area of memory all these are maturing it that time.

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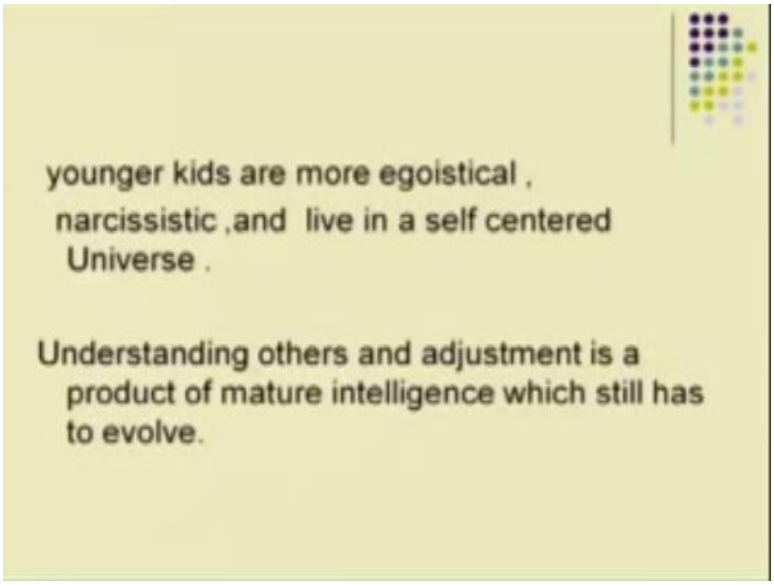

So younger kids as I said more.

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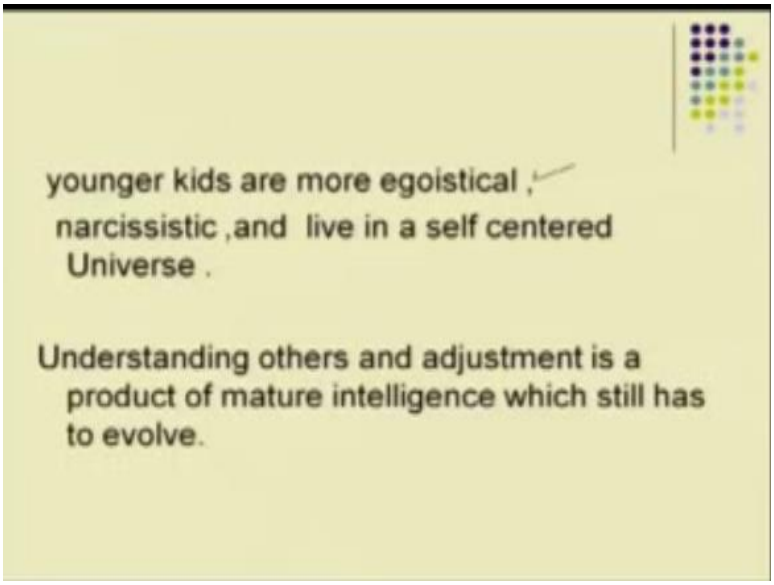

Egotistical narcissistic, and live in

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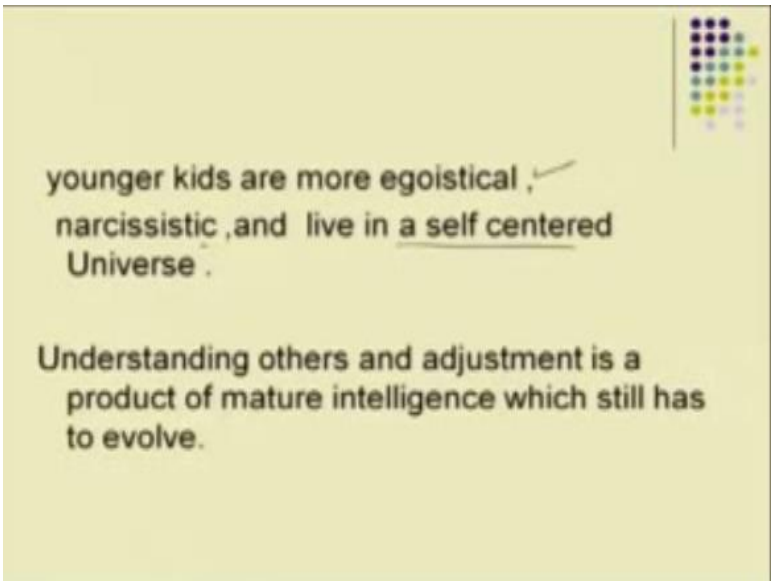

A self-centered obviously the brain has taken information but it is still not formed the sense of empathy is not develop prefrontal cortex which controls is not developed Amygadala is not fully mature myelination is not of us brain is like okay whichever direction it starts firing it.

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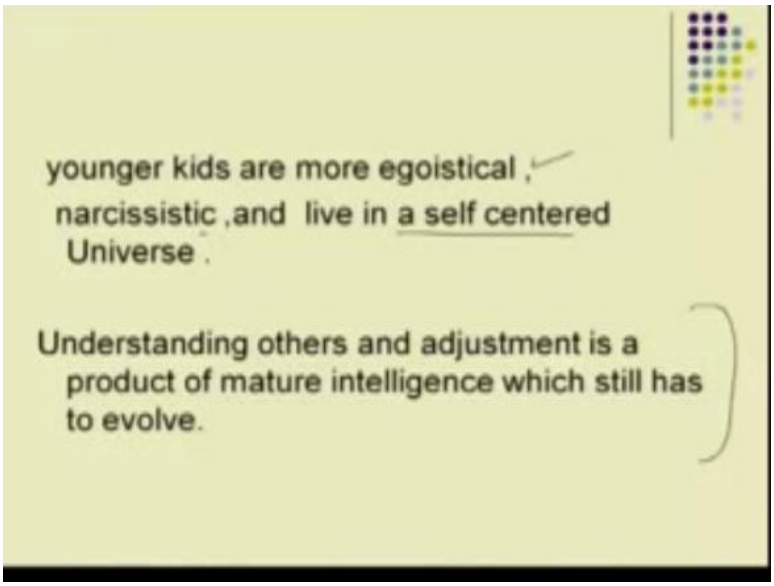

This is a skill which.

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So this is from Erik, Erikson so we will look at it as I said forgot the middle the early childhood, so these are qualities with Erikson said that if you have to overcome come out successfully out of this conflicting thing 7 to 12 years.

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Industry versus inferiority main question am I good at what I do.

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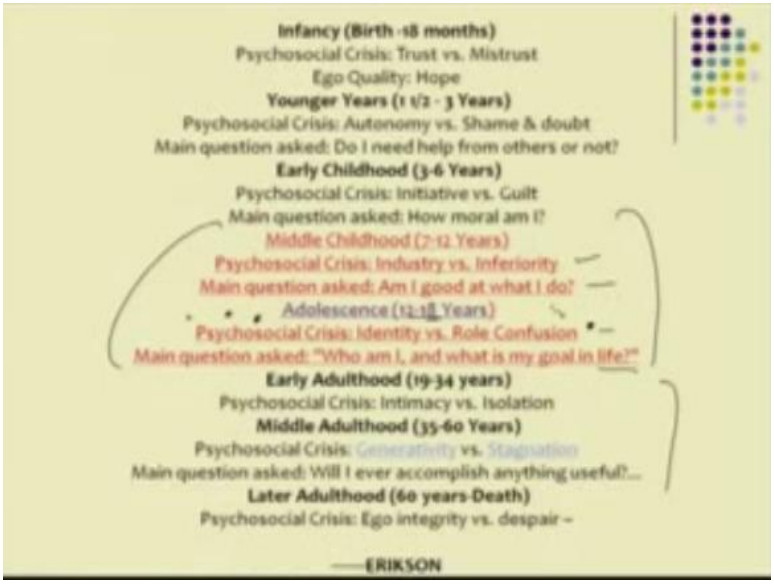

Adolescence role confusion, who am I and what is my goal in life and then intimacy were these are all adult thing. So this is the area so look at 7 TO 18 the time and dorsolateral prefrontal cortex and these questions of who am I and what my goals are, are all Leted to judgment.

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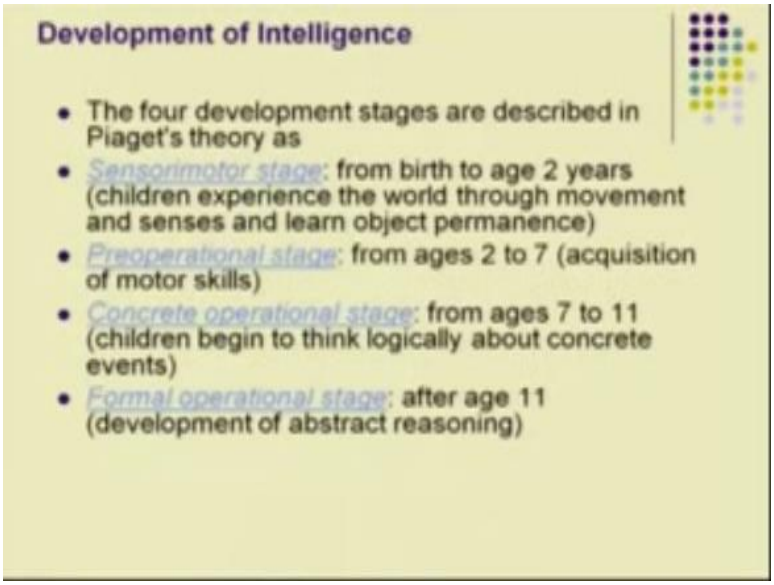

This is piaget's theory again from birth 2 age year they experience the world through movement and scene.

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Acquisition of motor skills 7 to 11.

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They started thinking logically.

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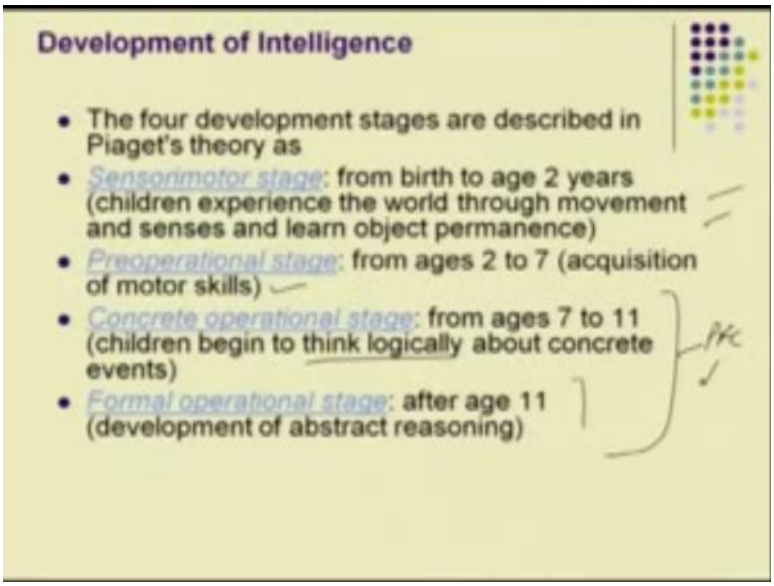

And after age 11 development of this is again that area which response to development of prefrontal cortex and other it here it is all about whatever direction the brain fires.

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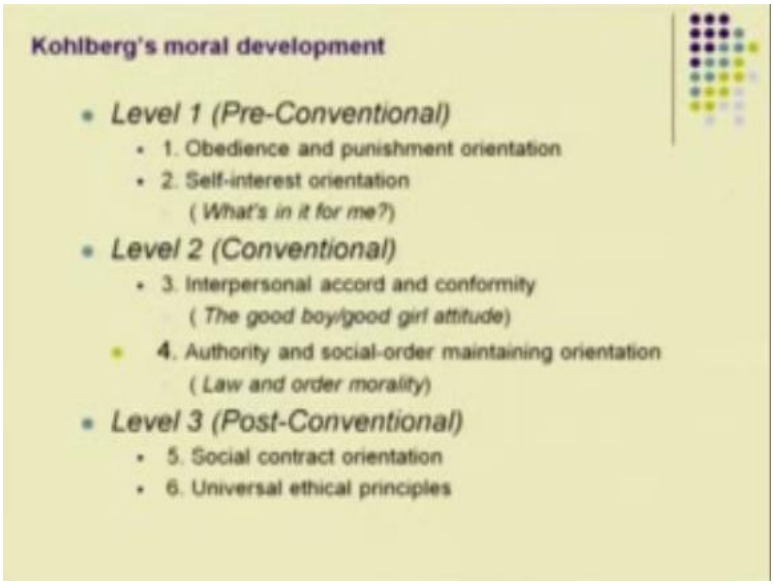

We talked a lot about telling the kid that one should be right and truthful but look at it the moral development also evolved with the brain development, so and if you tell things to a kid which where brain is not unlocked he will not understand so I think in the society

which is too intrusive we keep telling too many things to the kids, and then kids react and their brain goes into anxiety then we say they are not well this and that.

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So level 1 is younger age where they talk about what is in it for me so as I said if you compare it with piaget's theory or the egotistical they will just look at the simple thing whether they will it will get them punishment or it will get them something.

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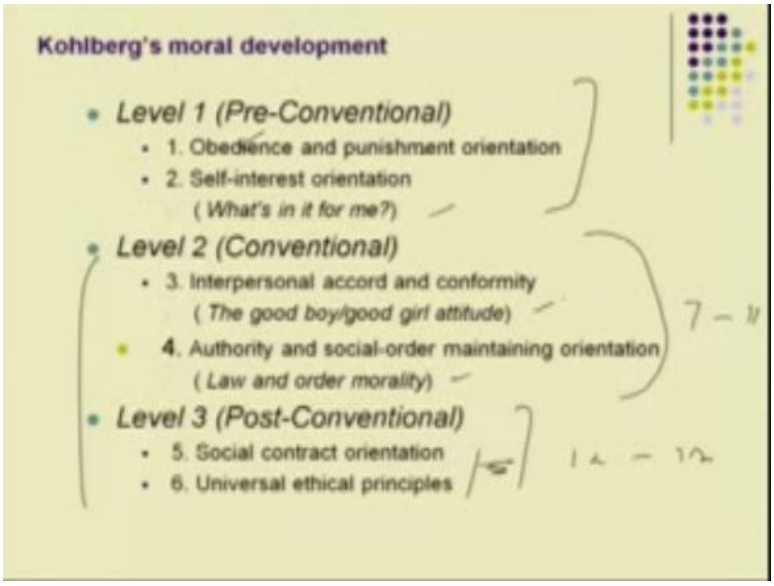

Conventional is the time meditating roughly around 7 to 11 and this is again 12 to 18 this is the time real morality in adolescent the good boy good girl you want to impress others and be like a authority. Then you start feeling power and is that time when you start developing concerns for society.

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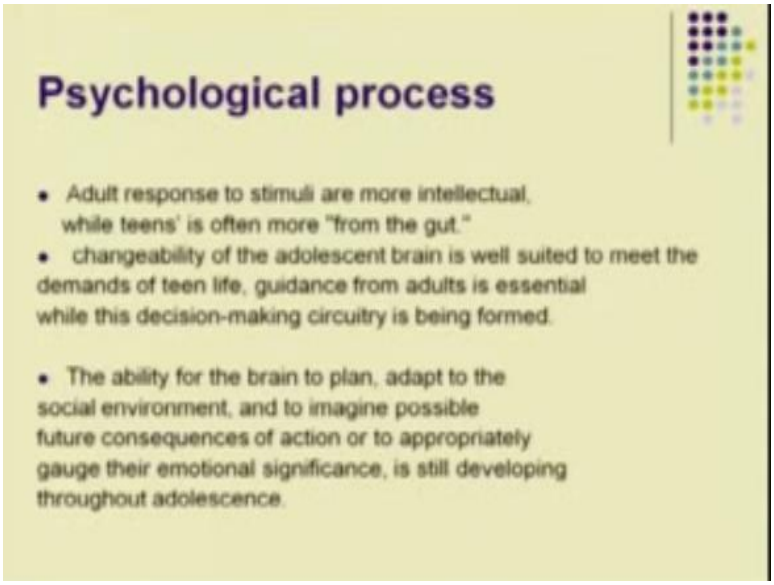

Again coming back with empathy so adult responses to stimuli are more intellectual, well teenagers often from the gut and that is why we call them very impulsive and kid teenagers are just they are we all have been like that the changeability the plasticity of the brain is well-suited to meet the dominates of teens life, guidance from adults is just essential.

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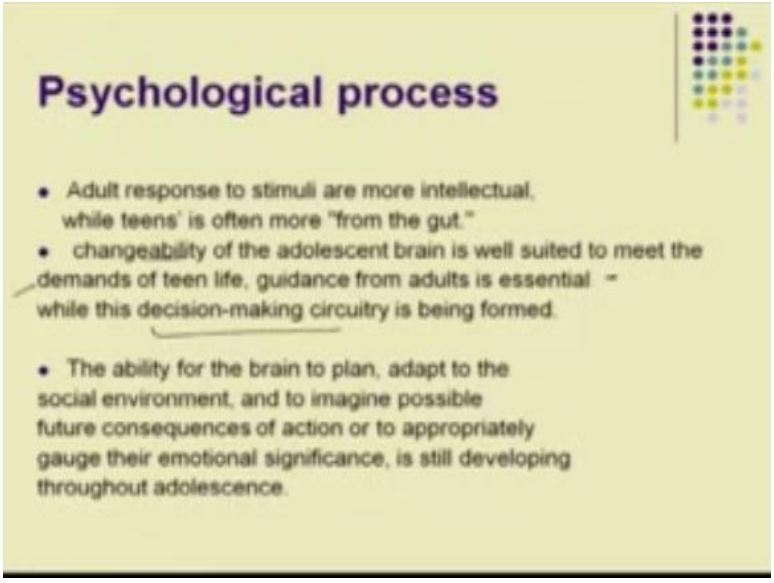

When this decision-making circuitry if you force and the brain is in some different mode will be conflicted anxiety and behavioral issues, so adults for the best thing for adults is to guide the ability for the brain to plan adapt to the environment and to imagine possible future consequences.

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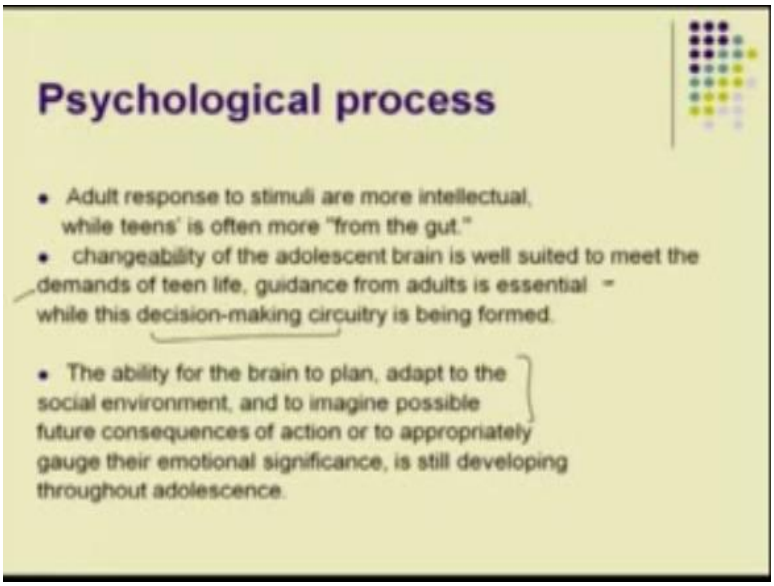

Read it again the ability for the brain to plan adapts to the social environment and to imagine possible future consequences or too appropriately gauge gives their emotional significance, is still developing throughout.

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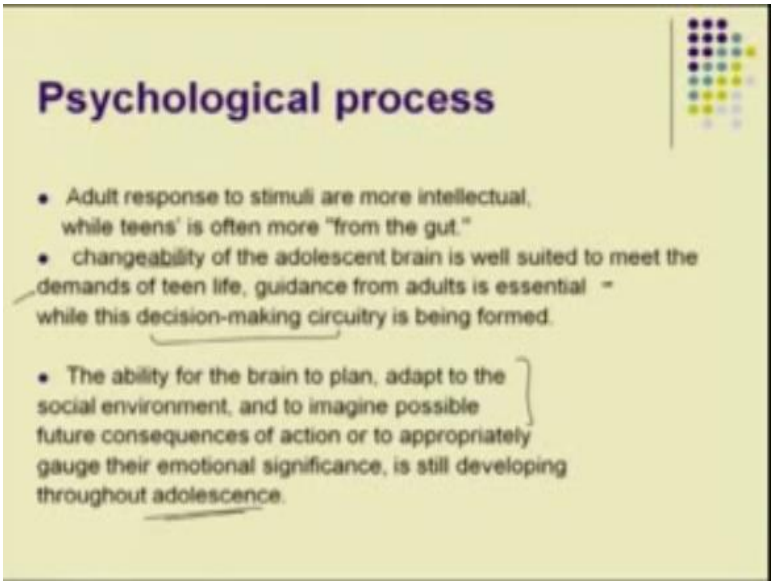

So it is still not developed, so when to add frequency adolescence think over ago.

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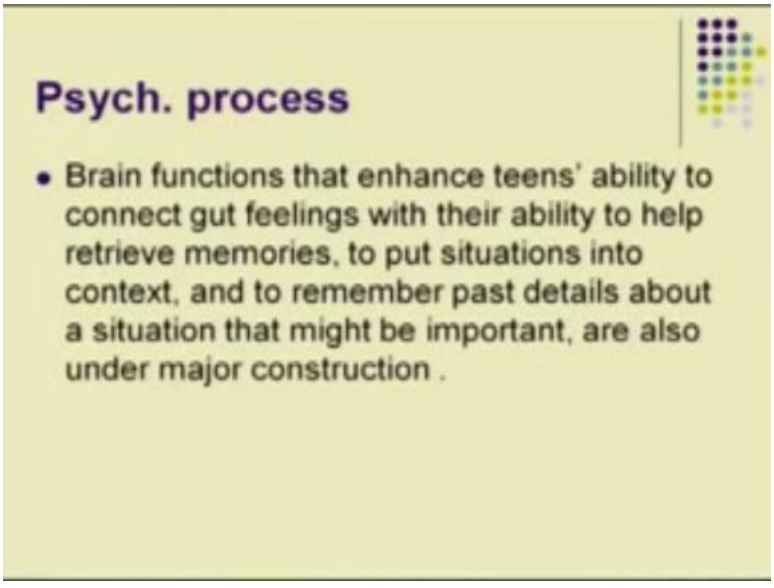

The brain functions that enhance teen's ability

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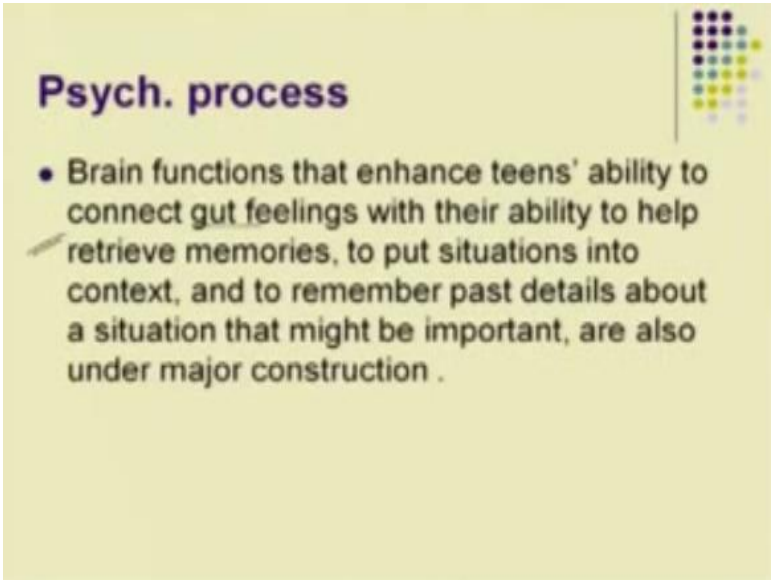

To connect gut feeling with the ability to help.

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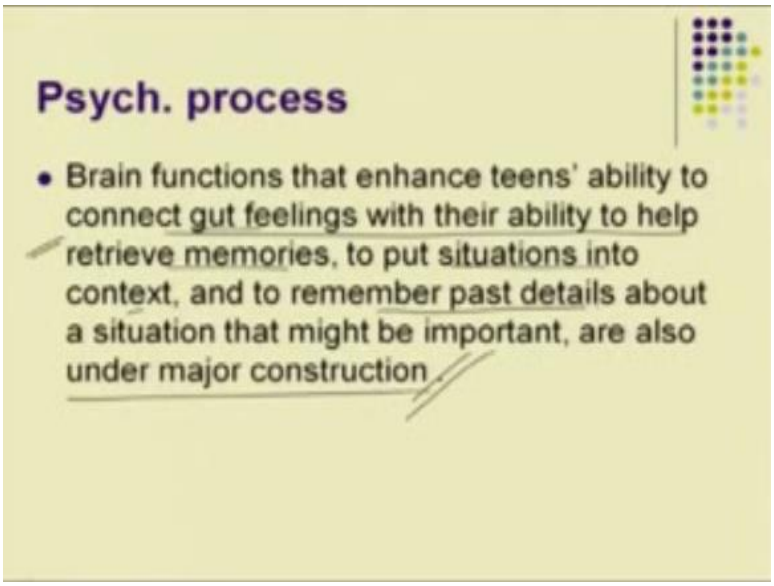

Retrieve memories to put situations into context and to remember pass details about a situation are also in the major construction under major construction. So you do not go

and demolish half built building. What you do is to give shape to the building so the final building comes up in a better.

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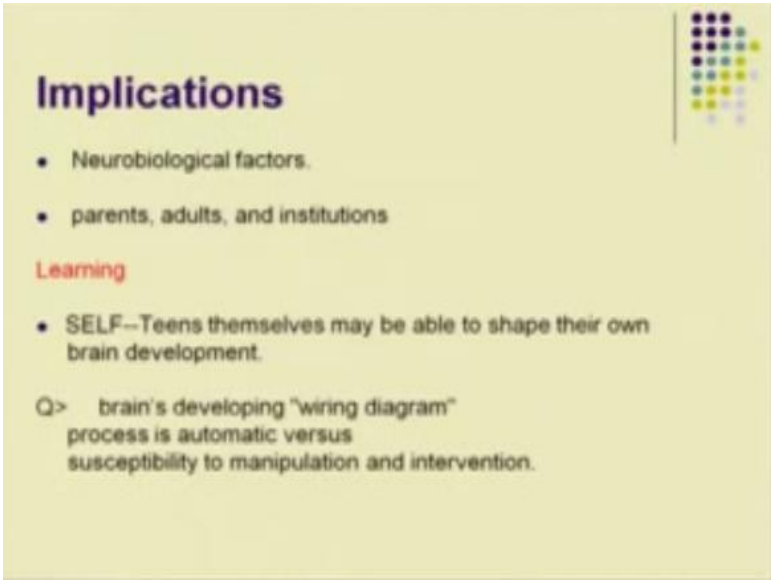

So what are the implications, implications are there neurobiological factors.

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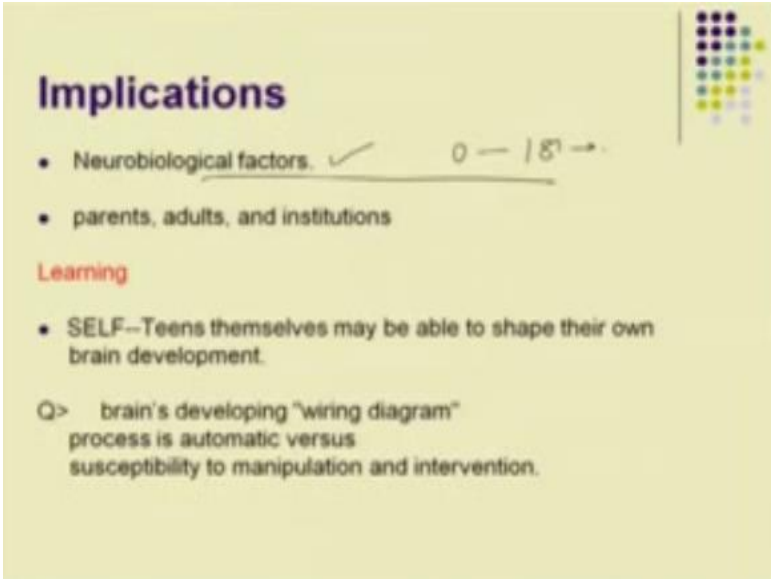

Which from 0 to 18 and slightly beyond to the brain.

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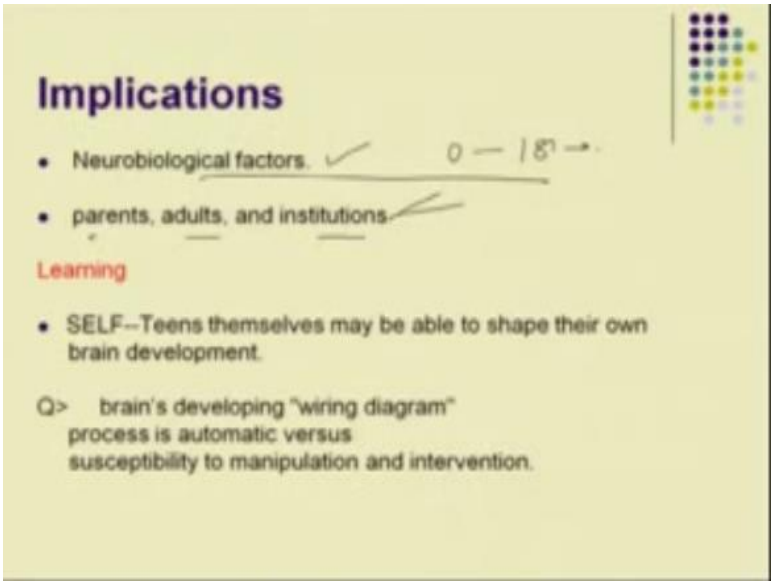

Parents, adults and institutions like religion like society like and things like cast.

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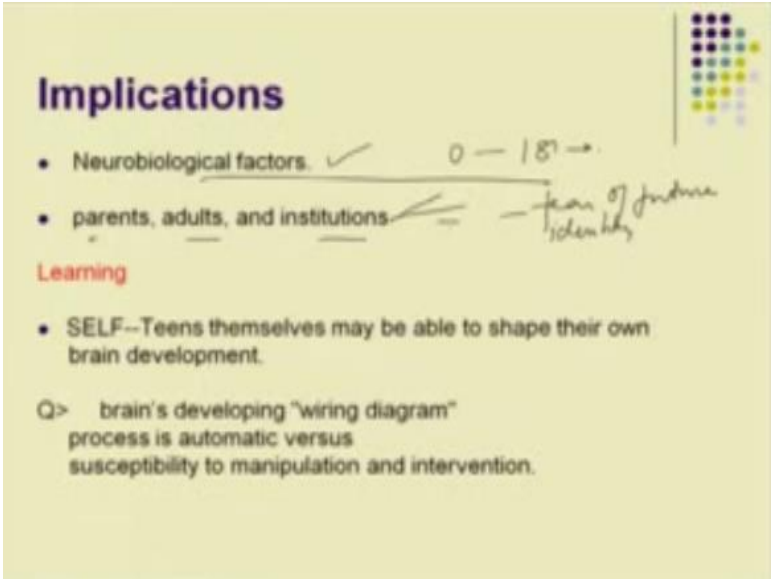

And add to it fear of future identity all this are compounding factors.

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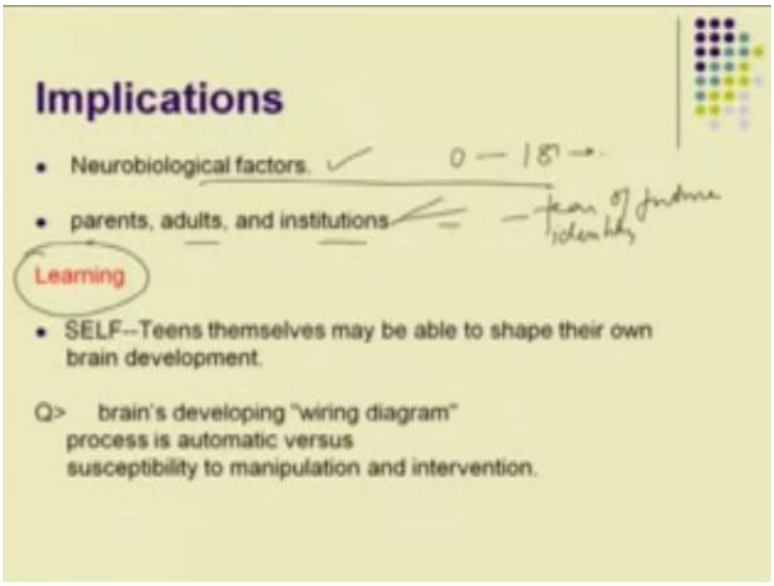

So they are actually learning if you look at it.

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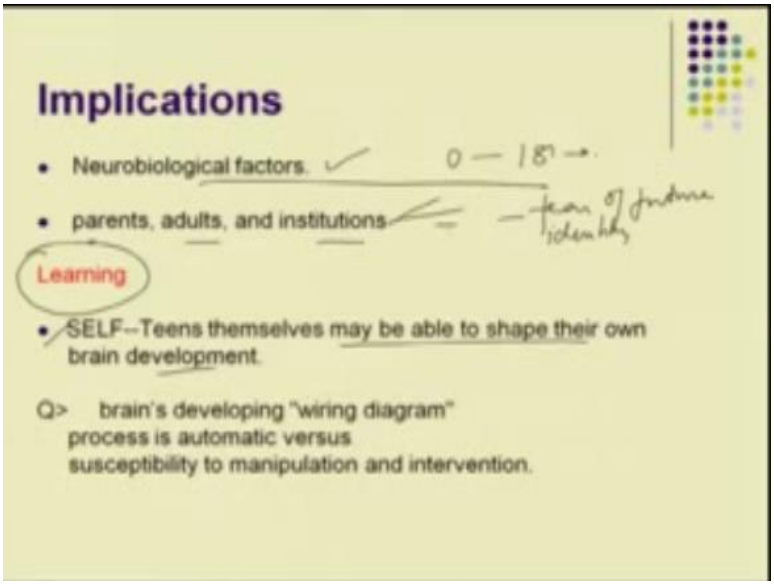

So self they themselves we are able to shape their own even if you do not do anything all teenage mind will create their own reality and really make something everybody does something.

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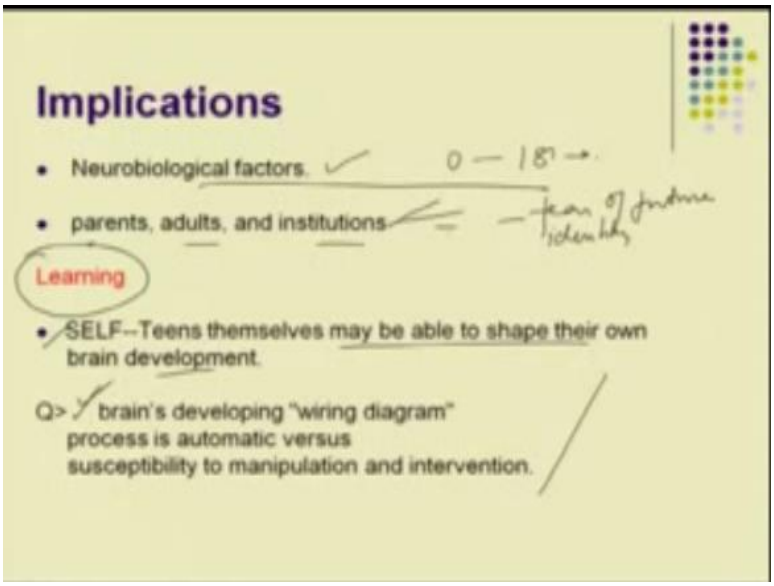

The big question is whether the brains developing wiring diagram is automatic.

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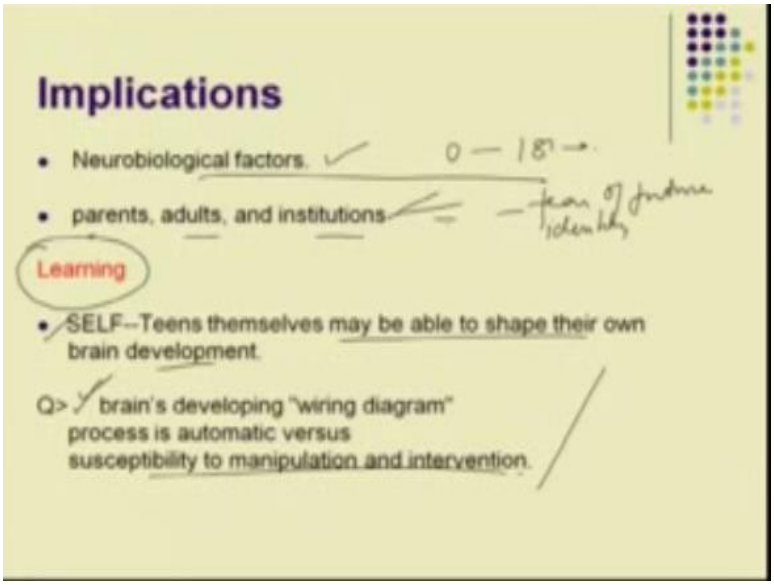

Or susceptible to manipulation intervention.

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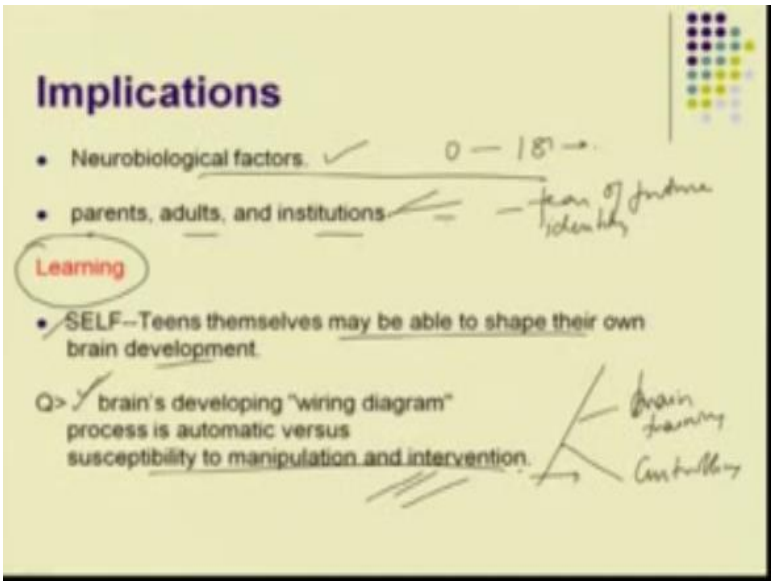

Positively called training, negatively controlling, so they can be misdirected use for wrong purposes by widely politicians by the forces which one to explored or they can be directed towards even fighting for freedom of the country or creating great art and science and even if this externally influences or not given in a planned way it will develop automatically.

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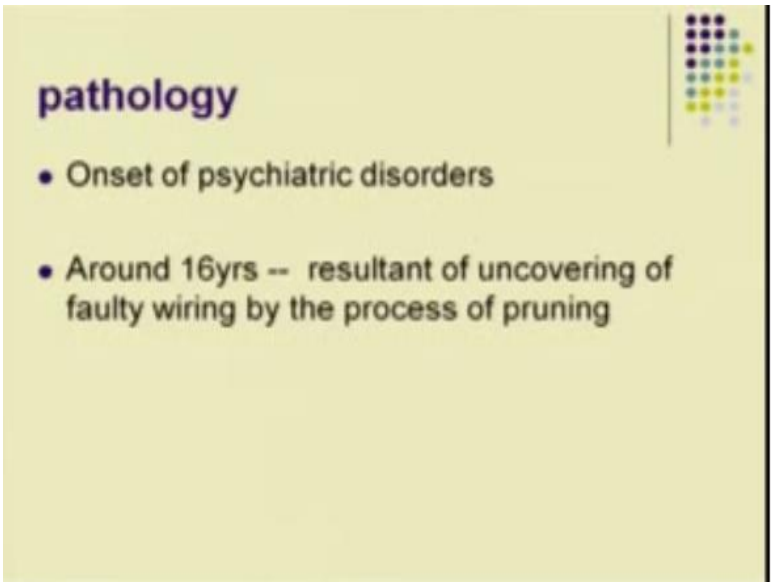

Because so these are onset of psychiatric disorders because the pruning because of the negative influences.

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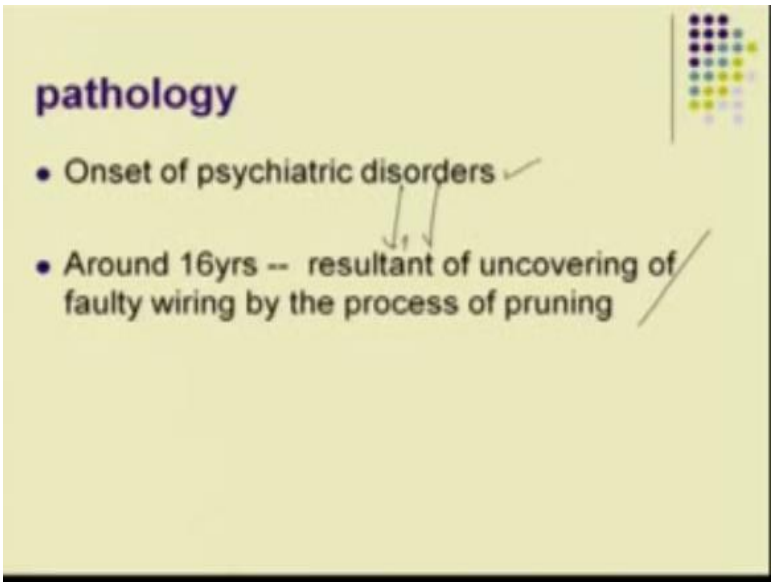

Resulted this is a result of this.

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As we already talk but these are some terms which everybody uses this disobedient and isolated emotionally abusive have gathered this from the lot of workshops talking to teachers and all.

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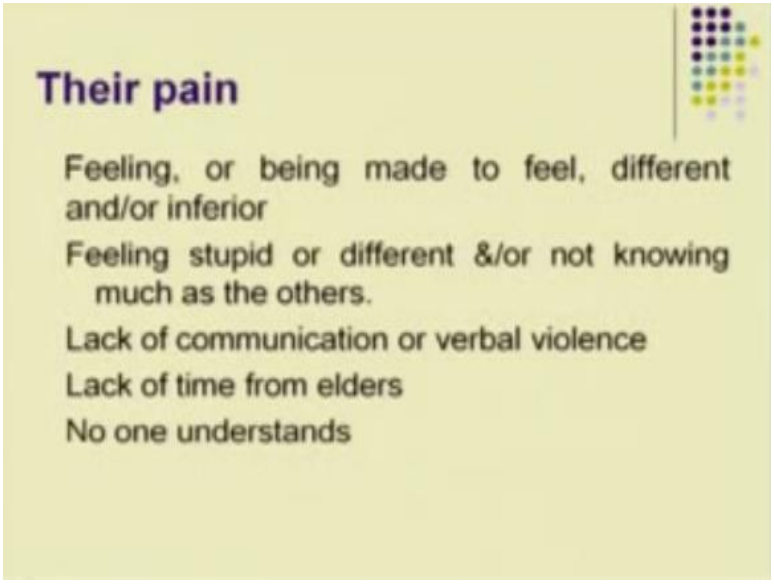

Their pain of adolescent and kids is when I sit in psychiatric clinic I listen to them is that they are either feel of being made to feel different are inferior, they either feel stupid are different and not knowing much as of others, they get a.

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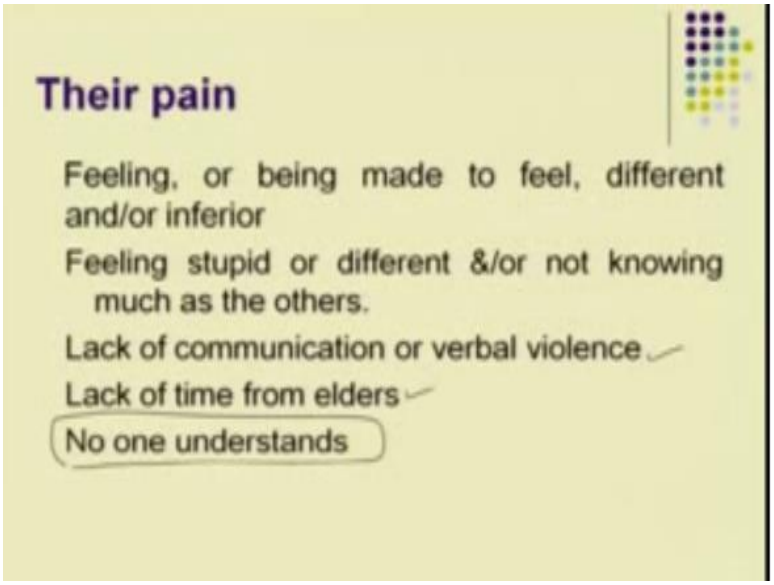

Lack of communication or verbal violence lack of time from elders others and the comments complaints is it no one understands, they not verbalize it but is a very, very common feeling.

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What are the sources of conflict, positioning.

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What is the position as an adolescent or a kid or as a adult biological so on.

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Simple thing like sleep all parents complained that the kid who is in 10, 15 years and classic and sleeps more without ever realizing that biologically the need for sleep increases maybe brain does it to get more time to organize its synaptic and organize all the information input which has gone into the head the brain as to need time that is one purpose of the sleep information in formation possessing is one of the purposes of the purposes of the sleep, because brains to reject lot of stuff save some of them save it in the synaptic changes and modulation.

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The need for sex obviously is raising the attraction towards the positive sex nobody can deny this because that is one of the purpose of genes to reproduce to keep reproducing species, so that chemistry will be thrown open anytime social pressures as I said career ambition relationships psychological of who am I what am I going to d. Looking at the whole world.

No kid will bother of doing anything unless the kids start looking at the world and started wondering what are they what am I going to do perspective this so many of them from religion education contacts country, history.

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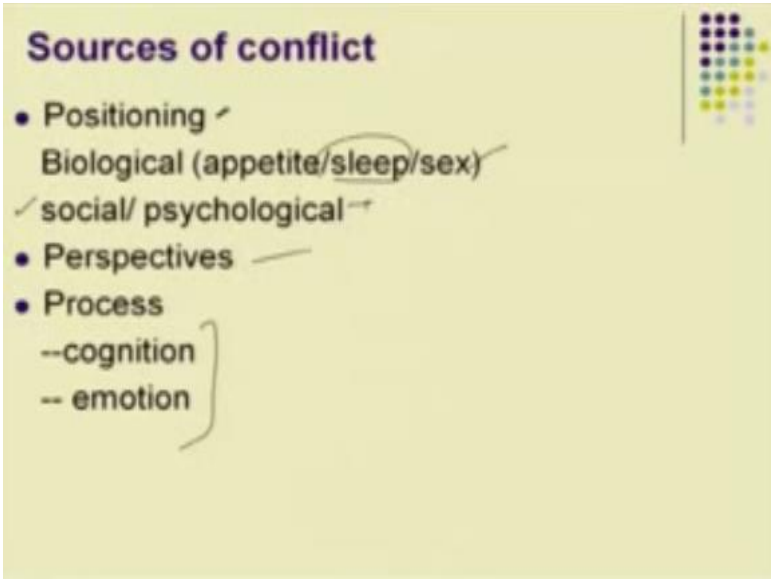

And the processes which available are again cognition and emotion.

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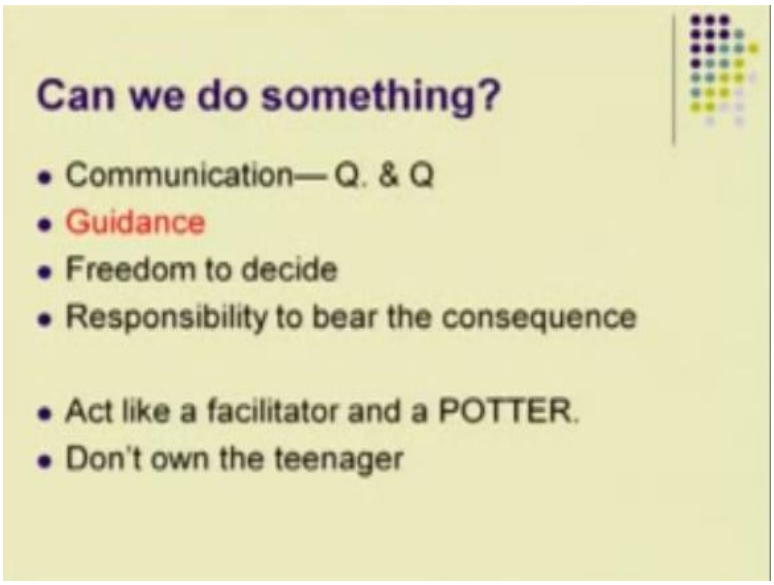

Can we do something?

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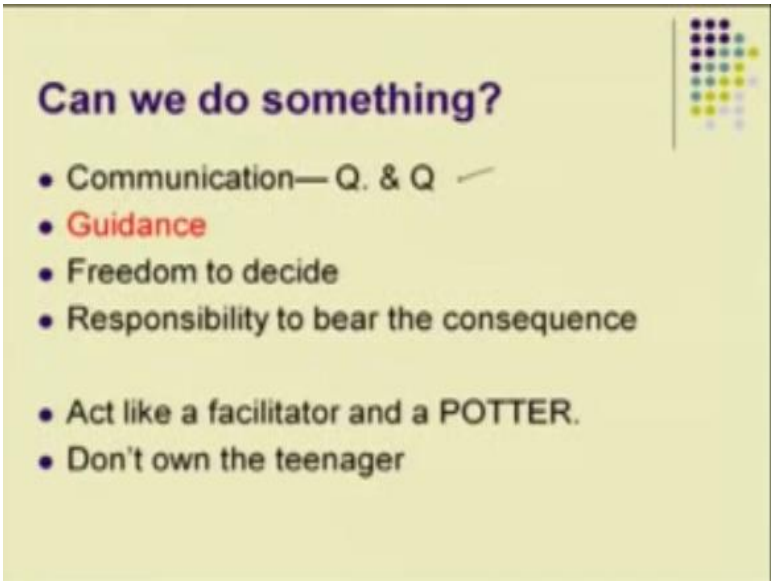

Communication.

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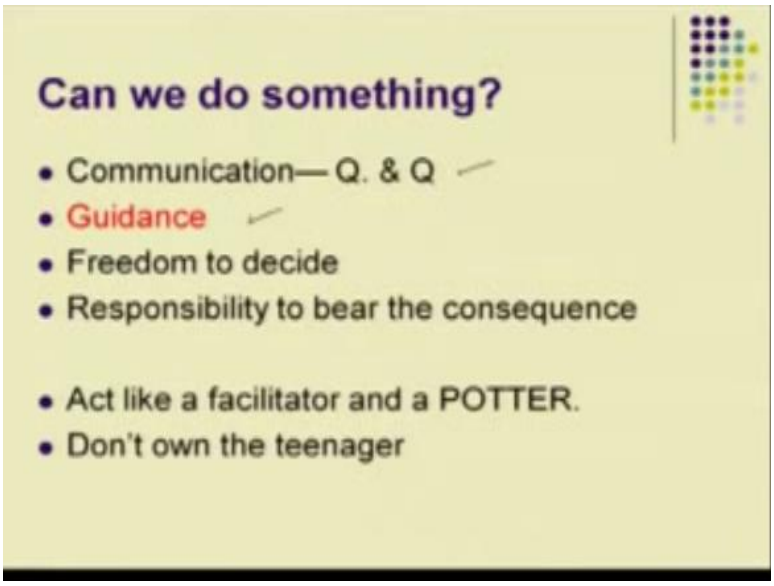

Guidance.

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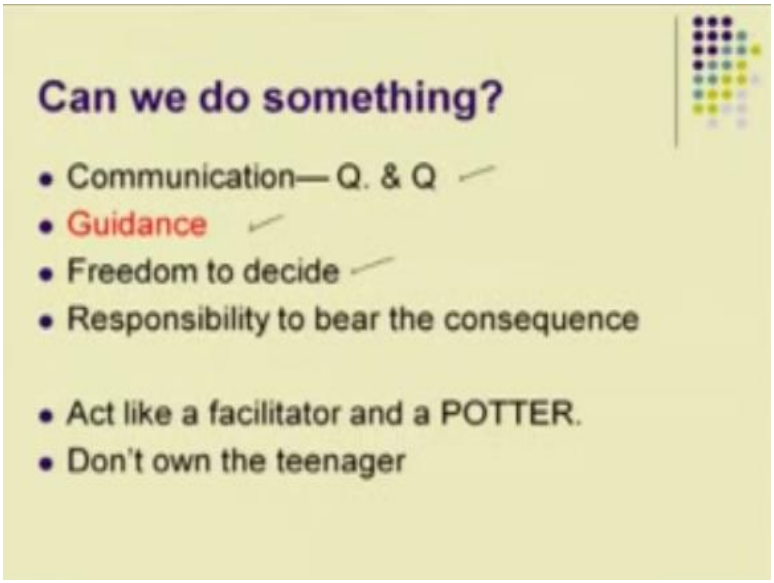

Freedom to decide.

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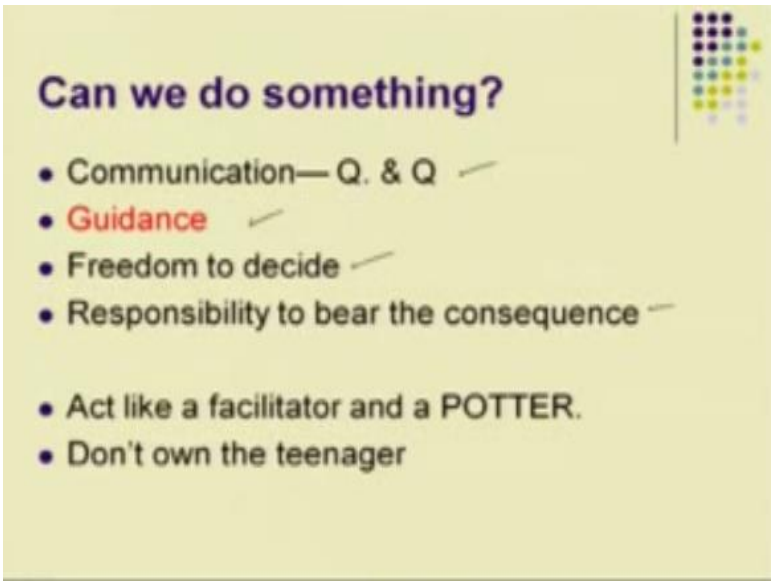

Responsibility to bear the consequences.

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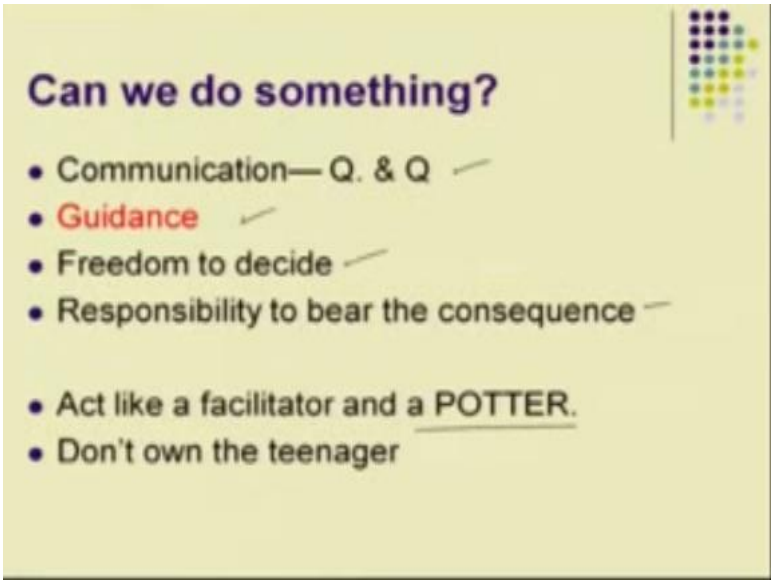

Act like a facilitator and a POTTER you have seen that POTTER in HINDI we call it kamar who does not actually press his hands to make a shape of that mud, clay he just puts his hand on that rotating wheel in the center and if you ask any experience POTTER he says the design automatically will come out it is already there in the clay, it will take a shape to take a it is shape the hands facilitates.

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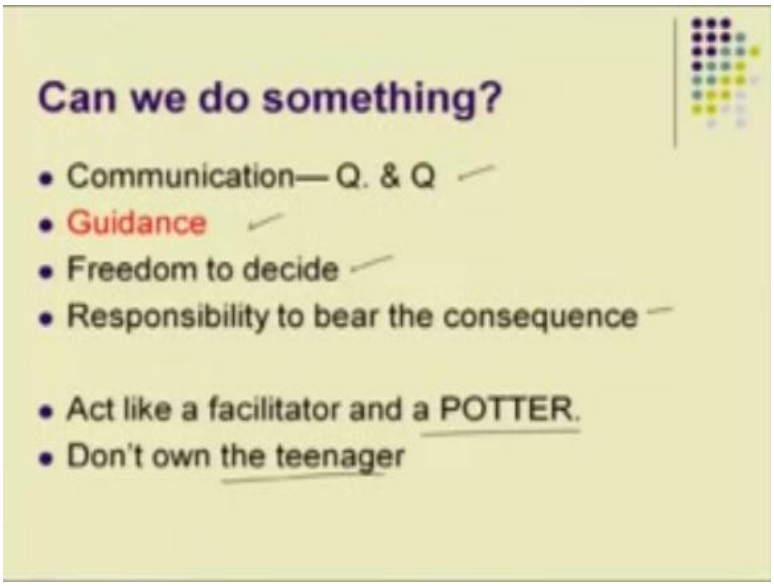

Do not own the teenager now why I was talking about development and Adolescent because separating the two would not have been right from so from 0 to 18, 19 years when all these things are going on when the environment is also putting it is data into your head you have your temperament to deal with it and you do not know which way you are going lot of confusion future this that and what not.

How do we decide to get back to the basic question how do we decide whether it is a problem it is a illness or issue the simplest would be any one of incident which most of us have done is not a problem unless it is very, very disruptive if somebody puts a fire to the house of breaks a television that is disruptive most of us would not have broken a TV, but most of us would have some time seen the television over time so is seeing a television over time for five days does not mean anything.

But it becomes a problem if the behavior is persistent if it is repetitive it is causing disruption in the normal growth like a kid is expected to go to school to study play be happy enjoy life sometimes get upset that is all right sometimes so all this sometimes not study sometimes so all this sometimes are not a problem but if it is a person that kid is continuously failing in one subject or kid is continuously fighting with other kids or not attending a school not going or be before age indulging in acts like causality.

Like smoking, like drinking or so these are issues which are problem, so anybody can decide for one issue a general advice this is all very general advice one should not get after kids like observing for some time and that is why we prefer that when kids are brought to us we do not decide about the label in one as I said about labeling goes far in life what we do normally is observe a kid also overtime gather the maximum sources of report from parent teacher and then make opening offer it.

Whether it is a diagnosis a illness sometimes we do not even bother about diagnosis we look symptomatically, so what do we have to treat is the child and the child's behavior not a syndrome not a diagnostic label unless it is really there, so I will just ended the intro of this and in next few lectures two, three lectures whatever we have in this week we will talk about certain psychiatry illness like autism and the group of externalizing and internalizing disorder and learning disability.

And if we have time at the end of this 10 hours I would invite cases from you which we can discuss in the last session for half an hour 25 minutes if you keep on your form if you right back to me your cases I will pick some of them and discuss it over the last session but that is only once you send it thank you.