

## “Obesity decline cognitive development”

Dr.Deep Kaur Kalpana

### Abstract

To understand the correlation between Obesity and its strong physiological impact, since the kids are drastically impacted with the cognitive decline due to obesity which is associated with various other social, physical, medical, and cultural factors.

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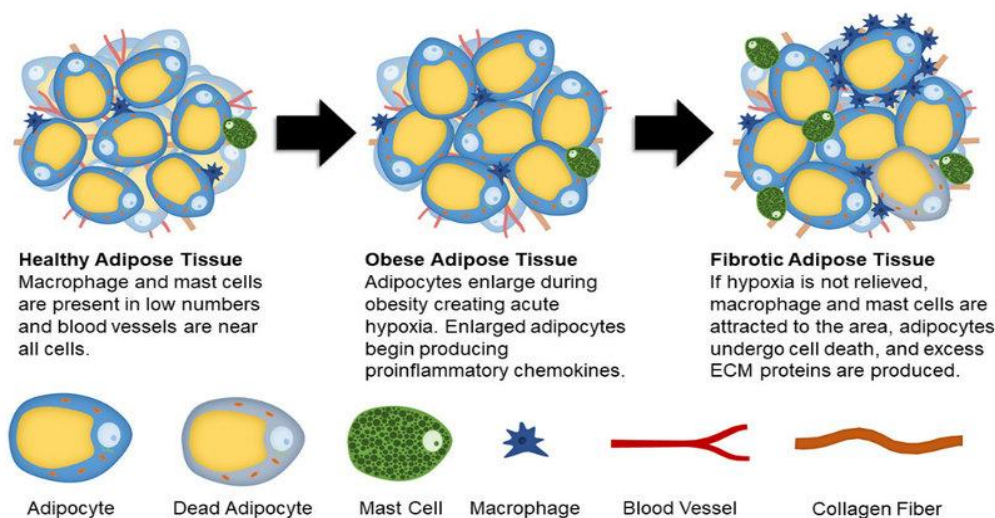
### Obesity

When any individual has BMI of 30 kg/m<sup>2</sup> or Above is considered to be obese.

Since BMI is used to calculate the degree of obesity, obesity can lead to damage of body cells, organ systems and organs, it also results in various metabolic function disorders.

Large waist and hip ratio, intra abdominal fat accumulation, high level of triglycerides are contributing factors for various comorbid conditions.

High fat intake, excess of processed food intake, low level of physical activity, unhealthy lifestyle, sugar drink intake all these are contributing factors to obesity.



### Obesity and metabolic disorder

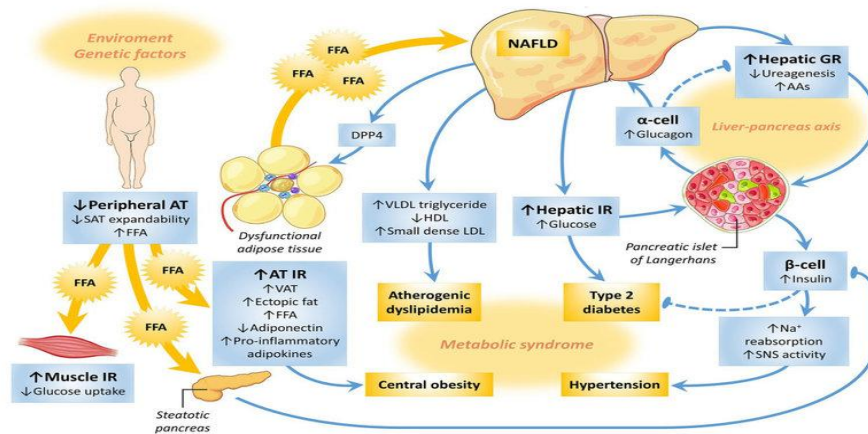
With excess adipose tissue secretion the cells become insensitive to glucose and this leads to improper secretion and utilization of insulin resulting in insulin resistance which is the primary cause of Syndrome X.

Hypothalamus has a major role in controlling food consumption, since it controls satiety and hunger it also helps in maintaining the homeostasis of the body.

Ventro-medial hypothalamic nucleus, a part of the hypothalamus, is responsible for creating a satiety effect, with lesions in VMN can induce obesity and hyperphagia.

With metabolic disorder the hormone secretion and utilization declines which can result in hypothyroid condition, with insulin improper secretion can result in diabetes and can also result in hypertension or premature heart disease.

All these factors makes the obese condition more adverse.



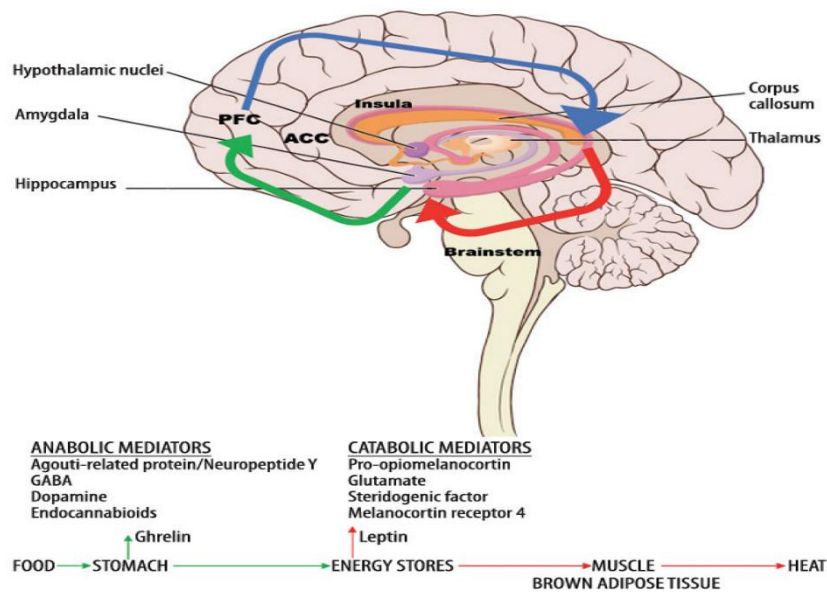
**Cognitive dysfunction due to obesity**

The structural and functional changes in an individual with time and age result in the deterioration of cognitive ability.

But with the increase in BMI there is a negative cognitive performance. Obesity is also a contributing factor for various cognitive conditions such as Dementia and Alzheimer's disease with BMI above >30 kg/m<sup>2</sup>.

Mobility restricts obesity associated comorbidities can result in the psychological wellbeing decline and can also result in depression. High fat diet hinders neural growth.

Hippocampal functions get affected with excess fat and processed food intake, excess adipose tissue will result in the impaired function of leptin and ghrelin hormone which will create imbalance in energy homeostasis.



**Weight loss and cognitive health**

Excess BMI of 30kg/m<sup>2</sup> and above is an obese condition and will require clinical intervention of weight loss surgery along with diet.

With reduction in the adipose tissue, the hormone secretions and utilization will improve, Neuropeptides and neurotransmitter secretion becomes better thus improving cognitive health.



### Conclusion

The Fat accumulation can alter the hormone secretion done by our brain and can result in irregular mood pattern, also can result in low memory and cognitive decline in long run.

Excess fat can result in low sensitivity and delayed response to the hormones secretion such as serotonin, melatonin, dopamine and endorphins can indirectly alter the imbalance in leptin and ghrelin secretion , thus resulting in various other cognitive issues.

Healthy weight can help our brain develop effectively, as the physical activity , activity level, moderate healthy fat inside the cells allow body to absorb nutrient effectively and also help brain to improve its function.

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