

## Stimulus for Bone Remodeling (Biomechanical Model)

**Kunal Joon\***

Noida International Institute of Medical Sciences, Haryana, India

**\*Corresponding Author:** Kunal Joon, Noida International Institute of Medical Sciences, Haryana, India.**Received:** December 30, 2024**Published:** February 01, 2025© All rights are reserved by **Kunal Joon**.**Abstract**

This research deals with the bone remodeling and stimulus and biomechanical model of the bone remodeling including the various conclusion of the bone remodeling theory like mechanostat model and semi mechanic static model.

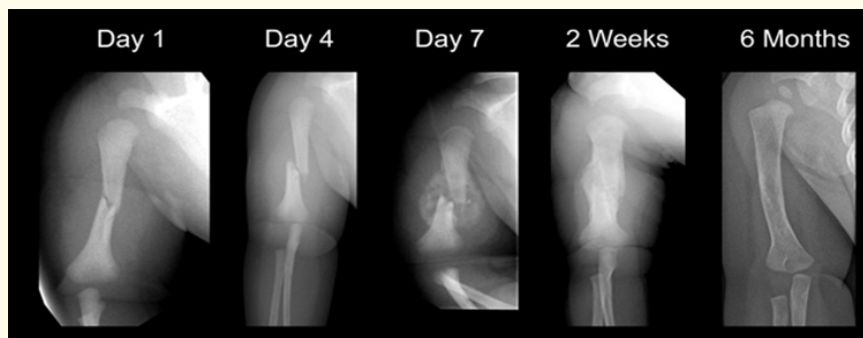
**Keywords:** Bone Remodeling; Osteoclastic and Osteoblastic Role; Thermostat Bone Remodeling; Strain Role and Hormonal Bone Remodeling; Bone Resorption Model

**Introduction**

During the stress the Microcracks appear and stimulate the osteoclastic activity and osteoblastic activity leading to Bone [1] dissolution less and bone resorption more leading to the formation of the slightly new bone structure and semi [2] continuously This process occurs slightly making our skeleton dynamic [3].

**Experiment 1**

- **Aim:** To Observed the fracture healing and bone remodeling x ray of a patient.

**Figure 1****Observation**

In this X ray we observed the bone remodeling on the high Scale as the bone break on the large scale and Microcracks appear leading to the large scale healing process a good example of bone [4] remodeling as bone heals from the high strain point.

**Result**

Bone remodeling is biomechanical process including The stress and cellular activity [5].

### Biomechanical theory of bone remodeling

In this theory we get from above Experiment that Result according to stimulus can be any (stress, strain, heat) which lead to the appearance of the Microcracks [6].

Microcracks appear in the bone which lead to the stimulation of the osteoclastic activity in the gradient where the stimulus is more and more microcracks are appeared it lead to bone remodeling.

Osteoclastic activity is from high grade of stimulus to low grade of stimulus (stimulus can be the any strain stress temperature, thermodynamical change in the body) [7].

What is thermodynamical change?

for Inner core temperature stability body generate heat or radiate heat which is the thermodynamical change in the body.

### How it cause bone remodeling

In case of heat generation it makes the body heat up which lead to the formation of the Microcracks and lead to the remodeling of the bone as their is different range on different site of the body. It lead to the bone remodeling In the case of the high temperature to low temperature.

In case of the heat absorption different surface Absorbed Different amount of heat which lead to the Microcracks variation and bone Remodeling occurs in the thermodynamical fashion from high amount of stimulus to low amount of stimulus in this case their is intermediate stimulus where the cracks appear more because of heat and cold Effect. So remodeling occurs from the intermediate stimulus To high to low stimulus.

In case of stress and strain from high amount of stress or strain to low amount of stress or strain bone remodeling occurs.

### Discussion

We discussed the bone remodeling stimulus and fashion of the bone remodeling and about the stimulus of bone remodeling.

### Conclusion

Bone remodeling occurs from high amount of stimulus to low amount of stimulus.

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