Torpidity (Torpor)

- **Daily sleep (Torpor) is seen in bats, Birds & mammals. This phenomenon is daily dormancy.In this the Tb rapidly drops down to reduce metabolic rate due to which the animal conserves energy.**

- **Torpidity many a times is related to environmental condition & food availability. In some animals when food is scarce they can raise torpidity from few hrs to few days.**

- **Whereas some animals can show continuation of torpidity into hibernation & aestivation.**

Bat (especially microchiropteron) – show Diurnal torpidity which is during day time, is seen in summer to avoid ill effects of intense heat.

- **Myotis (bat) shows Torpidity in hot summer days, where the T_b drops to 5^0C so that metabolic rate is reduced.**
- **This bat when is cooled below 5^0C don’t wake up & dies because of super cooling.**

- **However the same bat during winter hibernates if a hibernating bat is supercooled it wakes up & become active or it regulates the temp. to maintain it to 5_0C.**

- **Thus torporing bat cannot resist supercooling whereas hibernating bat can resist supercooling.**

- **Humming bird –**
- **smallest 1.7 g**
- **largest 19 g**
- **They have very high energy requirement as they are very active and the metabolism is high.**
- **At around 27^0C temp., in the blue throated humming bird the heart beat is 7 to 21 beats /sec.**

- **The O_2 consumption of the bird is 1.18 ml/g/hr.**

- **The energy requirement of the bird is so high that if the body temp. remain normal at night time (when the bird is not feeding) , the bird will die due to energy shortage**.

- **To overcomes this the animals shows torpidity. Due to drop in temp. Heart rate became less & the O_2 requirement becomes 1/10th of normal.**
- **If this torporing bird is cooled to 8^0C then many a times the bird dies due to super cooling , it cannot wake up.**

- **Desert Rodents show torpor mainly to overcome the food scarcity.**

- **In pigmy mouse the T_b is dropped to 23^0C during day time for a period of 12 hrs & they become active at night.**

- **In Kangaroo Rats we find that the duration of torpidity is adjusted according to food. It can be from few hours to few days.**

- **Thus torpidity is a diurnal phenomenon in which the animal allows to drop in T_b to conserve energy.**

Torpidity, aestivation hibernation are the phenomena in which the animals allows the T_b to drop down & thus conserves energy.

By conserving energy they can overcome adverse conditions.

The phenomena are similar to each other & the purpose is conservation of energy only.

The only difference in them is length of dormancy & the season of dormancy.