GOVERNMENT OF INDIA
MINISTRY OF HEALTH AND FAMILY WELFARE
DEPARTMENT OF HEALTH RESEARCH

LOK SABHA
UNSTARRED QUESTION NO. 1032
TO BE ANSWERED ON 29TH APRIL, 2016

DIABETES INDUCED LUNG AILMENTS

1032. SHRIMATI VANAROJA R.:

Will the Minister of **HEALTH AND FAMILY WELFARE** be pleased to state:

(a) whether a research team has reported that Indians could face a higher risk of diabetes induced lung ailments and high level of insulin directly damaging the lung structure;

(b) if so, the details thereof;

(c) the action taken by the Government in this regard; and

(d) if not, whether the Government is considering coming out with an action plan in this regard?

ANSWER
THE MINISTER OF STATE IN THE MINISTRY OF HEALTH AND FAMILY WELFARE
(SHRI SHRIPAD YESSO NAIK)

(a) & (b): A study conducted by Institute of Genomics & Integrative Biology (IGIB) CSIR, New Delhi says that there is limited knowledge regarding the consequences of hyperinsulinemia on the lung health. In the study conducted, Insulin treatment (1 μg/ml) significantly ($p<0.05$) increased the proliferation of primary human airway smooth muscle (ASM) cells and induced collagen release. Additionally, ASM cells showed a significant increase in calcium response and mitochondrial respiration upon insulin exposure. Mice administered intra-nasal insulin showed increased collagen deposition in the lungs as well as a significant increase in airway hyper responsiveness (AHR). PI3K/Akt mediated activation of β-catenin, a positive regulator of epithelial-mesenchymal transition and fibrosis, was observed in the lungs of insulin-treated mice and lung cells (BEAS-2B and MRC5). The data suggests that hyperinsulinemia may have adverse effects on airway structure and function. Insulin-induced activation of β-catenin in lung tissue and the contractile effects on ASM cells may be causally related to the development of asthma-like phenotype.

(c) & (d): Department of Health Research supports research projects on such related subjects under its ongoing research programmes.