

2. Coronary Heart Disease

Why in News?

- Recently, Cardiovascular diseases are the leading cause of death worldwide, with coronary heart disease being a major concern among researchers.

Highlights

- Coronary heart disease (CHD) is a condition in which the blood vessels that supply the heart with oxygen-rich blood become narrow due to the buildup of fatty deposits (plaques) inside the arteries.
- Over time, these deposits can harden and narrow the arteries, reducing the flow of blood to the heart.
- Unhealthy lifestyles, poor diets, physical inactivity, tobacco use, and harmful levels of alcohol consumption are the major contributors to coronary heart disease.
- Damaged heart tissue cannot be regrown in humans, and the only option is to undergo heart transplant, which comes with its own complications.
- A group of scientists has come up with a solution where healthy skin cells from an adult can be converted into heart cells using special proteins.
- Converting cells from one form to another, known as cellular reprogramming, involves specific proteins called transcription factors, which alter the expression of genes within a cell and direct it to take on a new cellular identity.
- The researchers established a recombinant protein toolbox consisting of six potential cardiac transcription factors: GATA4, MEF2C, TBX5, ETS2, MESP1, and HAND2.
- Each of these proteins plays a significant role in reprogramming fibroblasts.
- The advantage of using recombinant proteins is that they work their miracle inside the nucleus and eventually disappear over time without leaving behind their toxic waste, unlike their generic counterparts.