Reading Summaries 6

# Module 18: JACC Air Pollution 2018 Review

* Environmental polution is the largest cause of premature reversible death and disability in the world today. The study goes over the evidence that supports the connection between air pollution with cardiometabolic disease.
* Household air pollutions is mostly a problem in low-middle income countries and it typically implies levels of air pollution inside that are orders of magnitude worse than the outside envirnoment in that region.
* The evidence demonstrates that there is no lower concentration thresholld below which exposures can be considered safe at the population level. Even low levels of pollution within annual targets, faced by hundreds of millions of people pose significant threats to public health and cardiovascular events.
* Evidence supports that more than one-half of deaths attributable to air pollutants are due to CV causes.

# Module 19: Scientific American Aging Cells

* Aging is rooted in the way we eat. Chemical pathways have been found in simpler organisms that activate when food is scarce. If we were somehow able to enable these through drugs instead of through dieting, then we could obtain the same benefits without starving.
* One of these pathways is regulated by the mTOR enzyme. It signals to the cells whether there is “enough” food available or not. When there is not enough nutrients available in the body mTOR is present in lower quantities.
  + When mTOR is present, the cells continue producingnew proteins, growing and dividing.
  + When mTOR is inhibited, the cells goes into "efficient mode". It recycles old proteins to make new ones, ramps up "cellular cleaning and repair" mechanisms, and waits until the presence of mTOR before continuing with it's usual activity.
* Drugs such as rapamycin are believed to prolong our lives because they inhibit key enzymes related to our metabolism, such as mTOR, and produce the same metabolic effect in our bodies as fasting, but without having to starve.
* As we live longer it is also important that we lead healthier lives. Drugs like metaformin show promise in that area. Metaformin was approved by the UK’s drug commision in the 1950s to treat Type 2 Diabetes, but because of its widespread use around the world, scientists have noticed patterns in the part of the population that consumers metaformin. They tend to have lower risks of cancer and better cardiovascular health.
* In the future, a pill that combines all of these “positive” drugs that extend our lifespan and make us healthier throughout it, could be common place in everyone’s daily medicine drawer.