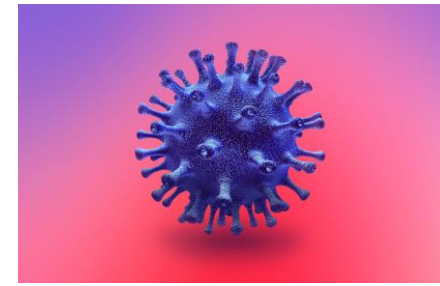


***Webinar:
Maintaining Immune Health
in the Face of COVID-19 and
Future Viruses***

Presentation Slides: Janet Lord, FMedSci

UNIVERSITY OF
BIRMINGHAM



Taking the Fight to Coronavirus: Exercise and Nutrition

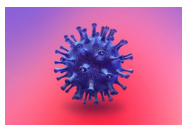
Professor Janet M Lord FMedSci

Director of the Institute of Inflammation and Ageing

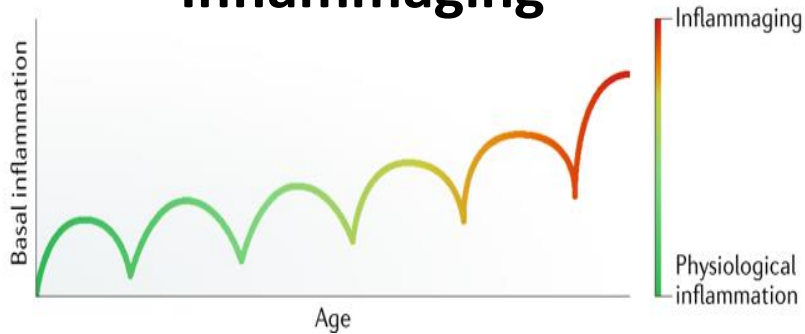
Director of the MRC-Versus Arthritis Centre for Musculoskeletal Ageing Research



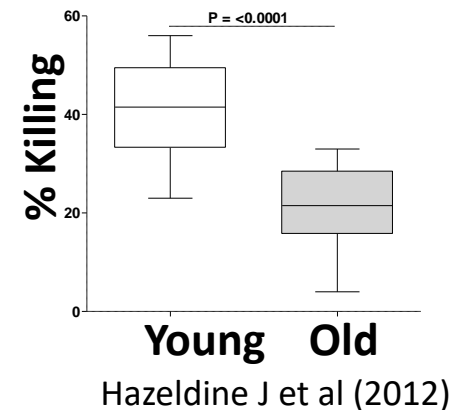
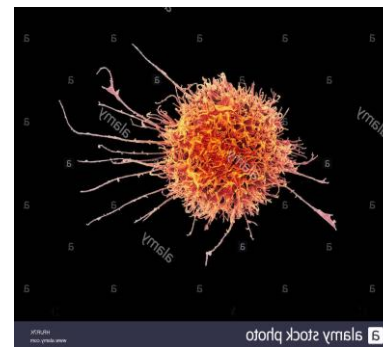
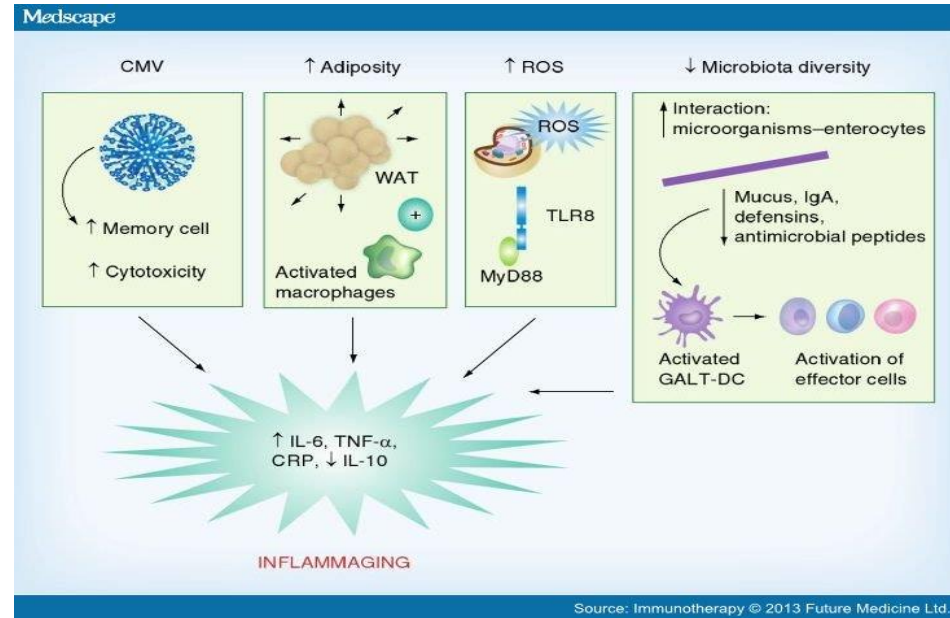
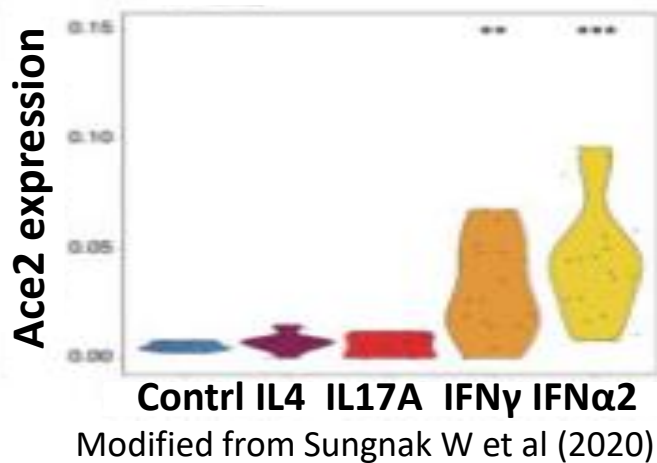
The Aged Body and COVID-19



Inflammaging



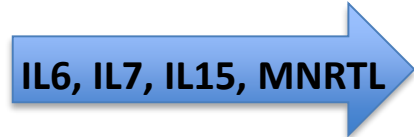
Human Nasal cells



Skeletal Muscle – A key immune regulator



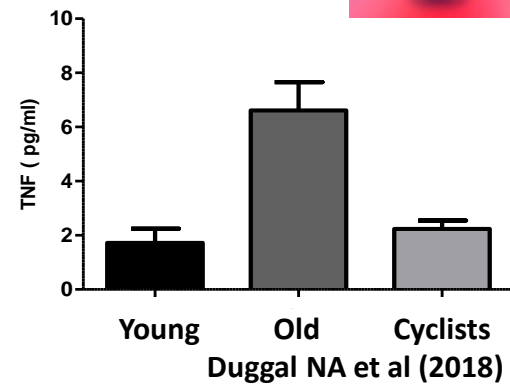
Muscle releases Myokines



Macrophages



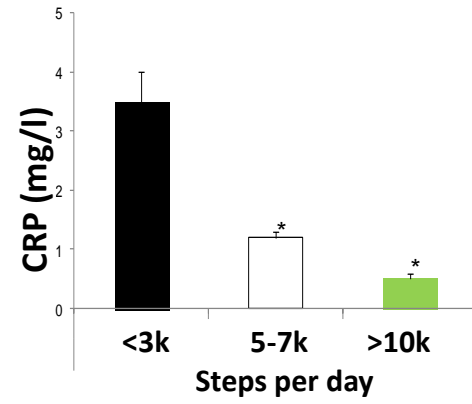
↑ IL10
↑ IL-RA
↓ TNF



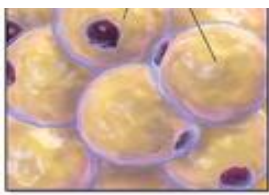
NK cells



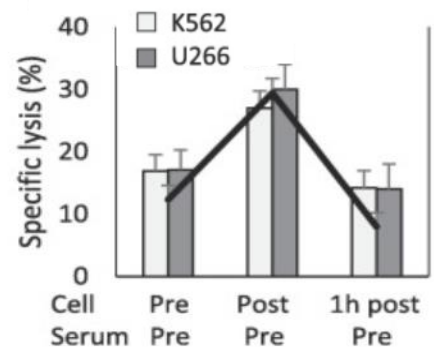
↑ Killing Virus infected cells
↑ Cell numbers



Fat

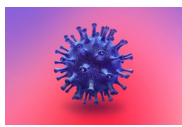


↓ inflammatory macrophages
↓ Adipokines

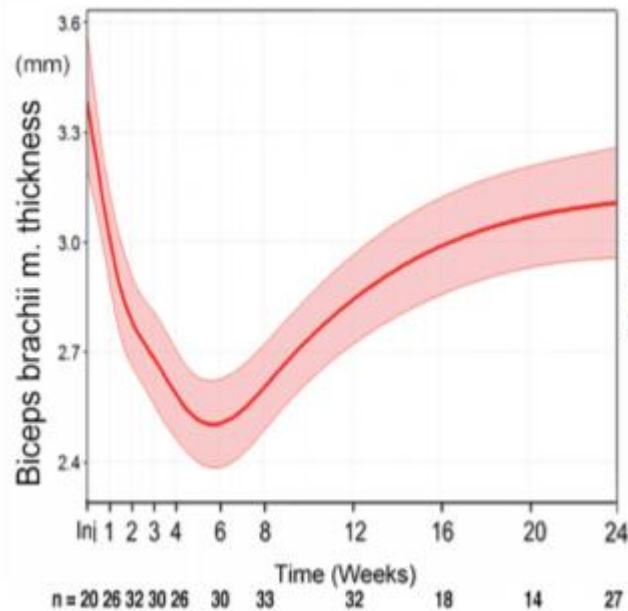


Gupta P et al (2018)

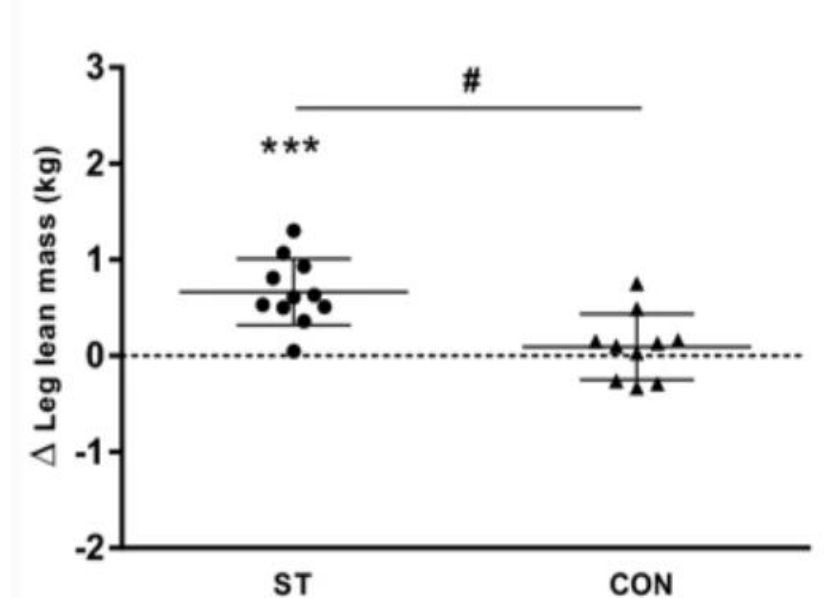
Recovery after COVID-19



- COVID-19 patients experience extreme fatigue, meaning they exercise less.
- Patients can be bed bound for several weeks, losing muscle as a result (1kg of muscle can be lost per week of bed rest).
- Regular exercise, especially resistance exercise, is important to regain muscle and help immune function.

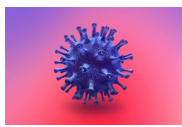


Foster MA et al (2020) JCEM

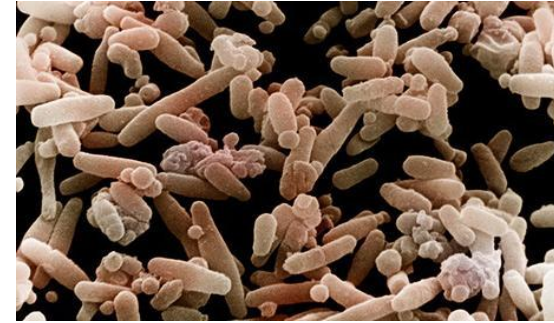


Aas SN et al (2020) Aging Clin Exp Res

Nutrition and Immunity



- **The gut microbiome (bacteria) has a major influence on the immune system, including inflammation.**
 - Antibiotics often given to Covid19 patients destroy the gut bacteria.
 - Eating a diet high in fruit and vegetables helps to have a healthy gut.
- **Vitamin D enhances immune function, and also is important for muscle health.**
- **Zinc has been shown to reduce infections.**
- **4 weeks on a diet low in carbohydrates (the paleo diet) has been shown to reduce inflammation (Gyorkos et al, 2019)**



Foods rich in zinc



Cereals



Wheat germ



Sesame seeds



Pumpkin Seeds



Meats



Shellfish