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MATRIC NUMBER: 17/MHS01/218

DEPARTMENT: Anatomy

COLLEGE: Medicine and Health Sciences

COURSE CODE: Ana 308

COURSE TITLE: Embryological Mechanism and Teratology and Reproductive Techniques.

1. From our understanding of teratology, Can we say Corona virus is a teratogen and if no/yes, justify your answer.

Yes, I believe Corona virus could be a teratogen.

 A teratogen is any agent that can disturb the development of an embryo or fetus. Teratogens may cause a birth defect in the child. Or a teratogen may halt the [pregnancy](https://www.medicinenet.com/pregnancy_planning_preparing_for_pregnancy/article.htm) outright. The classes of teratogens include [radiation](https://www.medicinenet.com/radiation_therapy/article.htm), maternal infections, chemicals, and [drugs](https://www.medicinenet.com/drugs_what_you_should_know_about_your_drugs/article.htm). Pregnant people in China who were diagnosed with the corona virus were treated in designated hospitals, and the handful of published reports of such cases only cover tens of people. However, initial reports suggest that covid-19 might not hit pregnant women or their newborn babies too heavily. One reason to worry about covid-19 in pregnancy is that people are more likely to become severely ill with flu when they are pregnant. That is partly because pregnancy suppresses a person’s immune system. Additionally, in the later stages of pregnancy, the fetus and uterus can start squashing other organs, including the lungs. As a result, some areas of the lungs become less able to circulate air, leaving them more prone to infection.

Some kinds of infection also seem to put the fetus at risk. Prolonged, high fevers in pregnancy, particularly in the first trimester, have been linked to some birth defects. With any viral infection during pregnancy, the fetus is at risk of miscarriage, stillbirth, growth restriction, malformation.

 Another prognosis was carried out on nine patients and there appears to be some risk of premature rupture of membranes, preterm delivery, fetal tachycardia and fetal distress when the infection occurs in the third trimester of pregnancy. However, there is no evidence suggesting transplacental transmission based on very limited data, as the analysis of amniotic fluid, cord blood, neonatal throat swab, and breast milk samples available from six of the nine patients were found to be negative for SARS‐COV‐2. Whether virus shedding occurs vaginally is also not known.

There is some evidence that pregnant women are more at risk of serious illness from MERS and SARS – viruses that are similar to the new coronavirus and that these infections also increase the risk of miscarriage. Whether COVID‐19 increases the risk of miscarriage and stillbirth is unknown. Concerns have been expressed by experts in the media about women undergoing termination of pregnancy for fear of congenital infection and teratogenicity. However, information on the effect of COVID‐19 on the course and outcome of pregnancy in the first and second trimesters is not available yet.

 But it is difficult to say Corona virus is a teratogen for sure though, because only a handful of pregnant people have been reported to be infected with those viruses, and miscarriages occur in about a quarter of all pregnancies.

1. What are the impact of ageing and environment in the outbreak of this novel covid 19.

**Impact of ageing**.

Age and your condition in life will really drive your susceptibility. You may be in your 40s, but if you have these chronic health conditions, you're going to be more susceptible, just like you see with flu. As cases of the novel [coronavirus](https://www.aarp.org/health/conditions-treatments/info-2020/coronavirus-facts.html) now known as COVID-19 continue to rise worldwide, researchers have learned that older adults may be particularly susceptible to the respiratory illness, which can cause pneumonia and symptoms such as fever, cough and shortness of breath. The data coming out of China before the pandemic, continues to say that the people who are at higher risk for severe disease and death are those who are older and with underlying health conditions. Preliminary estimates suggested that the virus, which then had sickened tens of thousands and resulted in hundreds of deaths, had a fatality rate of about 2 percent. Early findings from China, which pertained to the first 17 people to die in the outbreak, revealed that their median age was 75, and a study in the New England Journal of Medicine found that the median age of the first 425 people infected with the virus was 59.

Menachery points to two main reasons for older adults’ increased susceptibility to coronaviruses. The first: They are more likely to suffer from underlying conditions that hinder the body's ability to cope with and recover from illness, such as [chronic obstructive pulmonary disease](https://www.aarp.org/health/conditions-treatments/info-2016/copd-pneumonia-bronchitis-photos.html). The second has to do with how our immune response changes with age, the exact mechanisms of which Menachery and other researchers still are working to fully understand. His research into corona viruses has shown that older mice, for instance, experience [more inflammation](https://www.aarp.org/health/conditions-treatments/info-2019/lowering-inflammation-to-improve-health.html) early on in the course of illness, perhaps “setting the table” for lung damage that can't later be overcome. The corona virus that became a global pandemic before mid-March, like the ones responsible for SARS and MERS, affects the part of the lungs where gas exchange the delivery of oxygen to the bloodstream and the removal of carbon dioxide takes place.

"As you get older, your lungs are not as elastic or as resilient as when you're younger. Those kinds of things, coupled with any kind of health issue you might have, trend toward this loss of airway function and respiratory function. But this doesn't mean that turning 65, considered the starting point of older adulthood by the CDC and other organizations automatically puts someone in the high-risk category.

**Impact of environment during this Novel Covid 19**

 The world has been transformed in a matter of months. Thousands of people have already died, and hundreds of thousands more have fallen ill, from a corona virus that was previously unknown before appearing in the city of Wuhan in December 2019. For millions of others who have not caught the disease, their entire way of life has changed by it. Authorities implemented strict steps such as self- isolation, quarantine and lockdown in several countries. In Italy, the most [extensive travel restrictions](https://www.bbc.co.uk/news/world-51737226) ever in place since World War Two. In London, the normally bustling [pubs, bars and theatres have been closed](https://www.bbc.co.uk/news/explainers-52010555) and people have been told to stay in their homes. Worldwide, [flights are being cancelled](https://www.bbc.com/news/business-51904769) or [turning around in mid-air](https://www.bbc.com/news/uk-51887707), as the [aviation industry buckles](https://www.bbc.com/news/business-51893151). Those who are able to do so are holed up at home, practicing social distancing and working remotely. In Nigeria, Markets are being shut down, malls and other centres practice preventive measures as to accommodate the outbtreak of the novel covid 19 and these malls and stores are limited to certain goods as anything that would involve interaction is avoided and this thus brings down the economy.

 It is all aimed at controlling the spread of Covid-19, and hopefully reducing the death toll. But all this change has also led to some unexpected consequences. As industries, transport networks and businesses have closed down, it has brought a sudden drop in carbon emissions. Compared with this time last year, levels of [pollution in New York have reduced by nearly 50% because of measures to contain the virus](https://www.bbc.com/news/science-environment-51944780). In China, [emissions fell 25% at the start of the year](https://www.carbonbrief.org/analysis-coronavirus-has-temporarily-reduced-chinas-co2-emissions-by-a-quarter) as people were instructed to stay at home, factories shuttered and [coal use fell by 40% at China’s six largest power plants since the last quarter of 2019](https://www.axios.com/coronavirus-china-carbon-emissions-3453d9a1-1ae9-4789-8a41-3ed257946dbd.html). In Nigeria, with the spread of this disease there is turmoil for financial markets, it is becoming a new vector for the spread of recession throughout the world. In the short term, global recession will reduce the amount CO2 released into the atmosphere on an unprecedented scale. We expect 2019 to become the peak year for global emissions since the health crisis will act in the medium-term to accelerate structural changes in economies. The proportion of days with “good quality air” was up 11.4% compared with the same time last year in 337 cities across China, according to its Ministry of Ecology and Environment. In Europe, satellite images show [nitrogen dioxide (NO2) emissions fading away over northern Italy](https://www.esa.int/ESA_Multimedia/Videos/2020/03/Coronavirus_nitrogen_dioxide_emissions_drop_over_Italy). A similar story is playing out in [Spain](https://english.elpais.com/society/2020-03-24/pollution-in-spain-falls-to-record-lows-under-coronavirus-lockdown.html) and [the UK](https://www.standard.co.uk/news/uk/pollution-falling-uk-coronavirus-lockdown-a4396051.html).

Only an immediate and existential threat like Covid-19 could have led to such a profound change so fast; at the time of writing, global deaths from the virus had passed over 195,000 with more than 2,700,000 confirmed cases worldwide. As well as the toll of early deaths, [the pandemic has brought widespread job losses](https://www.bbc.co.uk/news/uk-51979245) and threatened the livelihoods of millions as businesses struggle to cope with the restrictions being put in place to control the virus. [Economic activity has stalled and stock markets have tumbled](https://www.bbc.co.uk/news/business-51706225) alongside the falling carbon emissions. It’s the precisely opposite of the drive towards [a decarbonised, sustainable economy that many have been advocating for decades](http://www.lse.ac.uk/GranthamInstitute/publication/the-economics-of-climate-change-the-stern-review/). A global pandemic that is claiming people’s lives certainly shouldn’t be seen as a way of bringing about environmental change either. For one thing, it’s far from certain how lasting this dip in emissions will be.

3. Summarize the importance of Oogenesis and Spermatogenesis.

Importance of Oogenesis

(i) Oogenesis helps to retain sufficient amount of cytoplasm in the ovum which is essential for the development of early embryo

(ii) One oogonium produces one ovum and three polar bodies.

(iii) Polar bodies have small amount of cytoplasm. It helps to retain sufficient amount of cytoplasm in the ovum which is essential for the development of early embryo. Formation of polar bodies maintains half number of chromosomes in the ovum.

(iv) During meiosis first crossing over takes place which brings about variation.

(v) Oogenesis occurs in various organisms. Therefore, it supports the evidence of basic relationship of the organisms.

Importance of Spermatogenesis.

1. Spermatogenesis produces mature male gametes, commonly called *sperm* but more specifically known as spermatozoa, which are able to fertilize the counterpart female gamete, the [oocyte](https://en.wikipedia.org/wiki/Oocyte), during [conception](https://en.wikipedia.org/wiki/Conception_%28biology%29) to produce a single-celled individual known as a [zygote](https://en.wikipedia.org/wiki/Zygote). This is the cornerstone of [sexual reproduction](https://en.wikipedia.org/wiki/Sexual_reproduction) and involves the two gametes both contributing half the normal set of [chromosomes](https://en.wikipedia.org/wiki/Chromosome) ([haploid](https://en.wikipedia.org/wiki/Haploid)) to result in a chromosomally normal ([diploid](https://en.wikipedia.org/wiki/Diploid)) zygote.
2. To preserve the number of chromosomes in the offspring – which differs between [species](https://en.wikipedia.org/wiki/Species) – one of each gamete must have half the usual number of chromosomes present in other body cells. Otherwise, the offspring will have twice the normal number of chromosomes, and serious abnormalities may result. In humans, chromosomal abnormalities arising from incorrect spermatogenesis results in congenital defects and abnormal birth defects ([Down syndrome](https://en.wikipedia.org/wiki/Down_syndrome), [Klinefelter syndrome](https://en.wikipedia.org/wiki/Klinefelter_syndrome%22%20%5Co%20%22Klinefelter%20syndrome)) and in most cases, [spontaneous abortion](https://en.wikipedia.org/wiki/Spontaneous_abortion) of the developing fetus.
3. Spermatogenesis aids in initialization of hormone control, it is known that initiation of spermatogenesis occurs at puberty due to the interaction of the [hypothalamus](https://en.wikipedia.org/wiki/Hypothalamus) (initiated due to increase in gonadotropin-releasing hormone (GnRH) by the hypothalamus.), [pituitary gland](https://en.wikipedia.org/wiki/Pituitary_gland)(GnRH acts on the anterior lobe of pituitary gland to secrete luteinizing hormone (LH) and follicle stimulating hormone (FSH)) and [Leydig cells](https://en.wikipedia.org/wiki/Leydig_cell)(LH acts on the Leydig’s cells of the testes to secrete testosterone.) If the pituitary gland is removed, spermatogenesis can still be initiated by [follicle stimulating hormone](https://en.wikipedia.org/wiki/Follicle_stimulating_hormone) (FSH) and [testosterone](https://en.wikipedia.org/wiki/Testosterone). In contrast to FSH, [luteinizing hormone](https://en.wikipedia.org/wiki/Luteinizing_hormone) (LH) appears to have little role in spermatogenesis outside of inducing gonadal testosterone production. FSH stimulates both the production of [androgen binding protein](https://en.wikipedia.org/wiki/Androgen_binding_protein) (ABP) by [Sertoli cells](https://en.wikipedia.org/wiki/Sertoli_cell), and the formation of the [blood-testis barrier](https://en.wikipedia.org/wiki/Blood-testis_barrier).
4. I During spermatogenesis, one spermatogonium produces four sperms,

(ii) Sperms have half the number of chromosomes. After fertilization, the diploid chromosome number is restored in the zygote. It maintains the chromosome number of the species,

(iii) During meiosis I crossing over takes place which brings about variation, (iv) Spermatogenesis occurs in various organisms. Thus it supports the evidence of the basic relationship of the organism.

1. Describe what you understand by personal Hygiene and Disaster; Hence their correlation if any.

According to the [World Health Organization](https://en.wikipedia.org/wiki/World_Health_Organization) (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." Personal hygiene refers to maintaining the cleanliness of one’s body and clothing to preserve overall health and well being. This practice includes bathing, washing your hands, brushing your teeth, home cleanliness and more. Every day, you come into contact with millions of outside germs and viruses. They can linger on your body, and in some cases, they may make you sick. Personal hygiene practices can help you and the people around you prevent illnesses. They can also help you feel good about your appearance. Some regular hygiene practices may be considered good [habits](https://en.wikipedia.org/wiki/Habit_%28psychology%29) by the society, while the neglect of hygiene can be considered disgusting, disrespectful, or threatening as in the case of the NOVEL CORONA VIRUS.

Good personal hygiene habits which are also indulged during this outbreak include:

* Cleaning of one’s body often with soap reduces chance of contacting diseases ( For example, Corona Virus).
* [Wash your hands](https://www.youtube.com/watch?v=XHISh559oho) frequently with soap and water, scrubbing for at least 20 seconds, or use an alcohol-based hand sanitizer to destroy germs. Washing hands with soap before, while and after preparing food. During normal daily activities, such as working and playing, disease causing germs may get onto the hands and under the nails. If the germs are not washed off before preparing food or eating, they may get onto the food.
* Proper disposal of waste from your domestic activities will prevent germs and contamination of your food items which will in essence help to increase your healthy living.
* Cover coughs and sneezes with the inside of your elbow or upper arm. If this is not done, droplets of liquid containing germs from the nose and mouth will be spread in the air and other people can breathe them in, or the droplets can get onto surfaces and all this leads to the spread of the novel corona virus.
* Don’t touch your face. This is a lot harder than it sounds and requires conscious effort. The average person touches their face [23 times an hour](https://www.ajicjournal.org/article/S0196-6553%2814%2901281-4/fulltext), and about half of the time, they’re touching their mouth, eyes, or nose — the mucosal surfaces that COVID-19 infects
* Keep surfaces clean: First, clean dirt off of the surface. Then wipe the surface with disinfectant. Leave the surface wet with disinfectant for as many minutes as the product instructions require. This is a vital step that people often miss. It’s not enough to just wipe the surface and go. This will help significantly to reduce contraction of viruses.
* Keep your distance. The number of people in any given location is important. Respiratory droplets from a cough or sneeze can travel up to six feet and be inhaled into the lungs of people within range leading to SARS ( severe acute respiratory syndrome).
* Changing into clean clothes. Dirty clothes should be washed with laundry soap before wearing them again
* Tidying up your kitchen after cooking and eating is paramount to personal hygiene and is a requisite for prevention of diseases. For example; If a banana peel is left carelessly on the floor a child is more likely to slip as a result of the careless disposal which could result to serious injuries or death.
* Cleaning up environment of your compound can prevent the invasion of rodents which may deposit urine on your food items ( this can cause Lassa fever).
* Maintaining your personal hygiene reduces risk of frequent hospital visits which can lead to financial disasters such that you are not financially stable and you spend more health bills than you do for food and water.

Disaster

Disaster is a sudden accident or a natural catastrophe that causes great damage or loss of life. These are also event that seriously disrupts the functioning of a person (s), community or society and causes human, material, and economic or environmental losses that may exceed the community’s or society’s ability to cope using its own resources. Types of disaster; Natural disasters and Human - caused disasters ( which directly relates to personal hygiene and other technological or scientific inventions). Take for instance, not clearing of gutter properly may lead to blocking of the water channels or water ways leading to flooding which can create disasters by pulling down houses and economic infrastructures.

 Another good example, is the Influenza virus of 1918. It spreads mainly, when infected people cough or sneeze, releasing small virus-containing droplets into the air which can be breathed in and infect the respiratory tract of the people around them. In 1918, Influenza was a pandemic outbreak, making one of the major disasters of 1918.

 There are a range of challenges, such as [climate change](https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/aggravating-factors/climate-change/), [unplanned-urbanization](https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/aggravating-factors/unplanned-urbanization/), [under-development/poverty](https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/aggravating-factors/under-development/) as well as the threat of [pandemics](https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/definition-of-hazard/biological-hazards-epidemics/), that will shape humanitarian assistance in the future. These aggravating factors will result in increased frequency, complexity and severity of disasters. The damage the global outbreak will do to the global economy in the medium term may be far more severe than its health impact. In the current situation, negative trends in stock markets, commodity prices, the value of national currencies and interest rates, as well as the blocking/reduction of international circulation are the main factors triggering a global economic crisis and it all got to this extent due to lack of contained personal hygiene one way or the other.

**Correlation between personal hygiene and disaster.**

 From the above detailed analysis of both personal hygiene and disaster, one can affirmatively infer that there is a positive correlation between personal hygiene and disaster

NOTE: “The way we take care of ourselves and our surroundings determine how we can stop certain disasters or hazards from occurring. You never know if a person started the spread of a disease if we don’t care for ourselves properly. In the case of a pandemic such as the current NOVEL CORONA VIRUS, people who have maintained their personal hygiene would have built a strong immune system such enabling them to monitor their system to take preventive measures against any symptom arising as regards to the virus and if we all do this there will be a limit in the spread of diseases which will reduce disaster risks.”