

## ? 1. Aging Will Be Treatable: Getting older is not inevitable, but a disease that affects us all

Today we see aging as an unavoidable part of life, but Sinclair firmly believes that aging is a disease that will eventually be treatable. In 2022, WHO guidelines will make “old age” an official diagnosis, which will make it easier for scientists to receive funding for critical research into aging.

## ? 2. Aging is Information Loss: The ONE biological cause of aging

Aging is caused by a loss of information in our epigenome, the biological systems that surround our DNA. Our DNA is wrapped in coils that are regulated by sirtuins. When DNA is damaged these sirtuins leave, turning off cell reproduction and turning on repair. But each time this happens some sirtuins don't make it back, which means the coils lose their shape faster. This is a loss of information that results in less optimal cellular functioning... which is aging.

## ? 3. Eat Less: Calorie restriction or fasting helps us live longer

Eating fewer calories (without malnutrition) improves the health and longevity of many organisms, from yeast to mice to humans. Intermittent fasting may be the easiest way to achieve this because it only requires going hungry for shorter periods of time like skipping a meal or not eating 1 day per week.

## ? 4. Exercise More: Physical activity is a stressor that activates longevity genes

Exercise provides positive stress that improves many markers of longevity. Endless hours are not needed, but the exercise must be strenuous, like 15 minutes of running per day. Consider joining a health subculture to make habits stick.

## ?? 5. Get Cold (or Hot): ‘Less-than-comfortable temperatures’ also provide longevity benefits

Cold exposure activates longevity genes, and has been shown to have health benefits. Alternatively, studies also show frequent heat exposure by using a sauna provides health benefits, too.

## ? 6. Possible Future Medicines: Research into molecules that activate longevity pathways

Longevity genes can be activated by molecules through certain biological pathways. mTOR can be inhibited with rapamycin, which has been shown to increase lifespan in smaller organisms, but may be toxic long-term. AMPK can be activated with metformin, a diabetes medicine that has shown health benefits like strongly reducing cancer risk. Sirtuins can be activated with molecules like NMN or NR, by boosting NAD levels that sirtuins require to function.

**This is just a sample!**

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