

501/301: THEORIES OF AGING APPLICATION – EXAMPLE

Student Name: Jane Doe Example
AGE: 28 years

INTERVIEWEE Pseudonym or Initials: S.J.
AGE: 79 years

Theory:	Application to SELF	Application to INTERVIEWEE
Cellular clock theory History & Description of theory: Leonard Hayflick was born in 1928 in Pennsylvania and was educated in microbiology in the U.S. He developed the theory known as the “Hayflick Limit” in 1961. Hayflick suggests that cells can divide a maximum number of about 100 times and that, as we age, our cells become less capable of dividing. Hayflick found that cells extracted from adults in their fifties to seventies had 40-60 times; the total number of cell divisions was roughly related to the age of the individual. Hayflick places the upper limit on the human life span at about 120 years (Hayflick, 1977). In the last decade, scientists have tried to explain why cells lose their ability to divide. The answer may lie at the tips of chromosomes. Each time a cell divides, the telomeres that protect the ends of chromosomes become shorter and shorter. After about 100 replications, the telomeres are dramatically reduced, and the cell no longer can reproduce (Knight, 2000). One study linked age-related telomere erosion with an inability to recover from stress and an increase in cancer	The aging process produces many physical changes due to the number and changes in cells within the body (Hayflick, 1977). Changes in physical appearance include wrinkles and age spots. Although weight often increases in middle age, it frequently declines after age 60 because of muscle loss. Blood pressure often rises in older adults, although it can be treated with exercise and/or medications (Knight, 2000, p. 53). I am 28 years old and have so far only noticed “crows feet” around my eyes when I smile or laugh – otherwise my skin hasn’t changed all that much. Since I have spent a lot of time in the sun as a life-guard during the summers, I expect that age spots will start to show up eventually and I will have to have my doctor monitor those closely to avoid skin cancer which can often be an aggressive and deadly form of cancer. ----- Normal aging also involves some bone tissue loss from the skeleton, but in some instances the loss can be severe, as in osteoporosis. Almost two-thirds of women over 60 are affected to some degree by osteoporosis. Estrogen replacement therapy can reduce bone	The aging process produces many physical changes due to the number and changes in cells within the body (Hayflick, 1977). Changes in physical appearance include wrinkles and age spots. Although weight often increases in middle age, it frequently declines after age 60 because of muscle loss. Blood pressure often rises in older adults, although it can be treated with exercise and/or medications (Knight, 2000, p. 53). S.J. has numerous visible wrinkles and age spots which appears typical based upon her age. She said she no longer wears shorts or dresses in the summer because she doesn’t like the look of all those spots on her legs. S.J. said she has maintained her weight within a range of 10-15 lbs. difference for most all of her life except during her three pregnancies. She said the last 5 pounds came on after menopause. However she has noticed the loss of muscle tone and strength in her arms and legs, especially in the past few years. ----- Normal aging also involves some bone tissue loss from the skeleton, but in some instances the loss can be severe, as in osteoporosis. Almost two-thirds of women over 60 are affected to some degree by osteoporosis. Estrogen replacement therapy

(Rudolf et al., 1999). References: Hayflick, L. (1977). The cellular basis for biological aging. In C. E. Finch L. Hayflick (Eds.), <i>Handbook of the biology of aging</i>. New York: Van Nostrand. Knight, J., A. (2000). The biochemistry of aging. <i>Advances in Clinical Chemistry</i>, 35, 1-62. Rudolf, K. I., Chang, S., Lee, H., Gottlieb, G. J., Greider, C., DePinto, R. A. (1999). Longevity, stress, response, and cancer in aging telomerase-deficient mice. <i>Cell</i>, 96, 701-712.	loss for women, and a program of weight lifting can help (Knight, 2000, p. 54; Rudolph, Chang, Gottlieb & DePinto, 1999, p. 710-711). I have strong bones at this point in my life. The literature shows that osteoporosis is not as frequent in older men as older women, but it does happen. My great-grandmother on my mom's side of the family had a stooped-over look and pain in her back that they said was from aging. I now realize that she had osteoarthritis. Also, I think that my routine of working out with weights and running is more important for long-term health and strength than it is just for appearances. ----- Chronic diseases, characterized by a slow onset and long duration-are rare in early adulthood, increase in middle adulthood, and become more common in late adulthood. The most common chronic disorder in late adulthood is arthritis; the second is hypertension (high blood pressure). The incidences of developing cancer also increase with age (Rudolph, Chang, Gottlieb & DePinto, 1999, p. 705-709). Physical deteriorations are inevitable because aging cells do not replicate as often and eventually die. Despite these developments, many older adults are still robust and active, even into their 80's. Physical exercise slows the aging process and helps older people function stronger and for longer than those without regular	can reduce bone loss for women, and a program of weight lifting can help (Knight, 2000, p. 54; Rudolph, Chang, Gottlieb & DePinto, 1999, p. 710-711). S.J. started having bone-density check-ups every few years starting at age 58 and she said that her doctor found there has been some osteoporosis and she prescribed medication to prevent any further damage. S.J. does use small hand weights (2-lb) for daily exercises but she admits she does not do any other weight-bearing exercises. Her only other exercise is occasional walking when her daughter takes her out to the mall. ----- Chronic diseases, characterized by a slow onset and long duration-are rare in early adulthood, increase in middle adulthood, and become more common in late adulthood. The most common chronic disorder in late adulthood is arthritis; the second is hypertension (high blood pressure). The incidences of developing cancer also increase with age (Rudolph, Chang, Gottlieb & DePinto, 1999, p. 705-709). Physical deteriorations are inevitable because aging cells do not replicate as often and eventually die. Despite these developments, many older adults are still robust and active, even into their 80's. Physical exercise slows the aging process and helps older people function stronger
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	activity. (Knight, 2000, p. 58, 62) I do not have any issues with chronic diseases and the literature explains it is rare in early adulthood. Since arthritis and hypertension are said to be the most common problems, I need to research more about how to prevent those problems before they develop in my body. From what I have learned so far from the different theories of aging, it points back to genetics and nutrition and physical activity. I have made a list of the family members I know with chronic conditions and based on what I have observed in their habits, I think that my chances of developing those diseases is significantly less as long as I maintain a healthy diet and regular exercise routine. I have also made it a goal to quit smoking by the end of this year because it reduces the amount of oxygen to the blood and robs the cells of the elements needed for growth and reproduction. That also speeds up the aging process and causes damage to the skin and other organs. Cell deterioration may be inevitable but I want to do all I can to take care of myself and have a better aging experience over time.	and for longer than those without regular activity. (Knight, 2000, p. 58, 62). S.J. described her frustration at the changes in her body from aging because she does not feel confident in her abilities to care for herself and her house as well as when she was younger. She admitted that she does not move enough and spends much of her time in her chair reading and watching TV. S.J. takes medication for high blood pressure, osteoporosis, and vitamins including iron for anemia. Her conditions could continue to deteriorate based on the cellular clock theory (Hayflick, 1977). The literature describes the commonality of these types of issues in later stages of life but also explains how a healthy diet and regular exercise make a positive difference on countering the effects of deterioration from aging cells (Knight, 2000, p. 58, 62). S.J. cannot stop the aging process as she said she wishes she could, but she does have the choice and still has the ability to do a little more each day improving her nutrition and physical activity.
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