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You are a young female in your late twenties who has just graduated from a highly esteemed law school. You have recently been married to your high school sweetheart, and the two of you have decided to move into the city to start your lives together. Professionally, both of your careers are taking off, and the talk of starting a family begins to pop up regularly during evening meals.

Up until this point, you have chosen to keep one important secret from your spouse. While he is fully aware that your father passed away some three years ago from a degenerative disorder, he has no knowledge or background of the disease. You decide to inform your husband about Huntington Disease (HD), an autosomal dominant genetic disorder which is characterized by loss of motor and cognitive functions and tends to have a late onset. You explain that there is technically a fifty-fifty chance that you may have the disease; however, for one reason or another, you believe the chance of passing the gene to your children decreases because you are a female.

Your husband is taken aback by this sudden news, and you immediately formulate a plan to regain his trust. Due to the recent growth in biotechnology, a diagnostic test for HD has been discovered. While you had decided not to have the test a few years before, you now find yourself willing if it will strengthen your relationship with your spouse. The two of you discuss the possible positive outcomes, with the strong desire for children being a recurring theme. However, testing positive for HD would clearly change your life in more ways than could be imagined. Do you take the test?

If you said yes, go to page 2
If you said no, go to page 3

You go to a nearby medical center and have the genetic screen performed. A few weeks later, you return to the lab for your results. You find that you have been positively diagnosed with Huntington Disease. While your greatest fears have become reality, you also feel a sense of relief. No longer will you sit up late at night wondering *if* the disease will eventually consume you. Now, despite the negative consequences attached, at least you know.

Initially, there is a sense of shock pervading the household. However, as usual, your life slowly goes back to normal, and you resume your everyday activity as if nothing has ever happened. As he claimed he would, your husband has supported you through it all. You feel ashamed and guilty that you ever involved him in such a tragedy, and you sincerely wish there were some way to make it up.

A few years pass. Both you and your spouse have become successful in your professions, and your relationship is as strong as ever. Several recent victories in the courtroom have you feeling invincible. One night at dinner, out of the blue, your husband raises the issue of having children. You remind him of the risks involved with HD and the possibility of conceiving children fated to die of this horrible disease. He explains that he has been doing some research on your family and that no female has ever passed on the disease to her child. He also describes how important it is for him to have someone with him when you pass on. Knowing how much he has supported you through it all gives you a strong desire to concede. Plus, you feel that having children before you die would somehow make your life complete. Despite the possible ramifications, do you have a child?

If yes, proceed to page 4
If no, proceed to page 5

You have come to the conclusion that taking the test is not worth the possible negative consequences. Your husband supports you in this decision, and together you realize that it is best to hold off on having children. After all, you can always adopt if the desire becomes great enough. The two of you go about your lives as if the topic of HD had never been raised.

A few years after the decision not to test, you wake up one morning with a realization. As you are brushing your teeth in the mirror, you realize that you have a fifty percent chance of acquiring Huntington Disease sometime within the next fifteen years. How could you possibly have been so shortsighted? Fifteen years is not a long time, and the disease may very well onset in as few as five. But, wait! There are still so many things that you want to do while you still can.

Suddenly your thoughts shift to your husband. He has been so wonderful about supporting you through the hard times, and you could never ask him to give up his life because of a simple whim. He has had severe worrying bouts at times, but he tries his best to stay positive for your sake. Taking off suddenly to explore the world may throw him over the edge. However, you feel a sense of urgency. The time is now or never. Do you live for moment in hopes that your husband will understand, or do you continue on with the life that has brought you so much happiness up until now?

If you chose to live for the moment, go to page 6

If you chose to continue on as before, go to page 7

You and your husband conceive with relative ease, and nine months later you are in the hospital giving birth. You both decide against any pre-natal testing in fear that it will affect your decision to go through with the birth. Much to your surprise, you have two healthy male boys. Oddly enough, this immediately raises a concern.

If the twins are monozygotic, then both will either have the HD gene, or neither will. However, if they are dizygotic twins, then both may have it, one may have it, or neither may have it. The doctor informs you that he could test to see which type of twins you have, but you again decide against it for fear it may impact the way you raise your children. You and your husband proudly take your two boys home.

The addition of children to your household gives newfound life to both you and your husband. For several years their presence alone is enough to quell any worries you have about the onset of HD. However, at the age of five, you begin to notice uncharacteristic twitching in one of your sons. Despite keeping a close eye on these symptoms, the disease comes quickly. You learn that your son has inherited juvenile HD, a somewhat rare form that progresses rapidly. Shortly thereafter, you too develop your first symptoms. Slowly but surely you begin to lose control. Your final coherent thoughts involve your sons: one who is now on the verge of death only twelve years after entering this world, the other who must live out his remaining days in constant fear of what is to come. You begin to question your motives for ever having a child in the first place. As your mind slowly degenerates, you cannot help but wonder, did you merely propagate an undeserved cycle of life and death for yet another innocent child?

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You conclude that having a child is not worth the risk. You feel proud of the sacrifice you have made, and your husband outwardly supports your decision. Life continues on as usual for several years.

Inevitably, talk between you and your spouse turns to the future and the preparations that must be made. You decide that a life insurance policy would be a wise investment. Consequently, you apply for insurance through a local group. The agent asks if you have ever had a genetic test performed, a mere formality he assures you. You inform him of your screening and are shocked when he turns down your application nearly immediately. After doing some research, you realize that all insurance companies adopt the same policy. You are left without life insurance in the time you need it most.

Later that week, you sit down to breakfast with your husband. As you are pouring yourself some milk, you suddenly drop the container, spilling all over the table. You have dropped the milk many times in your life, yet today, for some reason, this event evokes a unique sensation. You begin wondering if just maybe that was the first sign of onset. You quickly realize that the relief you felt after taking the test has been replaced by a new worry. No longer are you concerned with *if* you will get HD, but rather with *when*. This anxiety becomes apparent in your everyday actions, and you slowly withdraw yourself from the rest of the world. Your sudden change in attitude overwhelms your husband and you give him no other choice but to leave you. You remain isolated for the rest of your life, slowly degenerating until you can no longer care for yourself. You move to a nursing home where no one visits, and there you die a sad, lonely death.

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You cannot resist the temptation to live for the moment. You truly love your husband, but the possibility of an early death stays with you constantly. You inform your spouse of your decision. He tells you he loves you and understands what you are feeling. Despite his unwavering support, you sense a growing depression inside your husband. But you have made up your mind; you must seize the day.

You quit your law firm and immediately plan a trip to Europe. Leaving behind your husband, you travel from country to country, staying and going as you please. This type of lifestyle becomes the norm for many years. Skydiving, bungee jumping, white water rafting, and hang gliding—nothing is beyond your limits. Moving from job to job and place to place has no affect on your attitude. You are living life to the fullest and enjoying every minute of it.

One day, shortly after your fiftieth birthday, you return home from a month long outing in Alaska. As you enter the house, you promptly sense that something has gone awry. Your husband should be at work, so the house is still as expected. Yet, you continue to feel something amiss. You take your bags to the bedroom where you are suddenly frozen with shock. On the bed lies your husband covered in his own blood, the result of a self-inflicted gunshot wound. You notice the note he left. It describes the difficulty he had always had dealing with the anxiety and unrest that come with not knowing the future of HD. Reading his words causes a realization. You now consider the fact that you are over fifty years old without a single symptom. You are likely to be spared of the disease, and yet the passing of your husband has left you with no money, no job, and most importantly, no friends. You ask yourself, was the moment worth it?

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You realize how important your husband is to you and choose to continue the life with which you have become accustomed. You decide that rather than leaving on a whim, you will stay at home and make the most of your everyday lifestyle.

You and your husband decide to adopt two children, one boy and one girl. The two of you enjoy raising them to the best of your ability, and their presence makes the onset of HD a far off problem. Professionally, your hard work reaps benefits as you make partner in your law firm by the age of forty. Your husband too seems happy, and your relationship together is stronger than ever.

One Friday afternoon, your entire family comes to watch you in court. You turn to them and smile proudly just before you begin your case. You are plowing through the witness when your left hand suddenly begins to tremble uncontrollably. At first you think nothing of it, until the realization finally hits you. As you turn around you catch a glimpse of your husband, wide eyed and mouth agape. You understand what is happening, and you understand what is to come. Standing there in the middle of the courtroom, you begin to ponder the consequences for the future of your family, and more importantly, for the future of your two children. You assumed that adoption spared your children from a horrible fate, yet in reality, it simply opened them up to the worst of all. These two children now have to watch their mother move slowly through the stages of regression, leading eventually to death. You begin to wonder how, standing in the middle of a court of justice, life could be so unfair.

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Each of these scenarios represents the many dilemmas that can arise from the advances in biotechnology. One might point out that there are also many positives that could have resulted from the above situations as well. While this is true, I used negative outcomes to make a simple point. There is no such thing as a scientific discovery that confers only good. Each answer that science brings leads to many new and interesting questions, some moral and some physical. The question I have focused on above is one of free will.

Some would argue that the revolution in molecular biology has increased the free will of humans. With the knowledge we have gained, we are now able to essentially select for many characteristics in our offspring. Using pre-natal genetic testing, a parent can learn of something as simple as sex or of something as complex as inherited disorders. With the growing technology, parents will be able to “fix” children who are “abnormal” before they are born. However, I would argue that this very action is actually a decrease in free will.

The life of an organism is not lived for the parents. The child in question is not making the choice for himself, but rather is having the choice made for him. This parallels many of the above situations. Is it fair for a mother to adopt children into a HD household, especially when she has not even been tested to verify her prognosis? Her death would be a life-altering event, one that no child would choose to go through.

This example, along with the others above, is only one among the many possible effects of biotechnology. The key is to understand that there are no right or wrong answers, but rather that every answer you make will simply lead to another series of questions. This realization is essential if we are to continue to make the kind of positive progress we have had in the last several years.