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CHAPTER

I Am John's Heart

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➡ About the Author

J. D. Ratcliff is well known writer of the essays on scientific topics. His language is simple and style is so easy that even boring topics are made interesting and attracting. 'I Am John's Heart' is his famous article which was published in a leading esteemed monthly magazine, 'The Reader's Digest'.

➡ About the Lesson

In the lesson, the human heart has been shown speaking out its case itself. So, it is story told by the heart about itself. Evidently, it is John's heart that is speaking, but it is only a generalization for any human heart. All that it is wished that John should give adequate rest. This can be done by relaxing a little more, taking regular exercise, cutting down on fats and smoking and by reducing weight. If all these things are done, the human heart shall keep on serving him for a long time.



No one could say I'm a beauty. I weigh 340 grams, am red-brown in colour, and have an unimpressive shape. I am John's dedicated slave—his heart.

I hang by ligaments in the centre of his chest. I am about 15 cm long and, at my widest point, ten cm across—more pear shaped than Valentine. Whatever you may have heard about me from poets, I am not a very romantic character. I am just a hard working four-chambered pump—actually *two* pumps, one to move blood to the lungs, the other to push it out into the body. Every day, I pump blood through about 96,000 km of blood vessels. That's enough pumping to fill an 18,000 litre tank.

When John thinks of me at all, he thinks of me as fragile and delicate. Delicate ! When up to now I have pumped more than 3,00,000 *tons* of his blood? I work twice as hard as the arm muscles of a heavy weight boxing champion or the leg muscles of a sprinter. Let them try to go at my pace and they would turn to jelly in minutes. No muscles in the body are as strong as I am—except those of a woman's uterus as she gives birth. But uterine muscles don't keep at it day and night for 70 years, as I am expected to do.

That, of course, is a slight exaggeration. I do rest—between beats. It takes about three-tenths of a second for my left ventricle to contract and push blood out into the body. Then I have a rest period of half a second. Also, while John sleeps, a large percentage

of his capillaries are inactive so, as I don't push blood through them, my beat slows from a normal 72 a minute down to 55.

John hardly ever thinks of me which is good. I don't want him to become one of those heart neurotics and worry us *both* into real trouble. When he does worry about me, it is nearly always about the wrong things. One night, as he was drifting off to sleep, John suddenly thought I'd skipped a beat. He was quite worried. Was I giving out on him? He needn't have been concerned.

From time to time, my ignition system gets momentarily out of tune—just like the ignition system on John's car. I generate my own electricity, and send out impulses to trigger contraction. But occasionally I will misfire, piling one beat on top of another. It sounds as if I have 'skipped'—but I haven't. John would be surprised how often this happens without him knowing.

Rev Counting. After a nightmare he sometimes wakes up and worries because I am racing. That's because when he runs in his dreams, I run too. John's worries actually aggravate things—make me go still faster. If he would calm down, so would I. But if he can't, there is a way to slow me down. The vagus nerves act as a brake. They pass up through the neck—behind the ears, at the hinge of the jaw. Gentle massage here will slow my beat.

John blames almost everything on me—from fatigue to dizzy spells. But I have little to do with his fatigue, and his occasional dizzy spells usually trace back to his ears. From time to time, he will be sitting at his desk working and will get a sharp pain in the chest. He fears that he is about to have a heart attack. He needn't worry. That pain comes from his digestive tract—payment for the heavy meal eaten a couple of hours earlier. When I am in trouble, I usually send out a pain signal only after undue exertion or emotion. That's the way, I tell him I am not getting enough nourishment to cope with the work he is loading on to me.

How do I get my nourishment? From the blood, of course. But, although I represent only a two-hundredth part of the body weight, I require about one-twentieth of the blood-supply. That means, I consume about ten times the nourishment required by the body's other organs and tissues.

But I don't extract nourishment from the blood passing through my four chambers. I am fed by my own two coronary arteries—little branching 'trees', with trunks not much thicker than drinking straws. This is my weak spot. Trouble here is the greatest single cause of death.

No one knows how it happens, but early in life—sometimes even at birth—fatty deposits begin to build up in the coronary arteries. Gradually, they can close an artery. Or a clot may form to close it suddenly.

When an artery becomes blocked, the portion of the heart muscle it feeds, dies. This leaves scar tissue—it may be no larger than a small marble, but it can be half the size of a tennis ball. How serious the trouble is, depends on the size and position of the plugged artery.

John had a heart attack five years ago and didn't even know it. He was too busy to notice that tiny twinge of pain in his chest. The artery that clogged was a small one on my rear wall. It took me two weeks to sweep away the dead tissue and repave the area with a scar not much larger than a pea.

John comes from a family where heart disease has occurred often, so statistics say that I am going to give him trouble too. Of course, he can't do anything about heredity. But he can do a lot to minimize risk.

Let's start with overweight. John jokes about his middle-age spread, but it's no laughing matter. Every kilo of excess fat contains some 700 kilometres of capillaries through which I have to push blood, in addition to the work of carrying around each extra kilo.

That brings me to John's blood-pressure. It's 140/90—the upper limit of normal for his age. The 140 measures the pressure I work against while contracting, and the 90 is the pressure while I am resting between beats. The lower figure is the more important. The higher that figure rises, the less rest I get. And without adequate rest a heart simply works itself to death.

There are a lot of things, John could do to get his blood-pressure down to safer levels. The first is to get rid of excess weight. He would be surprised at the drop in blood-pressure that would follow.

Smoking is another thing. John smokes 40 cigarettes a day—which means he may be absorbing quite an amount of nicotine every 24 hours. This is pretty violent stuff. It constricts arteries—particularly in the hands and feet—which raises the pressure against which I must work. It also stimulates *me* so that I beat more rapidly; a cigarette increases my beat from a normal 72 into the 80's. John tells himself that it is too late to give up smoking—that the damage is done. But, if he could get rid of constant nicotine stimulation, things would be easier for me.

Strife at the Top. John could help me in other ways, too. He is competitive, ambitious—the successful businessman type. He doesn't realize that his constant fretting continually stimulates his adrenal glands to produce more adrenaline and nonadrenaline. This has the same results as nicotine, tightened arteries, higher blood-pressure, a faster pace for me.

The point is this : if John relaxes, I relax. An occasional nap would help. And he might try some light reading instead of that stuff, he brings home from the office.

Exercise is another thing. John is one of those weekend athletes—who take it in big doses. He still likes that rushing up to-the-net bit in tennis : but when he does this, my normal work load is increased by five.

What John *should* be doing is taking regular, mild exercise. A walk of a kilometre or two a day would help. Climbing a couple of flights of stairs to his office wouldn't hurt either. His office is on the tenth floor, but he could walk up the first two flights, and then take the lift. Little things like that would do a lot. As I said, fatty deposits are already beginning to block some of my arteries. But regular exercise would cause new blood pathways to develop. Then if one artery closes down, there are others to nourish me.

Finally, there is diet. I am not asking John to become a diet fanatic. All the same, fats *seem* to play some role in building up those blockages forming in my arteries. John gets 45 per cent of his calories from fats and, like others in industrialized countries who eat similar foods, has a 50-50 chance of dying from clogged arteries.

I'm not demanding type. I'll do the best I can for John under *any* circumstances. Just the same I wish he would give me a few breaks; slim down a bit, take regular exercise, relax a little more, cut down on fats and smoking. If he would only do these things, I could keep on working for John for a long time.

||Glossary||

heart neurotics	— those who worry too much about their heart (हृदय के हाथों अत्यधिक परेशान)
drifting off to sleep	— going to sleep (सोने को तत्पर)
skipped a beat	— lost a beat (एक धड़कन छोड़ दी)
ignition system	— the system that helps starting an action (चालू करने का तरीका)
concerned	— worried (चिन्तित)
momentarily	— for a moment (एक क्षण के लिए, क्षणिक)
out of tune	— out of order (अव्यवस्थित हो जाना)
impulses	— waves (लहरें)
to trigger contraction	— to start shrinking (सिकुड़ना शुरू होना)
occasionally	— sometimes (कभी-कभी)
miss-fire	— to miss a beat (धड़कन खोना)
rev-counting	— measuring the heart beat (धड़कनों को नापना)
nightmare	— a fearful dream (भयपूर्ण स्वप्न)
aggravate things	— make things worse (चीजों को बिगाड़ना, बुरा बनाना)
undue exertion	— too much of fatigue (अत्यधिक थकान)
emotion	— too much of excitement, feeling (अत्यधिक उत्तेजना, भावनाएँ)
To cope with	— to face (मुकाबला करना)
consume	— use (उपयोग करना)
required	— needed (चाही गयी, वांछित)
coronary arteries	— The arteries that carry blood to the heart (हृदय में रक्त पहुँचाने वाली धमनियाँ)
blocked	— closed (अवरुद्ध)
feeds	— gives food (पालना, खाना खिलाना)
plugged	— closed (बन्द, अवरुद्ध)
Twinge of pain	— sudden sharp pain (अचानक तेज दर्द)
clogged	— blocked (अवरुद्ध हो गई, फँस गयी)
minimise	— decrease (घटना, कम होना)
over weight	— very heavy weight (अत्यधिक वजन)
adequate	— sufficient (पर्याप्त)
to get rid of	— to escape from something (छुटकारा पाना)
violent stuff	— a very harmful thing (अत्यधिक हानिप्रद सामग्री)
constricts	— shrinks (सिकुड़ती है)
stimulates	— excites (उत्तेजित करती है)

fretting	— worrying (चिन्तित रहना)
relaxes	— takes rest (आराम करना)
pathways	— routes (संकुचित मार्ग या पगडण्डी)
nourish	— feed (पोषण)
ambitious	— desirous (महत्वाकांक्षी)
slim down a bit	— to become thin in body (शरीर को पतला करना)

||Exercise||

➡ Passages for Explanation :

Explain with reference to the context of the following passages :

- I worked twice as hard asminutes.
- When he does worry about me.....concerned.
- John comes from a family.....minimize risk.
- John tells himself for me.
- John could help me.....home from the office.
- How do I get, organs and tissues.
- When an artery of the plugged artery.

➡ Short Answer Type Questions :

Answer the following questions in not more than 30 words each :

- What kind of the machine is the heart ?
- What are the two false notions about heart ?
- In what way does the heart differ from the other muscles of the body ?
- How does the heart describe itself ?
- How does the heart tell John that he is going to have a heart attack ?
- How does the heart get its nourishment ?
- What is the weakest spot in the heart which is the greatest single cause of death?
- What are the two ways in which coronary arteries may get clogged?
Or How do arteries get blocked ?
- Who is more likely to have a higher blood-pressure a fat man or a lean man ?
Why ?
- How does smoking increase blood-pressure ?
Or How does J. D. Ratcliff explain that smoking is harmful?
Or How is smoking injurious to health according to J.D. Ratcliff?
Or Why is smoking injurious to health?
- What should a man do to reduce high blood-pressure ?
- What particular foods should the heart-patient avoid ?
- What can a man do to avoid a heart attack?
Or What precautions should a man take to avoid heart attack?

- Or* What should we do to avoid heart attack?
 (xiv) What is heart if it is not a romantic character?
 (xv) What is the function of the heart?
 (xvi) How can heart keep on working for a longtime?

➡ **Vocabulary :**

- (a) *Fill in the blanks with suitable words given below : to push through, keep on, to get rid of, to slim down, out of time, fragile, pretty, there.*
 (i) You are advised bad habits.
 (ii) It is difficult for a truck a crowded narrow lane.
 (iii) trying again and again is to get success at last ?
 (iv) The fat people are advised to take light exercise
 (v) The present system of education is with the needs of the time.
 (vi) John hardly.....thinks of me which is good.
 (vii) When John thinks of me at all, he thinks of me as.....and delicate.
 (viii) Smoking is a violent stuff.
 (ix) Then, if one artery closes down, are others to nourish me.
- (b) *Give the Antonyms of the following words :*
 (i) upgrade, (ii) usual, (iii) active, (iv) normal, (v) increase, (vi) regular, (vii) impressive, (viii) heavy, (ix) fragile, (x) pain.
- (c) *Give the Synonyms of the following words :*
 (i) fragile, (ii) sprinter, (iii) expected, (iv) concerned, (v) nightmare, (vi) fatigue, (vii) emotion, (viii) cope with, (ix) adequate, (x) ambitious.
- (d) *Below are some pairs of words. Use them in your own sentences to make out the difference in their meanings :*
 (i) four, fore, (ii) pain, pane, (iii) beat, beet, (iv) except, accept, (v) some, sum.
- (e) *Fill in the blanks in the following sentences, selecting the most suitable words from those given within the brackets.*
 (i) I hang by ligament in the of his chest. (middle, core, centre, deep)
 (ii) What ever you may have heard about me from poets, I am not a very character. (hateful, envious, romantic, loveable)
 (iii) John was too busy to notice that tiny of pain in his chest. (tinge, fringe, twinge, minge)
 (iv) I weigh 340 grams, a red-brown in colour and have an shape. (unpleasant, unimpressive, unfair, unsound)
 (v) John hardly thinks of me which is good. (never, ever, some times, often)
 (vi) John tells himself that it is too late to give up (overeating, smelling, drinking, smoking)
 (vii) What ever you may have heard about me from poets, I am not a very character. (hateful, envious, romantic, lovable)