Endocardiography in Conjunction with Nutritional Heart Therapy

John Courtney, an associate of Dr. Lee, discusses Endocardiography in a 1957 fireside chat.

I think we'll spread that subject out a little bit and talk about endocardiography as a vitamin indicator. We will enlarge it more than just diagnosing heart conditions and discuss primarily what effect certain graphs have as far as showing certain deficiencies is concerned.

Quite often, the subject has come up regarding dealing with specific heart problems and a doctor will say, "I'm not trained in cardiology, all those names are confusing. All I want to know is what to give them." That's what our comments are going to be primarily concerned with today. Let's take the first of our sheets that says, "Endocardiogram Interpretation."

Before we start, it might be a good idea to emphasis as far as heart conditions are concerned in the United States today, we might even say larger, worldwide. Here's a figure that's pretty outstanding. Eighty percent of all physicians die of heart disease. That certainly should show us that physicians as a group certainly should be interested in heart disease. Shouldn't they?

To break that group down a little further it says that 80% of cardiac lesions are valvular of origin, 10% muscular, 6% nervous and 4% coronary. Coronary are the severe ones. We hear more about that than any other type of heart lesion because it's the one that is "death dealing." It's the one that comes fast. But it's interesting to see that statistics show that only 4% of heart lesions are coronary of origin and 80% are valvular. That is a good indication for the EndoCardiograph instrument because its specialty is showing valvular lesions. It shows these as they develop in time to do something about it. So, that's what we have reference to in showing certain markings on the graph that might indicate certain vitamins.

Incidentally, we have the figure here that was just in this month's *Coronet* magazine that 1,250,000 people in the United States are now heart patients; one and a quarter million, that's a pretty outstanding figure, isn't it? It's good that we are aware of heart conditions. It also says that more people die of heart disease than cancer, pneumonia, nephritis, tuberculosis and any other two diseases all put together. There again, heart disease stands head and shoulders above all other ones.

With that in mind, we might follow through with some of these markings here, very simply. We're not going to put much effort on it but we do want to mention some basic conditions here that we feel are important to understand. At the top, you see a normal graph. You notice on that normal graph that the first sound is about twice as high, two to three times as high, as the second sound. We can recognize those sounds. You notice the period, the line there from the second sound to the first sound, is about twice as long as the period of time from the first sound to the second. That's normal.

Those are the things we want to strive for. Any markings other than this show an abnormal condition. We might deal briefly with the circulation route of the heart.

There is your heart, of course, and the left ventricle. When the left ventricle contracts, that's going to close this valve. When the ventricle closes, that closes the valve. This one opens and the blood goes out through the aortic artery into the system, comes around through the system and comes back into the right auricle (atrium), down into the right ventricle, then again when our next cycle comes around with the heart closing, that valve shuts and pumps the blood out through the pulmonary artery up to he lung where it's oxygenated. The blood comes back then into the left auricle. That's our circulation route.

In closing, you'll notice both ventricles closing together here, are going to close both of these valves, these auricular, ventricular valves. They should both close at the same time. When they both close, that gives us our first sound, of course. During this closing cycle, the blood is being pumped out of the aortic artery by this side of the heart and the pulmonary artery by this side of the heart. Then you have the short space between the first and second sound.

After the blood is exhausted from the ventricles, the ventricles start to open up again. In doing so, these valves are pulled opened by the blood coming from the auricle. These valves are closed; both the pulmonary and the aortic artery are closed by the systemic blood pressure pushing back. The closing of those valves, of course, makes our second sound. That's the second mark on our graph here.

We can see why it's important that this rest period be longer because that's the period when the ventricles are opening again. That should be twice as long as the closing period. That's referred to as the rest period of the heart.

Going through some of our conditions very briefly, you notice down here regarding muscular condition, the quality of the first sound indicates the amount of muscle tone. We might say that the shorter the first sound is and the higher it is with respect to the second sound, the better the heart tone. As the heart tone starts to go downhill, the first sound will become longer and lower with regard to the second sound. On this graph, the second sound doesn't show. If the second sound were to show, it would be equally as high as the first sound.

Then, as you go further, the dilated muscle, the next degree, as it gets worse, the second sound would be two to three times as high as that first sound. In the last stage, totally de-compensated muscle, the first sound is almost gone. That's a severe condition. That's when the patient is almost dead.

The reason we go through these four stages is by a glance of the graph we compare the relative height of the first sound and the second sound. At a glance we can tell whether there is any muscular deterioration and how much.

The products involved for a muscular weakness would involve Cardiotrophin, which Dr. Lee was talking about, a heart muscle extract which builds up the tone of the heart muscle, and Vitamin E. Wherever natural Vitamin E is found in nature, it will be associated with manganese. Manganese is the muscle or the ligament tone builder. These are two factors then that we would automatically think of if we would see not only one, like the totally de-compensated muscle here, but we may see one like the dilated muscle.

Next in line is coronary circulation. We can pick out a coronary case as it develops. It might be interesting to note here that Dr. Irvin, who is the President of the American Heart Association, wrote an article which appeared in *U.S. News and World Report* last November, I believe it was, made a comment in answer to a question. The question that was asked him was: "Will an electrocardiogram or an X-ray show a developing coronary condition?" He said, "No, unfortunately it will not show up until a heart attack has taken place and then it will show what area of the heart was affected."

The EndoCardiograph instrument here is one that does show a developing coronary condition. This is exactly how we can tell: in the normal heart, the rest period is twice as long as the working period and you notice that the second sound is mid-way between the working period and the rest period. In other words, the rest period is no longer than the working period. This is a severe coronary condition. Anything that we would see in between denotes a severity. If our rest period was twice as long as the working period, it's normal. If it's the same length; it's a severe coronary. If it's 50% longer; it's half-way. At a glance, we can tell whether there's a developing coronary condition.

The product that would be needed for a coronary condition as it develops is Vitamin G, primarily, for two reasons. G not only is a liver metabolizing factor and contains the lipotropic factors to help us to metabolize cholesterol out of the blood, lower the blood cholesterol, thereby decreasing the possibilities of any thrombus forming in the blood, but it also has a vaso-dilating effect. It opens up these coronary arteries, showing a better blood supply to the muscle itself. Whenever we see a coronary circulation problem from the evidence of this short rest period, we take a Vitamin G.

In the past few months, we've developed a new product, which is a combination product designed especially for coronary conditions. This combination product we call GEC; that's just a formula designation, as it were. Don't let those letter deceive you. The G does mean that it contains vitamin G. The E means that it contains vitamin E_2, which is slightly different from our plain E and the C means that it contains Cardiotrophin, our heart muscle protomorphogen. So, that's the combination product.

Whenever we see a coronary condition, we could use GEC plus our multiple vitamin or AC, something with Vitamin C in it, such as Catalyn, A-C combination or even plain C. One of those should go with GEC for a coronary condition.

Now, we will go through murmurs very briefly. We might mention the difference between a stenosis and a regurgitation just in the way of review. A stenosis is brought about because a valve won't open wide enough to allow a full component of blood go through. This means that when the blood comes down through the artery, if it comes through a narrowed valve, it has to go in, be forced in together like a funnel, then it will set up little currents on the other side, as the blood comes out in the open again. These currents are picked up as a murmur. In the case of the mitro area or the tricuspid area, that will be just before the first sound. In the case of the aortic and pulmonary areas, it will be just after the first sound.

The point we're trying to make clear here is the difference between a stenosis and a regurgitation. A stenosis will always occur then when the valve is open but will not carry its full component of blood. That means that we need the same product that I just talked about, G or GEC and Vitamin C because these have a vaso-dilating effect, a blood cholesterol eliminating effect, due to its improvement of liver function.

Regurgitation will be noted as a murmur at the time when the valve should be closed. We mentioned there, that as the ventricles are closing, are contracting, they will close those auricular ventricular valves.

Now, if you would hear one of those causing a murmur during that closed period of the ventricle, that would mean some of the blood is leaking back to the auricle (atrium) instead of being driven out through the aortic or pulmonary arteries. If the valve doesn't fit tight, if the little cusps don't come together and hold that blood back, it will cause a little fluttering or murmur on our graph. It's a regurgitation. Most of those regurgitations are due to an enlarged heart or a heart that is out of shape.

Sometimes that term "enlarged" is a little confusing. We think of a heart that's just larger, like an athletic heart but there's something entirely different involved here. I think of an enlarged heart as an automobile that has rolled over in the ditch. Try to open and close the doors, they don't fit just right. If they

don't fit, they're going to leak. That's what happens to these valves. So, an enlarged heart is out of shape, it isn't necessarily larger in size. It pulls out of shape. When it's out of shape, those valves don't close tight and hence they leak.

Most regurgitations are due to a heart enlargement. The nutritional program for that would be primarily Vitamin B. When we mention B, we have particular reference to the B_4 fraction, the so called anti-paralytic factor, which promotes nerve function of the heart and seems to pull the heart back into proper shape. When it gets back into shape, that regurgitation murmur will usually stop.

If there's a regurgitation, that means the heart is working a little harder because it has to pump some of its blood twice. Whatever leaks back has to be pumped over again. Vitamin C would also fall into this category. So, any regurgitation needs, as a vitamin suggestion, either Vitamin B or C. Whenever we mention C, of course, A-C could be substituted. All through these valve pictures we just have those two things involved, stenosis, G; regurgitation, B and C.

Now we will consider an aortic aneurysm. An aneurysm, of course, is due to a breakdown of the vascular wall in which there's actually a bubble that the blood goes into. The vascular wall has lost its tone in one certain spot and refuses to shove the blood along. This indicates the need of something that will strengthen the vascular wall. Whenever you notice a picture like this aneurysm here, whether it's in the aortic or pulmonary area, it will only be in one of those two. That's why we couldn't have an aneurysm in the mitro or tricuspid because there are no blood vessels up there. It's just a valve in the center of the heart itself.

In either of these two areas then, it would indicate something is needed to strengthen the blood vessel walls. The Ruplex A is the primary factor here, because it does give tone to the vascular walls. Another factor might be our Collinsonia product. Collinsonia has an astringent effect on the vascular system. Where there is a flabbiness, a tendency for them to be enlarged, like a case of hemorrhoids or something else, it tends to draw them shut.

We're not inferring that aneurysm will entirely respond to nutritional treatment, although we've seen many cases where a lot of improvement has been noted in aneurysm. It certainly is worth your while trying.

Now we will consider genetic system disturbances have to do with the rhythm of the heart, the speed, and various things. It says here that the normal heart is about 72 beats per minute.

Let's talk about Tachycardia and Bradycardia. You notice in this Tachycardia the heart is fast. That shows the cycle is close together but we still have our normal ratio. In other words, our rest period is twice as long as the working period. Now, that is entirely different than if we turn back to coronary circulation here. You'll notice the rest period is not twice as long. In the coronary circulation, they're even. This coronary circulation problem, incidentally, will be a fast heart. That will be Tachycardia, but there's a difference in the nutritional suggestions for that. When the rest period is short, G is indicated.

Now, in the case of Tachycardia where you have the normal ratio, but the heart is just fast, that's a shortage of potassium, the alkaline ash mineral. You might note that, because quite often these two are confused. You can see our EndoCardiograph instrument will show this up instantly. If you're just taking their pulse you can see it's fast but you don't know why it's fast. Is it a pending coronary condition or is it a potassium deficiency? Potassium is the brake activator of the body, just as phosphorus is the accelerator. In other words, the body, like the automobile, has both an accelerator and a brake. The mineral that turns our system on is the acid ash mineral, phosphorus. The one that turns our various operations off, including heart, is potassium.

Perhaps you've had patients who sit down to a meal, they're not hungry, they don't seem to want to eat, no gastric juices flowing, they like phosphorus. The gas-

tric juice won't turn on when they get the signal, when they think about food or when they smell it, it doesn't turn on. They don't get the accelerator mechanism because of a shortage of phosphorus. That's the same thing we see in the Bradycardia. In Bradycardia, our rest period is twice as long as the working period, the normal ratio, but the heart is slow because it doesn't turn on. In the case we're talking about the digestive juices don't turn on.

We might back-track a moment to show a patient who is the opposite. Perhaps a fellow sits down to eat in the evening, his digestive juices turn on fine, he digested his meal, and when he's done digesting his meal they don't turn off. He wakes up in the middle of the night with a sour stomach. Why? Because he lacks potassium. When he's through with the digestive juices they should turn off. That's the "turn-off" mechanism of the body that's manifested here.

To review, Tachycardia of this type indicates the need of alkaline ash minerals, potassium. The name of our product that contains that is Minaplex or organic minerals in the therapeutic foods line.

Bradycardia needs the acid ash mineral, predominantly phosphorus as food in Phosphade or Phosfood.

Now, going on to rhythm, these disturbances in rhythm, whether they're arrhythmias, you notice in the case of this first one, sinus arrhythmia, the first cycle looks normal, the second cycle is real long, then we have a short one and another short one. In other words, they're all mixed up. That means that there's no evenness to the heart rhythm because a deficiency of the Vitamin B_4 factor, as found in Vitamin B, that gives the heart the nerve control. This situation, incidentally, improved very rapidly. Take a graph, give them a Vitamin B tablet and you'll usually find improvement in this in a few minutes.

The next type is pulsesalternons. You'll notice the arrhythmia is not so much in the length of cycle as much as it is in height of sound. The first one is good and the second one, you'll notice how low the first sound is and in the third cycle, the first sounds good again. It's an arrhythmia, an unevenness, an up-and-down for power of drive of the heart muscle. That also needs Vitamin B. We might say that for all of these disturbances in rhythm, the rest of the way down this left hand column and half way down the right hand column, all of those are in need of Vitamin B.

We might pause here for a moment on the bundle branch block. We mentioned a while ago that both ventricles should be closing together and those valves should close together. Now, sometimes the impulse through the bundle of Hess gets to one ventricle before it gets to the other one, so one ventricle will close slightly before the other one. All we need to do is to give the anti-paralytic vitamin, the B_4 factor, as found in Vitamin B complex and that will straighten that condition out.

Another condition we want to mention is "heart block." It's quite a common and quite a severe situation. Notice how we can designate a heart block and how we can recognize it very easily due to the extra long rest period. The heart beats, it opens up and is waiting for another beat, but it doesn't get it, so it waits and waits. Finally it comes through and it beats again. Usually in an active graph that you see they won't be quite as even as the one that is drawn here. You have one normal cycle and then you get one that's real long. Then you might get one that's fairly short and then a real long one. In other words, these disturbances of rhythm, all being a deficiency of the B complex factor, predominantly, B_4, you might find them all mixed together.

In all the pathological conditions here, accentuated first sound, that might be due to a hyper-thyroid condition or some such problem and of course that would be treated as such, rather than as a heart abnormality, you have to find the source of the trouble and treat that problem.

Hypertension might give you an accentuated second sound as we see in the next illustration. The diminished first sound would be a dilatation of the heart, lack of muscle tone, of course. Heart Cardiotrophin is

the factor here and Vitamin E, as we mentioned before. The diminished second sound might be due to low blood pressure, for which we have a special product now, Adrenoplex, which is a combination product. It contains Vitamin E, Vitamin C and adrenal protomorphogen. The adrenal protomorphogen is to give a lasting effect to build up the adrenal glands.

Usually, in low blood pressure conditions, you'll find weakened adrenals, a tendency for hypo-adrenal conditions. That's readily recognized. In addition to hypo-tension, you'll find the diminished second sound in a Vitamin F deficiency, where there's a lack of calcium in the body fluids available to the body. It's a lack of muscle tone there. So, the second sound, in some case, I've seen them where you can't even make out the second sound. It doesn't even appear. Vitamin F usually promptly puts that back where it belongs.

As a matter of considering this as a vitamin indicator, let's dash through this whole chart once again, starting at the beginning. Muscular conditions:

If there's a weakened muscular condition denoted by a low first sound as compared to the second sound: Cardiotrophin and Vitamin E (plain E).

Coronary circulation: G or GEC and A-C or plain C.

That same thing is true of all Stenosis, either G or GEC and A-C.

All Regurgitation: Vitamin B complex and A-C or C.

Tachycardia with a normal rest period, with a normal ratio here, needs Minaplex.

Bradycardia with a normal ratio needs Phosphade.

Any disturbance in rhythm is Vitamin B.

I have an article here from the *Vitamin News* entitled: "The EndoCardiograph as an Indicator of Nutritional Deficiencies." We've talked about this a little bit so it might be good to enlarge upon it here. These are, incidentally, our actual graphs.

Now this first one under Vitamin F, you'll notice the second sound is almost invisible. A Vitamin F tablet was given and very shortly after a second sound appeared. That second sound is just about normal in size, too. As I mentioned before, the second sound should be from one-half to one-third of the height of the first sound. That's a normal pattern here.

The one before with a lack of a second sound, if we see this, that means Vitamin F. That's all we have to remember. All of this detail we've been talking about in the way of explanation isn't necessary to remember. All we have to remember is if we see no second sound on the graph, they need Vitamin F. In some cases, they also may need Calcium Lactate. Vitamin F is a calcium ionizing agent and it provides diffusible calcium for use in the muscular tissue. If the patient's body is completely devoid of calcium, it might be necessary to give him/her Calcium Lactate in addition to the Vitamin F. In all cases that I've ever seen, this second sound will promptly appear in a matter of not more than a half hour, if you give them Calcium Lactate also, in some cases.

The function of Vitamin C here is a factor to take the load off the heart, because Vitamin C increases the oxygen carrying power of the blood. That's one of its greatest assets. Naturally, the reason for the circulation of blood is to carry the oxygen to our cells and to carry the toxins away from our cells in the form of either water or carbon dioxide. The blood is doing that job. If we can make the blood carry more oxygen to the cells and less blood is needed, I guess we would expect the heart to slow down, and that is exactly what happens. Not only is the muscle tone being exerted here, the muscle tone is a little bit low and the first sound is low in respect to the second, I should say, also the pulse is fast and the rest period is rather short here. This shows a heart that's overworking.

I remember at a convention about a month ago we had a sign that says E_2 would stop a heart pain in about 10 minutes. A lady doctor stopped and said she would take us up on it, "I have an angina pain right now." We gave her an E_2 tablet, and about a half hour later she came back and said, "I wouldn't have believed it, but in eight minutes the pain was gone."

A Vitamin E deficiency specifically causes necrosis of heart muscle fibers. When there's a necrosis of part of the muscle fibers of the heart and the heart blows out, that's the fellow who has a sudden heart attack and you have to pick him up off the sidewalk. When his heart blows out, his life goes out as fast as a tire goes down when it blows out. That's how serious a deficiency of some of these factors are.

Then under Vitamin G complex, we have here a description much in line with what we have already discussed, except that it shows and actual graph, before and after. You notice in this graph on figure five here of a 24-year-old fellow, the space between his second sound and his next first is just about the same length as the working period of the heart. It's a heart that's working very hard and the rest period is short. Naturally, our coronary artery receives its supply of blood during that rest period. There're two reasons for that: As the ventricle contracts, the blood is flowing out through the aortic and pulmonary arteries, but the aortic is the one we're concerned with now because branching off of the aortic artery come these little coronary arteries that feed the heart itself. During the closing period of the heart, the heart doesn't receive a blood supply.

Why?

Knot your fist up as tight as you can squeeze it. Are you getting very good circulation to your fist at that time? No. When those muscles are contracted and squeezed, the blood vessels are squeezed and hence, not very good circulation. During the closing period of the heart, the heart muscles are squeezing like that and so the blood doesn't close the heart.

Another reason is: As the ventricle starts to open, the aortic valve closes and the systemic blood pressure shoves the blood back against that valve and fills up with pressure right up against that valve and forces it out around the coronary arteries to feed the heart its blood supply during that cycle. It's during the rest period and only during the rest period that the heart receives its blood supply. If the rest period is only half as long as it should be, then the heart is only getting half as much blood as it should.

This is a very severe condition. That's why it denotes an impending coronary attack. When Vitamin G was given in this case, it took about a week or so to lengthen out. A very normal picture appeared in this patient from taking Vitamin G.

In case here, under Cataplex B, it's an arrhythmia. The first cycle seems pretty normal there but look at the long rest period after the second cycle, way too long. That should only be twice as long, not about three or four times as long. After taking B, that patient's heart speeded up and was fairly even.

Under Cataplex C, it was a question of evening the heart out a little bit and improving the tone of that first sound, mainly because it was taking the load off. It's just like the fellow who has a sack of potatoes on his back; he can't run as fast as the fellow who doesn't have one. So, if you "take the load off its back," the heart can work more effectively and put out a better pump of blood.

Under Minaplex, this is the alkaline ash mineral product, the one that predominates in potassium that we were talking about. Here we have Tachycardia that was slowed down slightly by the Minaplex. That was not too good of an illustration because here the rest period is short. This patient should have had in addition to Minaplex. He should have had G. We would have seen more improvement than we do here. But only the one thing was used in order to properly illustrate the situation.

Cardiotrophin, that's our heart muscle protomorphogen, notice the low first sound compared

to the high second. We have to measure the height of a sound relatively. The relative height of the first sound to the second sound is what's important. It should be from two to three times as high. When you see a low first sound, right away you should think of Cardiotrophin and Vitamin E. In this particular case, only Cardiotrophin was given. I ran this graph myself. It was just a five-minute interval and look how fast that first sound came up, almost to normal.

Now we will consider Cataplex F. Here's another one where the first graph shows no second sound whatsoever. A few minutes after giving a Cataplex F, the second sound was there just as it should be. This one could stand a little B with the F, but it's not too critical one way or the other whether he gets it.

Question: In considering a coronary, how can you tell if it's the right or the left?

Well, that would depend on which area of the heart we're taking. The mitro valve would be the left heart, if we would get our situation there and if we would get it over here that would be the right heart. Maybe both of them are in the same situation. That's usually true, that both of them are deficient. The blood supply for both sides of the heart comes from the aortic artery, so they're usually both deficient, but I've seen cases where that wasn't true. Where it isn't true, you will find that the one side of the heart has a short rest period and the other side of the heart has a normal rest period. The answer would be the same.

Question: Regarding rheumatic heart disease, how does it affect the heart?

Rheumatic heart disease will affect the heart in two ways, primarily. The primary way is to leave scar tissue on the valves and scar tissue on the valves will cause a stenosis. A stenosis indicates a need of G, primarily, and C. If we have a stenosis that's due to cholesterol deposits, we'll notice gradual improvement in that condition over a period of a month or so. If it's due to a rheumatic condition in it's scar tissue, we'll notice maintenance of that condition with very slow improvement. Perhaps, at the end of the year, the heart will be better than it was before. It will be a very slow improvement.

Question: Is it better to let the protomorphogen tablets melt in your mouth?

I would say that it would be better to chew them or melt them in the mouth, any of our tablets. It isn't absolutely essential. That depends on the patient. Some patients will have such a mental block to such a situation, (chewing them) it will make them sick to their stomach. It's much better for them to swallow them. It isn't necessary to dissolve a protomorphogen tablet in the mouth, because they're quite soluble. Nor is it necessary to dissolve Minaplex or Vitamin G, that have not too pleasant of a taste. Catalyn, A, C and B, as well as some of the other ones, have a taste that I would call, rather pleasant. Some people don't. It's desirable if those are chewed if possible. Let's put it this way: The patient will get a little better assimilation out of a chewed tablet.