WHY WE STUDY CARDIOLOGY

HEAR AND KNOW HEART SOUNDS

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A proper natural medicine/monastic examination is vastly superior to the routine skip over of regular medics, apparently only searching for lab papers and prescription pads. We do actually inspect urine, blood, and auscultate. We do inspect the spiritual countenance of our patients and search how we can foster compliance for a better life style and respect for our Lord.

A natural medicine examination should never skip over two essential elements in organ function:

1. A proper urinalysis; and
2. A proper examination of the heart.

Failure of either organ is life threatening. And how often do traditional naturopaths really perform or even understand these necessary examinations?

How could one possibly know the state of the kidneys without a visual and chemical inspection of the urine? Equally, how could one possibly know the state of the heart without auscultation and a basic EKG?

In this article we will deal with some elements of heart sounds. Like performing EKG's, the only way to really learn heart sounds is by practice, practice, and practice. One listens to live hearts and compares the sounds to known pre-recordings as a sound and sure method to learn the various sounds of the heart and its valves. Practice brings new knowledge with every patient and a chance to improve our skills in diagnosis and treatment.

We have today a new and inexpensive tool to listen to heart sounds. Previously, amplified stethoscopes were in excess of $500, and really not too good at amplifying the sounds. But as technology has progressed, they now can be obtained for less than $100 and amplify heart sounds really well.

Even better, you can hook up a cable to external speakers and amplify the sounds so your patient can hear them also!

For those attending our spring Naturopathic Crash Course, March 23-27 2010, we'll spend some time going over cardiac examination.

HEART LISTENER PACKAGE JUST $125

Physiology of Murmurs

Heart murmurs are the common abnormalities found in heart sounds and fortunately innocent murmurs the most common. Before trying to decipher what may be the underlying cause of a murmur, it is important to first understand what the normal heart sounds are, and what normal variations of these sounds may occur. It is assumed that you already understand the anatomy of the heart, and have read our TROUBLES OF THE HEART document which describes the standard methods for auscultation.

The most obvious of the heart sounds are the first and second sounds, or S1 and S2, which demarcate systole from diastole. The heart sound playing at this link of our school site is a normal sinus rhythm, with a sharp S1 and S2 and no other significant sounds. S1 is the sound which marks the approximate beginning of systole, and is created when the increase in intraventricular pressure during contraction exceeds the pressure within the atria, causing a sudden closing of the tricuspid and mitral, or AV valves. The ventricles continue to contract throughout systole, forcing blood through the aortic and pulmonary, or semilunar valves. At the end of systole, the ventricles begin to relax, the pressures within the heart become less than that in the aorta and pulmonary artery, and a brief back flow of blood causes the semilunar valves to snap shut, producing S2.

Although S1 and S2 are considered to be discrete sounds, you will notice that each is created by the near-instantaneous closing of two separate valves. For the most part, it is enough to consider that these sounds are single and instantaneous. However, it is worth remembering the actual order of the closures, because certain conditions can split these sounds into the separate valve components. During S1, the closing of the mitral valve slightly precedes the closing of the tricuspid valve, while in S2, the aortic valve closes just before the pulmonary valve. Rather than memorize this order, if you remember that the pressure during systole in the left ventricle is much greater than in the right, you can predict that the mitral valve closes before the tricuspid in S1. Similarly, because the pressure at the start of diastole in the aorta is much higher than in the pulmonary artery, the aortic valve closes first in S2. Knowing the order of valve closure makes understanding the different reasons for splitting of heart sounds easier.

When listening to a patient's heart, the cadence of the beat will usually distinguish S1 from S2. Because diastole takes about twice as long as systole, there is a longer pause between S2 and S1 than there is between S1 and S2. However, rapid heart rates can shorten diastole to the point where it is difficult to discern

which is S1 and which is S2. For this reason, it is important to always palpate the PMI or the carotid or radial pulse when auscultating. The heart sound you hear when you first feel the pulse is S1, and when the pulse disappears is S2.

When a valve is stenotic or damaged, the abnormal turbulent flow of blood produces a murmur which can be heard during the normally quiet times of systole or diastole. This murmur may not be audible over all areas of the chest, and it is important to first note where it is heard best and where it radiates to. Next, you should try to discern if the murmur occurs in systole or diastole by timing it against S1 and S2. Then, listen carefully to tell if the murmur completely fills that phase of the cycle or if it has discrete start and end points. Regurgitant murmurs, like mitral valve insufficiency, tend to fill the entire phase, while ejection murmurs, like aortic stenosis, usually have notable start and end points within that phase. The quality and shape of the murmur is then noted. Common descriptive terms include rumbling, blowing, machinery, scratchy, harsh, or musical. You can hear a musical murmur here on this link.

Finally, it is important to decide if this murmur is clinically significant or not. Just as a murmur can be caused by normal flow through a stenotic valve, it may also be created by high flow through a normal valve. Pregnancy is a common high-volume state where these physiologic flow murmurs are often heard. Anemia and thyrotoxicosis can cause high-flow situations where the murmur is not pathologic itself, but indicates an underlying disease process. Children also frequently have innocent murmurs which are not due to underlying structural abnormalities. How can a physician determine if a murmur is significant?

The most important thing to consider is the clinical scenario. In a population of unreferred young adults, the prevalence of systolic murmurs ranges from 5% to 52%, with 86% to 100% of these patients having normal echocardiograms. Important questions to ask would include the presence of symptoms such as effort syncope, chest pain, palpitations, shortness of breath, or paroxysmal nocturnal dyspnea.

In our course, we will also examine arrhythmias, the second important feature of examination of the heart. To the embarrassment of some cardiologists, I have “fixed” numerous cardiac arrhythmias with magnesium supplementation and the use of such herbs as acorus calamus. It has been a long haul, most of what you read about in using herbs for the heart clinically do not pan out, but for sure the EKG does not lie!

Hopefully, you will not have the day, when the infamous gallop rhythm meets your chambers.

You can listen to a sample lecture here of cardiac basics.

Happy salutations and auscultations

The Monastic Naturopath on Nevis

HEART LISTENER PACKAGE JUST $125

INCLUDED IN THE PACKAGE

STETHOSCOPIC HEART RECORD by George D. Geckeler, M.D.

Stethoscopic Heart Records (revised) George D. Geckeler, M.D., Columbia Masterworks Set M-735. Very rare and very old!	

In 1939, Hahnemann cardiologist George Geckeler was one of the first to record human heart sounds, which he used with his specially developed "stethophones" for group teaching.

This record is a comprehensive study of Heart Sounds, Murmurs and Arrhythmias. It is obvious that for teachers and students it has definite value, but it was developed primarily for the doctor who has been practicing for some years. It includes almost all types of auscultatory findings; in this respect it may be used as a reference work. The Arrhythmias, particularly the illustration of doubled and tripled prematures, were checked electrocardiographically.

The method of arrangement was carefully considered. Instead of building up case records with illustrations, it was considered wise to present and describe specific types of abnormalities, frequently using a normal for comparison.

The unique feature of this record is that it was produced so that it might be listened to with a stethoscope. It is suggested that one sit comfortably in his chair, hold the chest piece of the stethoscope in his hand and with the ear pieces in place, start the record, close his eyes, and listen. The loudness is then adjusted so that the spoken voice is just heard distinctly; this results in a normal level of intensity for the sounds and murmurs of the illustrations. The advantages of using a stethoscope are obvious: the doctor is in a normal frame of mind for listening to a heart, extraneous room noises are elimi- nated, many high frequencies are ruled out and the sounds seem to be concentrated on the chest piece.