



CPR for Veterinary Technicians

DRIP 2

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HOW DO YOU KNOW IF THE PET IS ALIVE?

- Visual Inspection
 - Do not confuse agonal/gasping with normal breathing
- Palpation of pulses
 - Femoral, dorsal pedal, chest
- Auscultation of heart
 - Most time-consuming way to detect life
- Palpebral Reflex



Now, this is going to sound crazy, but this is very important. How do we know if the pet is alive? Well, there's several ways we can check. One is a visual inspection. We can just look, you know?

A lot of times, animals that look dead, they're probably dead. However, don't confuse agonal or gasping with normal breathing. And I'll show you some videos. We're going to get into a lot of videos so that you guys can identify what is agonal or gasping. That is not actually respiratory that's normal.

Palpation, of course, pulses-- so you could check pulses. I see a lot of people do that, certainly the femoral, the dorsal pedal. You can put your hand on the heart as well. I know it's not a pulse. But I clarified.

You can put your hand on the heart and see whether or not you can feel the heart beating. The reality is there are plenty of times where I have patients that come in that I can't palpate a pulse. They're still alive. They're not dead. They're just really bad.

So we definitely want to make sure that even though we don't feel pulses, there has to be probably another way. You can do auscultation of the heart. This is probably the most time consuming way to detect life. And so one, if you're lucky, you have your stethoscope around your neck. Otherwise, you're running through your hospital trying to find a stethoscope.

And then typically what happens is the animal comes in. And someone goes, I don't know if he's alive. And even if you have it around your neck, it goes something like this. You put the stethoscope in your ear. And no, I don't hear anything.

We should get started with CPR. That was so many seconds wasted. And remember, there's a much better success rate if we get to the animal in the first 10 minutes. Another way that I do, which is super fast, is palpebral reflex because I have found short of the animal being in a coma with zero pulse, most of the time, they're going to give me a little bit of a blink. It might be a slow blink.

But they're going to blink to let me know, I'm still on this planet. If I can touch my finger to their cornea and I can actually touch their cornea, they're probably not here.

What happens if I perform chest compressions in an alive animal?

< 2% significant complications if CPR is done

regardless dead or alive

Most Common in ANY CPR:

- * Rib fractures
- * Muscle damage



So what happens? What happens if you perform chest compressions on an alive animal? Nothing-- nothing, really, honestly.

Just do chest compressions. I think this is the biggest fear that we are going to do chest compressions on an alive animal. And we are going to cause them to arrest. That is not true. There is less than 2% of significant complications of CPR is done regardless of dead or alive.

Most common complication for any CPR is rib fractures, 100%, and then muscle damage. Side note-- if you ever have to do CPR on a bunny rabbit, you should be prepared for just breaking the ribs. Unfortunately, in my personal experience, bunny rabbits and CPR efforts, you will break ribs, even though you're not intending to. Even though you feel like you're going nice and gentle, they just seem to have very breakable ribs. So prepare yourself for that aspect of it.

It's not-- [GROANING]. So that's just my own personal experience. But I've never actually broken any other animal's ribs, other than a bunny rabbit's, unfortunately. Muscle [INAUDIBLE] damage, for sure-- people who are post CPR who wake up from CPR and live say they're super sore. They are very sore.

It feels like someone pounded on their chest, which is exactly what our veterinary patients experience as well. So they've tried to actually recreate in pigs actually doing full on chest compressions on an alive pig to see whether or not they could get that pig to actually arrest-- answer, not once. And in fact, there's plenty of people that have been alive that actually know that people are doing CPR on them.

And they cannot audibly say, please, I'm alive. Can you stop? That hurts. And you know what-- not one recorded human being death because people did full blown chest compressions on a person. So when in doubt, if the animal looks dead, we start doing chest compressions.

So hopefully, that has alleviated all your fears.

Compressions First!

- Perform if in full cardiopulmonary arrest or cardiac arrest
- Technique is key!
- Good compressions only produce 30% of normal stroke volume



We are going to focus on chest compressions first. This is really key. If we know that the animal has a history of choking, sure, you can look down there. But my experience, choking in animals is very, very rare.

And I would rather really focus on chest compressions first. And this is really what the American Heart Association started to go to a while ago. So back in, I think, 2002, the Japanese did a study. And basically, they challenged the ABCs, the airway, breathing, and circulation, to start really with circulation first. The theory was if your heart is your most important organ that drives absolutely everything else in your body, then why are we spending precious seconds, if not a minute, to, oh, let's see what the airway is doing?

Oh, check the breathing. OK, give two breaths. [BLOWING AIR] And now we go ahead and we start chest compressions. So the Japanese actually went ahead and started with chest compressions first. And they found out that they got a 20% better success rate by starting and focusing on chest compressions first.

Fast forward to 2008, American Heart Association actually challenged that and did a few more studies where it was chest compression only CPR.

And to date, American Heart Association recommends that if you are an untrained responder, you do not need to worry about breathing. You just need to worry about chest compressions. The whole reason I tell you this story is because we really truly need to focus on chest compressions because most of the time during CPR, we're terrible at it. That is just the reality of what happens in CPR.

And so good compressions only produce 30% of normal stroke volume. Oh, OK, so remember we can control heart rate. But we can't control the volume coming out of the heart. So even if you're awesome at CPR, you're only going to produce 30% of the normal volume coming out of the heart, which means you better really be good at it because anything less than 30%, we're now at 20%. We're now at 10%.

We're not doing a very good job. So technique is really key. And I want you guys to focus on chest compressions. We're going to talk about ventilation. We're going to talk about drugs and defibrillation.

But the focus of this, and I cannot stress this enough, chest compressions. So here's an interesting thing. Why does chest compression only CPR-- why is it even effective, right? Well, because your lungs are sponges. So I want you to think about your own household sponge.

When you squish the sponge and you let up, does it stay flat? No, it does not. It will resume its normal shape and size. And that's really what your lungs are too. Your lungs are actually in a packaged area that has pressure.

And if you squish your lungs down, do they stay flat? No they're sponges, essentially. So when you squish a actual lung that's sitting within pressure and you squish it down and you let it up, it's going to go down. [BREATHING HEAVILY] So whether you want to do it or not, you're going to help ventilate this person or this animal simply by doing chest compressions because you're going to squeeze down, squish the lungs.

When you let up on the chest, there's going to be some pressure that's going to pull air in and push air out. It is not the best ventilation technique. So we are going to talk about how in a perfect world, you are going to ventilate your patient. But again, let me go back to the fact that chest compressions are the most important thing in CPR efforts.

When we get to drugs and defibrillation, there's really only one drug you're going to have to worry about. Yeah, that's it. That's only one drug. And so really, chest compression-- I can't stress that enough.

Good Technique

- Do not lean in
 - Decreases recoil of chest
- Elevate Body
- Lock elbows and hands
- Use shoulders, not arms
 - Position shoulders above hands
- Compress for no more than 2 minutes
 - Takes 1 min for aortic BP to reach steady state
 - Be ready to switch off so compressions are continuous



All right, so the whole focus is making sure that we produce good technique.

We don't want to lean in. We don't want to lean over the body so that we don't get good recoil. So recoil is allowing the body, the chest cavity, come all the way up and come all the way down. You want to elevate your body.

I'm a relatively tall individual. And even I have to step on a stool. Or I have to get on top of a table. You want to lock your elbows in your hand. So you're going to lock them like this.

Usually, I grab my fingers around my other fingers. And I'm going to use the hardest part of my hand, which happens to be the base of my palm. I'm probably not going to use this because this tends to spring backward. I'm going to use this nice really solid hard part of my hand. So that's what my hands typically look like.

Some people will just lace them like this. But you're going to use the hard part of your hand. You want to use your shoulders, not your arms. And I'll show you some videos. Position your shoulders above your hands, so it should be in a straight line like you see here.

You don't want them down here. And you don't want them up here. And you want to compress for no more than two minutes, and that's if you can physically do 10 minutes. The reality is if you're doing a Great Dane, listen, I feel like I'm in physically good shape.

But I got to tell you, doing Great Dane CPR, I'm tired after 30 seconds. It's exhausting. You have 150, 200 pound Great Dane, it is exhausting doing CPR on a Great Dane. So if you can do it for two minutes, great.

But if you start feeling yourself getting tired, you know you're not getting good 30% stroke volume, which means you're failing, which means you're not doing good technique. And CPR is the best thing we need to focus on as chest compressions. It does take a full minute for the aortic blood pressure to reach a steady state. So you got to be ready to switch off so that the compressions are continuous.