

WEBVTT

00:00:04.212 --> 00:00:05.672 Oxygen means life.

00:00:07.507 --> 00:00:11.594 It's true for every cell in our body, every organism in the world.

00:00:11.678 --> 00:00:14.097 You need oxygen for many processes

00:00:14.097 --> 00:00:16.766 that drive life and health of the cells.

00:00:17.976 --> 00:00:21.187 If you interrupt that flow, that tissue or cells to start dying.

00:00:22.272 --> 00:00:26.776 The body has an amazing ability to heal itself wherever there is injury.

00:00:26.776 --> 00:00:31.906 Oxygen has been shown to increase the working of many cells in the body,

00:00:32.115 --> 00:00:35.827 including cells that make new blood vessels, cells that make collagen

00:00:35.994 --> 00:00:38.163 and cells that regenerate bone.

00:00:38.163 --> 00:00:42.751 Hyperbaric oxygen means that it is 100% oxygen under pressure.

00:00:44.210 --> 00:00:47.505 There are certain conditions that are emergency conditions

00:00:47.505 --> 00:00:50.467 which are life and death that hyperbaric oxygen can treat.

00:00:50.675 --> 00:00:51.676 It can also treat

00:00:51.676 --> 00:00:56.264 some very significant infections in the body or when there is trauma,

00:00:56.306 --> 00:00:59.726 very commonly used for people with diabetic ulcers.

00:00:59.768 --> 00:01:04.230 It also is used to treat wounds and other injuries to tissues where there

00:01:04.272 --> 00:01:07.358 is scarring or death of tissue like from radiation.

00:01:07.358 --> 00:01:11.821 So it restores the continuity of tissues, it restores the circulation

00:01:11.905 --> 00:01:16.993 and it is basically a very good regenerative medicine tool.

00:01:25.418 --> 00:01:28.213 - Avascular necrosis is a condition

00:01:28.213 --> 00:01:33.885 where the blood supply to the bone has been injured or dies.

00:01:33.968 --> 00:01:37.764 If the blood vessels have been damaged, then the cells in the bone die

00:01:37.972 --> 00:01:42.894 and then the bone unfortunately starts to collapse and fall apart.

00:01:42.936 --> 00:01:46.981 STEM cells are very beneficial to avascular necrosis

00:01:46.981 --> 00:01:50.860 because they can help repair the damaged blood supply

00:01:50.860 --> 00:01:52.529 and the dead bone.

00:01:53.321 --> 00:01:56.282 At Yale, we harvest the stem cells

00:01:56.282 --> 00:01:59.661 from the patient's bone marrow in their pelvis.

00:01:59.744 --> 00:02:04.749 So we take some of that bone marrow, and during the surgery we process it

00:02:04.749 --> 00:02:10.338 in a centrifuge and we're able to isolate and concentrate down the stem cells.

00:02:10.421 --> 00:02:14.759 - We now know that hyperbaric oxygen stimulates stem cells.

00:02:15.760 --> 00:02:18.138 - By combining the hyperbaric

00:02:18.138 --> 00:02:21.474 oxygen treatment with the surgery.

00:02:21.683 --> 00:02:26.396 We're giving the body the best chance to regrow those blood vessels.

00:02:26.396 --> 00:02:30.733 You can think of it as an extra boost or as an extra push.

00:02:30.817 --> 00:02:36.114 We're giving it just a little bit more of a chance to repair itself.

00:02:39.909 --> 00:02:42.078 - Each Treatment is two hours

00:02:42.078 --> 00:02:44.539 inside the chamber, five days a week.

00:02:44.622 --> 00:02:47.584 We do ten before the surgery and 20 after.

00:02:47.584 --> 00:02:49.127 So it takes about six weeks.

00:02:51.045 --> 00:02:55.091 The first thing is we do like a office consultation.

00:02:55.175 --> 00:02:58.386 We explain what hyperbaric is just like I'm doing now.

00:02:58.386 --> 00:02:59.888 We answered questions.

00:02:59.888 --> 00:03:02.056 We discussed risks and benefits.

00:03:02.056 --> 00:03:06.519 We reassure the patient that it is really a very safe treatment.

00:03:07.770 --> 00:03:10.815 - The program allows us to coordinate

00:03:10.857 --> 00:03:14.068 a complex set of treatments and therapies.

00:03:14.152 --> 00:03:16.279 We work with all the specialists,

00:03:16.279 --> 00:03:20.909 such as the pulmonologist, rheumatologist, hematologists,

00:03:20.992 --> 00:03:25.330 who treat a lot of these patients who have avascular necrosis.

00:03:26.289 --> 00:03:28.374 - Being a department which combines

00:03:28.374 --> 00:03:32.545 orthopedic and rehabilitation is is unique in and of itself,

00:03:32.545 --> 00:03:36.174 and the addition of stem cells is also very unique.

00:03:36.216 --> 00:03:38.176 And then the patient gets hyperbaric

00:03:38.176 --> 00:03:41.971 oxygen treatment, which is also part of our own department.

00:03:42.055 --> 00:03:45.516 If they need other things to make them function better.

00:03:45.558 --> 00:03:47.393 It's not just treating the joint.

00:03:47.393 --> 00:03:49.187 We have to treat the person.

00:03:49.187 --> 00:03:51.648 We really focus on the function and the whole patient.