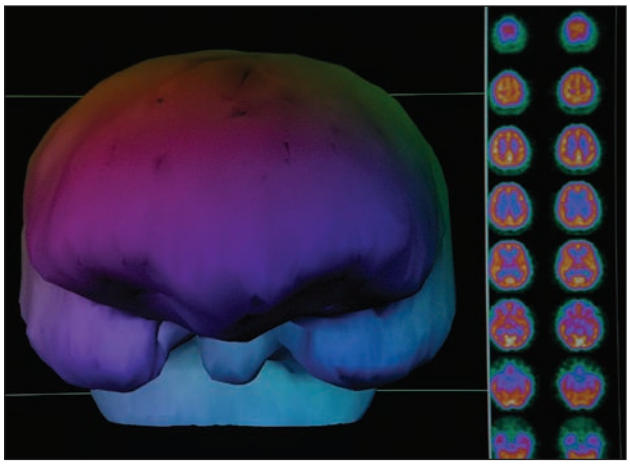

FIGURE 1. Here is an example of a "normal" scan for a 26-year-old woman. On the right-hand side of the figure, you see SPECT scan slices. The slices are the "transverse" orientation where the computer slices from the top to the base of the brain, with the patient's right side on the left side of the image and the front of the face at the top of the slice. The slices proceed from the top of the brain in the top right corner of the picture to the base of the brain in the bottom right corner.

In a "normal" brain, the slices are smooth with very little alternation of colors. In other words, you see the same color (yellow-orange) for most of the scan with very little alternation to purple or blue in the outer ribbon of the brain (the cortex). The color map proceeds from highest brain blood flow to lowest in the following order: yellow, orange, purple, blue, and black.

The computer takes the outermost perimeter of each slice and reconstructs it into the three-dimensional color image you see on the left-hand side of the figure. The colors are purely artistic. The image is the "face" look of the patient's brain where the patient is looking directly at you. The large broad area in the front is the area of both frontal lobes and is situated directly behind the forehead. The two protuberances on the lower right and left are the temporal lobes. The surface should appear smooth and all of the lobes should be well-formed.

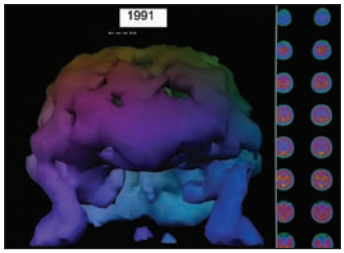

FIGURE 2A. Here is the 3-D SPECT scan of Dan Greathouse, the 34-year-old male diver with brain decompression illness four months after his diving accident and three months after three ineffective HBOTs. Note the multiple holes on the 3-D and the spotty irregular color pattern on the slices. The vertical "posts" on the 3-D at the front and base of each side of the brain are artifacts due to blood flow in the great vessels of the neck and are not part of the brain.

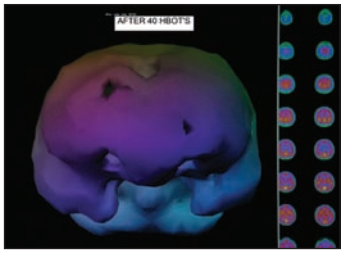

FIGURE 2B. 3-D SPECT scan after the 43rd HBOT (40th HBOT in the new series of delayed HBOT's). You can see that some of the holes on the 3-D scan have been filled in.

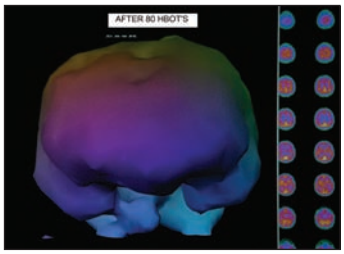

FIGURE 2C. 3-D SPECT scan after the 84rd HBOT (80th HBOT in the new series of delayed HBOT's). Note the smoothness of the 3-D scan, indicating improvement.

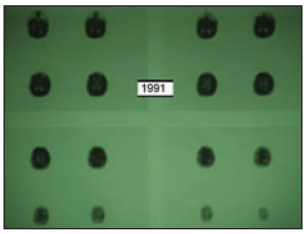

FIGURE 3A. Here are transverse images of Chad's first SPECT scan two days after severe traumatic brain injury. The images are somewhat fuzzy due to multiple reproductions, but they were obtained on a low resolution scanner and were read as "normal" by the radiologist. Note the apparent lack of any defects despite the fact that Chad is comatose on a ventilator. The four images in the lower right hand corner have a hint that something is wrong, but they are not definitive. Compare this to the next scan, Figure 4b, which was taken one month later. The higher resolution scanner shows the significant injury to the brain, especially on the left front.

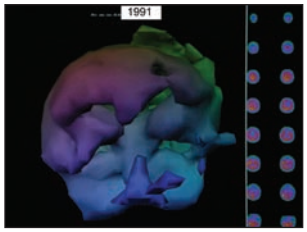

FIGURE 3B. 3-D surface reconstruction of Chad's SPECT scan on high resolution scanner at West Jefferson Medical Center one month after severe traumatic brain injury. At this point, Chad had had HBOT once or twice a day since the day of his injury and is off the ventilator and doing much better clinically. Despite this, note the marked reductions in flow to the entire left side of the brain (the viewer's right side). This reduction in flow is seen on each image in rows 4, 5, and 7 on the right side of the picture. The scan is tipped up slightly to give a better view of the underside of the brain. This same view is present on the subsequent two scans.

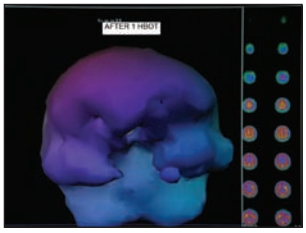

FIGURE 3C. 3-D surface reconstruction of Chad's SPECT scan on the same high resolution scanner 9 days and 5 HBOTs after the scan in Figure 4b. Note the improvement in blood flow to the entire left side of the brain. This was my proof that HBOT could further improve Chad and his brain injury.

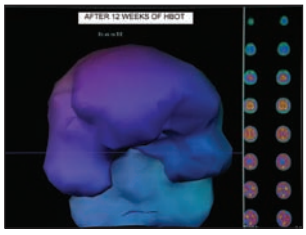

FIGURE 3D. 3-D surface reconstruction of Chad's SPECT scan 11 weeks and 108 HBOTs after his brain injury. He is now walking and talking. Note the further improvement in brain blood flow consistent with his improved clinical condition. However, he has now developed contre-coup defects (injury opposite the original area of impact; this is a well-known phenomenon in brain injury). These defects are apparent on the viewer's left side of each image on rows 6, 7, and 8.

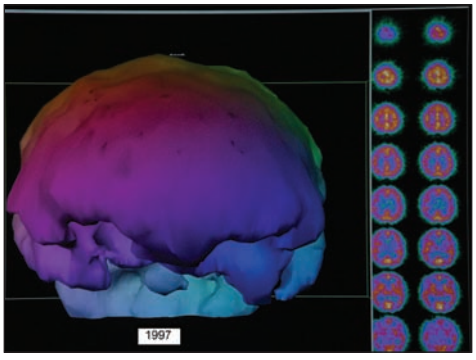

FIGURE 4A. Here's the 3-D SPECT scan before HBOT and 2 years after exposure to nitrogen tetroxide in the middle-aged first responder referred to on page XX. Notice the irregularity (alternating colors of the cortex) of the scan slices on the right. Similarly, the 3-D shows multiple areas of significantly decreased blood flow (holes) throughout the brain.

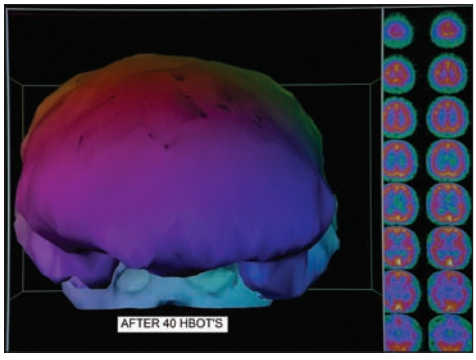

FIGURE 4B. 3-D SPECT scan performed after 40 HBOT's and three months after Figure 3a. Notice the smoother appearance of the slices on the right and the 3-D image.

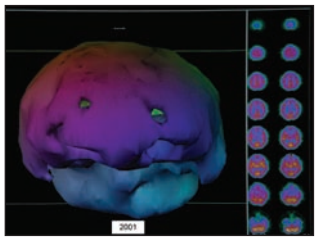

FIGURE 5A. Here is the 3-D SPECT scan of Dr. William Duncan's brother before HBOT and 46 years after traumatic brain injury. Note the irregularity and presence of holes.

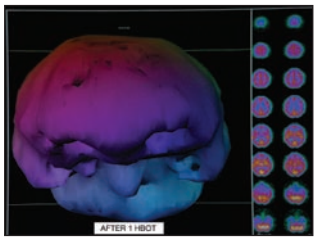

FIGURE 5B. 3-D SPECT scan after one HBOT.

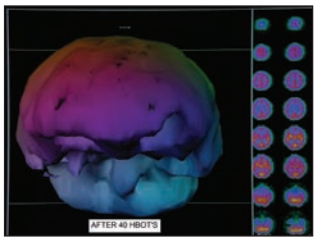

FIGURE 5C. 3-D SPECT scan after 40 HBOTs.

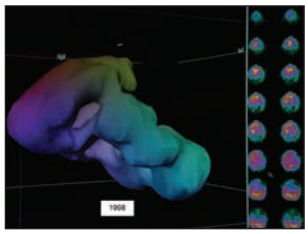

FIGURE 6A. 3-D left frontal view of SPECT scan before HBOT of a four-year-old boy with severe birth injury. Notice the irregularity of the slices to the right and the absence of blood flow to the entire back half of the brain on the 3-D.

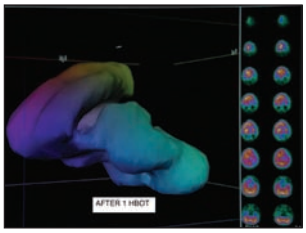

FIGURE 6B. 3-D left frontal view of SPECT scan after one HBOT. Notice the smoother appearance of the slices and generally increased size of the areas of blood flow on the 3-D.

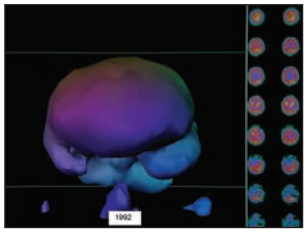

FIGURE 7A. 3-D of elderly man before HBOT and over two years after multiple small strokes. Note the irregularity of the slices, coarseness of the 3-D, and marked decrease in the size of the right temporal lobe.

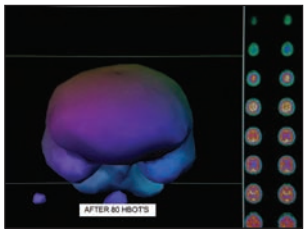

FIGURE 7B. 3-D after 80 HBOT's. Note the smoother appearance of the slices, surface of the 3-D, and symmetry of the temporal lobes.

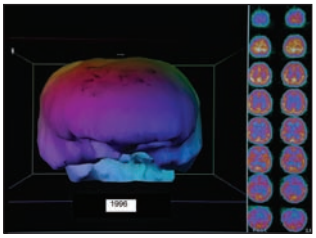

FIGURE 8A. 3-D of five year old autistic boy before HBOT. Note the irregularity of the slices as well as holes in the frontal, temporal, and cerebellar lobes. The cerebellar lobes are the white band at the bottom of the 3-D.

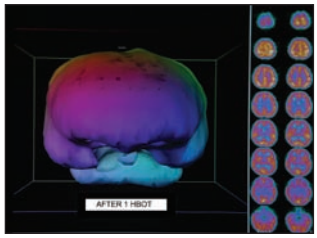

FIGURE 8B. 3-D after one HBOT. Note the generalized improvement of the slices and 3-D.

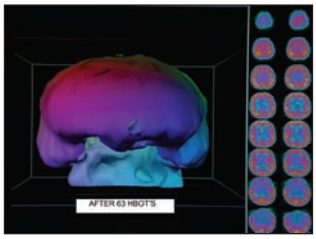

FIGURE 8C. 3-D after 63 HBOT's. Note the smoother appearance of the slices and generalized improvement of the 3-D compared to Figure 8a.

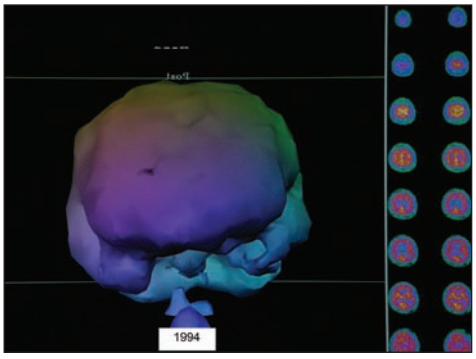

FIGURE 9A. 3-D of middle-aged man with multiple sclerosis before HBOT. Note the irregularity of the slices and the multiple holes on 3-D, especially on the left side of the brain and left temporal lobe.

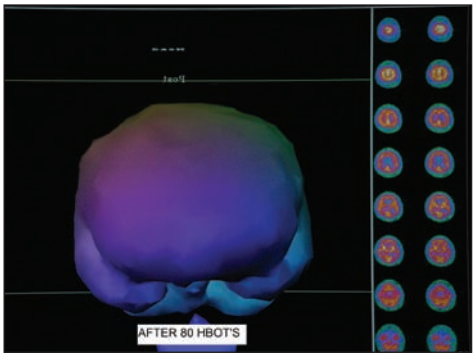

FIGURE 9B. 3-D after 80 HBOT"s. Note the smoother appearance of the slices and overall improvement of the 3-D.

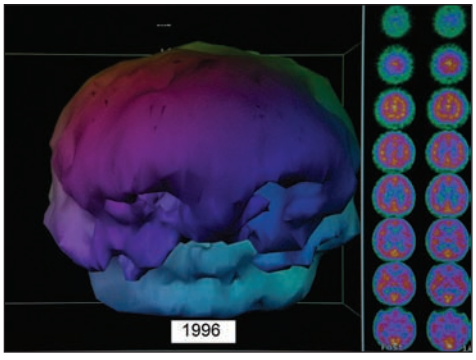

FIGURE 10A. 3-D SPECT scan before HBOT of a 19-year-old man after heavy drug abuse. You can see multiple holes on the 3-D and diffuse patchy blood flow on the slices.

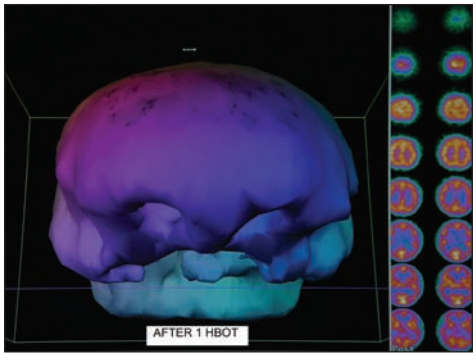

FIGURE 10B. 3-D SPECT scan after one HBOT. Note generalized improvement.