

## **NOBENDEM QUIZ 4**

Updated for the Oct 98 Nobendem Release

The hits are coming in fast and furious now - you're on line with an ER doc who is evaluating a patient who is complaining of blurring of his vision, tingling in the fingers of both hands, pain in the right forearm, and an achy right elbow, for the past 10 hours. The day before, he had made two dives - the first to 64 FSW for 27 min with a 'safety stop' at 15 FSW for 3 min. The second was 83 minutes later to 65 FSW for 23 min, again with a safety stop at 15 FSW for 3 min. Since both these dives were "No-Deco", the ER doc is convinced this CAN'T be DCS and he wants to admit the patient for a full neurological workup to rule out aseptic meningitis.

What are your recommendations??

Hey! This is a Nobendem Quiz! Of course it's DCS!! But How, you ask?!? Incredulously! Looking at the USN tables using the 70 for 30 table gives us a no-deco with a repet of "F". After 1:23 SI our repet is "E" with a 26 min RNT at 70 FSW. That gives us a second dive of 70 FSW for  $(23+26 = 49)$  50 min which is the no-deco limit with a repet of "J".

Running this through the Nobendem spreadsheet (safety enhancement of 0 - not recommended), using the exact dive as specified with 1 minute descent times, and standard 30 FPM ascent rates also predicts a clean no-deco dive series using the multiple dive section (multi-1 and -2). So Whiskey Tango Foxtrot, Over??

Oh yeah!! The ER doc forgot to mention that this fella was diving in the Montana “foothills” at an altitude of 4800 feet! Navy tables won’t help you here - so you reach into your back pocket and pull out your Buhlmann tables for diving at altitude - umm no got ‘em? - so you reach into your pocket and pull out your Cross Correction algorithm (I never could remember that one either) - so you quickly go back to your Nobendem spreadsheet and discover that nominal barometric pressure at that altitude is 635 torr! Inserting that level into the spreadsheet still predicts clean, no-deco dives using a safety enhancement of 0, but being the consummate hyperbaricist you remember that the US Navy tables permit a no-deco hit rate of 2.5% as acceptable! You also notice that after dive #2, his residual nitrogen load is 11719 mm-min which seems high for a no-deco series, and the buffer value in the 40 min tissue compartment, though positive, is only 1.63.

Cranking in the recommended Nobendem safety enhancement of 20 predicts the first dive is indeed a clean one, with no-deco required. However, the second dive becomes quite problematic, with the 20 and 40 minute compartments in the red at 3.80 and 4.07 respectively. So, how long should this diver have remained at his 15 foot stop to complete his dive safely using a SE of 20?? Oh yeah - - is this the most efficient ascent profile, and why or why not??

At 15 FSW, SE=20, Nobendem recommends a 23 min stop prior to ascending to the surface. If you ascend at the recommended 30 fpm, you can drop that to 22 min, and still emerge “in the black”. If, however, you make your initial ascent to 5 FSW (permitted under the parameters of this dive without going into the red), you need only spend 14 min decompressing before surfacing - a savings of 8 minutes! This makes sense, because the shallower you are, the larger the pressure differential helping to off-gas your absorbed nitrogen load! And while this theoretical discussion was nice, and helped to justify your decision (which you made correctly immediately after hearing the patient had a credible exposure, and classic symptoms of neurological DCS), you were gratified to learn that the patient responded very well to a TT-6, with no extensions needed, and no recurrence!