

05 March 2002

Working a modified TT6 for my IO - - noticed that the final buffer values seemed out of whack. I found a reference pointer in the long dive part 'B' that was off by one cell - - fixed that.

19 August 2000 Nobendem Update

Visited Kadena (yes - - it's now pronounced "Kah Den Ah" - not "Kah Dean Ah") AB Japan earlier this month. They noticed that the "Long Dive" table didn't work right after running the "Reset Long Dive" macro. Well FOOEY!! I've corrected the error in the macro, and the reset should work properly now.

Still working on the Schreiner equation - - stay tuned!

Zwart

12 May 2000 Nobendem Update:

Don't know why I originally did it that way, but my initial recommended descent time was to an absolute depth of seawater rather than the gauge pressure depth! This was noted by the folks at Peterson AFB (6200 ft altitude) who are developing their own Nobendem Oxygen Deco tables for use during Proficiency dives. The recommended descent time to 120 FSW was 4.2 min instead of the expected 4.0 minutes (30 FPM). This version of Nobendem gives the recommended initial descent time based on the gauge pressure difference!

Commander Moore Jan, a Navy physician with us for 3 months here at Brooks, located the exact solution for tissue compartment nitrogen absorption/release during a linear descent/ascent. This equation was developed back in the '60's by a fellow named Schreiner, and is named, as you might expect, the Schreiner Equation! Sometime real soon now, I intend to investigate the Schreiner Equation, and will analyze the differences between my Nobendem solution, and the true exact solution. I may then decide to incorporate this into the Nobendem model. Stay Tuned!

21 March 2000 Nobendem Update:

Added a minor tweak to keep the functionality of the repet group designator working at altitude. I had to account for the lower equilibrium value of nitrogen saturation at altitude due to the lower barometric pressure. I think that's been done, and it should work - as well as the repet groups were intended to work. Again, I'd recommend using the Multi-dive section of Nobendem if you have the opportunity! Zwart

26 January 2000 Nobendem update:

This version of Nobendem is computationally identical to prior versions, however I have included a Repetitive Group calculation at the end of each dive! This value is compatible with USN Table 7-4, and can be used to determine a Residual Nitrogen Time for any subsequent dive.

In fact, I have been greatly puzzled by the USN Repet Group Designator! I went back to my documentation on the matter - - the authoritative NEDU Report #13-83 (1983 - Repetitive Group Calculations) by Drs Thalmann and Butler - - to figure out what they'd done. Aside from the fact that they looked at the surfacing nitrogen tissue tensions in the 120 min compartment, I was unable to correlate the values they chose with any of the actual surfacing tissue tensions that would exist in the 120 minute compartment after a dive. The tissue compartment nitrogen levels they chose for the various repet groups were much higher than any that would exist for a corresponding dive on air. Throughout the document (13-83) they referred to

readme.txt

"assuming all the inspired gas was inert for ease of computation." The nearest I could make of that was that they assumed exposure to 100% nitrogen and calculated the residual nitrogen levels that would exist following a particular dive profile.

So - - OK - - being an engineer (in a previous life), I simply reverse engineered their No-Deco Table 7-3 to determine the correlation between a given dive profile, and the actual surfacing nitrogen tissue tensions for the 120 minute compartment. Actually, the numbers were quite linear, and so I constructed a mapping function between the predicted nitrogen level and the letter Repet Group Designator. This letter is then displayed at the bottom of each Nobendem dive profile calculation.

Of course, you'd be much better off using Nobendem to calculate a Repetitive Dive - - but for those of you who like links to the old-fashioned way of doing things, you now have the Repet Group Designation available at the end of a dive! That can be used in the standard fashion, given a Surface Interval and the intended depth of the next dive, to calculate an RNT!

Benton P. Zwart, MD, MPH
COL, USAF, MC, CFS
Chief, Clinical Hyperbaric Medicine
Davis Hyperbaric Laboratory
Brooks AFB, TX