

TRITIATED PLASMA SAMPLES

PRIVACY ACT MATERIAL REMOVED

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HCLC POS.	SAMPLE	VOL	VOL. INT STD.	S _{cpm}	T _{cpm}	T _{corr}	T-S	S-b	S-b _{corr}	T-S S-b _{corr}	TBW(l)
0	NC H ₂ O STD.			23,021							
1		1.0ml	0.1966	2614	10,048	10,671	8057	2577	2613	3.0834	38.92
2		2.0		4411	9,832	10,343	5932	4374	4435	1.3375	33.77
3		1.0		3285	10,634	10,293	8008	3248	3293	2.4318	30.70
4		2.0		4659	10,101	10,626	5967	4622	4687	1.2731	32.14
5		1.0		3788	11,460	12,171	8383	3751	3804	2.2037	27.82
6		2.0		3535	9,078	9,550	6015	3498	3547	1.6958	42.81
7	H ₂ O BLK	2.0		37							

NAME	BODY WEIGHT	TBW(Kg)	%TBW	$1 - \left(\frac{\%TBW}{0.72} \right) = \text{aprox. \% Fat}$
	65.91	33.41	50.69	31
	67.27	33.26	49.44	32
	60.00	30.24	50.40	31
	60.91	31.66	51.98	29
	52.27	27.40	52.42	28
	72.73	42.17	57.98	21

S = sample
T = sample + Internal Std.
b = background
TBW = Total Body Water

$S-b_{corr} = S-b(1.014)$, To correct for 4-6 hr.

$$TBW(\text{liters}) = \frac{(\text{H}_2\text{O dilution}) (\text{Sample Vol}) (\text{Vol. H}_2\text{O given})}{\text{Vol. Int. Std.}} \left(\frac{T-S}{S-b} \right)$$

$$TBW(\text{Kg}) = TBW(\text{l}) \times 0.985$$

Calibrations:

1ml pipette = 0.9927 ml
Int. Std. Auto rept. = 0.1966 ml
Int Std dilution = 1:2500

Here is the procedure on the use of tritiated water for measuring total body water.

1. We will provide the HTO. ~~Let us know by return mail if we should send it to you and ~~where~~, or if you will pick it up when you pass through San Francisco.~~ (Mailed Feb. 1 '66 to Hawaii.)

2. Give by mouth 1 cc of HTO. Transfer from stock bottle to a glass, cup, or beaker exactly 1.00 cc HTO with a tuberculin syringe (or 1 cc pipette). Add 50-100 cc water and have subject drink entire contents. Add another 50-100 cc water to the vessel and again have subject drink entire contents.

3. Tritium dilution can be determined in either plasma or urine (or both).

If urine samples are collected, follow this procedure:

(a) Have subject void about 4 hrs. after taking tritium. (b) Take 10 cc urine samples at approximately 5 hrs., 8 hrs., and 12 hrs. after taking tritium. A 24 hr. sample is useful if it can be obtained. Put the urine sample in a 3 or 5 dram vial with a crystal of thymol and labeled with name or code number, date and time after administration of HTO.

If a plasma sample is taken (in addition to or instead of urine), take the sample ^{about} 4 ~~to 6 hrs.~~ after giving the tritium. Put 5 cc of plasma (or serum) in a vial with a crystal of thymol, and an identifying label.

If convenient, store samples cold or frozen, but not essential.

4. Be sure to get weight and height of subjects on day total body water is determined..

5. Return the urine (and/or plasma) samples to me for tritium assay. We will determine the total body water values and mail you the results.

One cc of our stock HTO contains about ²⁵⁰~~150~~ μ c tritium. Assuming a normal biological half-time for turnover, the accumulative radiation dose in a 70 Kgm. man is about ¹²~~17~~ millirads.