

SERUM THYROID HORMONE LEVELS IN NORMAL JAPANESE MALES IN RELATION TO AGE

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The normal control values for the thyroid hormone levels in serum were determined in healthy Japanese males of different ages ranging from 20 years to 59 years. Thyroxine binding capacity, thyroid binding globulin, thyroxine and reverse T₃ were found to be age-nondependent. Only triiodothyronine levels showed a significant age-dependent decrease, the relation between age (x, years) and T₃ value (y, ng per ml) being $y = -0.0053x + 1.21$ ($P < 0.05$, $r = -0.296$)

SERUM LEVELS OF HORMONS RELEVANT TO THYROID FUNCTION AND TBG IN ELDERLY PATIENTS

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Serum levels of thyroid hormones, especially triiodothyronine are reported to change in various diseases and conditions including aging. In our geriatric hospital it is required to determine normal ranges of TSH, thyroxine, triiodothyronine and TBG in aged subject. It is difficult, however, to solve this kind of simple matter in elderly subjects, because they have frequently occult chronic diseases. Every records and examinations of patients whose sera had been sent to our laboratory for the assessment of thyroid function were gone through for excluding diseases which can probably cause abnormal thyroid study, such as hyperthyroidism, hypothyroidism, thyroid tumor, liver and renal diseases, positive thyrottest or antimicrosome antibody, diabetes mellitus, chronic infection, acute distress and patients receiving steroid hormone.

There is no significant difference of thyroxin values among any age groups from sixtieth to eightieth and normal adults with an average age of 34.7 years old. However, serum triiodothyronine showed gradual decrease with aging both in out-patients and in-patients. Decrease of triiodothyronine was highly significant in any geriatric age groups in in-patient and only in eightieth of out-patient when compared with serum triiodothyronine of normal adults. On the contrary serum TSH showed no significant difference, although there was a tendency of slight increase in out-patient and decrease in in-patient. Serum TBG levels were 20.34 ± 3.74 $\mu\text{g/ml}$ in normal adults and 21.34 ± 4.58 $\mu\text{g/ml}$ in aged subjects. This difference was not significant. However a quotient of T-4/TBG showed significant decrease in aged subjects that might suggest decrease of free thyroxin levels in elderly subjects.

Normal thyroid hormone values in healthy Japanese males

	Age group					Total
	20s years	30s years	40s years	50s years	60s years	
TBS (%)	n 25 m 98.36 S.D. 2.06	n 10 m 98.45 S.D. 2.95	n 16 m 97.30 S.D. 5.81	n 20 m 100.65 S.D. 2.72	n 71 m 99.10 S.D. 4.73	n 76 m 22.16 S.D. 4.51
TBG ($\mu\text{g/ml}$)	n 17 m 21.52 S.D. 5.77	n 20 m 22.94 S.D. 4.22	n 19 m 21.01 S.D. 5.03	n 20 m 22.61 S.D. 3.74	n 76 m 22.16 S.D. 4.51	n 76 m 22.16 S.D. 4.51
T ₃ (ng/ml)	n 25 m 1.07 S.D. 0.20	n 10 m 1.04 S.D. 0.15	n 19 m 0.99 S.D. 0.23	n 20 m 0.93* S.D. 0.16	n 74 m 1.00 S.D. 0.201	n 74 m 1.00 S.D. 0.201
T ₄ (ng/ml)	n 25 m 95.84 S.D. 14.40	n 10 m 94.50 S.D. 14.12	n 19 m 91.53 S.D. 19.84	n 20 m 95.10 S.D. 15.56	n 74 m 94.70 S.D. 16.16	n 74 m 94.70 S.D. 16.16
rT ₃ (ng/ml)	n 10 m 0.37 S.D. 0.04	n 7 m 0.32 S.D. 0.04	n 12 m 0.29 S.D. 0.07	n 13 m 0.32 S.D. 0.07	n 42 m 0.33 S.D. 0.07	n 42 m 0.33 S.D. 0.07

*Significantly different from the value of the age group of 20 years ($P < 0.05$)