

Differences in Heart Rate Profile during Exercise among Subjects with Subclinical Thyroid Disease

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Conflict of interest

- none

Study Hypothesis and Aim

- Hypothesis:
 - Subclinical thyroid disease is associated with changes in heart rate profile among healthy subjects
- Aim:
 - Evaluate heart rate profile of asymptomatic and apparently healthy patients with SCTD during routine exercise stress tests.

Study population:

Annual screenings of healthy subjects

- **Inclusion criteria:**

- Complete thyroid function tests (TSH FT3 FT4) at first visit
- Maximal treadmill exercise (Bruce protocol) at first visit

- **Exclusion criteria :**

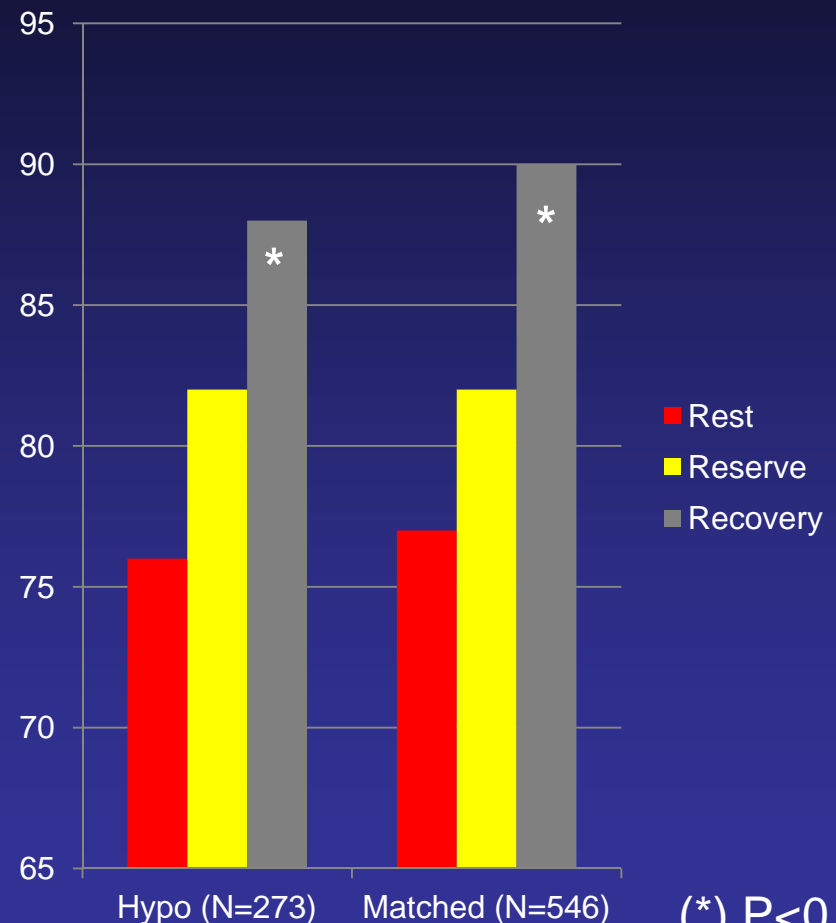
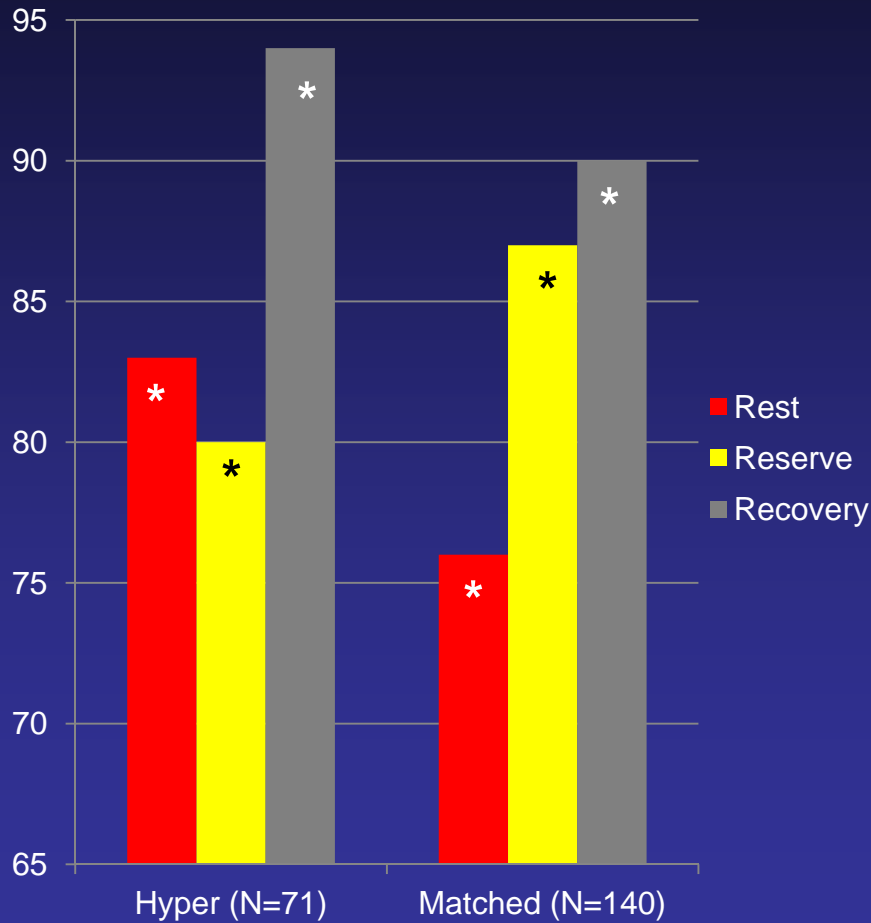
- known or suspected thyroid disease
- extreme TSH levels (above 10 or below 0.03 mIU/Liter)
- the use of thyroid related drugs

- Final study sample: **3,799 patients**

Differences in heart rate profile



Propensity score matching



(*) $P < 0.05$

Conclusions

Healthy subjects with subclinical thyroid disease have a significantly different heart rate profile during rest exercise and recovery.

Subclinical hyperthyroidism patients have higher resting heart rate, lower heart rate reserve and higher heart rate during recovery. Careful observation is warranted in this population

Results (propensity score matching)

	SCHyperT (N=70)	Normal matched (N=140)	P value	SCHypoT (N=273)	Normal matched (N=273)	P value
Resting Heart rate (bpm)	83±17	76±12	0.006	76±13	77±15	0.091
Exercise duration (minutes)	537±126	567±166	0.179	549±169	545±156	0.786
Maximal heart rate (bpm)	163±15	163±15	0.655	158±18	159±17	0.357
Heart rate response (% of expected)	96.4±10.8	95.4±5.3	0.382	94.1±7.2	94.7±6.3	0.380
Systolic BP at maximal exercise	161±22	164±26	0.504	166±24	165±24	0.707
Diastolic BP at maximal exercise	77±9	76±9	0.450	77±10	77±10	0.831
METS	10.8±2.1	11.2±2.8	0.342	11±2.6	10.9±2.6	0.859
Recovery heart rate (bpm)	94±12	90±12	0.045	88±12	90±13	0.035
Recovery systolic BP	121±14	121±14	0.791	125±17	124±18	0.931
Recovery diastolic BP	73±7	74±8	0.847	75±9	75±8	0.691
Heart rate reserve	80±20	87±18	0.006	82±20	82±19	0.637

