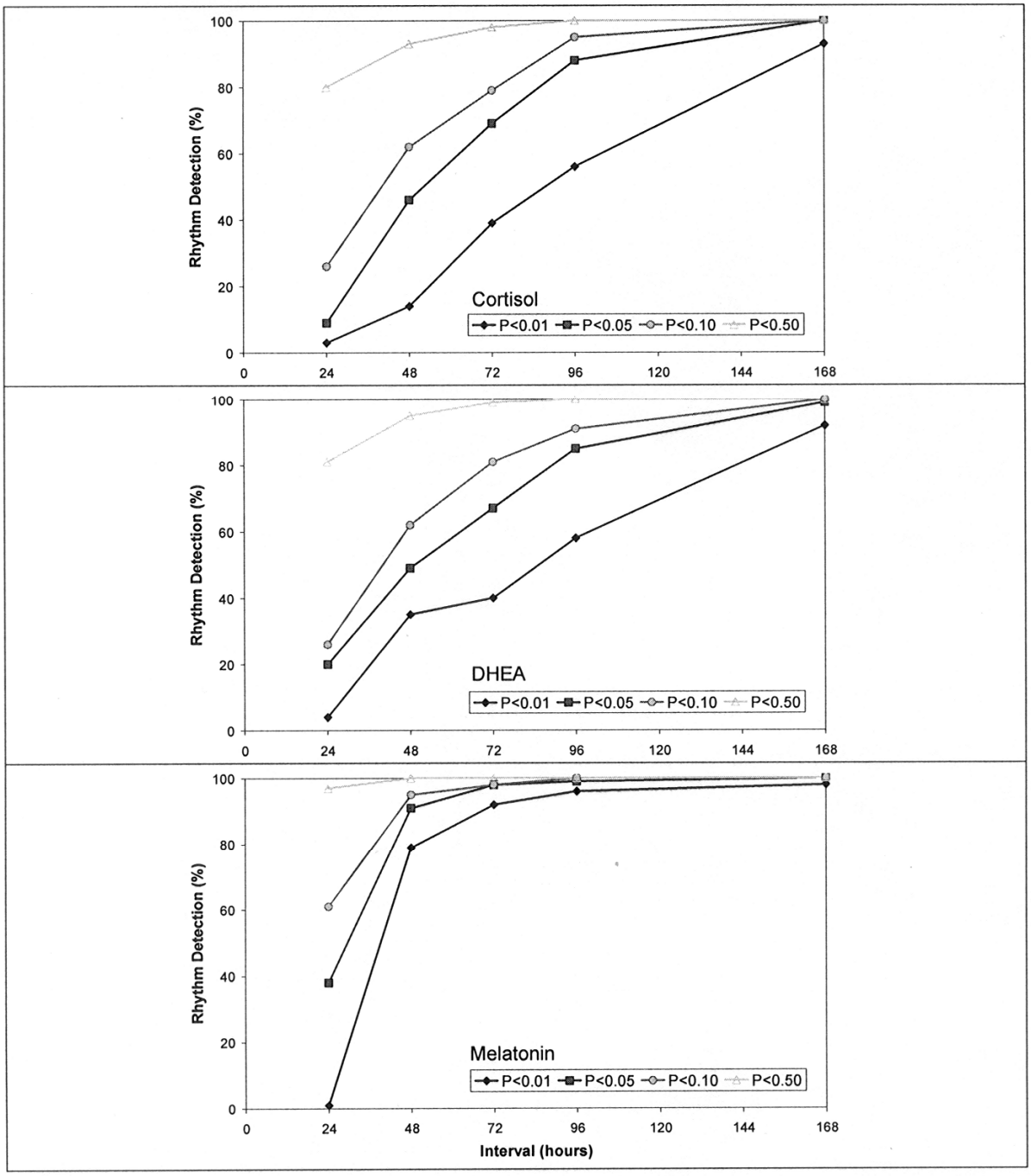
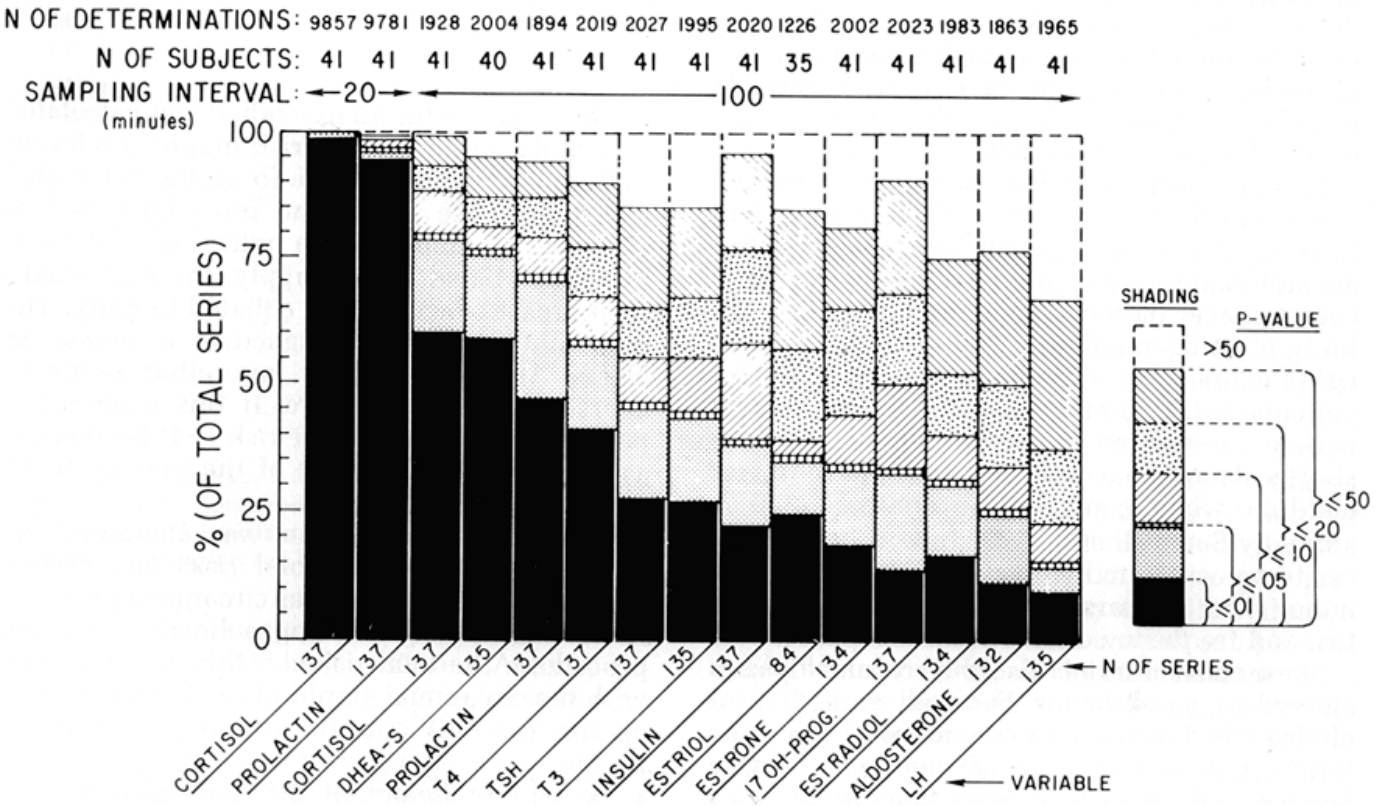
Rhythm Detection and Sampling Requirements *



* From chronobiologic serial sections using a 24-hour increment. P-values are from the zero-amplitude (no-rhythm) test at a trial period of 24 hours. Data (N=737) collected during 133 days, including both 24-hour synchronized and desynchronized states. Data log-transformed prior to analysis ($Y' = \log_{10}(Y+1)$) to render their distribution closer to a normal one.

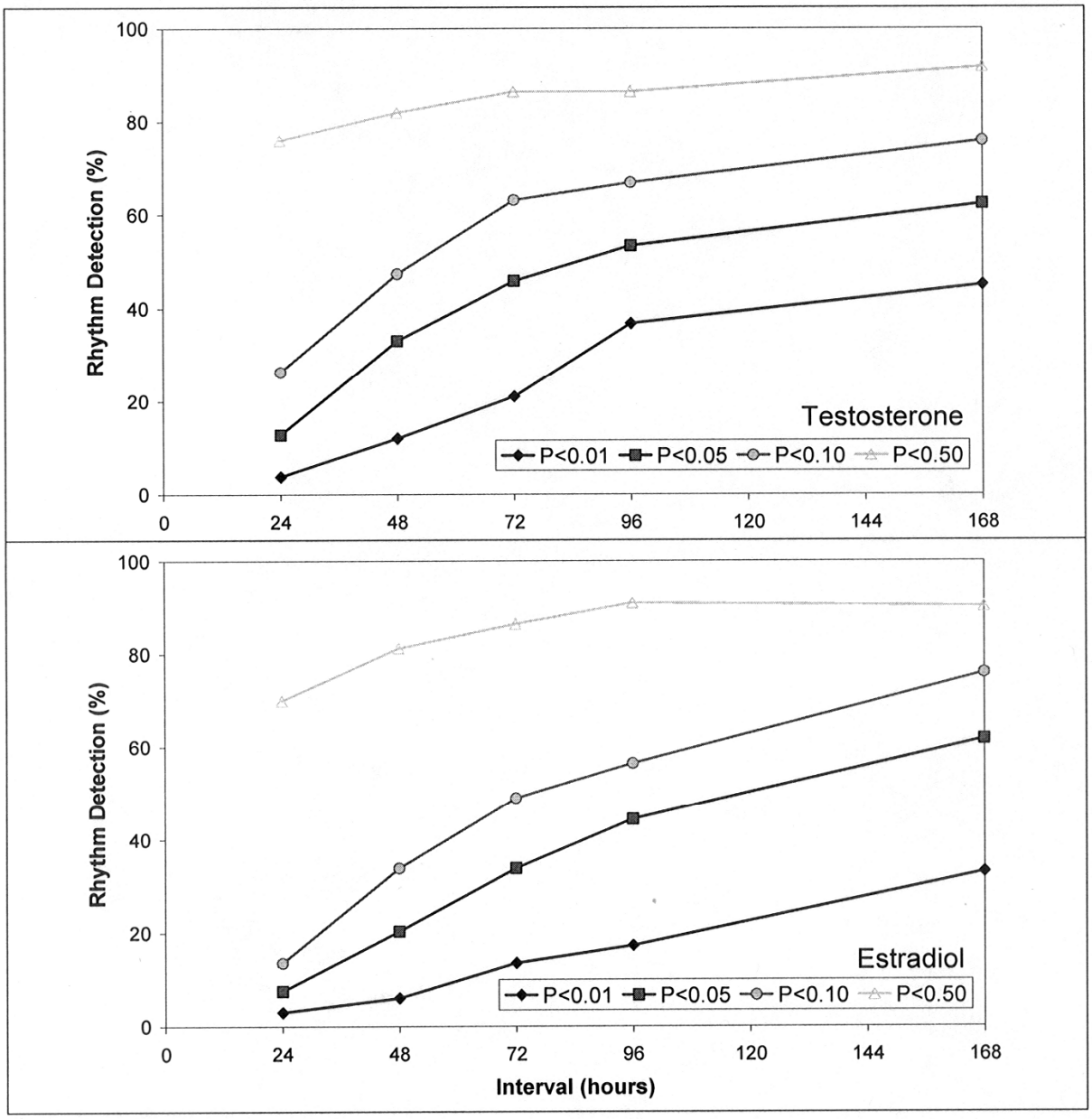
Figure 1. Numbers at each probability level are listed in Table 1.



Comparison of statistical significance of circadian rhythm, assessed by least-squares fit of a 24-hour cosine curve for 13 hormones in plasma of healthy women sampled for *individualized* rhythm assessment. *P* from F-test of zero-amplitude hypothesis. Since the hierarchical statistical significance represented by *P*-values is sampling-dependent, prolactin and cortisol, measured every 20 min, were also analyzed at 100-min intervals as for the other hormones. Total number *(N)* of determinations = 40765, subsequently extended to include a total of 77 hormones. From Halberg F et al. International geographic studies of oncological interest on chronobiological variables. In: Kaiser H, editor. Neoplasms—Comparative Pathology of Growth in Animals, Plants and Man. Baltimore: Williams and Wilkins; 1981. p. 553-596.

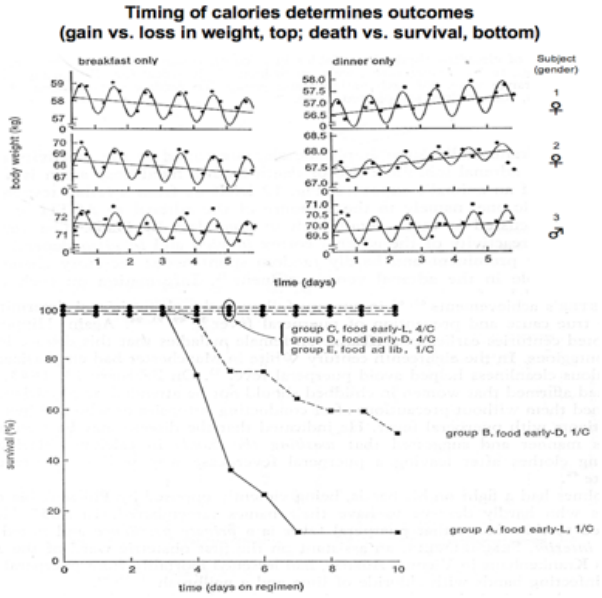
Figure 2.

Rhythm Detection and Sampling Requirements *



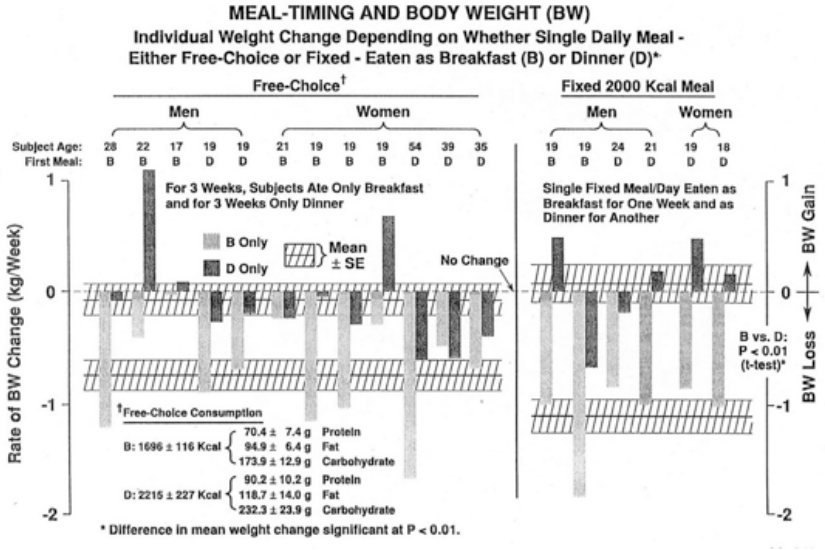
* From chronobiologic serial sections using a 24-hour increment. P-values are from the zero-amplitude (no-rhythm) test at a trial period of 24 hours. Data (N=737) collected during 133 days, including both 24-hour synchronized and desynchronized states.

Figure 3.


Timing of calories determines outcomes
(gain vs. loss in weight, top; death vs. survival, bottom)
breakfast only
dinner only
Subject (gender)
body weight (kg)
time (days)
group C, food early-L, 4/C
group D, food early-D, 4/C
group E, food ad lib, 1/C
group B, food early-D, 1/C
group A, food early-L, 1/C
survival (%)
time (days on regimen)

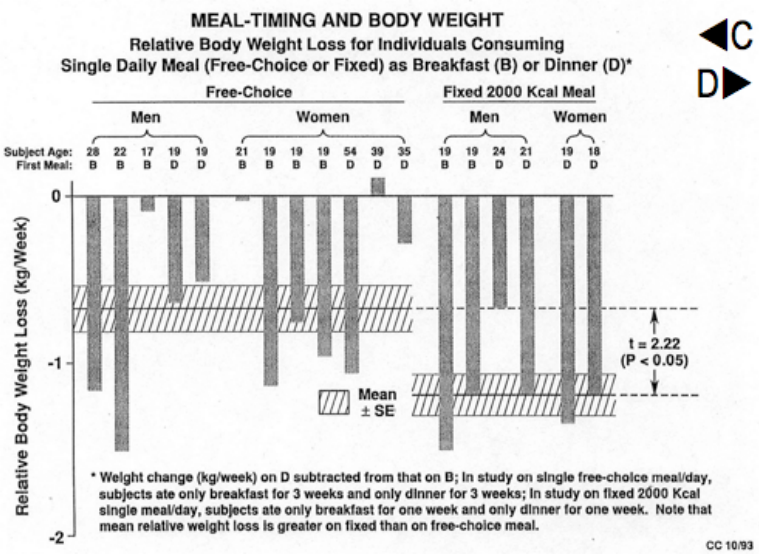
◀A

B▶


MEAL-TIMING AND BODY WEIGHT (BW)
Individual Weight Change Depending on Whether Single Daily Meal -
Either Free-Choice or Fixed - Eaten as Breakfast (B) or Dinner (D)*
Free-Choice†
Fixed 2000 Kcal Meal
Men
Women
Subject Age:
First Meal:
For 3 Weeks, Subjects Ate Only Breakfast and for 3 Weeks Only Dinner
Single Fixed Meal/Day Eaten as Breakfast for One Week and as Dinner for Another
B Only
D Only
Mean ± SE
No Change
Rate of BW Change (kg/Week)
BW Gain
BW Loss
B vs. D: P < 0.01 (t-test)*
†Free-Choice Consumption
B: 1696 ± 116 Kcal
70.4 ± 7.4 g Protein
94.9 ± 6.4 g Fat
173.9 ± 12.9 g Carbohydrate
D: 2215 ± 227 Kcal
90.2 ± 10.2 g Protein
118.7 ± 14.0 g Fat
232.3 ± 23.9 g Carbohydrate
* Difference in mean weight change significant at P < 0.01.

◀C

D▶


MEAL-TIMING AND BODY WEIGHT
Relative Body Weight Loss for Individuals Consuming
Single Daily Meal (Free-Choice or Fixed) as Breakfast (B) or Dinner (D)*
Free-Choice
Fixed 2000 Kcal Meal
Men
Women
Subject Age:
First Meal:
Relative Body Weight Loss (kg/Week)
t = 2.22
(P < 0.05)
Mean ± SE
* Weight change (kg/week) on D subtracted from that on B; in study on single free-choice meal/day, subjects ate only breakfast for 3 weeks and only dinner for 3 weeks; in study on fixed 2000 Kcal single meal/day, subjects ate only breakfast for one week and only dinner for one week. Note that mean relative weight loss is greater on fixed than on free-choice meal.
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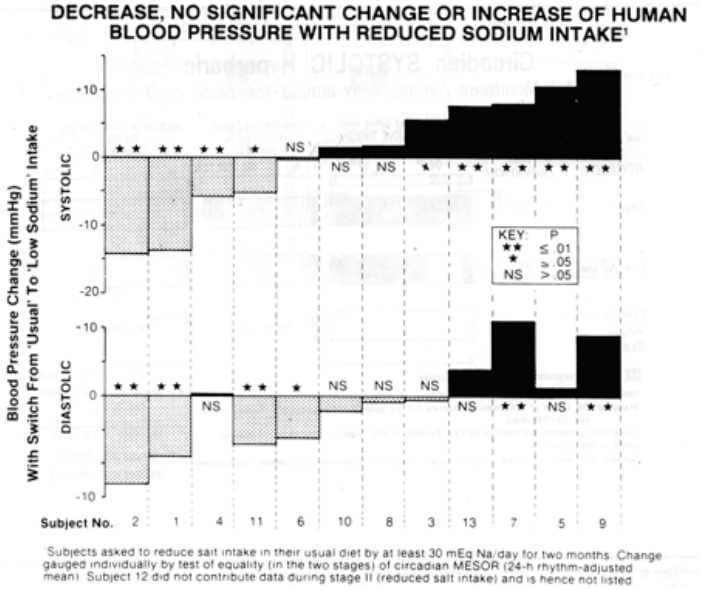
DECREASE, NO SIGNIFICANT CHANGE OR INCREASE OF HUMAN BLOOD PRESSURE WITH REDUCED SODIUM INTAKE¹
Blood Pressure Change (mmHg) With Switch From 'Usual' To 'Low Sodium' Intake
SYSTOLIC
DIASTOLIC
KEY: P
** ≤ .01
* ≥ .05
NS > .05
Subject No. 2 1 4 11 6 10 8 3 13 7 5 9
¹Subjects asked to reduce salt intake in their usual diet by at least 30 mEq Na/day for two months. Change gauged individually by test of equality (in the two stages) of circadian MESOR (24-h rhythm-adjusted mean). Subject 12 did not contribute data during stage II (reduced salt intake) and is hence not listed