points along the curve-t were easy to obtain at the menstrual period and the luteal phase and at the time of medicating of progesterone. Lots of points along the curve-k were obtained at the phase of follicular hormon and at the time of medicating of estrogen. In case of medicating estrogen and progesteron, the variation on the bulbo-cavernosus muscle was observed strongly in female, but in case of medicating testasterone, the variation was strongly observed in male.

In case of medicating oxytocin, male showed a little increase of electric discharge, but on contrary, female showed electric discharge decrement. Chorionic gonadotrophin effected repressively to female, and serum gonadotrophin showed increase of electric discharge, however, no variation was observed in male.

The sexual difference was observed on the tension of skeletal muscle and $\bar{\tau}\sim S$ relation, however, decrease of muscular intension due to progesterone was caused the inhibition of kinetic N.M.U., therefore, the influence of the decrease of the work efficiency and the report of sports at the menstrual period and before menses upon the muscular intension due to progesterone was considered to be one of the causes.

12. STUDIES ON ENERGY METABOLISM OF CLIMBING MT. FUJI.

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Since Mt. Climbing has been in popular recently, a great number of mountaineers are found in various kinds of mountain. This time, the Mt. Fuji which was famous for having of many mountaineers was chosen for the observation, and the authors observed the physical strength required for climbing up the top of it and about what the suitable physical strength was to climb the Mt. Fuji which had many special division, so called "go".

The course was from Funazuguchi-5-gome to the top, and the most favorable speed for examinees was taken for climbing the whole course that was considered to be general, and then analysis of gathered gas was obtained in accordance with quantity of expiratory gas and analysis of gathered gas. At the same time, slope, distance and height of the way of mountain and temperature and atmospheric air were observed as the natural conditions. The special attention was paid for gathering of expiratory gas and gas meter was used in the whole course of observation. According to the time process, the sample was gathered in the vinyl baloon on halfway. In case of the second observation, all the expiration was gathered in the dauglous bag and the sample was gathered in the balloon and the glass tube, and compared and analyzed. The small sized analyer of a society for the study of labor was used and analysis was done on the 7-gome and on the 8-gome, the high point. The results were shown below. The way of the Mt. Fuji

was consisted of winding road of 8 to 20 in degree without condition of slope: whether it's straight or not. R.M.R. observed in each gome in case of climbing was form 6 to 9, and the ratio was about 7. The quantity of oxygen comsumption was 1.5 to 1.9*l* per minutes, and calorie consumption was 430 to 550 cal. per hour. According to the above mentioned observation, 1,803 cal was required for only climbing the Mt. Fuji in 213 minutes.

The momentum of mount climbing, and walking speed and hour were depended upon such mountain condition as distance, slope, ground condition and weather condition weight of needs. According to the report of Mr. Shiraishi, no fatiguness was left on the following day in case of 6 in R.M.R. in spite of having continuous labor, but R.M.R. was about 7 in case of climbing Mt. Fuji, however, no trouble of fatigueness was observed, as the actual hours for climbing was about 3 and half hours.

The slope became sharp suddenly up to 8-gome, but at the same time, the way was consisted of winding road by which rapid increase of R.M.R. was protected. From such point of view, climbing Mt. Fuji was considered to be capable for the person who had comparatively large difference in physical strength.

It's almost all the case that the peak of calori consumption was observed just before the arrival in each gome.

items / Part (gome)	oxygen consumption per minites (*l*)	calorie consumption per hour (cal.)	ratio of energy metabolism R.M.R.	height (m)
5—6	1,738	514.7	7.45	2200—2290
6—7	1,482	512.9	7.41	2290—2714
7—8	1,551	459.4	6.54	2714—3214
8—8.5	1,802	533.6	7.76	3214—3354
8.5—top	1,750	517.2	7.50	3354—3464
5—top	1,500—1,800	460—540	7.42	2200—3464

13. THE STATISTICAL OBSERVATIONS ON THE FEMALE SKI-INJURIES

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From the end of December in 1956, the authors observed 2,743 ski-injuries in Akakura for 3 years with the cooperation of the prefectural hospital of Myoko in Niigata, and also observed 884 ski-injuries in Ishiuchi (Maruyama) for 2 years from the end of December in 1957. Therefore, the statistical observation on 3,627