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Montana State University Physical Education Department research

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Research under way in the Montana State University Physical Education Department has a direct, practical application to the efficiency and economy of U. S. Forest Service field operations.

That is an improbable but true proposition, and thereby hangs a tale.

The story starts with an idea conceived by Herb Harris, director, Forest Service Equipment Development Center in Missoula, and Charles F. Hertler, MSU physical education professor. Their proposal to pool USFS and MSU resources led to a cooperative agreement under which the University P.E. Department and the Forest Service Equipment Development Center jointly participate in appropriate research projects. This cooperative effort benefits the USFS, the University, and John Q. Public, who gets a better return on both his state and federal tax dollar because of it.

Dr. Brian J. Sharkey, director of research in the P.E. Department, explains that the EDC is responsible for the development of all types of equipment and materials for forestry. The MSU researchers help the EDC evaluate the man power required in the operation of the equipment.

An example of the kind of investigation the department conducts for the center is a current study to determine the physiological cost and efficiency of two new mechanized trail equipment carriers. Graduate students in the P.E. Department's Human Performance Laboratory are assisting with tests to assess human energy, strength and endurance as well as pulmonary and cardiovascular responses involved in the use of the equipment.

(more)
Work done under the agreement has included a study of the relationship of breathing resistance to energy cost, ventilation and pulse rates. The relationship was established by testing men who wore mechanical respirators while walking on a motor-driven treadmill.

Dr. Sharkey concedes that physical education and forestry may seem only remotely related, but he points out that physical activity is a common denominator in athletics and industrial work tasks. Data derived from the MSU lab studies can be used to solve problems in both areas.

The lab, of course, engages in research other than that for the EDC. For example, some students are studying the effect of oxygen inhalation on the rate of recovery from strenuous exercise. But the work done for the EDC broadens the scope of training the department can offer students. The department's research program, including projects undertaken for the EDC, gives graduate students research experience in all phases of human physical performance.

Thus, Dr. Sharkey says, work done under the agreement not only provides the EDC with usable data but also makes an important contribution to the MSU physical education curriculum.

He adds that much of the success of the harmonious and mutually advantageous arrangement can be credited to Clifton G. Blake, 1958 MSU graduate, who is a forester in the Planning and Field Service Branch of the Forest Service Equipment Development Center.
1. Graduate students Lynn Corbridge (front), Layton, Utah, and Bob O'Billovich, Butte, trudge up Mt. Sentinel on campus to determine the human energy cost of operating a Forest-Service trail carrier. Bob is wearing a device to collect a sample of his expired air.

2. Meanwhile, back at the station wagon, Joe McDonald, a graduate student from Missoula, operates a radio-electrocardiogram to telemeter Bob's heart rate.

3. Billings graduate student Dick Bjorgum uses a chemical gas analyzer to measure the percentage of oxygen and carbon dioxide in the sample of air expired from Bob's lungs.