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DIBAKAR DEBNATH,
Assistant Professor,
Ramakrishna Mission Vivekananda Educational and Research Institute, Faculty of General and Adapted Physical Education and Yoga, Ph.D.,
(Coimbatore, India)

GROWTH AND DEVELOPMENT OF RESEARCH LABORATORY IN PHYSICAL EDUCATION AND SPORT

Дебнат Д. Зростання та розвиток дослідницької лабораторії з фізичного виховання та спорту.

Ключові слова: *науково-дослідна лабораторія, фізіологія фізичних вправ, аналіз руху, біохімія та ріст і розвиток.*

Abstract. *The aim of this study is to utilize the research laboratory for the growth of research works in physical education and sports institution. In most instances, the problem solving procedure involves the administration of one or more specific test by the use of research laboratory. In this study the reputation of the physical education and sports field research laboratories are involved in many others areas because of scientific approach to Exercise Physiology, Sports Psychology, Sports Training, Sports Biomechanics and Bio-Chemistry in their specific areas taken in the lab. It is led to significant thinking about confidence analysis of the performance at all the stage and nature of activity. There is no doubt that several research studies can be carried out on the indoor and outdoor playing areas itself, where sophisticated instruments or apparatus can be installed and also research studies conducted under specific controlled conditions. It was essential that laboratory should be sufficiently functions to handle the collection and analysis of data of those problems which are not likely to be perused. The expansion of laboratory should accommodate those future needs both real and perceived that will arise as a result of faculty growth and also expanded number of students. Every well-established subject is judged by the preciseness and effectiveness of its system of measurement. Physical education must aspire to units of measurement of a quality somewhat higher than that currently used. In fact some aspects of human activity are very complex at present to measure. They must await the development of suitable technique and instruments ultimately. However there is no gain saying the fact that research in physical education to make use more and more sophisticated instruments example- how we can measure more precisely than even before with the help of strength Tensiometer and Dynamometers, Flexometer and Electrogenicmeter are new*

research laboratory innovation in measuring the range of movement of the joints and with the help of Treadmill and Bicycle ergo meter, work performed by an individual can be recorded.

Keywords: *research laboratory, exercise physiology, motion analysis, bio chemistry, growth and development.*

Introduction. Research is involved in the solving of complex problem. In most instances the problem solving procedures involves the administration of one or more specific test by the end of research laboratory.

The reputation of the physical education and sports field, research laboratory are involved in many other areas because of the scientific approach to Exercise Physiology, Sports Psychology, Sports Training, Sports Biomechanics and Bio-Chemistry in their specific areas taken in the laboratory. Its research will lead to significant direction in thinking about fitness, confidence and analysis of the performance at all the stage and nature of activity in developing physical components.

In present situations of the country physical education and sports is a growing field. It is to be made scientific and comparable to other will advanced field such Medicine, Science, Agriculture and Engineering etc. it is essential that more and more research should be undertaken in this field. There is no doubt that several research studies can be carried out on the indoor and outdoor playing area itself, yet appropriate space is required where sophisticated instruments or apparatus can be installed and also research studies conducted under specific controlled conditions.

Establishing a research laboratory is a growing function of higher education, Institutions and University to develop comprehensive facilities when developing a laboratory, a number of considerations must be made relative to the needs and the projected types of research to be undertaken by the expert and experience technical personnel to conduct and supervise research programmed.

Standards plans for research laboratory in physical education and sports are not available in maximum institution in India, just as there can be no standard research programmed. Similarities of one of one institutions with another may be noted because there are functions that seem to be universally accepted, even though the physical proportions of the room differ. In fact, there are some aspects of laboratory working physical education which resemble functions in other field of study, example- Biochemical analysis must hold to same vigorous standard whenever carried out thud the growth of laboratory proceed first of all from the needs of the investigation who will be making use of them. It is essential that laboratory should be sufficiently functional to handle the collection and analysis of data of those problems which are most likely to be perused. Secondly the expansion of laboratory should accommodate those future needs both real and perceived that will arise as a result of faculty growth and expanded number of students.

«The most important step in the process of every science is the measurement of quantities. Those whose curiosity is satisfied with observing what happened

have occasionally done service by directing the attention of others to the phenomena they have seen, it is to who endeavor to find out how much there is of anything that we all the great advances in our knowledge».

The complexity of analysis in physical education is not often appreciated even by experienced staff and much less by person who have less contact with physical education and sports and do not understand its nature is difficult to measure attitude, sportsmanship or the relationship & feeling among team mates etc. still inadequate methods exist to analysis what goes on in the mind of the athletes or coaches in a highly competitive situation or during failure or success or how much will power an individual possesses. However there is no gain saying the fact that research in physical education has gone long way to make use of and develop more and more sophisticated instruments, example how we can measure strength more precisely than ever before with the help of Tensiometer, and Dynamometer, Frexometer and Electrogenimeter are new laboratory innovator in measuring the range of movement of the joints and with the help of Treadmill and Bicycle ergo meter work performed by an individual can be recorded in terms Sports training, Motor learning, Exercise of kgm/min. Similar trend is evidenced in other related areas such as Sports psychology, Sports training, Exercise physiology, Biomechanics and Bio-chemistry etc.

To conclude, the setting of well research laboratory equipments and apparatus will help growth of research in physical education and sports.

It will simultaneously develop towards greater accuracy of precision is an essential step to put physical education in scientific approach. Physical education is a newly developing field and, therefore it must utilize and development of research laboratory. Administration techniques which will be appreciate to analysis and solve problems specific in area of physical education and sports.

Purpose of the study. It make develop an ability to handle the apparatus carefully, confidence among the teachers and students through by using different methods, strategies and techniques, procedural knowledge and set the apparatus according to prescribed procedure.

There are different field such as Sports Psychology, Sports Bio- mechanics, Bio-chemistry, Sports training and Exercise physiology for which laboratory facility is a much to conduct research in physical education and sports Institution in present condition of the country.

In Institution where adequate space and well personal and funds are available, consideration must be given to establishment of the following research laboratory in the field of physical education and sports.

Exercise Physiology Laboratory. This lab also knows as human performance laboratory. It provides facilities for solving out research problem in the field of exercise physiology. For utilization of this laboratory there should be provision for sufficient electrical power supply so that different kinds of electronics and electrical instruments and apparatus may be used for the collection of data. For collection of data in particular research work in the field of physical education and sports, the following list of instruments may be provide as the minimum utilized:

- Treadmill;
- Bicycle Ergo meter;
- Sphygmomonometer;
- Expirograph;
- Gesometer;
- Facility of Hydrostatic weighing;
- Weighing machine;
- Stadiometer;
- Electro- Cardiac Graph;
- Cardiac Simulator;
- Count up & down timer;
- Telemetry Receiver;
- Mass Spectrometer;
- Wet Spiro meter;
- Dry Spiro meter;
- Potable Desktop Spiro meter;
- Metabolic Analyzer;
- Cycles 2 Ergo meter;
- VO2 Track wearable Analyzer;
- Polar heart rate monitor;
- Biodex treadmill.

Bio Mechanics Laboratory. Under Motion Analysis Laboratory should have adequate facilities for the analysis of film taken on any aspect of physical education and sports. For conducting research purposed the following few minimum equipments may be utilized.

- Photo-sonic High Speed Movie camera;
- Film Projector;
- Digitalized with Projection Head;
- Anthropometric kits;
- Grip Dynamometer (Bio- dex);
- Back and leg Dynamometer;
- Goniometer;
- Skin fold caliper;
- Tensiometer;
- Force platform, E.M.G.;
- Photo electric timer;
- Video camera;
- Video Cassette recorder;
- Photography lab;
- Foot Scanner;
- Baropodemetric platform (posture);

- 3D motion/ Gait analysis system;
- PC computer for Data Analysis / T.V. Monitor;
- CD writer;
- Biodex Balance system.

Motor Learning and Sports Psychology Laboratory.

- Reaction and movement time apparatus;
- Human learning apparatus;
- Color perception apparatus;
- Deep perception apparatus;
- Time sense apparatus;
- Hand steadiness apparatus;
- Apparatus for measuring Horizontal Illusion;
- Mirror Drawing test apparatus;
- Two Hand co-ordination test apparatus;
- Eye-Hand Co-ordination test apparatus;
- Time condition apparatus;
- Reflex indicator;
- Skin resistance apparatus;
- Toschistoscope;
- Memory Drum;
- Steadiness tester;
- Performance Intelligence test apparatus;
- Scale of measuring various psychological characteristics;
- Audio visual Aids Chart I Audiometer;
- Visual activity apparatus.

Bio chemistry Laboratory. For undertaking research work in particular specific test of the individual pertaining to chemical analysis of blood, urine, gas and tissue. This laboratory considerable planning is necessary consideration must be given to sinks and taps, gas lines, vacuum lines, ovens, cabinets and refrigerator and following instruments are required.

- Photo Spectrometer;
- Centrifuge;
- Incubator;
- Blood and urine analysis apparatus;
- Automatic pipettes (different types);
- Chemicals and reagents for analysis;
- Electronic Mixer;
- Spectrophotometer;
- Electrophoresis;
- ABG Analyzer;
- Electrolyte analyzer;

- Auto Analyzer;
- Weighing balance;
- Medical Microscope;
- Micro Slide Cabinet;
- Chromatography Chamber & paper.

Measurement and Sport training. Under this laboratory, the following instruments are required for undertaking research study pertaining to analysis measurement and collection of data.

- Hand grip dynameter (Digital);
- Leg dynometer;
- Sliding caliper;
- Visual test apparatus;
- Wax bath;
- Haemometer;
- Goniometer 360 full circle;
- Bone Calliper;
- Hardward step test box(16,18,20 inches);
- Flexometer;
- Agility ladders;
- Reebok step unit;
- Velco weighted vest;
- Resistant band set;
- Power system Ploymetric boxes (6 to 28 inch).

Administration and use of the laboratory. The laboratory is more likely to be used jointly of the institutions has allowed with the permission for students of Graduate, Post Graduate and Doctoral degree programmed. Many of the laboratory equipments and apparatus operate and used by physical education and sports department and offer free access to the teachers and students or players. The overall use of the research laboratory varies from very limited to heavy. For handling the particular apparatus or equipments, clear understanding and demonstration (experimental) will be performed by the qualified faculty or technical staff in front of the students and familiar with the equipments for regular used and we can avoid damage of instruments which may be very expensive. So that we can maintain the damage of equipment. It is interesting to note that faculty from other institution also utilized for doing research in the laboratory and did work in the physical education and sports related to research laboratory.

For proper maintaining of the research laboratory adequate number of office room (adjusted to each lab) for the research staff & students and also entry registered may be provided so that proper supervision is provided and misused of the equipment can be controlled. Due to constant use the research equipment is likely to go out of order and therefore a repair equipment workshop can be carried out or new equipment may be utilized. For repairing the equipments workshop

should be well equipped with necessary power tools and all the supportive instruments needed for repair. The workshop should be manned by experience technical personnel with well observation proper instruction and special care of the instrument. Therefore, used of research laboratory for research work will be under taken for proper permission from the particular staff in charge or Institution authority.

Advantages of using research laboratory:

1) To achieved through using different methods, strategies and technique;
2) Learn to use scientific apparatus;
3) Better appreciate the role of experimentation in science;
4) To developed an ability to handle carefully;
5) To understand the procedure and handling skilled and also operational technique and handling data;
6) To developed and more confidence among the teacher and students;
7) To make able to write research reports of laboratory work;
8) It has to do with the possibility of a better understanding with respect to the verbal communication of concept, models, laws and theory;
9) It provided controlled conditions in which scientific measurement;
10) An appreciated for the innovation, product and influences of science and technology.

Conclusion. The laboratory research studies addressed here is the one that implies working with real objects. In order to define the role of laboratory work in the teaching of physical education and sports it may be useful to adopt different areas such as sports psychology, Sports Bio-mechanics, exercise physiology, test and measurement, Bio- Chemistry and sports training etc.. Research laboratory designed increasingly scientific understanding of the work productivity of the human body through fitness test of the endurance, flexibility, agility, strength, power, balance. It can also developed normative standards for each test for men and women and designing physical education based on used of research laboratory apparatus.

It is suggested that the Institution of physical education and sports, especially offering graduate, post graduate & Doctoral degree courses should make a beginning by converting few rooms into research laboratory and gradually increased variety of research equipment and apparatus. It is helped to develop growth of research work programmed of the teachers and students.

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HUSAIF K. A.,
Ph.D. Scholar, Department of Physical Education,
Pondicherry University
ANSON C.,
Ph.D. Scholar, Department of Physical Education,
Pondicherry University
Dr. SULTANA D.,
Professor, Department of Physical Education,
Pondicherry University, D.Sc.
(India)

MODERN WARM-UP STRATEGY: BENEFITS OF PRE EXERCISE MAYO FACIAL RELEASE WITH FOAM ROLLER

Хусайф К. А., Енсон К., Султана Д. Сучасна стратегія розігрівки: переваги перед вправами Mayo Facial Release за допомогою поролонового ролика.

Ключові слова: *напруга м'язів, самоміофасціальне звільнення, поролоновий ролик.*

Abstract: *Foam rolling has already proved as a cooling down tool in many researches and foam rolling gained popularity in recent years as a pre-workout warm-up strategy. The purpose of the paper to examine the scientific evidence supporting that foam rolling may increase flexibility, reduce muscle soreness and improve athletic performance. Foam rolling is believed to work by the increasing blood flow and oxygenation to the targeted muscles, which can help improve tissue mobility and reduce the risk of injury during exercise. The optimal timing and duration of foam rolling for warmup purpose are still unclear and further research is needed to fully understand its effects. Foam rolling has become popular in the fitness community as a self-mayo facial release technique.*

Keywords: *muscle tension, self-myofascial release (SMR), foam roller.*

Introduction: Foam rolling is a form of self-myofascial release that has gained popularity in recent years as a pre-exercise warm-up strategy. It involves using a cylindrical foam roller to apply pressure to different areas of the body, with the goal of reducing muscle tension, increasing flexibility, and improving range of motion. The underlying concept behind foam rolling is that it helps to release «knots» or «trigger points» in the muscles and fascia, which can contribute to tightness and limited mobility. By applying pressure to these areas, foam rolling is believed to stimulate the body's natural healing processes, increase blood flow and