

Anthropometric and Strength Data of Indian Agricultural Workers for Farm Equipment Design. L. P. Gite, J. Majumdar, C. R. Mehta and A. Khadatkhar (eds). Central Institute of Agricultural Engineering, Berasia Road, Bhopal 462 038, India. 2009. 253 pp. Price: Rs 500. ISBN: 978-81-909305-0-5.

This book is a compilation of many topics in the field of agricultural ergonomics. The book is in five parts. The first part covers anthropometry, anthropometric data, and the use of these data in the design of machine and workplace. The second part covers anthropometric and strength parameter survey of agricultural workers in India and the basic measurement techniques of anthropometric data.

The third part contains the measurement details of different anthropometric data on 79 body dimensions of 12,525 agricultural workers (8,025 male and 4,500 female) from 12 states in India. The fourth part of the book deals with 16 strength parameters of 5,937 agricultural workers (3,423 male and 2,514 female) from 6 states in India. Sample size of the data for different states was determined statistically based on their population. All the data were analysed for their mean, standard deviation, range, 5th and 95th percentile values.

The fifth and last part of the book contains the practical application of anthropometric and strength data in farm equipment design for Indian agricultural workers. It is an excellent basic guide for use of anthropometric and strength data in design. The book contains useful data source on Indian agricultural workers, which were scarce to obtain. However, the number of publications are available for selected data from different states, national level database on anthropomet-

ric and strength variables of Indian agricultural worker in this book is the first of its kind in the country, and can be used as Indian data on anthropometric and strength parameters.

Anthropometric database on the Indian Army population (sex: male only, sample size: 11,458, age: 20–40 yrs) was developed by Defence Research and Development Organization, Government of India¹. Presently it is being used only by the Indian Defence Department for its own requirements. Chakrabarti² compiled anthropometric data (sex: male and female, sample size: 961, age: 20 yrs onwards) from different states of India in a book which is popularly being used all over India as ready reference for product and workstation design.

USA and other European countries are already using anthropometric data of user's population in the design of agricultural equipments. Prior to publication of this book, due to lack of data in India, it was not possible to go for such ergonomic design. Now farm equipment design engineers can take advantage of the data book in designing equipment considering anthropometric data.

Each chapter of the book depicts clear and substantial information to the readers. However, there are a few minor flaws in the book. Age limits (i.e. upper and lower) of the subjects/volunteers have not been mentioned. Since age is crucially regarded as the most important factor for variability of anthropometric and muscular strength dimensions, mentioning of age range is of prime importance and it should not have been ignored. All the four coordinated centres of Ergonomics and Safety in Agriculture (ESA) and eight ad-hoc schemes through which data were collected should have been placed in under Reference, as they are of prime importance. Moreover, it would have been better to compare these data with other countries which were used earlier in India for design of various farm machineries and equipment.

In spite of the aforementioned shortcomings, this book meets the important need for anthropometric and strength data of Indian agricultural workers. Traditionally, little attention has been paid to the efficiency, comfort and safety of the operators, but designers are now developing an ergonomic consciousness and if the anthropometric data and strength parameters are available, they could use them in the design process.

A detailed anthropometric survey of the Indian agricultural workers of the remaining Indian states is also necessary³⁻⁵. The editors of the book have developed a systematic and scientific way for collection of these data and circulated them to each survey site to avoid improper measurement of data. The book provides adequate information that would satisfy the basic needs of designers, engineers and academicians. Such a book deserves a place not on the bookshelf, but open on the desk.

1. Zachariah, T. *et al.*, *Body Measurements: Design Applications and Body Composition*, DRDO Monographs/Special Publication Series, printed and published by Director, DESIDOC, Metcalfe House, Delhi, (restricted circulation), 2001.
2. Chakrabarti, D., *Indian Anthropometric Dimensions for Ergonomic Design Practice*, National Institute of Design, Ahmedabad, 1997.
3. Gite, L. P. and Yadav, B. G., *Appl. Ergon.*, 1989, **20**, 191–196.
4. Yadav, R., Tewari, V. K. and Prasad, N., *Appl. Ergon.*, 1997, **28**(1), 69–71.
5. Dewangan, K. N., Owarya, C. and Datta, R. K., *Int. J. Ind. Ergon.*, 2008, **38**, 80–100.

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Annual Review of Pharmacology and Toxicology, 2014. P. A. Insel, S. G. Amara and T. F. Blaschke (eds). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, CA 94303-0139, USA. Vol. 54. xiii + 629 pp. Price US\$ 96.

This volume contains 27 articles by eminent experts in different areas. There are articles on therapeutically relevant topics like central nervous system, cardiovascular system, dyslipidemia, inflammation, cancer, parasitic diseases, pharmacoki-

netics, xenobiotic metabolism, and toxicological properties and associated concerns regarding the use of nanomaterials in drug delivery. Articles covering new targets for the drugs being pursued in clinical trials or under development have also been appropriately represented. The volume provides glimpses into recent developments and is useful to researchers.

The first chapter 'Learning to program the liver' by Klassen gives a lucid contextual summary of his lifetime research in this therapeutically important area, which can be inspiring to young researchers.

An article on neurotoxins (engineered botulium, BoNTs) reviews the diverse approaches used to improve efficiency, safety and their applicability extended even to non-neuronal cells offering treatment for secretion disorders.

The article on glutamate receptor antagonism for treating depression (major depressive disorder and bipolar depression) highlights the importance of mTOR, eEF2 and GSK3. The current approach is also to prolong the effect of ketamine and other compounds free of ketamine adverse effects, and more selective antagonism of NMDA receptors.

Environmental toxicology of Parkinson's disease (PD) is lucid reviewing of cellular, animal models and human studies on the disease pathogenesis.

Recent advances in the epilepsy disease mechanisms utilizing sodium channels for targeting better drugs for the treatment of epilepsy have been reviewed by Catterall. Similarly, K. Chiang and E. H. Koo have discussed the emerging therapeutic approaches, being examined in clinical trials in Alzheimer's disease, as well as the mechanism of tau influencing the disease progression, using animal models.

Lausted *et al.* discuss identification of biomarkers for early diagnosis, monitoring neurodegeneration and its progression (Alzheimer's, PD, Huntington's and prion disease), therapy response and to stratify disease subtypes using high-throughput and quantitative proteomic technologies and systems approaches.

Rudolph and Mohler describe the impact of GABA receptor subtypes on cognitive and emotional behaviour with special attention to cognitive dysfunction in Down syndrome, anxiety disorders, affective disorder, schizophrenia and autism. The article reviews the options of newer drugs, and better understanding of the pathophysiology of these five disor-

ders with respect to GABA_A receptor subtypes.

Rask-Andersen *et al.* review the recent trends and potential novel targets being explored in 'Druggable genome: Evaluation of drug targets in clinical trial suggest a major shift in molecular class and indication'. They describe development of a dataset of clinical trial drug-target interactions. They have identified 475 potentially novel clinical trial drug targets, indicating a high rate of innovation within the pharmaceutical industry.

Heng *et al.* examine the G protein couples receptors (GPCRs) therapeutic synthetic gene networks and critically review the various challenges in utilizing GPCRs for synthetic biology applications. Similarly 'Targeting protein-protein interaction by small molecules' by Jin *et al.* is also challenging due to the large surface area and lack of small molecule binding pockets at many protein-protein interfaces. They have focused the discussions primarily on orthosteric, allosteric inhibitions and interfacial binding so as to help the future researches about such modulators. They have also discussed RAS-SOS1, MENIN-MLL, bromodomain acetylated histone, ARF-SEC7 domain protein complex and BRAF-CRAF and AKT inhibitors and PKM2 agonists.

Newton and Trotman have deliberated on the precise control of the balance between protein phosphorylation being catalysed and maintained by kinases and phosphatases so as to maintain the cellular homeostasis. Role of PHLPP in terminating AKT-mediated signalling and the associated pharmacology relevant in cancer treatment have also been discussed.

Ke *et al.* discuss integration of physiological, preclinical and population pharmacokinetics data by modelling tools to support the pregnancy population analysis and anticipate that changes in PK of drugs during pregnancy allows extrapolation beyond the well-characterized ADME.

Etwel *et al.* discuss the unique approaches that allow assessment of foetal risks by the new chemical entities and other approved drugs.

Pfeifer *et al.* have focused on the transport proteins involved in the efflux of drug and their metabolites, mechanisms of altered transporter function, the interplay between multiple transport pathways and also the importance of unbound transporter substrates and inhibitors.

Palombo *et al.* discuss novel engineered nanomaterials being developed to enhance the therapeutic potential, and highlight that change in charge, shape, rigidity and surface modifications might significantly influence the safe bulk material to a toxic entity. The development of safe and effective medicine thus highlights the requirement for standardized protocols so as to determine the physical characteristics of nanomedicines and assessment of their long-term toxicity.

Horn and Duraisingh emphasize on the need of chemotherapy for parasitic infections in the absence of effective vaccine and constant threat of drug resistance. Existing drugs have been reviewed and highlights of the genomic and genetic approach which holds great promise for anti-parasitic therapeutics have been emphasized.

The article 'Multidrug resistance protein-1 encoded by ABCB1: past present and future of its targeting' reviews the current status and future prospects of pharmacological and genetic modulation of MRP1 activity.

Wenthur *et al.* emphasize that less evolutionary conservation offers high selectivity; thus key principles and strategies emerge for the design of ligands/drugs for allosteric sites.

'MicroRNA therapeutics in CVS disease models' by Dangwal and Thum covers this unique target future therapeutics of CVS diseases, as studies conducted in various animal models have shown that by manipulating the expression of these prevent and cure CVS pathologies.

Howard *et al.* emphasize on the need for improvised therapy to treat vascular inflammation which is associated with ischaemia reperfusion, acute lung injury, sepsis and stroke. So far nano carriers of anti-inflammatory agents have proved to be potent and specific strategy in animal models. Thus it is expected that this approach may lead to better management of the acute inflammation.

The article 'History of cancer testis antigen and the current studies' indicates that cancer testis antigen might play a functional role in supporting tumorigenesis. Recent studies are being directed to assess the unrecognized aspects of tumour cell biology and its interventions.

In 'Targeting PCSK9 for hypercholesterolemia' Norata *et al.* discuss the regulatory role of this pro-converterase in the regulation of LDL-C by enhancing the degradation of hepatic LDLR and current

therapeutic strategies for this protein being used in various preclinical to clinical studies.

Dallmann *et al.* deal with an important facet of endogenous circadian clock, which will affect drug absorption, metabolism and will result in circadian pharmacodynamics. Most of the studies have been conducted in animals. This relevant concern requires detailed study involving human subjects.

Sinclair and Guarente, apart from delimiting the background and sirtuin activators in lower organisms, animals and humans, cover the controversies and complexities of their mechanism of action. Their importance in ageing disorders, safety as well as concerns regarding the efficacy of SIRT1 activating compounds has also been emphasized.

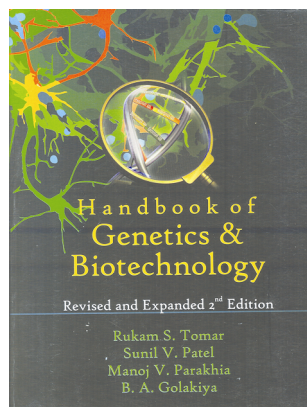
The article Offermanns deliberates on the function of short-chain (FFA2 and FFA3) and long-chain (FFA1 and FFA4) free fatty acid (FFA) receptors as well as their synthetic ligands in exerting various cellular and biological functions. Moreover, functions of hydroxyl carboxylic acid receptors and their synthetic ligands, as targets for various diseases have been discussed in a lucid manner.

Mani *et al.* have contributed an article on 'Understanding and modulating mammalian-microbial communication' for improved health. It describes the recent advances of the ecology, genetics and chemistry of the mammalian-microbial axes on communication. Interestingly, microbial transformation of the therapeutic compounds (anti-cancer and NSAIDs) can modulate their efficacy and toxicity.

To summarize, this volume offers a bundle of excellent, short, state-of-the-art status reports on several broad topics covering areas predominantly under CNS, and is a must have for active scientists.

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Handbook of Genetics & Biotechnology, Revised and Expanded 2nd Edition, 2014. Rukam S. Tomar *et al.* New India Publishing Agency, 101, Vikas Surya Plaza, CU Block, LSC Market, Pitam Pura, New Delhi 110 034. viii + 1122 pp. Price: Rs 795. ISBN 9789383305445.

Recent decades have seen a rapid increase in popularity of biotechnology as a subject of teaching at undergraduate as well as postgraduate levels in the country. This has also entailed greater interest in genetics and molecular biology. In keeping with the increase in the number of students studying these disciplines, several textbooks have been published in the country. Regrettably however, most of them fall below minimal standards with respect to the quality of their contents and/or accuracy of the included information/concepts. In this context, I felt hopeful on being invited by *Current Science* to review the present book. When I received the actual book, its volume (1122 pages of a full size book) appeared promising. The book has 27 chapters, including one massive chapter entitled 'Glossary'. Titles of different chapters relate to common topics expected to be covered in a Master's level course in genetics and molecular biology. Although the name of book suggests equal emphasis on biotechnology, there is no specific topic that relates to typical biotechnology, except the one on 'Recombinant DNA technology'. Chapter 26 is entitled 'Relative Reading': much of its content seems to be related to population genetics and evolutionary genetics, although the preceding two chapters are on 'Population genetics' and 'Evolutionary genetics' respectively. It is not clear why chapter 26 on 'Relative reading' should have so much of overlap with other chapters? The last chapter, 'Glos-

sary', covers nearly 400 pages and defines/describes a large number and variety of terms that extend to general biology/biochemistry. This book has followed an unusual organization of chapters. Each chapter, except the last one, begins with a series of bullet points without any descriptive text or illustrations; rest of each chapter is occupied by a large number of questions which range from MCQs, fill-in-the-blanks and true/false types followed by answers to the questions. The authors believe (as stated in the last sentence of the Preface) that this book would be helpful to 'students who want to pursue their career in the area of genetics and biotechnology since it contains short of each topic followed by objective questions'. In the quoted sentence, authors perhaps intended to say 'contains short description of each topic', but missed the word 'description'.

This voluminous book appears useless as soon as one starts reading it. The short Preface betrays the hopeless inadequacy of the book since not only the grammar and syntax have numerous problems, but what is written here is more worrisome. Just to illustrate, I quote the first few sentences from the Preface of this book: 'Conceptual development in any science is a painful path. With the simple experiments on garden peas; Gregor Mandel laid down the foundation of Modern Genetics. Watson and Creek explored the molecular base of genetics; which started the era of biotechnology. Genetics and Biotechnology are the two sides of the same coin. In fact we have been working in this science since last three sanctuaries'. I must admit that I had to take extra care in typing 'Mandel', 'Creek' and 'sanctuaries' as they are printed in the book. These and the other statements in the Preface reflect conceptual bankruptcy of the authors. The bulleted statements in different chapters do not provide any continuity of concepts or facts since each appears to be a stand-alone statement without any explanatory background. Obviously neither the teacher nor the student would be any wiser after reading such a disjointed text. As noted above, there is hardly any discussion on biotechnology per se. This reflects the common but seriously erroneous perception that biotechnology is nothing more than recombinant DNA technology and molecular biology. Biotechnology needs to be discussed and