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Guest Editorial

Towards Ubiquitous Health with Convergence

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Welcome to this special section of *Technology and Health Care*. This contains a collection of the best papers from various authors submitted. Economic growth and policy changes have led to an increased interest in medical services, leisure activities, and culture. In particular, an increasing number of people are showing a keen interest in health and happiness, which is due to the emergence of new diseases and an increase in life expectancy caused by economic growth and technology development. The search for an efficient way to respond to this increasing interest in health and wellness puts ubiquitous health services in the spotlight [1–4]. The main goal is to be a timely vehicle for publishing selected research papers on this emerging topic from practitioners and academia in different industries. This covers some of the hottest topics in Technology and Health Care, including: health computing for convergence; bioelectronics, biomechanics, telemedicine; medical imaging, bio-imaging; surgical technology, medical physics; innovative applications for convergence healthcare; medical and hospital informatics; telemedicine, e-health, and home care methods; public health services.

The paper by Cho et al. [5] proposes a potential therapeutic mechanism for action of extremely low-frequency high-voltage electric fields on a cell. They reviewed relevant papers from several aspects to determine the important factors to consider when preparing to experimentally verify whether an artificial system has a potential therapeutic effect and to determine its mechanism of action on a cell. This study was of extremely low-frequency (ELF) field-induced diverse alterations of membrane proteins, such as transporter and channel protein changes in ion influx or efflux, and alterations in ligand-receptor interaction. It contributes to developing a detailed understanding of a high-voltage electrotherapeutic apparatus for consumers and suppliers of such devices.

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The paper by Kim et al. [6] proposes exposure dose reduction during lateral spine tests with a water filter. The proposed method looks at patients and radiology workers in abdominal diagnostic testing, where the organs that have a high radiation tissue weighting factor are concentrated. They apply water filters during lateral spine X-ray imaging, which uses the highest radiation dose to measure and evaluate radiation dose and spatial dose distribution to minimize the radiation dose and acquire optimal images. This study is expected to have many uses, providing important basic data to predict exposure doses in patients.

The paper by Kim et al. [7] proposes a death education curriculum model for the general public using the Developing a Curriculum (DACUM) method. This interdisciplinary study was conducted on professors of health care, humanities and social sciences. A compilation based on difficulty and importance factors shows that 27 tasks, including psychological changes in terminally ill or suicidal patients, healing of stress, acceptance and understanding of death and suicide prevention, were identified as needing to be included in the curriculum. The data thus concluded will have to be reviewed when they are applied to actual education in order to revise the education program to make it more appropriate.

The paper by Kim [8] presents a study on the relationship between protein supplement intake satisfaction level and repurchase intentions of Korean university students majoring in physical education. This study found that protein supplement intake satisfaction level had a positive effect on word-of-mouth intentions, and the word-of-mouth intentions had a positive effect on repurchase intentions.

The paper by Kang et al. [9] introduces the effect of burdock extract upon inflammatory mediator production. This study investigated burdock extract and inhibition of nitric oxide (NO) generation, cyclooxygenase-2 (COX-2) expression, and the generation of interleukin-6 (IL-6) and tumor necrosis factor-α (TNF-α), to find out its anti-inflammatory effect. After treatment with burdock extract, the amount of nitric oxide (NO) generated in the inflamed cells developed by lipopolysaccharide (LPS) and UVB was measured, and confirmed the development of inflammatory mediators by RT-PCR. The expression levels of TNF-α, COX-2, and IL-6 declined to levels of control by LPS, and UVB stimulated inflammation in HaCat cells. This proves the anti-inflammatory effect of the burdock extract.

This collection of papers was accumulated through fruitful collaboration. We gratefully acknowledge and express our heartfelt appreciation to all authors for their excellent contributions. We also want to thank anonymous reviewers for their help in identifying novel papers. Furthermore, we would like to thank Professor Emeritus P.F. Niederer, editor-in-chief of *Technology and Health Care*, for his valuable remarks and help throughout the publication process.

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