12th Annual Congress of the European College of Sport Science におけるスイミング研究の動向

Trends of swimming research in 12th Annual Congress of the European College of Sport Science

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はじめに

スイミング研究がその理論と実際の双方の発展に貢献していくためには、国内外を問わずその研究に関する情報を集め議論し、常にその発展と充実を追求して行く必要があるだろう。本稿では、European College of Sport Science (略称：ECSS/ ヨーロッパスポーツ科学学会) カンファレンスにおける最新の研究発表動向を報告し、日本における今後のスイミング研究の方向性を示す1つの資料となることを期待するものである。

ECSS2007 の概要

12th Annual Congress of the European College of Sport Science (ECSS2007) はフィンランドのユバスキュラ市で2007年7月11日から14日まで開催され、世界60の国と地域からの参加があった。カンファレンスでは、35の招待シンポジウムと1400以上の研究発表が行われた。これらの演題はそれぞれトピックごとに分類され、以下のような25のセッションが構成された。

- Coaching and Performance
- Biomechanics
- Sports Medicine
- Adapted Physical Activity
- Genetics and Molecular Biology
- Motor Control and Learning

- Physical Activity, Health and Fitness
- Physiology
- Physical Education and Pedagogics
- Traumatology
- Doping
- Environmental Physiology
- Health-enhancing physical activity: Environment, physical activity and public health
- Rehabilitation and Physiotherapy
- Sport Psychology
- Aging
- Nutrition and Exercise
- Biochemistry and Endocrinology
- Cardiology
- Sociology
- Chronic Disease and Exercise
- Ergometry and Testing
- Fascicle-tendon interaction in locomotion
- Growth and Development
- Kinanthropometry

スイミングに関する研究発表

ECSS2007 のアブストラクト検索の結果、タイトルに〈swim〉〈water exercise〉等、水泳・水中運動に類する語が含まれる研究は全37演題収録されている。(Fig.1)

Fig.1 Field of research

Fig.2 First author's nationality

具体的な研究領域別にみると「Running, swimming, cycling, and skiing」(Invited Sessions)に1演題,「Coaching and Performance」に7演題,「Traumatology」に1演題,「Biochemistry」に1演題,「Doping」に1演題,「Biomechanics」に6演題,「Cardiology」に1演題,「Health and Fitness」に5演題,「Chronic Disease and Exercise」に1演題,「Ergometry and Testing」に3演題,「Sports Medicine」に4演題,「Growth and Development」に1演題,「Physiology」に2演題,「Adapted Physical Activity」に1演題,「Aging」に1演題,「Psychology」

に1演題の合計37の演題が発表された。このように,「Coaching and Performance」「Biomechanics」などに分類された発表が多いが,内容的には競技スポーツの側面からスイミングを捉えたものが多かった。具体的な演題名と発表者の所属国は以下のとおりである。(Fig.2)

Running, swimming, cycling and skiing

- 1) Performance diagnosis in swimming
(Vias-Boas et al, Finland)

Coaching and Performance

- 2) The role of deliberate practice in swimming
(Revesz Laszlo et al, Hungary)
- 3) Body temperature after the open water swimming
(Ayabe Makoto et al, Japan)
- 4) Supporting a madder test modified an 200m stroke distance in Italian agonistic swimmers
(Scurati Raffaele et al, Italy)
- 5) Butterfly stroke, anthropometric characteristics and motor abilities: correlations in young agonistic Italian swimmers
(Invernizzi Pietro Luigi et al, Italy)
- 6) Muscular power in freestyle swimming and selected dry land exercises
(Gatta Giorgia et al, Italy)
- 7) Stress index, energetic and tense arousal during swimming training program
(Kamel Khaled S, Saudi Arabia)
- 8) Effect of shooting and fencing on subsequent swimming performance in high level pentathletes
(Faina Marcello et al, Italy)

Traumatology

- 9) The prevalence of swimming injuries and their risk factors; A 12 month retrospective study
(Heinonen Ari et al, Finland)

Biochemistry

- 10) Kinetic response of salivary IgA, cortisol and testosterone, to several exercise protocols performed by well trained swimmers
(Teixeira A. Maria et al, Portugal)

Doping

- 11) Changes in swimmer's performance due to non-steroidal anti-inflammatory (NSAID'S) analgesy
(Ramos da Siilia Eduardo et al, Brazil)

Biomechanics

- 12) Estimation of the propulsive force by arm stroke in the front crawl swimming
(Suito Hiroshi et al, Japan)
- 13) Hand motion and the generation of propulsive force of crawl swimmers
(Matuuchi Kazuo et al, Japan)

- 14) The hydrodynamic drag during the gliding in swimming
(Marinho Daniel et al, Portugal)
- 15) Biomechanical comparison of free and hand paddle backstroke swimming
(Aggeloussis Nickos et al, Greece)
- 16) Underwater stroke kinematics of breathing and breath-holding front crawl swimming
(Mavromatis Geoge et al, Greece)
- 17) The influence of kineanthropometrical profile in deep-water tethered running
(Vila-Cha Carolina et al, Portugal)

Cardiology

- 18) Cardiovascular response to orthostatic probe in stroke survivors due to swimming programme
(Birzinyte Kristina et al, Lithuania)

Health and Fitness

- 19) Does a year of a weight bearing and strength exercise program in a low depth swimming pool improve bone mineral density?
(Diaz German et al, Spain)
- 20) The physical fitness factors of the competitive swimmers
(Atamturk Hakan et al, Cyprus)
- 21) Body composition of elite Turkish swimmers
(Ertas Dolek Burcu et al, Turkey)
- 22) Physiological responses to water fitness activity: A comparison between the effects of exercise on different water bikes
(Giacomini Francesco et al, Italy)
- 23) Food consumption, symptoms of eating disorders and muscle dysmorphia in swimmers from Belo Horizonte, Brazil
(Luz Silmara et al, Brazil)

Chronic Disease and Exercise

- 24) Swimming training prevents unstable atherosclerotic plaque in hypercholesterolemic and hypertensive ApoE^{-/-} mice
(Pellegrin Maxime et al, Switzerland)

Ergometry and Testing

- 25) Influence of body length and froud number on ac-

tive drag in front crawl swimming

(Reis Joana et al, Portugal)

- 26) Can the rebreathing method be applied in the swim flume and swimming pool?

(Rudiger Reer et al, Germany)

- 27) A comparison of exercise performance using different types of ergometers in competitive cyclists, runners, rowers and swimmers

(Michaelides Michael, Cyprus)

Sports Medicine

- 28) Prospective registration of competitive swimming injuries in Flanders

(Goekint Maaik et al, Belgium)

- 29) Recreational swimming is associated with decrease of FEV1/FVC ratio but not with small airway obstruction or bronchial hyperresponsiveness

(Ferrari Marcell et al, Italy)

- 30) The response of cardiac autonomic activity at rest and after an interval training session 5*600m in top-class marathon swimmers: relationship with physiological parameters

(Atlaoui Djamia et al, France)

- 31) Tinea pedis, trichophyton sensitization and respiratory symptoms in swimmers

(Ferrari Marcell et al, Italy)

Growth and Development

- 32) Swimming ability of the 12-year old children in Finland

(Hakamaki Matti et al, Finland)

Physiology

- 33) Ventilatory responses analysis in short vs. long interval training sessions in elite marathon swimmers

(Philippe Hellard et al, France)

- 34) Increase in venous return during the prone position in water

(Onodera Sho et al, Japan)

Adapted Physical Activity

- 35) Comparison of the offensive action in water polo games with the old and new rules

(Platanou Theodoros et al, Italy)

Aging

- 36) Breaking point in speed deterioration for men and women master swimming events

(Kamel Khaled S, Saudi Arabia)

Psychology

- 37) Defining of the reaction times in some of the athletes in swimming and track & field and comparison

(Yavuz Ulas, Turkey)

まとめにかえて

本稿では、体育・スポーツ関連学会としては世界最大規模であるヨーロッパスポーツ科学学会（12th Annual Congress of the European College of Sport Science）における、スイミング研究発表の動向を概観した。

今日、生涯スポーツの普及やスポーツのビジネス化・産業化が日本のみならず世界的に進んでいる。人々の価値観が多様化するにつれ、競技スポーツとしてのみならず、今後様々な事象を包括的に捉えようとした研究がさらに多く行われていくことが推測される。その点で、スイミング研究には国内外を問わず、これから開拓が期待される研究領域が多いのではないと思われる。今後も、より多角的な研究がなされ、スイミング研究の更なる活性化が期待されるであろう。

【参考文献】

- 1) 12th Annual Congress of the European College of Sport Science (2007) ECSS JYVÄSKYLÄ Abstracts, pp.1-718