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Infrared thermography for mass fever screening: repeating the mistakes of the past?

Medical Thermology 2019 -A computer assisted literature review

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Manuscripts should follow the recommendations of the International Committee of Medical Journal editors (ICMJE)[1] and for reporting health related studies the following standards are highly recommended:

CONSORT-(CONsolidated Standards Of Reporting Trials) for randomised controlled trials with parallel group design [2]

STROBE (STrengthening the Reporting of OBservational Studies in Epidemiology) for case control, cohort and crosssectional studies [3]

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) for systematic reviews and meta-analysis [4]

STARD (STAndards for Reporting of Diagnostic accuracy) for diagnostic tests [5]

CARE (Consensus-based Clinical CAse Reporting Guideline Development) for case or care reports [6]

SPIRIT (Standard Protocol Items: Recommendations for Interventional Trials) for study protocols [7]
SAMPL(Statistical Analysis and Methods in the Published Literature) for statistical reporting. [8]

The TISEM checklist is strongly recommended as guideline for complete reporting of thermographic studies [9]

In general, manuscripts hould be organized as follows: Introduction, methods, results, discussion, acknowledgements, references. A short abstract in English and, if possible, German (translation will be offered) should head the manuscript. Following the abstract, up to 5 key-words should characterize the paper.

Tables, Figures and Legends for illustrations should appear each on an extra sheet of paper.

References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses.Use the style of the examples below which are based on the formats used by the US National Library of Medicine in Index Medicus (complete list of examples on [1]).

Standard journal article (List the first six authors followed by "et al" if the number exceeds 6).
Luther B, Kreyer I, Dobi I. Die Anus-praeter-Thermographie als Methode zur Früherkennung vaskulärer Komplikationen nach Dünndarmtransplantation. ThermoMed 1990; 6: 115-7.

Chapter in a book
Gautherie M, HaehnelP, Walter JM, Keith L. Long-Term assessment of Breast Cancer Risk by Liquid Crystal Thermal Imaging. In: Gautherie M, Albert E, editors. Biomedical Thermology. New York Alan R.Liss Publ; 1982. p. 279-301.

Before publication proof prints will be mailed to the main author for corrections. Each author will receive the final versionas pdf-file.

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The internet access to the journal is supplied free of charge to members of the European Association of Thermology.

References:

[1] International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals. Medical Education 1999; 33; 066-078

[2] www.consort-statement.org

[3]www.strobe-statement.org

[4]www.prisma-statement.org

[5] www.stard-statement.org

[6] www.care-statement.org

[7] www.spirit-statement.org

[8] www.equator-network.org/wp-content/uploads/2013/03/SAMPL-Guidelines-3-1

[9]Moreira DG et al. Thermographic imaging in sports and exercise medicine: a Delphi study and consensus statement on the measurement of human skin temperatur. J Thermol Biol 2017, 69: 155-162

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Infrared thermography for mass fever screening: repeating the mistakes of the past?

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On 31st December 2019, the local health authority in Wuhan, China issued an epidemiological alert over pneumonia cases of unknown cause, with many sharing a history of visiting Huanan seafood market. The causal viral infection was rapidly identified as a novel coronavirus, labelled 2019-nCoV. By 2nd January 2020, 41 identified cases had been hospitalised in China [1]. By 10th February 2020, 40,554 cases had been diagnosed globally, 40,235 alone on mainland China, with 319 confirmed cases in 24 other countries. The total associated death toll was 910 [2].

In an echo of the response to the SARS outbreak in 2002, public health officials have identified an urgent need to screen for respiratory infection at airports in order to limit the spread of the disease across regional and national borders. This is despite limited evidence that detection programmes affect public health outcomes in such population settings with very low disease incidence [3]. Fever has been, nonetheless, identified as a symptom at onset of illness in 98% of persons infected with 2019-nCoV [4]. On the assumption that at least some infected travellers would be febrile at the time of screening, several different types of infrared temperature measuring devices have been employed to identify an elevated facial temperature in those individuals. These are attractive as they are "non-contact" devices, so some distance is left between the subject and the operator. Infrared thermal imaging cameras, also technically known as screening thermographs [5] are, among experts, recognised as potentially the most reliable of these devices for use in fever screening. However, during the SARS outbreak, little was known about the most reliable measurement sites at the face, and most data were collected at the forehead, with little or no attempt to standardise image capture protocols. Consequently by 2013, Chan et. al. [6] had concluded forehead infrared thermography readings from a distance should be abandoned for fever screening.

Infrared thermal imaging cameras historically have been designed for use in industrial settings (for example identifying overheating electrical equipment, or for building inspection). Utilising such instrumentation in a medical context (potentially without the assurances provided by the EU's Medical Devices Directive, or FDA approval) is non-trivial. It was for this reason that in 2008 an ISO working group of international experts, led by the eminent Professor John Hedley-Whyte from Harvard University, and including two former presidents of the EAT and a former president of the American Academy of Thermology, published detailed guidelines for the deployment of screening thermographs for fever detection [5].

It is important to note that the ISO project did not seek to demonstrate that it was possible to detect fever using infrared thermography in a population setting; it merely sought to describe a rigorous method for performing measurements that would ensure valid, reproducible and traceable temperature measurements if such devices were to be used. As evidence, it drew on published research on thermography for fever detection in adults and children, the experience of metrologists regarding how to optimise thermograph performance, and considered the physiology of fever and the epidemiology of viral respiratory infections. The guidelines were updated in 2017 to include a revision of the normative references and bibliography, and to expand the applicability of the document from SARS screening to pandemic infectious diseases in general [7].

The recommendations of the ISO committee are well known in the thermology community. One key finding was that the inner canthus of the eye is the only site on the face suitable for fever detection. From basic inspection of the news footage coming out of the Far East over the last few weeks it is apparent that the ISO guidelines are being completely ignored in many cases [8]. The minimum recommended requirements that the subjects must be screened individually, facing the thermal camera, and with the face unobstructed by masks, spectacles or headwear, have simply not been implemented. Erroneously, thermal imaging equipment (some of it clearly badged as supplied by major international manufacturers) is being employed to screen large numbers of subjects in the same field of view. Faces are often obscured by masks, and there is frequently no attempt to isolate the inner canthus of the eye for specific measurement. Needless to say, the utility of such poorly-performed thermography for detecting febrile subjects is likely to be very limited indeed.

It is hard to understand whether this misuse of thermography arises from well-intentioned ignorance or wilful negligence. Either way, the result may be yet another missed opportunity to use modern technology to improve public health outcomes. The consequences are clear.

Although it is far from certain that thermography could ever be useful as a rapid mass-screening tool for fever detection, we will never know the answer to this unless measurements are performed to rigorous standards, and the outcomes - that is to say positive and negative predictive values - recorded and published for scientific scrutiny. Those that base their screening protocols on mere hearsay or dogma - be they users or manufacturers - should be challenged. It is the responsibility of every scientist and physician to base their practice on up-to-date evidence, whilst at the same time questioning that evidence in a systematic manner where appropriate.

We must seek to learn from this episode. The publication of authoritative guidelines or standards is not sufficient without strenuous educational efforts to ensure that they are widely employed. In this respect we feel it is important that greater effort be made to bring the ISO guidelines to the attention to those using infrared devices for fever screening. While the document is available to all, there is a charge for downloading it. This may have prevented wider dissemination of the content, although there are many references to the key findings published in the scientific literature. The challenges of fever screening and the ISO guidelines have been discussed by Francis Ring and others at sessions of the 11th, 13th and 14th Congresses of the EAT [9-11].

The European Association of Thermology can continue to play an important role. We must ensure that the best temperature science on this topic, often performed by our own members [12-17], is neither ignored nor misrepresented. We should encourage the dissemination of educational material through our journal, and engage with health professionals via our congresses, as well as with the public through the popular media. On the particular matter of fever screening, we must work with emergency preparedness teams to ensure the missteps of the past are not repeated. If the cost of accessing information is a barrier to good scientific practice, then much more consideration should be given to open access publishing [18].

References

1.Huang C, Wang Y, Li X et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020 Jan 24. doi: 10.1016/S0140-6736(20)30183-5.

2.Novel Coronavirus (2019-nCoV) situation report 21 of the WHO. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200210-sitrep-21-ncov.pdf?sfvrsn =947679ef_2 [accessed 11 FEB 2020]

3.Mouchtouri VA, Christoforidou EP, An der Heiden M et al. Exit and entry screening practices for infectious diseases among travelers at points of entry: looking for evidence on public health impact. Int J Environ Res Public Health. 2019 Nov 21;16(23). doi: 10.3390/ijerph16234638

4.Wang W, Tang J, Wei F. Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. J Med Virol 2020 Jan 29. doi: 10.1002/jmv.25689

5.IEC 80601-2-59:2008(en) Medical electrical equipment - Part 2-59: Particular requirements for basic safety and essential performance of screening thermographs for human febrile temperature screening. www.iso.org/obp/ui/fr/#iso:std: iec: 80601: -2-59: ed-1:v1:en [accessed 31 JAN 2020]

6.Chan LS, Lo JLF, Kumana CR, Cheung BMY. Utility of infrared thermography for screening febrile subjects. Hong Kong Med J 2013;19:109-15

7.IEC 80601-2-59:2017 Medical electrical equipment - Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening. www.iso.org/standard/69346.html [accessed 09 FEB 2020]

8.www.nationalgeographic.com/science/2020/01/how-coronavirus -spreads-on-a-plane/ [accessed 31 JAN 2020]

9.11th European Congress of Thermology: Abstracts. Fever screening by infrared thermography. Thermol Int 2009;19:85-87

10.13th Congress of the European Association of Thermology in Madrid, 2nd - 5th September 2015: Abstracts. Temperature measurement at the head or face. Thermol Int 2015;25:113-114

11.14th EAT Congress: Extended abstracts. Fever and body temperature. Thermol Int 2018;28: 50-56

12.Ammer K. Standard procedures for recording and evaluation of thermal images of the human body: the Glamorgan Protocol. Thermol Int 2008;18:125-144

13.Pascoe DD, Fisher G. Comparison of measuring sites for the assessment of body temperature. Thermol Int 2009;19:35-42

14.Mercer JB, Ring EFJ. Fever screening and infrared thermal imaging: concerns and guidelines. Thermol Int 2009;19:67-69

15.Howell KJ, Smith RE. Temperature of the face in children and fever screening by thermography. Thermol Int 2011; 21: 81-85

16.Ring EFJ, Machin G, Jung A. New standards for infrared thermal imaging and applications for fever detection. Thermol Int 2011;21:118-119

17.Vardasca R, Marques AR, Diz J, Seixas A, Mendes J, Ring EFJ. The influence of angle and distance on temperature readings from the inner-canthi of the eye. Thermol Int 2017; 27:1 30-135

18.https://www.escap.eu/index/the-urgent-need-to-interact/open- access-part-of-a-revolutionary-development [accessed 03 FEB 2020]

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Medical Thermology 2019 - a computer-assisted literature survey

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SUMMARY

The literature survey 2019 is based on 775 papers found in Scopus with the keywords "thermography" OR "infrared imaging" OR "thermology" OR "temperature measurement" OR "thermometry"AND "published in 2019" and restricted to "medicine". The final database was created from 643 articles after 211 badly matched hits were excluded and a total of 79 articles were added, namely publications, notes or abstracts discovered in the journal "Thermology international" or in the author's literature archive. The papers were analysed with respect to the origin of authors, the language and the publication source. Like in the surveys of previous years, a detailed description is provided of publications related to Raynaud's phenomenon, Complex Regional Pain Syndrome, Breast diseases, fever measurement and application in sports. Most of the publications on breast thermography continue to originate from Asia. These papers have their primary focus on image processing and artificial intelligence applications for the evaluation of breast thermograms.

KEY WORDS: Thermography, literature search, breast cancer, CRPS, Raynaud´s phenomenon, fever measurement, sports

MEDIZINISCHE THERMOLOGIE 2019 - EINE COMPUTER-GESTÜTZTE LITERATURSUCHE

Die Literaturrecherche für 2019 basiert auf 775Arbeiten, die unter den Schlüsselwörtern "thermography" OR "infrared imaging" OR "thermology" OR "temperature measurement" OR "thermometry" und "veröffentlicht 2019" und der Einschränkung "Medizin" in der Datenbank Scopus gefunden wurden. Die endgültige Datenbank wurde aus 643 Artikeln erstellt, nachdem 211 schlecht passende Treffer ausgeschlossen und insgesamt 79 Artikel hinzugefügt wurden, nämliche Veröffentlichungen, Notizen oder Abstracts, die in der Zeitschrift "Thermology international" oder im Literaturarchiv des Autors entdeckt worden waren. Die Publikationen wurden in Bezug auf die Herkunft der Autoren, der Sprache und der Publikationsquelle analysiert. Ähnlich wie in den Überblicken der vergangenen Jahre, erfolgt eine detaillierte Beschreibung der Publikationen im Zusammenhang mit Raynaud-Phänomen, komplexem regionalen Schmerzsyndrom, Brustkrebs, Fiebermessung und Einsatz in der Sportmedizin. Die meisten Publikationen zur Brust-Thermographie stammen aus Asien. Diese Artikel haben ihren Schwerpunkt in der Bildbearbeitung und der Auswertung von Wärmebildern der Brust mit Hilfe künstlicher Intelligenz.

SCHLÜSSELWÖRTER: Thermographie, Literatursuche, Brustkrebs, komplexes regionales Schmerzsyndrom, Raynaud- Phänomen, Fiebermessung, Sport

Thermology international 2020, 30(1) 7-36

Introduction

This year, the annual literature survey on thermology and temperature measurement in medicine is based on data retrieved from the database Scopus, where the journal "Thermology international" is now regularly with some delay listed. The topics reviewed in detail, include this year again application of thermology in sports in addition to traditional fields of application such as breast cancer, fever measurement, complex regional pain syndrome (CRPS) and Raynaud´s phenomenon (RP).

Methods

A search in Scopus with the terms "thermology" OR "thermography" OR "infrared imaging" OR "thermal imaging" OR "temperature measurement OR" "thermometry" AND year 2019" yielded 7524 hits. Restriction with the term "medicine" resulted in a reduction to 818 hits. After removal of articles in press, books and book chapters, a total of 775 hits was obtained from Scopus (table 1).

All articles, conference abstracts and commentaries from the journal "Thermology international", Vol.29; not yet listed in Scopus, were added together with 55 articles, which quoted in 2019 temperature related papers authored or co-authored by K. Ammer. All documents were read by title, to assure that the contents of these 849 documents were in line with the terms "medicine" and "thermometry". In unclear cases the abstract or if available the full documents were checked for this information. This procedure lead to exclusion of other 211 papers, the majority of these were dedicated to applications of non-thermal infrared such as infrared spectroscopy or near-infrared imaging. The resulting database is built from 643 documents, which appear in the section "References" of this survey.
The total list of 643 references will be included as Volume 6 "Published papers on Thermology or Temperature Measurement in 2019", in the collection of references related to thermology. It will soon become available from the webpage of Thermology international at: "www.uhlen.at/ Thermology international/ Publications on thermology and temperature measurement/ Volume 6". Volumes 1-6 of this reference collection can be accessed free of charge at "www.uhlen.at/ Thermology international/Archives.

	Scopus
TITLE-ABS-KEY (thermology) AND PUBYEAR > 2018	6
TITLE-ABS-KEY (thermology OR thermography) AND PUBYEAR > 2018	2563
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging") AND PUBYEAR > 2018	3160
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging" OR "infrared imaging") AND PUBYEAR > 2018	3940
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging" OR "infrared imaging" OR "temperature measurement") AND PUBYEAR > 2018	6878
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging" OR "infrared imaging" OR "temperature measurement" OR thermometry) AND PUBYEAR > 2018	7592
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging" OR "infrared imaging" OR "temperature measurement" OR thermometry) AND PUBYEAR > 2018 AND (LIMIT TO (PUBYEAR, 2019))	7254
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging" OR "infrared imaging" OR "temperature measurement" OR thermometry) AND PUBYEAR > 2018 AND (LIMIT TO (PUBYEAR, 2019)) AND (LIMIT TO (SUBAREA, "MEDI")	818
TITLE-ABS-KEY (thermology OR thermography OR "thermal imaging" OR "infrared imaging" OR "temperature measurement" OR thermometry) AND PUBYEAR > 2018 AND (LIMIT TO (PUBYEAR, 2019)) AND (LIMIT TO (SUBAREA, "MEDI") AND (EXCLUDE (DOCTYPE, *„ch*) OR EXCLUDE (DOCTYPE , *"bk"*)) AND (LIMIT-TO (PUBSTAGE , *„final"*))	775

From the dataset, the following information was extracted: Authors in relationship to the number of published articles, the origin of authors, the language of publication, and the journals which published with more than 10 articles related to the search profile. The proportion of allocated papers to medical fields was also determined.

Results

Language of publication

Table 2 shows the publication language of articles. English was the predominant language in the dataset. Russian was the second and Chinese was third in rank.

Authors

In total, 3832 authors appeared in the dataset. The names of three Portuguese and one Austrian author were found in 22 articles. R. Vardasca was 5 times the first author [1-5] and 5 times co-author of full-length articles [6-10] and appeared once as co-author of an extended abstract [11]. K. Ammer was the first author of 3 articles [12-14] and 1 extended abstract [15], and co-author in 2 articles [10, 16], 1 comment [17] and 3 other extended abstract [11, 18,19]. A. Seixas was detected as first author in 2 articles [10, 20], 2 comments [17, 21] and 1 extended abstract [11] and co-author in 2 articles [1,22]. J. Mendes co-authored 9 full-length articles [1-8, 10] and 1 abstract [11]

Table 2
Language of publication

Language	% of 643 hits
English	96.3% (619 hits)
Russian	1.6% (10 hits)
Chinese	0.9% (6 hits)
Japanese	0.3% (2 hits)
Croatian	0.16% (1 hit)
Czech	0.16% (1 hit)
German	0.16% (1 hit)
Hungarian	0.16% (1 hit)
Spanish	0.16% (1 hit)
Turkish	00.16% (1 hit)

Origin of authors

60 countries were identified where 617 corresponding authors worked (figure 1). 25 % of these were situated in North America, the majority, i. e. 129 in the United States, 21 in Canada and 3 in Mexico. 43.1% of researchers came from European countries, 32 authors published their work from Spain, the United Kingdom or Germany was the place of residence of 31 authors each. Poland with 25, Italy and Portugal with 19 articles each and France with 16 papers were followed in rank.(figure 2). 25 % of temperature related research was conducted in Asia, 37 corresponding authors were situated in China, 32 in Japan and 17 in India. From South Korea originated 20 authors and 11 were resided in Iran. 4,4% of temperature research was performed in South America, 1.8% in Australia or New Zealand and only 0.8% in Africa (figure 3).

Journals

In total, 383 journals and 5 conference proceedings published papers related to the search profile. 5 journals and 1 proceeding published 10 to 35 papers related to the topic of this survey. First in rank was Thermology international with 35 publications (8 articles, 3 obituaries, 1 comment, 1 book review, 10 extended abstracts, 12 abstracts) followed by the "International Journal of Hyperthermia" with 28 articles. Next were "Proceedings of SPIE- Progress in Biomedical Optics and Imaging" and "Physiological Measurement" publishing 12 articles each of them. 2 journals, "Magnetic Resonance in Medicine" and "International Journal of Environmental Research and Public Health" were each the source for 10 temperature related papers.

Figure 1
Distribution of world wide thermological research. Yellow indicates low and red high percentage.

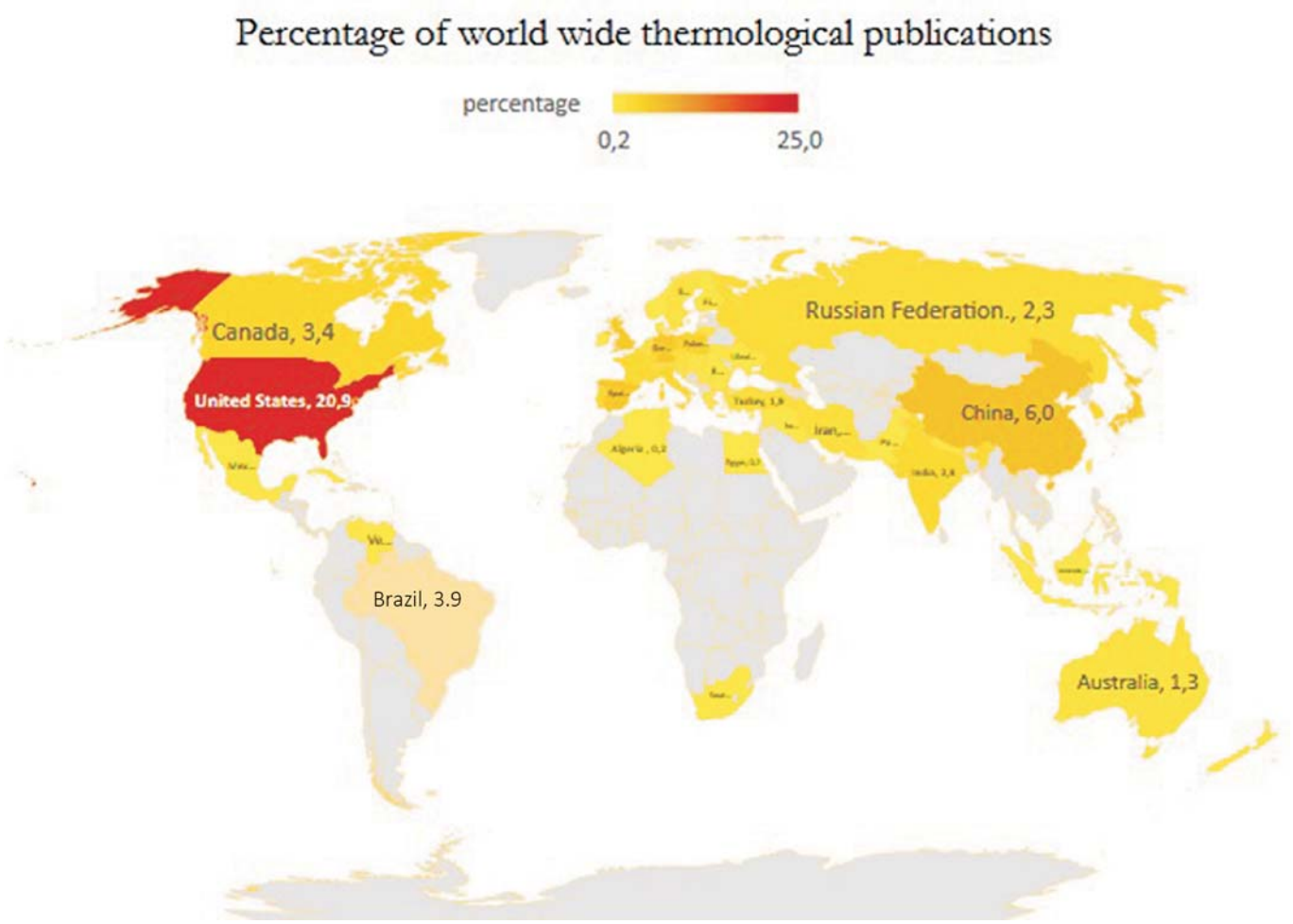

Figure 2
Proportion of worldwide publications in European countries
Light blue indicates low and dark blue high percentage.

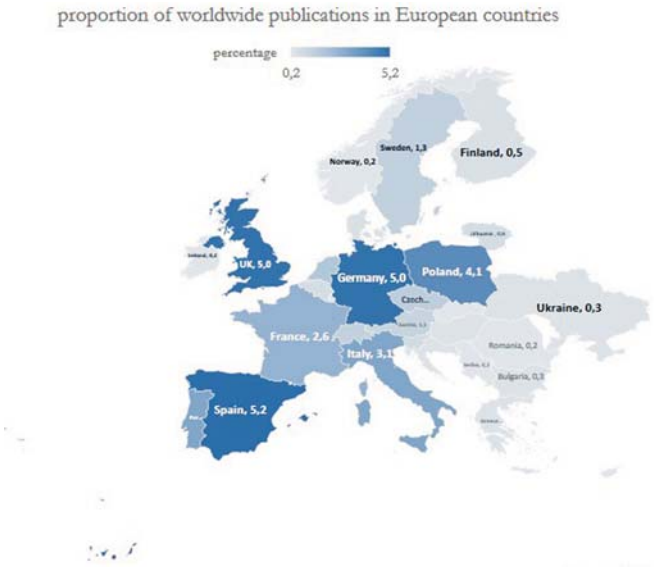

Figure 3
Percentage pf publications in relation to continents

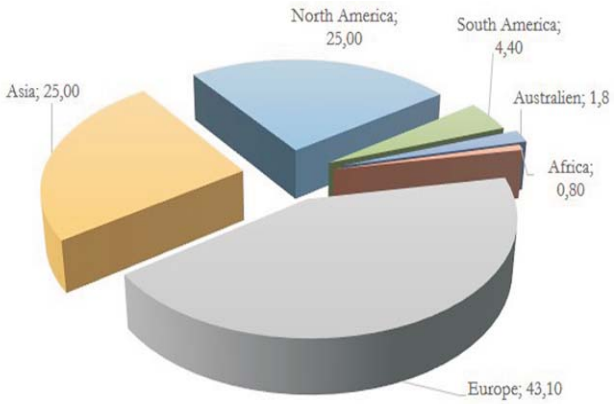

Table 4
Impact factor of journals, that published 10to 35 temperature related articles

Journal name	Number of thermology papers	Impact factor 2018
Thermology international	35	1.222*
International Journal of Hyperthermia	28	3.589
Physiological Measurement	12	2,246
Magnetic Resonance in Medicine	10	3.858
International Journal of Environmental Research and Public Health	10	2.468
	Mean impact factor	2.676

ScImago citations/2 years *

Table 4 lists the journal name, the number of papers of interest and their impact factor 2018 provided by Clarivate Analytics. If the journal was not listed by Clarivate, the citations/2 years published by SciImago were used instead- A mean impact factors of 2.676 was calculated for the 5 journals listed. The mean impact was derived from the cumulated impact factor of all 5 journals

Type of publication

538 papers were classified as articles and 44 as reviews. 21 conference papers, 1 book review, 22 conference abstracts (10 of them extended abstracts) have been published. The remaining papers were classified as 14 letters, 11 editorials, 9 notes and 3 obituaries.

Human Medical publications

As in last year´s surveys, papers were allocated to a keyword that roughly describes a distinct field of medicine. Usually, allocations to more than just one field are made. Table 3 shows the allocations to fields of medicine. Surgery was the most frequent allocated speciality of medicine, combined with injury 344 articles were identified. Radiology & Nuclear Medicine, Physiology and Endocrinology and Cancer, were the next in frequency of allocation, followed by Pathology and Forensic Science, Neurology & Psychiatry, Internal Medicine, Pharmacology and Pharmacy, Rehabilitation and Complementary Medicine, Public Health, Paediatrics, Immunology & Haematology, Dermatology, Biochemistry, Microbiology, Genetics and Gerontology. Only some papers were not automatically allocated to a field.

Table 5
Medical fields

Medical field	Reference	Total of identified papers
Biochemistry	23-65	43
Cancer	8, 13, 23, 24,28, 31,32, 34, 35, 37,38, 42, 43,51,52, 54-58, 66-234	192
Dermatology and Venerology	7, 8, 13, 43, 50, 55, 76, 79, 84, 88, 89, 91,93,108,117,121,130, 139,173, 183, 184, 192, 227, 234, 235-257	47
Genetics	8, 10, 34, 45, 50, 109, 117, 134,146, 148, 258-270	28
Geriatrics and Gerontology	29, 38, 156, 164, 225,244, 271-284	20
Immunology and Haematology	13, 23, 28, 29, 35, 45, 50, 52, 53, 62, 71, 81, 94, 95, 109, 110, 113, 117, 121, 124, 134, 137, 138, 140, 141, 144, 148, 149, 154, 165, 170, 174, 183, 195, 246, 251, 255, 257, 262, 263, 274, 285-310	67
Microbiology	13, 28, 50, 52, 110, 126, 134, 138, 140, 174, 186, 194, 198, 225, 242, 262, 263, 266-268, 269, 270, 283, 293-295, 299, 302, 306, 311-322	42
Injury (surgery excluded)	29, 41, 49, 52, 62, 106, 117, 148, 173, 174, 182, 197, 212, 225, 256, 275, 278, 284, 292, 303, 310, 323-362	62
Neurology and Psychiatry	10, 13, 27, 29, 30, 34, 37, 49, 70, 81, 109, 114, 146, 155, 159, 169, 177, 188, 189, 193, 212, 216, 217, 219, 221, 224, 233, 235, 243, 246, 252, 254, 257, 258, 259, 261, 263, 264, 266, 273, 277, 278, 279, 299, 304, 309, 310, 318, 321, 327, 331, 341, 347, 357, 361, 363-402, 636	97
Internal Medicine	5, 13, 23,34,38, 39, 46, 67,77,84, 94, 102, 109, 113, 124, 139, 140, 145, 148, 149, 156, 161, 162, 173, 174, 190, 198, 215, 220,240, 243, 251, 263, 266, 268, 271, 273, 274, 284, 293, 294, 298, 300, 303, 306,311, 313, 341, 343, 345, 346, 347, 349, 361, 362, 369, 370, 385, 403-421, 532, 636	78
Otorhinolaryngology	62, 109, 138, 211, 367, 372, 422-424, 615	9
Paediatrics	1, 13, 25, 28, 39, 44, 46, 48, 58, 75, 79, 85, 86, 103, 109, 117, 124, 138, 124, 138, 164, 165, 166, 170, 172, 179, 185, 217, 220, 221, 232, 239, 250, 254, 266,271,281, 285, 287, 297, 307, 315, 321, 357, 363, 365, 375, 374, 392, 399, 400, 409, 419, 425-441	69

and Gerontology. Only some papers were not automatically allocated to a field.

29 papers were found for Breast, 3 publications for Complex Regional Pain Syndrome and Raynaud´s Phenomenon was keyword of 7 papers. The search term "thermography" retrieved 288 papers, "fever" appeared in 89 publications and the keyword "sports" in 63 articles.

Breast cancer

29 articles contained key word "breast " [13, 24, 38, 77, 94, 95,111,122, 125, 126, 153, 176, 177,180, 188, 190, 196, 206, 208, 209, 210, 231, 229, 230, 234, 248, 560, 567, 591].

Based on the available literature, a review article confirmed the viewpoint that there is no real need for thermography in breast cancer diagnostics, except to further confirm other techniques' results, e.g., mammography or ultrasound. The authors qualified infrared imaging as an adjunctive technique in the preliminary screening for breast cancer that, at a minimum, identified patients warranting follow-up by other screening techniques. Younger women are the ideal candidates for IR breast imaging [560]. Another review article stated that there is a need for better screening methods due to limitations existing breast cancer screening methods. Non-invasive methods offer promise to mitigate

Table 5 continued

Medical field	Reference	Total of identified papers
Pharmacology and Pharmacy	13, 16, 25-27, 29, 30, 32, 36, 37, 39, 40, 41, 45, 49, 52, 55, 56, 62, 68, 81, 106, 121, 128, 140, 144, 145, 149, 155, 169, 177, 179, 187, 188, 201, 220, 241, 243, 244, 251, 255, 260, 261, 273, 277, 278, 285, 303, 304, 307, 309, 318, 342, 366, 378, 385, 390, 391, 398, 406, 407, 413, 414, 424, 434, 435, 449, 470, 472-480, 612,	77
Physiology and Endocrinology	4, 10, 12, 13, 25, 27, 28, 29, 30, 34, 35, 36, 37, 39, 41, 43, 44, 45, 46, 48, 49, 50, 52, 55, 57, 58, 59, 60, 62, 63, 65, 68, 71, 75, 82, 90, 91, 100, 111, 117, 123, 124, 131, 133, 137, 144, 145, 146, 148, 153, 155, 169, 172, 173, 174, 177, 178, 182, 183, 189, 191, 194, 202, 206, 212, 214, 215, 216, 217, 219, 220, 224, 227, 234, 236, 238, 239, 241, 244, 250, 251, 255, 257, 260, 261, 264-266, 271-275, 277, 279, 280, 281, 284, 287, 290-292, 295, 300, 301, 313, 315, 321, 325, 326, 331, 333 335, 337, 338, 347, 353, 355, 358, 362, 363, 364, 366, 368-372, 376, 378, 379, 380-383, 387, 390, 391, 394, 396, 398, 401, 402, 408, 412, 414, 415, 424, 426, 436, 437, 441, 442, 451, 452, 454, 458, 459, 462, 464, 470, 473, 474, 481-514, 614	203
Public Health and Occupational Medicine	13, 34, 57, 64, 80, 91, 109, 117, 134, 140, 148, 161, 164, 174, 184, 190, 192, 225, 238, 243, 262, 265, 266, 267, 270, 273, 280, 291, 294, 295, 297, 312, 314, 316, 321, 332, 334,339, 344, 348, 362, 366, 369, 370, 371, 383, 384, 400, 407, 425, 431, 442, 450, 453, 492, 497,502, 503, 515-526, 626	71
Radiology Nuclear Medicine Thermal Imaging	1,21, 31,34, 35, 38, 39, 41, 46, 48, 50, 51, 54, 56, 58, 61, 67, 70, 72, 73, 77, 85-88, 90, 94, 97, 103, 105, 107, 109, 114, 115, 118, 119, 122, 125, 129, 133, 138, 146, 151, 152, 158, 159, 164, 166-168, 171, 172, 175, 177, 178, 180, 181, 183, 190, 191,193, 194, 196, 200, 205, 209, 214, 216, 218, 221, 223, 224, 226, 230, 231-234, 236, 238, 250, 254, 256, 259, 276, 283, 292, 293, 296, 306, 313, 320, 321, 329,339,347, 354, 361, 368, 373, 374, 375, 381, 382, 389, 397, 398, 399, 404, 405, 410, 418, 423, 429, 429, 434, 437,445, 446, 448, 453, 456,460, 464, 467, 468, 477, 482-484, 487, 507, 509, 527-596, 624.632	228
Rehabilitation and Complementary Medicine	13, 20, 34, 55, 59, 77, 100, 108, 109, 120, 139,183,217,243,248,252, 258, 260, 275, 277, 280, 292, 313, 323, 325,335, 336, 353, 355, 367, 370, 350, 395, 399, 400, 403, 425, 434, 450, 458, 465, 469, 472, 473, 479, 482, 489, 501, 507, 541, 549, 555, 557, 561, 577, 580, 597-611,613	71
Surgery	4, 10, 13, 16, 21, 23, 26, 31-36, 38, 40, 42, 43, 50, 51, 55, 56, 59, 61, 63, 68, 70, 73, 75, 77, 78, 80-82, 84, 86-93, 96, 97, 98-100, 104, 105, 108, 109, 111, 112, 114, 115, 116, 118, 119, 123, 126, 129, 130-134, 137-139, 143, 146, 147, 152, 157, 158, 163, 166-168, 171, 172, 175, 177, 178, 183-185, 189, 191-195, 198-200, 202, 203, 207-211, 213-215, 218, 219, 221, 222, 226, 227, 230, 231, 234, 236-245, 248, 252-255, 257, 259-261, 268, 272,273, 276, 280, 281, 288-290, 293, 295, 298, 308, 309, 313, 315, 316, 364, 367, 368, 370, 372-375, 379, 380, 382, 384, 386, 388-395, 397-399, 402-405, 411-413, 415, 421, 422, 424-426, 430, 431, 436, 441, 442, 445, 450, 452-466, 470-475, 484-486, 488, 492, 496, 497, 500, 501, 503, 504, 507-509, 512, 516, 518, 521, 527, 529, 530, 537, 541, 543-546, 548, 549, 555, 557, 562, 565, 567, 569, 577-580, 583, 587, 591, 593, 601, 603, 608, 611, 616-623, 625, 627-631, 633, 634, 635, 637	282
Toxicology and Drug Dependence	41, 52, 57, 106, 148, 266, 344, 395, 414, 44,7 449, 480, 638	13

the issues particularly around comfort/pain and radiation dose, which would improve compliance and enable all ages to be screened regularly. However, these methods must still undergo significant validation testing to prove they can provide realistic screening alternatives to the current accepted standards [38].

Automatic image processing for segmentation and machine learning methods for the analysis of infrared thermal images were applied in nine studies [24, 94, 111, 125, 153, 180, 188,198, 208]. A study conducted in Iran reported the diagnostic accuracy of computer assisted regulation thermography for breast cancer in comparison to mammography, sonography and clinical examination [122]. An article written in the Russian language reported microwave findings from patients with breast disease and proposed a mathematical model to improve the diagnostic accuracy of the radiometric fmethod [229].

Problems of temperature measurements with magnetic resonance (MR) imaging techniques inside of mammary glands were addressed in three articles [176, 230, 531]. Breast diseases were mentioned as a difficult target of focused ultrasound treatment [177]. Svedin et al. reported a method for simultaneous proton resonance frequency (PRF) shift and T1 measurements during MR-guided focused ultrasound treatment. After discussing the theoretical background, the method was evaluated in MR-guided focused ultrasound heating experiments using a gelatine phantom and human cadaver breasts. In vivo measurement precision was demonstrated in healthy female volunteers under non- heating conditions. The authors concluded that the applied technique provides a reliable way to simultaneously measure PRF temperature and T1 change and overcomes PRF's inability to simultaneously monitor temperature in aqueous and adipose tissues [531]. Another article described simultaneous PRF and T1 temperature mapping technique in both fat and aqueous tissues based on a different MRI-principle. Non-heating in vivo experiments demonstrated dynamic 3D temperature mapping of targeted organs with good PRF and T1 stability. Ex vivo HIFU ablation experiments in porcine tissue showed accurate temperature mapping using PRF and T1, compared to temperature probe readings [230]. Separated MR-mapping of water or fat is difficult when the imaged tissue was heated. A new algorithm might overcome that problem as shown in a porcine phantom experiment with focused ultrasound heating at 1.5 Tesla. Free-breathing breast and liver imaging experiments demonstrated motion and off-resonance compensation [176].

An article from China proposed mitochondrial heat shock through glycolipid micelles as nanotechnology-based therapy against breast carcinoma [206]. A study from Japan tried to prevent chemotherapy-induced peripheral neuropathy in breast cancer patients by wearing compression gloves. Successful compression was based on low temperatures in the fingertips imaged by an infrared thermal imager [213].

A systematic review tried to determine whether the large variation in outcome observed in clinical studies for patients with recurrent breast cancer treated with radiotherapy (RT) and combined hyperthermia treatment (HT) can be explained by variation in achieved temperatures and thermal dose during HT treatment (77). The authors concluded that higher temperature and thermal dose during hyperthermia therapy significantly improve clinical outcome, complete response, local control and overall survival.

A sufficiently high hyperthermia therapy dose is required to achieve the radio-sensitizing effect of hyperthermia therapy. Thermal dose parameters derived from the surface have a relationship with thermal toxicity, whereas invasive thermal dose parameters have a relationship with response, local control and overall survival as well as with thermal toxicity. Preliminary results of a prospective study reported a sufficient local tumour control after combined treatment with radiotherapy and hyperthermia in a small cohort of women with recurrent breast cancer [95].

A group from China used thermal imaging to predict radiation skin injury in females treated with radiotherapy after unilateral mastectomy [234]. Low grade dermatitis was associated with less temperature increase in the irradiated area than high grade dermatitis.

The role of dynamic infrared thermography (DIRT) in breast reconstruction with autologous free DIEP (Deep Inferior Epigastric artery Perforator) flaps was topic of 3 articles [209, 210, 576]. A systematic review article concluded that DIRT seems to be a valuable investigation for the pre-, per- and postoperative phase of DIEP-flap reconstructions, but additional high-quality studies are needed [209]. A new measurement set-up was proposed that can be applied in the pre-, peri-, and postoperative period of the reconstruction thus providing reproducible results [210]. Austrian surgeons based their decision to harvest contra-lateral and ipsilateral DIEP flap for unilateral breast reconstruction successfully on DIRT [567]. They showed a difference in diameter in the left and right deep inferior epigastric artery, explaining the rewarming time of abdominal skin, but does not necessarily correlate with the size of the perforators itself.

In Serbia, spot temperature measurements with a radiometer were obtained from two sites prior and 7 days after breast augmentation surgery in 49 women [248]. The authors interpreted the small increase in temperature after surgery as an effect of implanting a silicon prosthesis and explained the skin temperature changes by the inflammation and healing process following the augmentation mammaplasty.

The thermal effects of electrosurgical devices used for focused preparation in breast surgery were tested in a specified porcine tissue ex vivo breast model using infrared imaging-based temperature measurements. A novel developed device proved to generate less slope in skin temperature rise and lower peak temperature than the standard device [126].

CRPS

A search in the database with the keywords "complex regional pain syndrome" or "CRPS" identified only two articles in addition to the annual literature survey [13] A temperature asymmetry at the lower extremities in a 9-years old girl contributed in combination with severe pain in the region of the left foot, entrapment signs of the common peroneal nerve, hyperalgesia not limited to the distribution of the injured nerve and weakness to the diagnosis of complex regional pain syndrome type 2. 6 months after diagnoses all symptoms resolved due to intensive rehabilitation interventions [425].

Chinese researchers investigated in an animal model of CRPS-I the involvement of TRPV1, a non-selective cation channel important for integrating various painful stimuli, particularly noxious heat pain. A rat model of chronic postischemia pain (CPIP) was established to mimic CRPS-I. TRPV1 expression was significantly increased in hind paw tissue and small to medium-sized dorsal root ganglion (DRG) neurons of CPIP rats. Local pharmacological blockage of TRPV1 with a specific antagonist, at a dosage that does not produce hyperthermia or affect thermal perception or locomotor activity, effectively attenuated thermal and mechanical hypersensitivity in bilateral hind paws of CPIP rats and reduced the hyperexcitability of DRG neurons induced by CPIP. These findings identified an important role of TRPV1 in mediating thermal and mechanical hypersensitivity in a CRPS-I animal model [37].

Raynaud`s phenomenon (RP]

7 papers were found with the key word "Raynaud´s phenomenon" [13, 226, 240, 251, 303, 434, 550]. The annual literature survey contained a section on Raynaud´s phenomenon [13]. The case of a Japanese 60-year-old woman was reported who presented with the combination of lymphedema on the right upper extremity and Raynaud´s phenomenon on the middle, ring and little finger. Plastic surgery was performed including venous arterialization of the poorly perfused fingers, and lympho-venous anastomosis aiming reduction of congestion of lymph fluid [226]. 12 months after surgery the lymphedema was reduced, and the perfusion of the involved fingers was normal as visible in a symmetric distribution of skin temperatures on an infrared thermogram. However, labelling obstructed finger arteries as Raynaud´s phenomenon may be questioned.

A pilot study investigated the blood flow in the distal part of fingers using Laser Speckle Contrast Analysis of patients with "early" systemic sclerosis (SSc) in comparison to patients with primary Raynaud´s phenomenon or healthy controls. The authors mentioned thermography as a tool to assess blood flow indirectly but did not consider the thermal method due to its poor sensitivity in detecting variations in blood flow and its low spatial resolution. Blood flow of hands was found lower in patients with primary Raynaud´s phenomenon than in SSc patients with the "early" pattern of microangiopathy obtained in nailfold video-capillaroscopy [303].

A literature survey on the management of patients with Raynaud´s phenomenon was based on articles from the last 4 years. The Polish author mentioned infrared thermography as an assessment tool but did not recommend thermography as routine procedure for following up patients with primary Raynaud´s phenomenon [143]. A review article on microvascular involvement in systemic sclerosis and systemic lupus erythematosus (SLE) mentioned thermography as clinical tool for the assessment of the microvasculature. but the authors criticised the lack of thermographic studies for evaluation of microcirculation in SLE patients [251].

Martini et al conducted a cross-sectional thermographic study in children presenting with either primary (PRP) or secondary Raynaud´s phenomenon (SRP). Temperature findings prior and after a cold challenge were compared to age-matched healthy controls. The authors reported an excellent inter-rater agreement for temperature measurement at DIP joints and MCP joint of patients and controls. The results showed also that patients with PRP, SRP and healthy controls present with significant differences in basal finger temperature and in re-warming pattern after cold challenge [434].

Infrared imaging was used as outcome measure in clinical trials [240, 550]. Treatment with Pycnogenol, a dietary supplement derived from extracts from maritime pine bark, successfully reduced the severity of symptoms in patients with mild primary Raynaud´s phenomenon [550].

In England, forty patients received 100 units of Btx-A, injected across both hands via a dorsal approach. Each patient had a baseline,6- and 12-week hand assessment and thermographic image (FLIR E60bx) performed for the study. Eighty-eight percent of patients reported an improvement in symptoms including reduction in pain, improved colour change with reduced swelling and oedema at 6 weeks. Of these patients, 80% reported an improvement in cold intolerance with a reduction in the frequency and severity of Raynaud's attacks. There was a significant improvement in hand function assessment tools. Improvements in hand function and symptoms of RP were still evident at 12 weeks [240].

Fever

55 articles were retrieved with the keyword fever; many of them reported single cases presenting with increased core temperature due to predominately rare infections [165, 263, 268, 283, 299, 311, 322, 365, 404, 407. 615], caused by systemic or non-infectious diseases [141, 149, 156, 186, 225, 285, 310, 318, 346, 416,] or drug induced fever [290, 309,385, 406]. 8 papers reported animal models for specific infections [53,62, 134, 266] or for evaluation of antipyretic drug effects [41, 145,179, 472].

A retrospective cohort study on 2746 patients who underwent 3298 urethroscopies for stone disease was conducted to identify risk factors for postoperative fever (POF) and systemic inflammatory response syndrome (SIRS). Female

gender, longer surgical time, medical complexity, and positive preoperative urine culture were associated with POF/SIRS after urethroscopy [199].

A survey among members of the European Society of Intensive Care Medicine explored fever management in patients with acute brain injury. A large proportion of respondents considered fever as a body temperature >38.3°C Among first-line methods to treat fever, ice packs were the most frequently utilized physical method , external non-a utomated system was the most frequent utilized device, and paracetamol was the most frequently utilized drug. Protocols for fever control and shivering management were available to 43% and 28% of respondents, respectively [394].

A clinical study in pediatric subjects was conducted on behalf of the FDA Center for Devices & Radiological Health in Maryland, USA; to evaluate the accuracy of three brands of inexpensive, off-the-shelf digital electronic thermometers. Temperature predictions of the off-the-shelf thermometer were compared to the measurements made simultaneously by a specially designed, calibrated, and fast-responding, computer-based reference thermometer. Oral and axillary measurement were taken in 89 sick and 212 healthy participants, who were assigned to 4 age groups (0 - 2 years, 3-6 years, 7-12 years, 13-18 years). Temperature results were recorded after 10, 30 and 120 seconds with the reference thermometer or one of the three brand thermometers. After 120 seconds the maximum in mean temperatures was reached. The differences between the reference and store brand thermometers were inconsistent, and ranged between -0.78°C and +1.94°C. The axillary temperature was always lower than the oral temperature, but the difference varied by age group and applied thermometer [441].

In a private paediatric practice in Switzerland body temperature was prospectively measured due to suspected fever in 169 infants (81 girls) with a median age of months 9 (interquartile range 6-13). Two left and two right axillary, and two rectal measurements were taken with a digital thermometer at room temperature (20-24 °C). The median and interquartile range for axillary and rectal measurements were 36.9 (36.3-37.6) °C and 38.2 (37.4-38.9) °C, respectively .The limits of agreement in the Bland-Altman plots were 0.32 to 1.98 °C, with a mean bias of 1.15 °C. Axillary thermometers showed a good sensitivity for detecting rectal temperature > 38 °C (95%) but limited specificity (75%). Axillary readings have been always lower than rectal ones, the limits of agreement were quite wide. Axillary readings can be used for screening, but clinically significant temperature values should be confirmed by more reliable methods.

A systematic review spanning the period from 1935 to December 2017 collected articles presenting data on measured normal body temperature of healthy human subjects ages 18 and older. Other inclusion criteria were that a prospective design was used, and the paper was written in or translated into the English language. Thirty-six articles met the inclusion criteria. This comprised 9227 measurement sites from 7636 subjects. The calculated ranges (mean ± 2 standard deviations) were 36.3-37.8 (rectal), 35.8-37.5 (tympanic), 35.6-37.6 (urine), 35.7-37.4 (oral), and 35.0-36.9 (axillary). Older adults (age ?60) had lower temperature than younger adults (age <60) by 0.23°C, on average. There was only insignificant gender difference [274].

In France, regularly updated national health guidelines exist on managing fever in children. To assess the current knowledge of parents on the recommendations for fever management, an observational, descriptive, quantitative national study was conducted with an online questionnaire among adult parents with children born between 2006 and 2017 who had a French health record. A total of 3295 parents were included from 03/12/2017 to 04/02/2018. The concordance of knowledge compared to current recommendations has improved in 10 years, especially regarding physical treatment (31% of parents had all the right answers) and drugs (95% paracetamol monotherapy). Shortcomings mainly concern the definition of fever, the idea that the temperature is correlated with severity, and the lack of knowledge of the sign of severity "age less than 3 months." [427].

Sports

25 articles were identified with the keyword "sports" OR "exercise" (20, 23, 33, 55, 173, 272, 335, 336, 337, 355, 363, 366, 396, 442, 486, 488, 493, 510, 514, 540, 546, 553, 574, 577, 602). 3 papers were related to sports performance in hot climate. (335, 493, 510). An article from Japan elucidated the inconsistency between the standard of care provided in Japan for exertional heat stroke (EHS) and what has been accepted as the gold standard by the scientific literature. Since severe environmental heat stress was prognosed for the Tokyo 2020 Summer Olympics, the authors proposed strategies for optimal EHS management that can maximize the safety of athletes and improve organizational resilience to heat [493].

In Kaunas, Lithuania, neuromuscular function was studied in young and elderly adults after their rectal temperature was increased by 2.5°C due to passive lower-body heating. Changes in reflex amplitudes were not observed under hyperthermia in either age group, but a greater decrease in maximal H-reflex and V-wave latencies was found in older than in young men. In older men, lower-body heating was accompanied by a significant increase in twitch and torque induced by electric stimulation combined with a greater decrease in muscle contraction time. There was no temperature dependent effect on the voluntary activation and maximal voluntary torque production [272]. Cooling the extensor-flexor muscles of women who had performed exhausting forearm muscle contractions resulted in significantly higher hand grip measurements in cooled than in uncooled subjects [602].

Several articles reported skin temperatures in various anatomical regions of athletes in different sports including judokas and jiu-jitsu athletes [540], competitive cross- country

runners [355], half marathon runners [173], tri- athletes [574] and tennis athletes [442]. The relationship between foot temperatures and footwear [33] and foot posture of runners [577] was investigated with thermal imaging. A case report hypothesised that skin temperature may predict the decrease in power of the exercising quadriceps muscle [337]. A group from Brazil proposed thermal imaging as tool of injury prevention in professional soccer players. Based on side-to-side differences in local skin temperatures of the lower extremities a preventive procedure was started, thus resulted in a decrease of muscle injuries from season 2015 to season 2016 [488]. However, this result support the effectiveness of the preventive intervention, but does not proof the ability of thermal imaging does see evolving muscle injuries.

The effect of whole-body vibration exercise on skin temperature was reported in two studies. A study conducted in Brazil examined 19 healthy subjects after exposure to vibrations of 0, 30 and 50 Hz, each for 60 seconds. The statistical analysis indicated that skin temperatures decreases with time, independently of the vibration frequency [22]. In a small group of 10 women with mild grade cellulite a series of whole-body vibration exposures resulted in an increase of skin temperature and improvement of the clinical symptoms [55].

Exercise therapy in defined disease entities was topic in two other studies. After general rehabilitation exercise a decrease of skin temperature was observed in all regions of the body, both in subjects with Down syndrome and in healthy controls. 15-min later, skin temperatures of controls recovered to the baseline values or even exceeded them significantly, whereas in the group with Down syndrome the skin temperatures did not return to the baseline readings [456]. Different to interpretation by the authors of this study, the behaviour of skin temperature, however, does not allow to evaluate thermoregulation, since skin temperature is not the target of thermoregulation.

After a single bout of cycling exercise (rate of metabolic heat production: ~4.5 W/kg^{-1}) for 60 min, individuals with multiple sclerosis exhibited an attenuated increase in cumulative whole-body sweat loss after 30 min and 60 min as well as lower sweating rate per skin area per °C than healthy controls. Despite evidence for dysfunction in thermo- regulatory effectors, there were no differences between multiple sclerosis patients and controls in oesophageal or rectal temperatures at 30- or 60-min time points.Cutaneous vasculature responses were also not different in both groups of subjects [363].

Discussion

The search profile of this year´s survey is identical to that of the literature review of last year [13], but due to the inclusion of badly matched articles in previous annual surveys, all hits retrieved in this search were indivually checked if they fulfilled the main inclusion criteria medicine and thermometry. This procedure resulted in a large reduction of total references due to exclusion of papers related to techniques applying near infrared or dedicated to temperature measurement in chemistry, pharmacology or pharmacy.

The focus of detailed description of papers is temperature measurement in four clinical entities i.e. complex regional pain syndrome, Raynaud`s phenomenon, breast cancer and fever. Like in last year`s survey, the description included also articles related to temperature measurements in sports and exercise science. In Raynaud`s phenonomen, quantitative thermal imaging becomes slowly fully recognised and accepted as tool for assisting diagnosis and as a reliable outcome measure. The involvement of the transient receptor potential cation channel subfamily V member 1 (TRPV1) in the pathomechanism of the complex regional pain syndrome (CRPS) establish a clear relationship between temperature sensing and pain sensation. The interest in sports science in thermal imaging is continuing, but the technique is not yet established as a method for performance assessment or injury prevention. Much work was published on magnetic resonance imaging-based thermometry, since this is a necessary tool for monitoring focused hyperthermia treatment.

English continues to be the predominant language for medical publication. Russian achieved the second rank in publication languages displacing Chinese to the third rank. The diversity in publication languages is slightly recovering.

Like in previous years, publication productivity fluctuates constantly between the continents. In 2019, most articles were authored in Europe (43,1%), Asia and North America contributed each 25 % to the total of published articles, but the number of research papers from South America and Africa decreased whilst the number of papers from and Australia &New Zealand remained on the level of 2018. 25% of corresponding authors originate from Asia. 24% dwell in China, 20.8% in Japan, 13.0% in South Korea, 11.0% in India, and 7.1% in Iran. The portion of publications from China remained on the same level but the number of articles from India decreased. Related to the overall quality of thermology research, there is still ample space for improvements in methodology, scientific rigor and clear description of research aims.

In conclusion, this years' literature survey was based on a literature search in Scopus. Due to the limitations in selecting appropriate papwes, the results should be understood as estimation of quantitative distribution of thermology papers in the database Scopus. Surgery, Radiology and Physiology & Endocrinology were frequently identified fields of temperature measurement in medicine. While there are good results in the application of thermal imaging for Raynaud´s phenomenon, thermography has only a very limited role in breast cancer and the value in sports science is not yet defined.

References

1.Vardasca R, Magalhaes C, Marques D, Moreira J, Frade R, Seixas A, Mendes J, Ring F. Bilateral assessment of body core temperature through axillar tympanic and inner canthi thermom-

eters in a young population. Physiological Measurement 2019; 40 (9), art. no. 094001.

2.Vardasca R, Magalhaes C, Mendes J. Biomedical Applications of Infrared Thermal Imaging: Current State of Machine Learning Classification. Proceedings 2019, 27, 46

3.Vardasca R, Magalhaes C, Silva P, Abreu P, Mendes J, Restivo MT. Biomedical musculoskeletal applications of infrared thermal imaging on arm and forearm: A systematic review. Journal of Thermal Biology 2019, 82: 164-177

4.Vardasca R, Magalhaes C, Silva P, Kluwe B, Mendes J. Are the IR cameras FLIR ONE suitable for clinical applications? Thermology International 29 (3): 95-102.

5.Vardasca R, Magalhaes C. Freitas C, Mendes J. A case study on dynamic thermal imaging evaluation of a thyroid nodule. Thermology international 2019, 29(4) 146-153

6.Clemente M, Amarante J, Moreira A, Ferreira A, Vardasca R, Mendes J. The Functional Interdependence of Wind Instrumentalists' Embouchure and Their Craniofacial Features. International Journal of Online Engineering 2019, 15(13), 17-32

7.Magalhães C, Contente P, Vardasca R, Abreu P, Mendes J, Restivo T. Strength and Skin Temperature Assessment: Comparing Active and Geriatric Populations. International Journal of Engineering and Applied Sciences 2019,6(5), 36-42.

8.Magalhaes C, Vardasca R, Rebelo M, Valenca-Filipe R, Ribeiro M, Mendes J. Distinguishing melanocytic nevi from melanomas using static and dynamic infrared thermal imaging. Journal of the European Academy of Dermatology and Venereology 2019; 33 (9): 1700-1705

9.Nunes B, Lopes J, Relvas-Silva M, Alves H, Vardasca R. Shoulder Infrared Thermography in Chronic Rotator Cuff Tears-Temperature Assessment and Variation in Affected and Non-Affected Shoulders. Int J Sports Exerc Med 2019, 5, 120.

10.Seixas A, Villas-Boas MDC, Carvalho R, Coelho T, Ammer K, Villas-Boas JP, Mendes J, Cunha JPS, Vardasca R. Skin temperature of the foot: comparing transthyretin Familial Amyloid Polyneuropathy and Diabetic Foot patients. Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization 2019; 7 (5-6): 504-511.

11.Seixas A, Pimenta I, Ammer K, Carvalho R, Villas-Boas JP, Mendes J, Vardasca R. Inter-rater and intra-rater repeatability of the placement of regions of interest based in anatomical landmarks. Thermology international 2019, 29(2) 66-67

12.Ammer K, Ring F. Historical "maps" of human skin temperature. Thermology International 2019; 29 (2): 53-59.

13.Ammer K. Medical Thermology 2018 - A computer-assisted literature survey. Thermology International 2019; 29 (1): 7-39.

14.Ammer K. Methods of Scoring the TISEM-Checklist with an Example of Application. Thermology international 2019, 29(4) 127-135

15.Ammer K. The most cited article from thermology international in the period 2000 to 2018. Thermology international 2019, 29(2) 62

16.Urakov AL, Ammer K, Dementiev VB, Urakova NA, Gadelshina AA. The contribution of infrared thermal imaging to designing a "winter rifle" - An observational study. Thermology International 29 (1): 40-46

17.Seixas A, Ammer K, Utility of infrared thermography when monitoring autonomic activity. European Journal of Applied Physiology 2019, 119(6) 1455-1457

18.Gabrhel J, Popracova Z, Ammer K, Tauchmannova H. The value of thermography in the diagnosis of myofascial pathways distortions. Thermology international 2019, 29(2) 63-65

19.Urakov AL, Kasatkin AA, Ammer K, Gurevich KG. The dynamics of fingertip temperature during voluntary breath holding and its relationship to transcutaneous oximetry. Thermology international 2019, 29(2) 65-66

20.Seixas A, Soares M, Rodrigues S. Exploring the association between pressure pain threshold and skin temperature in the upper trapezius of healthy subjects. Thermology International 29 (3): 103-107.

21.Seixas A. Stockings running and thermal imaging. Thermology International 29 (1): 5-6.

22.Moreira-Marconi E, Moura-Fernandes MC, Lopes- Souza P, Teixeira-Silva Y, Reis-Silva A, Marques Marchon R, de Oliveira Guedes-Aguiar E, Paineiras-Domingos LL, da Cunha de Sa-Caputo D, Soares Morel D, Fontoura Dionello C, Oliveira De-Carvalho S, dos Santos Pereira MJ, Francisca-Santos A, Silva-Costa G, Marcio Ol?mpio-Souza M, Lemos-Santos TR, Ribeiro Asad N, Layter Xavier V, Taiar R, Sonza A, Seixas A, Cochrane DJ, Bernardo-Filho M. Evaluation of the temperature of posterior lower limbs skin during the whole body vibration measured by infrared thermography: Cross-sectional study analysis using linear mixed effect model. PLoS ONE 2019, 14(3): e0212512

23.Aalaei S, Amini S, Keramati MR, Shahraki H, Eslami S. Monitoring of Storage and Transportation Temperature Conditions in Red Blood Cell Units: A Cross-Sectional Study. Indian Journal of Hematology and Blood Transfusion 2019; 35 (2): 304-312.

24.Aarthy SL, Prabu S. Classification of breast cancer based on thermal image using support vector machine. International Journal of Bioinformatics Research and Applications 2019; 15 (1): 51-67.

25.Autilio C, Pérez-Gil J. Understanding the principle biophysics concepts of pulmonary surfactant in health and disease. Archives of Disease in Childhood: Fetal and Neonatal Edition 2019; 104 (4): F443-F451.

26.Belcaro G, Feragalli B, Cornelli U, Cotellese R, Hu S, Dugall M, Bolognes G. Evaluation of knee periosteal and cartilage morphology in subjects with arthrosis: Management with Movardol. Minerva Ortopedica e Traumatologica 2019; 70 (2): 59-64.

27.Beleza J, Albuquerque J, Santos-Alves E, Fonseca P, Santocildes G, Stevanovic J, Rocha-Rodrigues S, Rizo-Roca D, Ascensão A, Torrella JR, Magalhães J. Self-paced free-running wheel mimics high-intensity interval training impact on rats' functional physiological biochemical and morphological features. Frontiers in Physiology 2019; 10: art. no. 593.

28.Benavent Casanova O, Benavente Gómez, N, Priego Quesada JI, Galindo Gonzalez, CM, Cibrián Ortiz De Anda RM, Salvador Palmero R, Núñez Gómez, F. Application of infrared thermography in diagnosing peripherally inserted central venous catheter infections in children with cancer. Physiological Measurement 2019; 40 (4), art. no. 044002.

29.Brazaitis M, Eimantas N, Baranauskiene N, Kilikeviciene S, Vitkauskiene A, Daniuseviciute L. Effects of severe whole-body hyperthermia on ovarian hormone and extracellular Hsp72 responses in young adult women. International Journal of Hyperthermia 2019; 36 (1): 660-665.

30.Federici LM, Caliman IF, Fitz, SD, Shekhar A, Johnson PL. Select panicogenic drugs and stimuli induce consistent increases in tail skin flushes and decreases in core body temperature. Behavioural Pharmacology 2019; 30 (4): 376-382.

31.Geoghegan R, Santamaria A, Priester A, Zhang L, Wu H, Grundfest W, Marks L, Natarajan S. A tissue-mimicking prostate phantom for 980 nm laser interstitial thermal therapy. International Journal of Hyperthermia 2019; 36 (1): 993-1002.

32.Ghalandari B, Asadollahi K, Shakerizadeh A, Komeili A, Riazi G, Kamrava SK, Attaran N. Microtubule network as a potential candidate for targeting by gold nanoparticle-assisted photothermal therapy. Journal of Photochemistry and Photobiology B: Biology 2019; 192: 131-140.

33.Gil-Calvo M, Priego-Quesada JI, Jimenez-Perez, I, Lucas-Cuevas A, Pérez-Soriano P. Effects of prefabricated and custom-made foot orthoses on skin temperature of the foot soles after running. Physiological Measurement 2019; 40 (5), art. no. 054004.

34.Hegmann KT, Travis R, Belcourt RM, Donelson R, Eskay-Auerbach M, Galper J, Haldeman S, Hooper PD, Lessenger JE,

Mayer T, Mueller KL, Murphy DR, Tellin WG, Thiese MS, Weiss MS. Diagnostic Tests for Low Back Disorders. Journal of Occupational and Environmental Medicine 2019; 6(4) E155-E168.

35.Hollandsworth HM, Lwin TM, Amirfakhri S, Filemoni F, Batra SK, Hoffman RM, Dhawan P, Bouvet M. Anti-Claudin-1 Conjugated to a Near-Infrared Fluorophore Targets Colon Cancer in PDOX Mouse Models. Journal of Surgical Research 2019; 242: 145-150

36.Holmberg A, Ho AV, Fernand D, Toska K, Wester T, Klaastad Ø, Drægni T, Sauter AR. Microcirculation and haemodynamics after infraclavicular brachial plexus block using adrenaline as an adjuvant to lidocaine: a randomised double-blind crossover study in healthy volunteers. Anaesthesia 2019; 74 (11): 1389-1396.

37.Hu Q, Wang Q, Wang C, Tai Y, Liu B, Shao X, Fang J, Liu B. TRPV1 channel contributes to the behavioral hypersensitivity in a rat model of complex regional pain syndrome type 1. Frontiers in Pharmacology 2019; 10 (4), art. no. 453.

38.Ismail HM, Pretty CG, Signal MK, Haggers M, Chase JG. Attributes performance and gaps in current & emerging breast cancer screening technologies. Current Medical Imaging Reviews 2019; 15 (2): 122-131.

39.Jimenez-Pavon D, Corral-Perez, J, Sánchez-Infantes D, Villarroya F, Ruiz, JR, Martinez-Tellez, B. Infrared Thermography for Estimating Supraclavicular Skin Temperature and BAT Activity in Humans: A Systematic Review. Obesity 2019; 27 (12): 1932-1949.

40.Konieczka K, Koch S, Hauenstein D, Chackathayil TN, Binggeli T, Schoetzau A, Flammer J. Effects of the glaucoma drugs latanoprost and brimonidine on corneal temperature. Translational Vision Science and Technology 2019; 8 (3), art. no. 47

41.Kose D, Cadirci E, Halici Z, Sirin B, Dincer B. The investigation of possible roles of central 5-HT7 receptors in antipyretic effect mechanism of paracetamol in LPS-induced hyperthermia model of mice. Inflammopharmacology 2019; 27 (6): 1169-1178.

42.Lanier OL, Korotych OI, Monsalve AG, Wable D, Savliwala S, Grooms NWF, Nacea C, Tuitt OR, Dobson J. Evaluation of magnetic nanoparticles for magnetic fluid hyperthermia. International Journal of Hyperthermia 2019; 36 (1): 687-701

43.Laschke MW, Heß, A, Scheuer C, Karschnia P, Menger MD. Subnormothermic short-term cultivation improves the vascularization capacity of adipose tissue-derived microvascular fragments. Journal of Tissue Engineering and Regenerative Medicine 2019; 13 (2): 131-142.

44.Levy SB. Field and laboratory methods for quantifying brown adipose tissue thermogenesis. American Journal of Human Biology 2019; 31 (4), art. no. e23261.

45.Liu R, Hu S, Zhang Y, Che D, Cao J, Wang J, Zhao T, Jia Q, Wang N, Zhang T. Mast cell-mediated hypersensitivity to fluoroquinolone is MRGPRX2 dependent. International Immunopharmacology 2019; 70: 417-427.

46.Mahwi TO, Abdulateef DS. Relation of different components of climate with human pituitary-thyroid axis and FT3/FT4 ratio: A study on euthyroid and SCH subjects in two different seasons. International Journal of Endocrinology 2019, art. no. 2762978.

47.Mai NL, Koo Y-M, Ha SH. Separation characteristics of hydrophilic ionic liquids from ionic liquids-water solution by ultrasonic atomization. Ultrasonics Sonochemistry 2019; 53: 187-191.

48.Malpique R, Gallego-Escuredo JM, Sebastiani G, Villarroya J, López-Bermejo A, de Zegher F, Villarroya F, Ibáñez, L. Brown adipose tissue in prepubertal children: associations with sex birthweight and metabolic profile. International Journal of Obesity 2019; 43 (2): 384-391.

49.Meston CM, Stanton AM. Understanding sexual arousal and subjective-genital arousal desynchrony in women. Nature Reviews Urology 2019; 16 (2): 107-120.

50.Michelangeli F. Imaging the unimaginable: Medical imaging in the realm of photography. Clinics in Dermatology 2019; 37 (1): 38-46.

51.O'Brien TJ, Bonakdar M, Bhonsle S, Neal RE, II, Aardema CH, Jr Robertson JL, Goldberg SN, Davalos RV. Effects of internal electrode cooling on irreversible electroporation using a perfused organ model. International Journal of Hyperthermia 2019; 35 (1) 44-55.

52.Park K-S, Svennerholm K, Shelke GV, Bandeira E, Lässer C, Jang SC, Chandode R, Gribonika I, Lötvall J. Mesenchymal stromal cell-derived nanovesicles ameliorate bacterial outer membrane vesicle-induced sepsis via IL-10. Stem Cell Research and Therapy 2019; 10 (1), art. no. 231.

53.Parra-Gimenez, N, Reyna-Bello A. Parasitological Hematological and Immunological Response of Experimentally Infected Sheep with Venezuelan Isolates of Trypanosoma evansi Trypanosoma equiperdum and Trypanosoma vivax. Journal of Parasitology Research 2019, art. no. 8528430

54.Philips BWJ, van Uden MJ, Rietsch SHG, Orzada S, Scheenen TWJ. A multitransmit external body array combined with a 1H and 31P endorectal coil to enable a multiparametric and multimetabolic MRI examination of the prostate at 7T. Medical Physics 2019; 46 (9): 3893-3905.

55.Pilch W, Czerwinska-Ledwig O, Chitryniewicz-Rostek J, Nastalek M, Krezalek P, Jedrychowska D, Totko-Borkusewicz, N, Uher I, Kaško D, Tota L, Tyka A, Tyka A, Piotrowska A. The Impact of Vibration Therapy Interventions on Skin Condition and Skin Temperature Changes in Young Women with Lipodystrophy: A Pilot Study. Evidence-based Complementary and Alternative Medicine 2019, art. no. 8436325.

56.Sharma A, Özayral S, Caserto JS, ten Cate R, Anders NM, Barnett JD, Kandala SK, Henderson E, Stewart J, Liapi E, Rudek MA, Franken NAP, Oei AL, Korangath P, Bunz, F, Ivkov R. Increased uptake of doxorubicin by cells undergoing heat stress does not explain its synergistic cytotoxicity with hyperthermia. International Journal of Hyperthermia 2019; 36 (1) 712-720.

57.Simkó, M, Mattsson M-O. Activation of the intracellular temperature and ROS sensor membrane protein STIM1 as a mechanism underpinning biological effects of low-level low frequency magnetic fields. Medical Hypotheses 2019; 122: 68-72.

58.Sun L, Verma S, Michael N, Chan SP, Yan J, Sadananthan SA, Camps SG, Goh HJ, Govindharajulu P, Totman J, Townsend D, Goh JP-N, Sun L, Boehm BO, Lim SC, Sze SK, Henry CJ, Hu HH, Velan SS, Leow MK-S. Brown Adipose Tissue: Multi- modality Evaluation by PET, MRI, Infrared Thermography and Whole-Body Calorimetry (TACTICAL-II). Obesity 2019; 27 (9): 1434-1442.

59.Taiar R, Ghieda MY, Elbrawy EH, Ahmed WA, Eid MM, Abdi E. Digital thermal analysis as a performance-level indicator to evaluate two volleyball skills for female students during and after menstrual cycle. Series on Biomechanics 2019; 33 (1): 30-40.

60.Thuzar M, Law WP, Dimeski G, Stowasser M, Ho KKY. Mineralocorticoid antagonism enhances brown adipose tissue function in humans: A randomized placebo-controlled crossover study. Diabetes Obesity and Metabolism V21 (3): 509-516.

61.Vijayan VM, Beeran AE, Shenoy SJ, Muthu J, Thomas V. New Magneto-Fluorescent Hybrid Polymer Nanogel for Theranostic Applications. ACS Applied Bio Materials 2 (2): 757-768.

62.Yamashiro LH, de Souza GEP, de Melo Soares D. Role of CINC-1 and CXCR2 receptors on LPS-induced fever in rats. Pflugers Archiv European Journal of Physiology 2019, 471 (2): 301-311.

63.Zherebtsova AI, Dremin VV, Makovik IN, Zherebtsov EA, Dunaev AV, Goltsov A, Sokolovski SG, Rafailov EU. Multimodal optical diagnostics of the microhaemodynamics in upper and lower limbs. Frontiers in Physiology 2019, 10, art. no. 416.

64.Zhou C, Yahathugoda C, De Silva L, Rathnapala U, Owen G, Weerasooriya M, Rao RU, Weil GJ, Budge PJ. Portable infrared imaging for longitudinal limb volume monitoring in patients with lymphatic filariasis. PLoS Neglected Tropical Diseases 2019, 13 (10), art. no. e0007762.

65.Zubareva N, Parshakov A, Podtaev S, Frick P, Mizeva I. Recovery of endothelial function in microvessels in patients with peripheral artery disease (PAD) after conservative and surgery treatment. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019, 11067, art. no. 110670Y.

66.Abed Z, Beik J, Laurent S, Eslahi N, Khani T, Davani ES, Ghaznavi H, Shakeri-Zadeh A. Iron oxide-gold core-shell nanotheranostic for magnetically targeted photothermal therapy under magnetic resonance imaging guidance. Journal of Cancer Research and Clinical Oncology 2019; 145 (5): 1213-1219.

67.Aklan B, Zilles B, Paprottka P, Manz, K, Pfirrmann M, Santl M, Abdel-Rahman S, Lindner LH. Regional deep hyperthermia: quantitative evaluation of predicted and direct measured temperature distributions in patients with high-risk extremity soft-tissue sarcoma. International Journal of Hyperthermia 2019; 36 (1): 170-185.

68.Aksu C, Kus A, Topbas, Ö, Erdogan S, Gürkan Y. Perioperative hypothermia incidence: Where are we after 5 years? Anestezi Dergisi 2019; 27 (3): 198-203.

69.Alivar A, Faridi P, Prakash P, Natarajan B. An enhanced hybrid MRI thermometry technique for monitoring microwave thermal therapy. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10951, art. no. 109512P

70.Allen SP, Steeves T, Fergusson A, Moore D, Davis RM, Vlaisialjevich E, Meyer CH. Novel acoustic coupling bath using magnetite nanoparticles for MR-guided transcranial focused ultrasound surgery. Medical Physics 2019; 46 (12): 5444-5453

71.Al-Sadr H, Popescu M, Keller JM. Early Sepsis Recognition Based on Ear Localization using Infrared Thermography. Proceedings - 2018 IEEE International Conference on Bioinformatics and Biomedicine BIBM 2019, art. no. 8621167: 823-830

72.Anthony GJ, Bader KB, Wang J, Zamora M, Ostdiek A, Antic T, Krueger S, Weiss S, Trogler WC, Blair SL, Kummel AC, Sammet S. MRI-guided transurethral insonation of silica-shell phase-shift emulsions in the prostate with an advanced navigation platform. Medical Physics 2019; 46 (2): 774-788.

73.Anttinen M, Yli-Pietilä, E, Suomi V, Mäkelä, P, Sainio T, Saunavaara J, Eklund L, Blanco Sequeiros R, Taimen P, Boström PJ. Histopathological evaluation of prostate specimens after thermal ablation may be confounded by the presence of thermally fixed cells. International Journal of Hyperthermia 2019; 36 (1): 915-925.

74.Anusic T, Gianicolo EAL. Comment on "A prospective study of tea drinking temperature and risk of esophageal squamous cell carcinoma" by Islami et al.. International Journal of Cancer 2019; 145 (10): 2886-2887

75.Asadi M, Beik J, Hashemian R, Laurent S, Farashahi A, Mobini M, Ghaznavi H, Shakeri-Zadeh A. MRI-based numerical modeling strategy for simulation and treatment planning of nanoparticle-assisted photothermal therapy. Physica Medica 2019; 66: 124-132.

76.Baek YS, Kim J, Song JY, Jeon J, Oh CH. Dynamic thermal imaging on actinic keratosis patients: A preliminary study. Skin Research and Technology 2019; 25 (2): 211-216.

77.Temperature and thermal dose during radiotherapy and hyperthermia for recurrent breast cancer are related to clinical outcome and thermal toxicity: a systematic review. International Journal of Hyperthermia 2019; 36 (1): 1024-1039.

78.Bardhan S, Bhowmik MK. 2-Stage classification of knee joint thermograms for rheumatoid arthritis prediction in subclinical inflammation. Australasian Physical and Engineering Sciences in Medicine 42 2019; (1): 259-277.

79.Basile G, Breda A, Rivas JG, Cacciamani G, Okhunov Z, Dourado A, Socarras MR, Sgrò, E, Cozzupoli P, Veneziano D. Comparison between near-infrared fluorescence imaging with indocyanine green and infrared imaging: On-bench trial for kidney perfusion analysis. A project of the ESUT-YAUWP group. Minerva Urologica e Nefrologica 2019; 71 (3): 280-285

80.Beeharry MK, Zhu Z-L, Liu W-T, Yao X-X, Yan M, Zhu Z-G. Prophylactic HIPEC with radical D2 gastrectomy improves survival and peritoneal recurrence rates for locally advanced gastric cancer: Personal experience from a randomized case control study. BMC Cancer 2019; 19 (1), art. no. 932

81.Beh ST, Kuo Y-M, Chang W-SW, Wilder-Smith E, Tsao C-H, Tsai C-H, Chen L-T, Liao L-D. Preventive hypothermia as a neuroprotective strategy for paclitaxel-induced peripheral neuropathy. Pain 2019; 160 (7): 1505-1521.

82.Beik J, Asadi M, Khoei S, Laurent S, Abed Z, Mirrahimi M, Farashahi A, Hashemian R, Ghaznavi H, Shakeri-Zadeh A. Simulation-guided photothermal therapy using MRI-traceable iron oxide-gold nanoparticle. Journal of Photochemistry and Photo biology B: Biology 2019; 199, art. no. 111599.

83.Beserra A, Pichardo S, Kisselgoff D, Peeva V, Curiel L. Targeting feasibility evaluation of magnetic resonance-guided focused ultrasound in the management of osteomyelitis: a virtual treatment planning study in 75 patients. International Journal of Hyperthermia 2019; 36 (1): 1012-1023.

84.Bing C, Cheng B, Staruch RM, Nofiele J, Wodzak Staruch M, Szczepanski D, Farrow-Gillespie A, Yang A, Laetsch TW, Chopra R. Breath-hold MR-HIFU hyperthermia: phantom and in vivo feasibility. International Journal of Hyperthermia 2019; 36 (1): 1084-1097.

85.Bitton RR, Webb TD, Pauly KB, Ghanouni P. Prolonged heating in nontargeted tissue during MR-guided focused ultrasound of bone tumors. Journal of Magnetic Resonance Imaging 2019; 50 (5): 1526-1533.

86.Bonekamp D, Wolf MB, Roethke MC, Pahernik S, Hadaschik BA, Hatiboglu G, Kuru TH, Popeneciu IV, Chin JL, Billia M, Relle J, Hafron J, Nandalur KR, Staruch RM, Burtnyk M, Hohenfellner M, Schlemmer H-P. Twelve-month prostate volume reduction after MRI-guided transurethral ultrasound ablation of the prostate. European Radiology 2019; 29 (1): 299-308.

87.Bove T, Zawada T, Serup J, Jessen A, Poli M. High-frequency (20-MHz) high-intensity focused ultrasound (HIFU) system for dermal intervention: Preclinical evaluation in skin equivalents. Skin Research and Technology 2019; 25 (2): 217-228

88.Buzzá, HH, Holmo Jr D, Stringasci MD, Bertanha M, Leão PDS, Fabro AT, Silva Jr NF, Zangirolami AC, Bagnato VS, Yoshida WB. Photodynamic Therapy Versus Glucose for the Treatment of Telangiectasia: A Randomised Controlled Study in a Rabbit Ear Model. European Journal of Vascular and Endovascular Surgery 2019; 58 (4): 583-591.

89. Chaplin V, Phipps MA, Jonathan SV, Grissom WA, Yang PF, Chen LM, Caskey CF. On the accuracy of optically tracked transducers for image-guided transcranial ultrasound. International Journal of Computer Assisted Radiology and Surgery 2019; 14 (8): 1317-1327.

90. Childs C, Wright N, Willmott J, Davies M, Kilner K, Ousey K, Soltani H, Madhuvrata P, Stephenson J. The surgical wound in infrared: Thermographic profiles and early stage test-accuracy to predict surgical site infection in obese women during the first 30 days after caesarean section. Antimicrobial Resistance and Infection Control 2019; 8 (1), art. no. 7.

91.Cruz-Segura A, Cruz-Domínguez, MP, Jara LJ, Miliar-García Á, Hernández-Soler A, Grajeda-López, P, Martínez-Bencomo MA, Montes-Cortés DH. Early Detection of Vascular Obstruction in Microvascular Flaps Using a Thermographic Camera. Journal of Reconstructive Microsurgery 2019; 35 (7): 541-548.

92.Cugmas B, Spigulis J. Biophotonics in veterinary medicine: The first steps toward clinical translation. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10885, art. no. 108850I.

93.Curto S, Aklan B, Mulder T, Mils O, Schmidt M, Lamprecht U, Peller M, Wessalowski R, Lindner LH, Fietkau R, Zips D, Bellizzi GG, van Holthe N, Franckena M, Paulides MM, van Rhoon GC. Quantitative multi-institutional evaluation of MR thermometry accuracy for deep-pelvic MR-hyperthermia systems operating in multi-vendor MR-systems using a new anthropomorphic phantom. Cancers 2019; 11 (11), art. no. 1709.

94.Das K, Bhowmik MK, Chowdhuary O, Bhattacharjee D, De BK. Accurate segmentation of inflammatory and abnormal regions using medical thermal imagery. Australasian Physical and Engineering Sciences in Medicine 2019; 42 (2): 647-657.

95.De-Colle C, Weidner N, Heinrich V, Brucker S, Hahn M, MacMillan K, Lamprecht U, Gaupp S, Voigt O, Zips D. Hyperthermic chest wall re-irradiation in recurrent breast cancer: a prospective observational study [Hyperthermie und Rebestrahlung der Brustwand bei rezidivierendem Brustkrebs: eine prospektive Beobachtungsstudie]. Strahlentherapie und Onkologie 2019; 195 (4): 318-326.

96.Dickey KW, Levi-Polyachenko N. Making the most of focused ultrasound: Tissue heating to improve chemotherapy release. Radiology 2019; 291 (1): 239-240.

97.Dimitri M, Staderini F, Brancadoro M, Frosini F, Coratti A, Capineri L, Corvi A, Cianchi F, Biffi Gentili G. A new microwave applicator for laparoscopic and robotic liver resection. International Journal of Hyperthermia 2019; 36 (1): 75-86.

98.Dobšícek Trefná, H, Schmidt M, van Rhoon GC, Kok HP, Gordeyev SS, Lamprecht U, Marder D, Nadobny J, Ghadjar P, Abdel-Rahman S, Kukielka AM, Strnad V, Hurwitz MD, Vujaskovic Z, Diederich CJ, Stauffer PR, Crezee J. Quality assurance guidelines for interstitial hyperthermia. International Journal of Hyperthermia 2019; 36 (1): 277-294.

99.Dommerholt J, Chou L-W, Finnegan M, Hooks T. A critical overview of the current myofascial pain literature - February 2019. Journal of Bodywork and Movement Therapies 2019; 23 (2): 295-305.

100.Doughty A, Li Y, Wang M, Zhou F, Saunders D, Smith N, Towner R, Chen WR. Magnetic resonance imaging thermometry for laser immunotherapy in orthotopic pancreatic cancer. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10879, art. no. 1087916.

101.Doughty A, Li Y, Wang M, Zhou F, Saunders D, Smith N, Towner R, Chen WR. Magnetic resonance imaging thermometry for laser immunotherapy in orthotopic pancreatic cancer. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10879, art. no. 1087916.

102.Eidenschink M, Beard A, Ewart D. Paraneoplastic Migratory Oligoarthritis in a Patient With Malignant Mesothelioma. American Journal of Medicine 2019; 132 (11): e801-e802.

103.Eranki A, Mikhail AS, Negussie AH, Katti PS, Wood BJ, Partanen A. Tissue-mimicking thermochromic phantom for characterization of HIFU devices and applications. International Journal of Hyperthermia 2019; 36 (1) 518-529.

104.Esteve-Pérez, N, Ferrer-Robles A, Gómez-Romero G, Fabián-Gonzalez, D, Verd-Rodriguez, M, Mora-Fernandez, LC, Segura-Sampedro JJ, Tejada-Gavela S, Morales-Soriano R. Goal-directed therapy in cytoreductive surgery with hyperthermic intraperitoneal chemotherapy: a prospective observational study. Clinical and Translational Oncology 2019; 21 (4): 451-458

105.Fahrenholtz, SJ, Guo C, MacLellan CJ, Yung JP, Hwang K-P, Layman RR, Stafford RJ, Cressman E. Temperature mapping of exothermic in situ chemistry: imaging of thermoembolization via MR. International Journal of Hyperthermia 2019; 36 (1) 730-738.

106.Fais P, Mazzotti MC, Montisci M, Palazzo C, Leone O, Cecchetto G, Viel G, Pelotti S. Post-mortem thermal angiography: a pilot study on swine coronary circulation. International Journal of Legal Medicine 2019; 133 (2): 571-581

107.Farashahi A, Zare-Sadeghi A, Shakeri-Zadeh A, Kamran Kamrava S, Maleki S, Ghaznavi H, Faeghi F. Real-time mapping of heat generation and distribution in a laser irradiated agar phantom loaded with gold nanoparticles using MR temperature imaging. Photodiagnosis and Photodynamic Therapy 2019; 25: 66-73

108.Ferreira ACR, Guida ACP, Piccini AA, Parisi JR, Sousa LD. Galvano-puncture and dermabrasion for striae distensae: a randomized controlled trial. Journal of Cosmetic and Laser Therapy 2019; 21 (1): 39-43.

109.Ferriero DM, Fullerton HJ, Bernard TJ, Billinghurst L, Daniels SR, Debaun MR, Deveber G, Ichord RN, Jordan LC, Massicotte P, Meldau J, Roach ES, Smith ER. Management of stroke in neonates and children: A scientific statement from the American Heart Association/American Stroke Association. Stroke 2019; 50 (3): E51-E96.

110.Fiering SN, Evans S. Introduction to thermal therapy and immunotherapy: at the crossroads of new discovery. International Journal of Hyperthermia 2019; 36 (sup1): 1-2.

111. Figueiredo AAA, do Nascimento JG, Malheiros FC, da Silva Ignacio LH, Fernandes HC, Guimaraes G. Breast tumor localization using skin surface temperatures from a 2D anatomic model without knowledge of the thermophysical properties. Computer Methods and Programs in Biomedicine 2019; 172: 65-77.

112.Fisher C, Weersink R, Gregor A, Goldstein A, Lim L, Valic M, Chen J, Chan R, Zheng G, Wilson BC. Assessment of optical detection methods for coagulation-front monitoring photothermal therapy of prostate cancer. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10852, art. no. 1085209.

113.Fitzwater J, Johnstone C, Schippers M, Cordoza M, Norman B. A comparison of oral axillary and temporal artery temperature measuring devices in adult acute care. MEDSURG Nursing 2019; 28 (1): 35-41.

114.Giannakou M, Yiallouras C, Menikou G, Ioannides C, Damianou C. MRI-guided frameless biopsy robotic system with the inclusion of unfocused ultrasound transducer for brain cancer ablation. International Journal of Medical Robotics and Computer Assisted Surgery 2019; 15 (1), art. no. e1951

115.Giles SL, Brown MRD, Rivens I, Deppe M, Huisman M, Kim Y-S, Farquhar-Smith P, Williams JE, ter Haar GR, deSouza NM. Comparison of Imaging Changes and Pain Responses in Patients with Intra- or Extraosseous Bone Metastases Treated Palliatively with Magnetic Resonance-Guided High-Intensity-Focused Ultrasound. Journal of Vascular and Interventional Radiology 2019; 30 (9): 1351-1360.e1.

116.Gong G, Yang L. Association between prolonged postoperative inflammatory response after radical gastrectomy and poor prognosis of gastric cancer patients. Journal of Practical Oncology 32019; 4 (1): 52-56.

117.Gong Z, Zhang X, Su K, Jiang R, Sun Z, Chen W, Forno E, Goetzman ES, Wang J, Dong HH, Dutta P, Muzumdar R. Deficiency in AIM2 induces inflammation and adipogenesis in white adipose tissue leading to obesity and insulin resistance. Diabetologia 2019; 62 (12): 2325-2339.

118.Gorny KR, Favazza CP, Lu A, Felmlee JP, Hangiandreou NJ, Browne JE, Stenzel WS, Muggli JL, Anderson AG, Thompson SM, Woodrum DA. Practical implementation of robust MR-thermometry during clinical MR-guided microwave ablations in the liver at 1.5?T. (2019) Physica Medica 2019; 67: 91-99.

119.Gray MD, Lyon PC, Mannaris C, Folkes LK, Stratford M, Campo L, Chung DYF, Scott S, Anderson M, Goldin R, Carlisle R, Wu F, Middleton MR, Gleeson FV, Coussios CC. Focused ultrasound hyperthermia for targeted drug release from thermosensitive liposomes: Results from a phase i trial. Radiology 2019; 291 (1): 232-238.

120.Guens GP, Oleynikova IN, Sirota NA, Moiseeva NI, Shikina VE, Kirkin VV. Distress and neoangiogenesis in ovarian cancer patients. Siberian Journal of Oncology 2019; 18 (2): 22-27

121.Hartimath SV, El-Sayed A, Makhlouf A, Bernhard W, Gonzalez, C, Hill W, Parada AC, Barreto K, Geyer CR, Fonge H. Therapeutic potential of nimotuzumab PEGylated-maytansine antibody drug conjugates against EGFR positive xenograft. Oncotarget 2019; 10 (10): 1031-1044.

122.Hashemi B, Hasanaj F, Akbari ME, Mirzaei HR, Mojtahed M, Bakhshandeh M. Assessment of computer regulation thermography (Crt) as a complemetrary diagnostic tool for breast cancer patient. Journal of Biomedical Physics and Engineering 2019; 9 (6): 621-628.

123.Hayami M, Watanabe M, Mine S, Imamura Y, Okamura A, Yuda M, Yamashita K, Toihata T, Shoji Y, Ishizuka N. Lateral thermal spread induced by energy devices: a porcine model to evaluate the influence on the recurrent laryngeal nerve. Surgical Endoscopy 2019; 33 (12): 4153-4163.

124.He K, Wu Z, Fujiwara H, Whitesall S, Zajac CK, Choi SW, Reddy P, Tewari M. Computational analysis of continuous body temperature provides early discrimination of graft-versus-host disease in mice. Blood Advances 2019; 3 (23): 3977-3981.

125.Hellgren RJ, Sundbom AE, Czene K, Izhaky D, Hall P, Dickman PW. Does three-dimensional functional infrared imaging improve breast cancer detection based on digital mammography in women with dense breasts? European Radiology 2019; 29 (11): 6227-6235.

126.Hoffmann SM, Kappel D, Fech A, Enderle MD, Weiss M, Hahn M, Brucker SY, Kraemer B. Thermal effects of a novel electrosurgical device for focused preparation in breast surgery tested in a specified porcine tissue ex vivo breast model using infrared measurement. Archives of Gynecology and Obstetrics 2019; 299 (3): 835-840

127.Iljaž J, Wrobel LC, Hriberšek M, Marn J. The use of Design of Experiments for steady-state and transient inverse melanoma detection problems. International Journal of Thermal Sciences 2019, 135, 256-275.

128.Irajirad R, Ahmadi A, Najafabad BK, Abed Z, Sheervalilou R, Khoei S, Shiran MB, Ghaznavi H, Shakeri-Zadeh A. Combined thermo-chemotherapy of cancer using 1 MHz ultrasound waves and a cisplatin-loaded sonosensitizing nanoplatform: an in vivo study. Cancer Chemotherapy and Pharmacology 2019; 84 (6): 1315-1321.

129.. Jermakowicz, WJ, Mahavadi AK, Cajigas I, Dan L, Guerra S, Farooq G, Shah AH, D'Haese PF, Ivan ME, Jagid JR, Komotar RJ. Predictive modeling of brain tumor laser ablation dynamics. Journal of Neuro-Oncology 2019; 144 (1): 193-203.

130.Jones EL, Halpern AL, Carmichael H, Wikiel KJ, Jones TS, Moore JT, Robinson TN, Barnett CC. Hepatic Ablation Promotes Colon Cancer Metastases in an Immunocompetent Murine Model. Annals of Surgery 2019; 270 (4): 675-680.

131.Kandala SK, Liapi E, Whitcomb LL, Attaluri A, Ivkov R. Temperature-controlled power modulation compensates for hetero geneous nanoparticle distributions: a computational optimization analysis for magnetic hyperthermia. International Journal of Hyperthermia 2019; 36 (1): 115-129.

132.Karakitsios I, Mihcin S, Melzer A. Reference-less MR thermometry on pre-clinical thiel human cadaver for liver surgery with MRgFUS. (2019) Minimally Invasive Therapy and Allied Technologies 2019; 28 (1): 15-21

133.Kath N, Handels H, Mastmeyer A. Robust GPU-based virtual reality simulation of radio-frequency ablations for various needle geometries and locations. International Journal of Computer Assisted Radiology and Surgery 2019; 14 (11): 1825-1835.

134.Kennedy EM, Dowall SD, Salguero FJ, Yeates P, Aram M, Hewson R. A vaccine based on recombinant modified Vaccinia Ankara containing the nucleoprotein from Lassa virus protects against disease progression in a guinea pig model. Vaccine 2019; 37 (36): 5404-5413.

135.Kiera D, Baic A, Stankiewicz M, Lange B, Stanek A, Slosarek K, Cholewka A.Correlation of isotherms with isodoses for patients with breast cancer treated by radiotherapy. Thermology international 2019, 29(2) 84

136.Kiera D, Baic A, Stankiewicz M, Lange B, Stanek A, Slosarek K, Kowalczyk A, Cholewka A. Thermal imaging for monitoring chemotherapy in breast cancer patients -preliminary results. Thermology international 2019, 29(2) 85

137.Kim J, Kwon JH, Kim E, Yoo SK, Shin C-S. Respiratory measurement using infrared thermography and respiratory volume monitor during sedation in patients undergoing endoscopic urologic procedures under spinal anesthesia. Journal of Clinical Monitoring and Computing 33 (4): 647-656

138.Kimia AA, Rudloe TF, Aprahamian N, McNamara J, Roberson D, Landschaft A, Vaughn J, Harper MB. Predictors of a drainable suppurative adenitis among children presenting with cervical adenopathy. American Journal of Emergency Medicine 2019; 37 (1): 109-113.

139.Ko Y, Sun S-H, Han I-S, Go H-Y, Kim T-H, Lee J-M, Jang J-B, Park KS, Song Y-K, Lee K-Y, Jeon C-Y, Ko S-G. The efficacy and safety of Sipjeondaebo-tang in Korean patients with cold hypersensitivity in the hands and feet: A protocol for a pilot randomized double-blind placebo-controlled parallel-group clinical trial. Trials 2019; 20 (1), art. no. 217.

140.Kotsopoulou M, Papadaki C, Anargyrou K, Spyridonidis A, Baltadakis I, Papadaki HA, Angelopoulou M, Pappa V, Liakou K, Tzanetakou M, Moustaka M, Vassilopoulos G. Effectiveness and Safety of Micafungin in Managing Invasive Fungal Infections among Patients in Greece with Hematologic Disorders: The ASPIRE Study. Infectious Diseases and Therapy 2019; 8 (2): 255-268.

141.Král Z, Adam Z, Folber F, Moulis M, Tomíška M, Říhová, L, Štork M, Buliková, A, Pour L, Krejcí, M, Sandecká, V, Koukalová, R, Rehák Z, Cermáková, Z. Systemic inflammatory response with high CRP values as the dominant symptom of multiple myeloma. Vnitrni Lekarstvi 2019; 65 (1): 37-44.

142.Kroesen M, Mulder HT, Van Holthe JML, Aangeenbrug AA, Mens JWM, Van Doorn HC, Paulides MM, Oomen-de Hoop E, Vernhout RM, Lutgens LC, Van Rhoon GC, Franckena M. The effect of the time interval between radiation and hyperthermia on clinical outcome in 400 locally advanced cervical carcinoma patients. Frontiers in Oncology 2019; 9 (3), art. no. 134.

143.Kumar A, Martin DP, Dhanorker SR, Brandt SR, Schroeder DR, Hanson AC, Cima RR, Dowdy SC. Improving the rate of surgical normothermia in gynecologic surgery. Gynecologic Oncology 2019; 154 (3): 590-594.

144.Kurosawa Y, Kuroiwa M, Nagata M, Kime A, Fuse S, Kime R, Hamaoka T. A Single-dose of oral nattokinase activates natural killer cells in healthy individuals -A randomized double-blind placebo-controlled crossover study. Japanese Pharmacology and Therapeutics 2019; 47 (9): 1463-1469.

145.Lee B-W, Park J-G, Ha TKQ, Pham HTT, An J-P, Noh J-R, Lee C-H, Oh W-K. Constituents of the Edible Leaves of Melicope pteleifolia with Potential Analgesic Activity. Journal of Natural Products 2019; 82 (8): 2201-2210.

146.Lee EJ, Fomenko A, Lozano AM. Magnetic resonance-guided focused ultrasound: Current status and future perspectives in thermal ablation and blood-brain barrier opening. Journal of Korean Neurosurgical Society 2019; 62 (1): 10-26.

147. Li CL, Fisher CJ, Shi RB, Wilson BC, He J, Zheng G, Weersink RA. Pre-clinical validation of transrectal diffuse optical tomography for monitoring photocoagulation progression during photothermal therapy of prostate cancer. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10871, art. no. 1087115.

148.Lim CC, Hayes RB, Ahn J, Shao Y, Silverman DT, Jones RR, Garcia C, Bell ML, Thurston GD. Long-term exposure to ozone and cause-specific mortality risk in the United States. American Journal of Respiratory and Critical Care Medicine 2019; 200 (8): 1022-1031

149.Liu H, Yang Y, Jiang J, Wang X, Zhang C, Jiang Y, Hong L, Huang H. Coexistence of a huge venous thromboembolism and bleeding tendency in cytokine release syndrome during CAR-T therapy. OncoTargets and Therapy 2019; 12: 8955-8960

150.Liu S, Zhou F, Zhao Y, Liu L, Qu J, Chen WR. Temperature detection by photoacoustic for nanoprobe-mediated photothermal therapy. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10879, art. no. 108790R.

151.Machin G, Howell K, Allen J, Simpson R. Focus collection on thermal imaging in medicine. Physiological Measurement 2019; 40 (10), art. no. 100301.

152.Macianskyte D, Monastyreckiene E, Basevicius A, Adaskevicius R. Comparison of segmented thermal images versus a CT scan-

ning for detection of maxillofacial pathology. Dentomaxillofacial Radiology 2019; 48 (4), art. no. 20180075.

153.Makrariya A, Pardasani KR. Numerical study of the effect of non-uniformly perfused tumor on heat transfer in women's breast during menstrual cycle under cold environment. Network Modeling Analysis in Health Informatics and Bioinformatics 2019; 8 (1), art. no. 9.

154.Maraghechi B, Kolios MC, Tavakkoli J. Feasibility of detecting change in backscattered energy of acoustic harmonics in locally heated tissues. International Journal of Hyperthermia 2019; 36 (1): 964-974.

155.Martinez-Nicolas A, Martinez-Madrid MJ, Almaida-Pagan PF, Bonmati-Carrion M-A, Madrid JA, Rol MA. Assessing Chronotypes by Ambulatory Circadian Monitoring. Frontiers in Physiology 2019; 10, art. no. 1396

156.Marzouk S, Frikha O, Guermazi M, Snoussi M, Jallouli M, Bahloul Z. Adult still's disease and squamous cell carcinoma in a 69-year-old woman. Pan African Medical Journal 2019; 34, art. no. 17.

157.Matsumoto A, Yuda M, Tanaka Y, Tanishima Y, Yano F, Nishikawa K, Ishibashi Y, Yanaga K. Efficacy of percutaneous endoscopic gastrostomy for patients with esophageal cancer during preoperative therapy. Anticancer Research 2019; 39 (8): 4243-4248.

158.Maxwell AD, MacConaghy B, Harper JD, Aldoukhi AH, Hall TL, Roberts WW. Simulation of laser lithotripsy-induced heating in the urinary tract. Journal of Endourology 2019; 33 (2): 113-119.

159.Mazerolle EL, Seasons GM, Warwaruk-Rogers R, Romo P, Nordal R, Sevick RJ, Martino D, Pichardo S, Kiss ZHT, Pike GB. Focused ultrasound resolves persistent radiosurgery related change in a patient with tremor. Radiology Case Reports 2019; 14 (10): 1233-1236.

160.McCormick PJ, Yeoh C, Vicario-Feliciano RM, Ervin K, Tan KS, Yang G, Mehta M, Tollinche L. Improved Compliance With Anesthesia Quality Measures After Implementation of Automated Monthly Feedback. Journal of Oncology Practice 2019; 15 (6): e583-e592.

161. Middleton DRS, Menya D, Kigen N, Oduor M, Maina SK, Some F, Chumba D, Ayuo P, Osano O, Schüz, J, McCormack V. Hot beverages and oesophageal cancer risk in western Kenya: Findings from the ESCCAPE case-control study. International Journal of Cancer 2019; 144 (11): 2669-2676.

162.Middleton DRS, Xie S-H, Bouaoun L, Byrnes G, Song G-H, Schüz, J, Wei W-Q, McCormack VA. Esophageal thermal exposure to hot beverages: A comparison of metrics to discriminate distinct consumption habits. Cancer Epidemiology Biomarkers and Prevention 2019; 28 (12): 2005-2013

163.Miura Y, Seifert E, Rehra J, Kern K, Theisen-Kunde D, Denton M, Brinkmann R. Real-time optoacoustic temperature determination on cell cultures during heat exposure: a feasibility study. International Journal of Hyperthermia 2019; 36 (1): 466-472.

164.Motamarry A, Negussie AH, Rossmann C, Small J, Wolfe AM, Wood BJ, Haemmerich D. Real-time fluorescence imaging for visualization and drug uptake prediction during drug delivery by thermosensitive liposomes. International Journal of Hyperthermia 2019; 36 (1): 817-826.

165.Mukaigawara M, Kinjo M, Olson APJ, Raita Y, Murthy VK. Past is prologue. Journal of Hospital Medicine 2019; 14 (8): 501-505.

166.Munier SM, Hargreaves EL, Patel NV, Danish SF. Ablation dynamics of subsequent thermal doses delivered to previously heat-damaged tissue during magnetic resonance-guided laser-induced thermal therapy. Journal of Neurosurgery 2019; 131 (6): 1958-1965.

167.Najafi A, Fuchs B, Binkert CA. Mid-term results of MR-guided high-intensity focused ultrasound treatment for relapsing superficial desmoids. International Journal of Hyperthermia 2019; 36 (1): 538-542.

168.Namba H, Kawasaki M, Izumi M, Ushida T, Takemasa R, Ikeuchi M. Effects of MRgFUS treatment on musculoskeletal pain: Comparison between bone metastasis and chronic knee/lumbar osteoarthritis. Pain Research and Management 2019, art. no. 4867904.

169.Nishitani N, Ohmura Y, Nagayasu K, Shibui N, Kaneko S, Ohashi A, Yoshida T, Yamanaka A, Yoshioka M. CRISPR/Cas9-mediated in vivo gene editing reveals that neuronal 5-HT1A receptors in the dorsal raphe nucleus contribute to body temperature regulation in mice. Brain Research 2019; 1719: 243-252.

170.Nofal R, Zeinali L, Sawaf H. Splenic infarction induced by epstein-barr virus infection in a patient with sickle cell trait. Journal of Paediatrics and Child Health 2019; 55 (2): 249-251.

171.Odéen H, de Bever J, Hofstetter LW, Parker DL. Multiple-point magnetic resonance acoustic radiation force imaging. Magnetic Resonance in Medicine 2019; 81 (2): 1104-1117.

172.Odéen H, Hadley JR, Palomino D, Stroth K, Parker DL. MR thermometry to assess heating induced by rf coils used in MRI. eMagRes 2019; 8 (1): 55-70.

173.Pérez-Guarner A, Priego-Quesada JI, Oficial-Casado F, Cibrián Ortiz De Anda RM, Carpes FP, Palmer RS. Association between physiological stress and skin temperature response after a half marathon. Physiological Measurement 2019; 40 (3), art. no. 034009.

174.Piazena H, Müller W, Pendl W, von Ah S, Cap VH, Hug PJ, Sidler X, Pluschke G, Vaupel P. Thermal field formation during wIRA-hyperthermia: temperature measurements in skin and subcutis of piglets as a basis for thermotherapy of superficial tumors and local skin infections caused by thermosensitive microbial pathogens. International Journal of Hyperthermia 2019; 36 (1) 938-952.

175.. Pokorná, J, Staffa E, ?an V, Bernard V, Mornstein V, Farkašová, M, Žetelolová, A, Kala Z. Intestinal resection of a porcine model under thermographic monitoring. Physiological Measurement 2019; 40 (1), art. no. 014003

176.Poorman ME, Braškut?, I, Bartels LW, Grissom WA. Multiecho MR thermometry using iterative separation of baseline water and fat images. Magnetic Resonance in Medicine 2019; 81 (4): 2385-2398.

177.Prada F, Kalani MYS, Yagmurlu K, Norat P, Del Bene M, DiMeco F, Kassell NF. Applications of Focused Ultrasound in Cerebrovascular Diseases and Brain Tumors. Neurotherapeutics 2019; 16 (1): 67-87.

178.Prasad B, Kim JK, Kim S. Role of simulations in the treatment planning of radiofrequency hyperthermia therapy in clinics. Journal of Oncology 2019, art. no. 9685476.

179.Qian W, Shan J, Shen C, Yang R, Xie T, Di L. Brain metabolomics reveal the antipyretic effects of jinxin oral liquid in young rats by using gas chromatography-mass spectrometry. Metabolites 2019; 9 (1).

180.Ramya Devi R, Anandhamala GS. Analysis of Breast Thermograms Using Asymmetry in Infra-Mammary Curves. Journal of Medical Systems 2019; 43 (6), art. no. 146.

181.Ravi VM, Sharma AK, Arunachalam K. Pre-Clinical Testing of Microwave Radiometer and a Pilot Study on the Screening Inflammation of Knee Joints. Bioelectromagnetics 2019; 40 (6): 402-411

182.Riguetto CM, Minicucci WJ, Neto AM, Tambascia MA, Zantut-Wittmann DE. Value of Infrared Thermography Camera Attached to a Smartphone for Evaluation and Follow-up of Patients with Graves' Ophthalmopathy. International Journal of Endocrinology 2019, art. no. 7065713.

183.Riquet D, Houel N, Bodnar J-L. Effect of osteopathic treatment on a scar assessed by thermal infrared camera pilot study. Complementary Therapies in Medicine 2019; 45: 130-135.

184.Robatto M, Pavie MC, Garcia I, Menezes MP, Bastos M, Leite HJD, Noites A, Lordelo P. Ultraviolet A/blue light-emit-

ting diode therapy for vulvovaginal candidiasis: a case presentation. Lasers in Medical Science 2019; 34 (9): 1819-1827.

185.Romansky R, Naydenov E, Komitski S. A rare case of parietal skull fibrosarcoma: Reconstruction with free myocutaneous flap and infrared thermography monitoring. Journal of Neurological Surgery Part A: Central European Neurosurgery 2019; 80 (5): 387-390.

186.Saag M, Mendoza DP, Sherman MS, Cote GM, Shih AR. Case 36-2019: A 34-year-old man with dyspnea odynophagia and abdominal pain. New England Journal of Medicine 2019; 381 (21): 2052-2061.

187.Sakakibara S, Imamachi N, Sakakihara M, Katsube Y, Hattori M, Saito Y. Effects of an intrathecal TRPV1 antagonist SB366791, on morphine-induced itch body temperature and antinociception in mice. Journal of Pain Research 2019; 12: 2629-2636.

188.Salman Lari SM, Mojra A, Rokni M. Simultaneous localization of multiple tumors from thermogram of tissue phantom by using a novel optimization algorithm inspired by hunting dogs. Computers in Biology and Medicine 2019; 112, art. no. 103377.

189.Sano F, Washio T, Matsumae M. Measurements of specific heat capacities required to build computer simulation models for laser thermotherapy of brain lesions. Tokai Journal of Experimental and Clinical Medicine 2019; 44 (4): 80-84.

190.Saulsberry L, Pace LE, Keating NL. The Impact of Breast Density Notification Laws on Supplemental Breast Imaging and Breast Biopsy. Journal of General Internal Medicine 2019; 34 (8): 1441-1451.

191.Saxena A, Ng EYK, Lim ST. Imaging modalities to diagnose carotid artery stenosis: Progress and prospect. BioMedical Engineering Online 2019; 18 (1), art. no. 66.

192.Scarano A, Lorusso F, Di Cerbo A, Lucchina AG, Carinci F. Eradication of hairy mouth after oncological resection of the tongue and floor mouth using a diode laser 808 nm. Postoperative pain assessment using thermal infrared imaging. Lasers in Surgery and Medicine 2019; 51 (6): 516-521.

193.Seasons GM, Mazerolle EL, Sankar T, Martino D, Kiss ZHT, Pichardo S, Pike GB. Predicting high-intensity focused ultrasound thalamotomy lesions using 2D magnetic resonance thermometry and 3D Gaussian modeling. Medical Physics 2019; 46 (12): 5722-5732.

194.Sebeke L, Deenen DA, Maljaars E, Heijman E, de Jager B, Heemels WPMH, Grüll H. Model predictive control for MR-HIFU-mediated uniform hyperthermia. International Journal of Hyperthermia 2019; 36 (1): 1040-1050.

195.Shah AH, Burks JD, Buttrick SS, Debs L, Ivan ME, Komotar RJ. Laser Interstitial Thermal Therapy as a Primary Treatment for Deep Inaccessible Gliomas. Clinical Neurosurgery 2019; 84 (3): 768-777.

196.Shanmugam S, Govindasamy G, Susikar S, Palaniyandi M. Thermo mammogram as a tool to assess response to neo-adjuvant chemotherapy in breast carcinoma. Indian Journal of Medical and Paediatric Oncology 2019; 40 (5): S25-S32.

197.Shrivastava D. On using magnetic resonance thermometry to measure 'strong' spatio-temporal tissue temperature variations and compute thermal dose. eMagRes 2019; 8 (2): 199-204.

198.Soin S, Rangan SV, Ali FS, Okafor C. Not your usual hip pain: Necrotising fasciitis secondary to sigmoid perforation. BMJ Case Reports 2019; 12 (3), art. no. e228985.

199.Southern JB, Higgins AM, Young AJ, Kost KA, Schreiter BR, Clifton M, Fulmer BR, Garg T. Risk Factors for Postoperative Fever and Systemic Inflammatory Response Syndrome after Ureteroscopy for Stone Disease. Journal of Endourology 2019; 33 (7): 516-522.

200.Sun L, Hou M, Zhang L, Qian D, Yang Q, Xu Z, Kang Y, Xue P. PEGylated mesoporous Bi 2 S 3 nanostars loaded with chlorin e6 and doxorubicin for fluorescence/CT imaging-guided multimodal therapy of cancer. Nanomedicine: Nanotechnology Biology and Medicine 2019; 17: 1-12.

201.Svirskis D, Behera S, Naidoo N, Beachman J, Raina T, Zhou Y, Berkahn L, Costello I, Gu Y. Stability of vincristine sulfate doxorubicin hydrochloride and etoposide phosphate admixtures in polyisoprene elastomeric pump supporting transition of the EPOCH regimen to outpatient care. Journal of Oncology Pharmacy Practice 2019; 25 (4): 831-840.

202.Szasz, AM, Minnaar CA, Szentmártoni G, Szigeti GP, Dank M. Review of the Clinical Evidences of Modulated Electro-Hyperthermia (mEHT) Method: An Update for the Practicing Oncologist. Frontiers in Oncology 2019; 9, art. no. 1012.

203.Takeuchi M, Kawakubo H, Abe Y, Kanazawa A, Ehara K, Kinugasa Y, Kinoshita T, Nomura A, Kitagawa Y. Assessment of the Safety of the New Hybrid Pencil Type Energy (NP) Device Used Close to the Recurrent Laryngeal Nerve in a Porcine Model: Comparison With a Conventional Electrosurgical Knife. Surgical Innovation 2019; 26 (2): 219-226.

204.Tan D, Mohamad NA, Wong YH, Yeong CH, Cheah PL, Sulaiman N, Abdullah BJJ, Fabell MK, Lim KS. Experimental assessment on feasibility of computed tomography-based thermometry for radiofrequency ablation on tissue equivalent polyacrylamide phantom. International Journal of Hyperthermia 2019; 36 (1): 554-561.

205.Tan J, Mougenot C, Pichardo S, Drake JM, Waspe AC. Motion compensation using principal component analysis and projection onto dipole fields for abdominal magnetic resonance thermometry. Magnetic Resonance in Medicine2019; 81 (1): 195-207.

206.Tan Y, Zhu Y, Wen L, Yang X, Liu X, Meng T, Dai S, Ping Y, Yuan H, Hu F. Mitochondria-responsive drug release along with heat shock mediated by multifunctional glycolipid micelles for precise cancer chemo-phototherapy. Theranostics 2019; 9 (3): 691-707.

207.Tang H, Deng W, Sun Z, Wang Y, Li L, Ding Y, Zhou Y. Optimization of factors influencing temperature rise and thermal necrosis of a robot driven piezoelectric osteotomy in bovine cortical bone: An in vitro study using an orthogonal test design. Clinical Biomechanics 2019; 70: 249-256.

208.Tello-Mijares S, Woo F, Flores F. Breast Cancer Identification via Thermography Image Segmentation with a Gradient Vector Flow and a Convolutional Neural Network. Journal of Healthcare Engineering 2019, art. no. 9807619.

209.Thiessen FEF, Tondu T, Cloostermans B, Dirkx YAL, Auman D, Cox S, Verhoeven V, Hubens G, Steenackers G, Tjalma WAA. Dynamic InfraRed Thermography (DIRT) in DIEP-flap breast reconstruction: A review of the literature. European Journal of Obstetrics and Gynecology and Reproductive Biology 2019; 242: 47-55.

210.Thiessen F E, Tondu T, Vermeersch N, Cloostermans B, Lundahl R, Ribbens B, Berzenji L, Verhoeven V, Hubens G, Steenackers G, Tjalma WA. Dynamic infrared thermography (DIRT) in Deep Inferior Epigastric Perforator (DIEP

211.Tint D, Stabler CT, Hanifi A, Yousefi F, Linkov G, Hy K, Soliman AMS, Pleshko N. Spectroscopic Analysis of Human Tracheal Tissue during Decellularization. Otolaryngology - Head and Neck Surgery (United States) 2019; 160 (2): 302-309.

212.Tsuboi S, Mine T, Tomioka Y, Sshiraishi S, Fukushima F, Ikaga T. Are cold extremities an issue in women's health? Epidemiological evaluation of cold extremities among Japanese women. International Journal of Women's Health 2019; 11: 31-39.

213.Tsuyuki S, Yamagami K, Yoshibayashi H, Sugie T, Mizuno Y, Tanaka S, Kato H, Okuno T, Ogura N, Yamashiro H, Takuwa H, Kikawa Y, Hashimoto T, Kato T, Takahara S, Katayama T, Yamauchi A, Inamoto T. Effectiveness and safety of surgical glove compression therapy as a prophylactic method against nanoparticle albumin-bound-paclitaxel-induced peripheral neuropathy. Breast 2019; 47: 22-27.

214.Unger M, Markfort M, Halama D, Chalopin C. Automatic detection of perforator vessels using infrared thermography in reconstructive surgery. International Journal of Computer Assisted Radiology and Surgery 2019; 14 (3): 501-507

215.Vaupel P, Piazena H, Müller W, Notter M. Biophysical and photobiological basics of water-filtered infrared-A hyperthermia of superficial tumors. International Journal of Hyperthermia 2019; 35 (1) 26-36.

216.Verius M, Frank F, Gizewski E, Broessner G. Magnetic Resonance Spectroscopy Thermometry at 3 Tesla: Importance of Calibration Measurements. Therapeutic Hypothermia and Temperature Management 2019; 9 (2) 146-155.

217.Vrba J, Janca R, Blaha M, Jezdik P, Belohlavkova A, Krsek P, Vrba D. Modeling of Brain Tissue Heating Caused by Direct Cortical Stimulation for Assessing the Risk of Thermal Damage. IEEE Transactions on Neural Systems and Rehabilitation Engineering 2019; 27 (3), art. no. 8637974: 440-449.

218.Walser E, Nance A, Ynalvez, L, Yong S, Aoughsten JS, Eyzaguirre EJ, Williams SB. Focal Laser Ablation of Prostate Cancer: Results in 120 Patients with Low- to Intermediate-Risk Disease. Journal of Vascular and Interventional Radiology 2019; 30 (3): 401-409.e2.

219.Wan W, Jiang L, Ji Y, Xun Y, Xiong L, Xiang Y, Li R, Li Z, Wang X, Stewart JM, Hu K. Effect of hypothermic perfusion on phacoemulsification in eyes with hard nuclear cataract: randomized trial. Journal of Cataract and Refractive Surgery 2019; 45 (12): 1717-1724.

220.Wilhelms DB, Dock H, Brito HO, Pettersson E, Stojakovic A, Zajdel J, Engblom D, Theodorsson E, Hammar ML, Spetz Holm A-CE. CGRP is critical for hot flushes in ovariectomized mice. Frontiers in Pharmacology2019; 9 (1), art. no. 1452.

221.Willie JT, Malcolm JG, Stern MA, Lowder LO, Neill SG, Cabaniss BT, Drane DL, Gross RE. Safety and effectiveness of stereotactic laser ablation for epileptogenic cerebral cavernous malformations. Epilepsia 2019; 60 (2): 220-232

222.Woodrum DA, Kawashima A, Gorny KR, Mynderse LA. Magnetic Resonance-Guided Prostate Ablation. Seminars in Interventional Radiology 2019; 36 (5) 351-366.

223.Wu M, Mulder HT, Zur Y, Lechner-Greite S, Menzel MI, Paulides MM, van Rhoon GC, Haase A. A phase-cycled temperature-sensitive fast spin echo sequence with conductivity bias correction for monitoring of mild RF hyperthermia with PRFS. Magnetic Resonance Materials in Physics Biology and Medicine 2019; 32 (3): 369-380.

224.Yan A, Lin L, Liu C, Shi J, Na S, Wang LV. Microwave-induced thermoacoustic tomography through an adult human skull. Medical Physics 2019, 46 (4): 1793-1797.

225.Yang X, Wang C, Wu L, Jiang X, Zhang S, Jing F. Hemorrhagic fever with renal syndrome with secondary hemophagocytic lymphohistiocytosis in West China: A case report. BMC Infectious Diseases 2019, 19 (1), art. no. 492.

226.Yoshida S, Koshima I, Imai H, Uchiki T, Sasaki A, Fujioka Y, Nagamatsu S, Yokota K. Lymphaticovenular anastomosis and venous arterialization in coexisting Raynaud's phenomenon and lymphedema: A case report. Microsurgery 2019, 39 (6): 553-558.

227.Yuan M, Wang Y, Qin Y-X. Engineered nanomedicine for neuroregeneration: light emitting diode-mediated super- paramagnetic iron oxide-gold core-shell nanoparticles functionalized by nerve growth factor. Nanomedicine: Nanotechnology Biology and Medicine 2019, 21, art. no. 102052.

228.Yuan P, Ruan Z, Li T, Tian Y, Cheng Q, Yan L. Sharp pH-sensitive amphiphilic polypeptide macrophotosensitizer for near infrared imaging-guided photodynamic therapy. Nanomedicine: Nanotechnology Biology and Medicine 2019, 15 (1): 198-207

229.Zamechnik TV, Losev AG, Levshinsky VV. Results of optimization of diagnostic signs of breast cancer received by microwave radiometry]. Medical News of North Caucasus 2019, 14 (1): 48-52.

230.Zhang L, Armstrong T, Li X, Wu HH. A variable flip angle golden-angle-ordered 3D stack-of-radial MRI technique for simultaneous proton resonant frequency shift and T1-based thermometry. Magnetic Resonance in Medicine 2019, 82 (6): 2062-2076.

231.Zhang T-Q, Huang S-M, Gu Y-K, Jiang X-Y, Huang Z-M, Deng H-X, Huang J-H. Sequential and Simultaneous 4-Antenna Microwave Ablation in an Ex Vivo Bovine Liver Model. Cardio-Vascular and Interventional Radiology 2019, 42 (10): 1466-1474

232.Zhao Y, Iyer RS, Reichley L, Oron AP, Gove NE, Kitsch AE, Biswas D, Friedman S, Partridge SC, Wallace CA. A Pilot Study of Infrared Thermal Imaging to Detect Active Bone Lesions in Children With Chronic Nonbacterial Osteomyelitis. Arthritis Care and Research 2019, 71 (11): 1430-1435.

233.Zhu L, Partanen A, Talcott MR, Gach HM, Greco SC, Henke LE, Contreras JA, Zoberi I, Hallahan DE, Chen H, Altman MB. Feasibility and safety assessment of magnetic resonance-guided high-intensity focused ultrasound (MRgHIFU)-mediated mild hyperthermia in pelvic targets evaluated using an in vivo porcine model. International Journal of Hyperthermia 2019, 36 (1): 1147-1159.

234.Zhu W, Jia L, Chen G, Li X, Meng X, Xing L, Zhao H. Relationships between the changes of skin temperature and radiation skin injury. International Journal of Hyperthermia 2019, 36 (1): 1160-1167.

235.Amano M, Namiki T, Munetsugu T, Nakamura M, Hashimoto T, Fujimoto T, Yokozeki H. Dyshidrosis associated with diabetes mellitus: Hypohidrosis associated with diabetic neuropathy and compensated hyperhidrosis. Journal of Dermatology 2019; 46 (8): e292-e293.

236.Antonacci MA, Zhang L, Degan S, Erdmann D, Branca RT. Calibration of methylene-referenced lipid-dissolved xenon frequency for absolute MR temperature measurements. Magnetic Resonance in Medicine 2019; 81 (2): 765-772.

237.Anzengruber F, Alotaibi F, Kaufmann LS, Ghosh A, Oswald MR, Maul J-T, Meier B, French LE, Bonmarin M, Navarini AA. Thermography: High sensitivity and specificity diagnosing contact dermatitis in patch testing. Allergology International 2019; 68 (2): 254-258.

238.Astasio-Picado Á, Martínez, EE, Gómez-Martín B. Comparison of thermal foot maps between diabetic patients with neuropathic vascular neurovascular and no complications. Current Diabetes Reviews 2019; 15 (6): 503-509.

239.Benavent Casanova O, Núñez Gómez, F, Priego Quesada JI, Cibrián Ortiz De Anda RM, González Peña RJ, Mínguez Rey MF, Pino Almero L, Salvador Palmer R. Application of infrared thermography as a complementary technique to conventional imaging techniques in paediatrics: case studies. Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization 2019; 7 (5-6): 643-650.

240.Dhaliwal K, Griffin MF, Salinas S, Howell K, Denton CP, Butler PEM. Optimisation of botulinum toxin type a treatment for the management of Raynaud's phenomenon using a dorsal approach: a prospective case series. Clinical Rheumatology 2019; 38 (12): 3669-3676.

241.ljaž, J, Wrobel LC, Hriberšek M, Marn J. Numerical modelling of skin tumour tissue with temperature-dependent properties for dynamic thermography. Computers in Biology and Medicine 2019; 112, art. no. 103367

242.Li W, Zheng J, Zhang Y, Yuan F, Lyu P. Temperature and depth evaluation of the in vitro effects of femtosecond laser on oral soft tissue with or without air-cooling. Lasers in Medical Science 2019; 34 (4): 649-658.

243.Lis-Swiety A. Recent advances in the workup and management of Raynaud phenomenon. Polish Archives of Internal Medicine 2019; 129 (11) 798-808.

244.Nakai A, Minematsu T, Tamai N, Sugama J, Urai T, Sanada H. Prediction of healing in Category I pressure ulcers by skin blotting with plasminogen activator inhibitor 1, interleukin-1?, vascular endothelial growth factor C, and heat shock protein 90?: A pilot study. Journal of Tissue Viability 2019; 28 (2): 87-93.

245.Oliveira PDS, de Carvalho MA, Braga MA, Leite MMP, Medrado AP. Comparative thermographic analysis at pre- and

postcryolipolysis treatment: Clinical case report. Journal of Cosmetic Dermatology 2019; 18 (1): 136-141

246.Park KH, Kim J, Oh B, Lee E, Hwang-Bo J, Ha J. Evaluation of factors triggering sensitive scalp in Korean adult women. Skin Research and Technology 2019; 25 (6): 862-866.

247.Pejnovic N, Francevic B. Testing heat transfer in protective clothing using a thermovision camera. Sigurnost 2019; 61 (3): 209-216.

248.Pišcevic, B, Brdareski Z, Stepic, N, Djordjevic, B, Vulovic, D, Jovanovic, M, Vulovic, D. The impact of breast augmentation on the skin temperature of the breast. Vojnosanitetski Pregled 2019; 76 (5): 518-523.

249.Ranosz-Janicka I, Lis-Swiety A, Skrzypek-Salamon A, Brzezinska- Wcislo L. Detecting and quantifying activity/inflammation in localized scleroderma with thermal imaging. Skin Research and Technology 2019; 25 (2): 118-123.

250.Rashmi R, Snekhalatha U. Evaluation of body composition parameters using various diagnostic methods: A metaanalysis study. Obesity Medicine 2019; 16, art. no. 100150

251.Saygin D, Highland KB, Tonelli AR. Microvascular involvement in systemic sclerosis and systemic lupus erythematosus. Microcirculation 2019; 26 (3), art. no. e12440.

252.Schneider KL, Crews RT, Subramanian V, Moxley E, Hwang S, DiLiberto FE, Aylward L, Bean J, Yalla S. Feasibility of a Low-Intensity Technology-Based Intervention for Increasing Physical Activity in Adults at Risk for a Diabetic Foot Ulcer: A Mixed-Methods Study. Journal of Diabetes Science and Technology 2019; 13 (5) 857-868.

253.Tunc B, Gulsoy M. Stereotaxic laser brain surgery with 1940-nm Tm:fiber laser: An in vivo study. Lasers in Surgery and Medicine 2019; 51 (7): 643-652.

254.Voitenkov VB, Komantsev VN, Ekusheva EV, Skripchenko NV, Marchenko NV. Clinical case of Parry-Romberg syndrome. Nervno-Myshechnye Bolezni 2019; 9 (1): 75-82.

255.Wilczy?ski S, Stolecka-Warzecha A, Deda A, Koprowski R, Flasz, K, B?o?ski B, Musio?, M. In vivo dynamic thermal imaging of skin radiofrequency treatment. Journal of Cosmetic Dermatology 2019; 18 (5): 1307-1316.

256.Wortsman X. Why how and when to use color Doppler ultrasound for improving precision in the diagnosis assessment of severity and activity in morphea. Journal of Scleroderma and Related Disorders 2019; 4 (1): 28-34

257.Zouboulis CC, Nogueira Da Costa A, Jemec GBE, Trebing D. Long-Wave Medical Infrared Thermography: A Clinical

258.Cabizosu A, Carboni N, Figus A, Vegara-Meseguer JM, Casu G, Hernández Jiménez, P, Martinez-Almagro Andreo A. Is infrared thermography (IRT) a possible tool for the evaluation and follow up of Emery-Dreifuss muscular dystrophy? A preliminary study. Medical Hypotheses 2019; 127: 91-96.

259.Czerny M, Schmidli J, Adler S, van den Berg JC, Bertoglio L, Carrel T, Chiesa R, Clough RE, Eberle B, Etz, C, Grabenwöger M, Haulon S, Jakob H, Kari FA, Mestres CA, Pacini D, Resch T, Rylski B, Schoenhoff F, Shrestha M, von Tengg-Kobligk H, Tsagakis K, Wyss TR. Editor's Choice - Current Options and Recommendations for the Treatment of Thoracic Aortic Pathologies Involving the Aortic Arch: An Expert Consensus Document of the European Association for Cardio-Thoracic Surgery (EACTS) & the European Society for Vascular Surgery (ESVS). European Journal of Vascular and Endovascular Surgery 2019; 57 (2): 165-198.

260.Derakhshan A, Mikaeili M, Nasrabadi AM, Gedeon T. Network physiology of 'fight or flight' response in facial superficial blood vessels. Physiological Measurement 2019; 40 (1), art. no. 014002.

261.Desruelle A-V, Louge P, Richard S, Blatteau J-E, Gaillard S, De Maistre S, David H, Risso J-J, Vallée N. Demonstration by infra-red imaging of a temperature control defect in a decompression sickness model testing minocycline. Frontiers in Physiology 2019; 10 (7), art. no. 933.

262.Hao Y, Wang R-R, Han L, Wang H, Zhang X, Tang Q-L, Yan L, He J. Time series analysis of mumps and meteorological factors in Beijing China. BMC Infectious Diseases 2019; 19 (1), art. no. 435.

263.Ko ER, Philipson CW, Burke TW, Cer RZ, Bishop-Lilly KA, Voegtly LJ, Tsalik EL, Woods CW, Clark DV, Schully KL. Direct-from-blood RNA sequencing identifies the cause of post-bronchoscopy fever. BMC Infectious Diseases 2019; 19 (1), art. no. 905.

264.Li X, Fan K, Li Q, Pan D, Hai R, Du C. Melanocortin 4 receptor-mediated effects of amylin on thermogenesis and regulation of food intake. Diabetes/Metabolism Research and Reviews 2019; 35 (5), art. no. e3149

265.López-Gatius F, Hunter RHF. Pre-ovulatory follicular cooling correlates positively with the potential for pregnancy in dairy cows: Implications for human IVF. (2019) Journal of Gynecology Obstetrics and Human Reproduction 2019; 48 (6): 419-422

266.Ma H, Lundy JD, O'malley KJ, Klimstra WB, Hartman AL, Reed DS. Electrocardiography abnormalities in macaques after infection with encephalitic alphaviruses. Pathogens 2019; 8 (4), art. no. 240.

267.Mohammadinia A, Saeidian B, Pradhan B, Ghaemi Z. Prediction mapping of human leptospirosis using ANN, GWR, SVM and GLM approaches. BMC Infectious Diseases 2019; 19 (1), art. no. 971.

268.Rivero M, Alonso J, Ramón MF, Gonzales N, Pozo A, Marín I, Navascués A, Juanbeltz, R. Infections due to Cellulosimicrobium species: Case report and literature review. BMC Infectious Diseases 2019; 19 (1), art. no. 816.

269.Rybka A, Gavel A, Pražák P, Meloun J, Pejchal J. Decontamination of CBRN units contaminated by highly contagious biological agents. Epidemiologie Mikrobiologie Immunologie 2019 (1): 40-45.

270.Zhao Q, Li X, Zhang W, Chu C, Yao L, Zhang Y, Qian Q, Li M, Li S, Li N, Zhao X, Song H, Wang Y, Huang B. Epidemiological characteristics and spatial analysis of tick-borne encephalitis in Jilin Province China. American Journal of Tropical Medicine and Hygiene 2019, 101 (1): 189-197

271.Bastardot F, Marques-Vidal P, Vollenweider P. Association of body temperature with obesity. The CoLaus study. International Journal of Obesity 2019; 43 (5): 1026-1033.

272.Brazaitis M, Paulauskas H, Eimantas N, Daniuseviciute L, Volungevicius G, Skurvydas A. Motor performance is preserved in healthy aged adults following severe whole-body hyperthermia. International Journal of Hyperthermia 2019; 36 (1): 65-74.

273.Geneva II, Cuzzo B, Fazili T, Javaid W. Comprehensive Analysis of Temperature in Hospitalized Patients. American Journal of the Medical Sciences 2019; 358 (2): 134-142.

274.Geneva II, Cuzzo B, Fazili T, Javaid W. Normal body temperature: A systematic review. Open Forum Infectious Diseases 2019; 6 (4), art. no. ofz032.

275.Hodges GJ, Mallette MM, Rigby A, Klentrou P, Cheung SS, Falk B. Comparison of different wheelchair seating on thermo-regulation and perceptual responses in thermoneutral and hot conditions in children. Journal of Tissue Viability 2019; 28 (3): 144-151.

276.Koerner S, Adams D, Harper SL, Black JM, Langemo DK. Use of Thermal Imaging to Identify Deep-Tissue Pressure Injury on Admission Reduces Clinical and Financial Burdens of Hospital-Acquired Pressure Injuries. Advances in Skin and Wound Care 2019; 32 (7): 312-320.

277.Lohani M, Payne BR, Strayer DL. A review of psycho- physiological measures to assess cognitive states in real-world driving. Frontiers in Human Neuroscience 2019; 13, art. no. 57.

278.Mintzopoulos D, Ratai E-M, He J, Gonzalez, RG, Kaufman MJ. Simian immunodeficiency virus transiently increases brain temperature in rhesus monkeys: detection with magnetic resonance spectroscopy thermometry. Magnetic Resonance in Medicine 2019; 81 (5): 2896-2904.

279.Perpetuini D, Cardone D, Chiarelli AM, Filippini C, Croce P, Zappasodi F, Rotunno L, Anzoletti N, Zito M, Merla A. Autonomic impairment in Alzheimer's disease is revealed by complexity analysis of functional thermal imaging signals during cognitive tasks. Physiological Measurement 2019; 40 (3), art. no. 034002.

280.Skomudek A, Waz, G, Rozek-Piechura K. Does CABG with saphenous vein grafting and standard cardiac rehabilitation affect lower limb function? A clinical study. International Journal of Environmental Research and Public Health 2019; 16 (11), art. no. 1903.

281.Sung DS, Sim SY, Jin HW, Kwon WY, Kim KS, Kim T, Jung YS, Ko J-I, Shin SM, Suh GJ, Park KS. Validation of non-invasive brain temperature estimation models during swine therapeutic hypothermia. Physiological Measurement 2019; 40 (2), art. no. 025004.

282.Vinales KL, Begaye B, Thearle MS, Krakoff J, Piaggi P. Core body temperature energy expenditure and epinephrine during fasting eucaloric feeding and overfeeding in healthy adult men: evidence for a ceiling effect for human thermogenic response to diet. Metabolism: Clinical and Experimental 2019; 94: 59-68.

283.Xu BY, Vasanwala FF, Low SG. A case report of an atypical presentation of pyogenic iliopsoas abscess BMC Infectious Diseases 2019, 19 (1), art. no. 58.

284.Yilmaz, I, Günes Ü.Y. Sacral skin temperature and pressure ulcer development: A descriptive study. Wound Management and Prevention 2019, 65 (8): 30-37

285. Alsakkal M, Al-Khateeb M, Alhalaby M, Khouri L. Hepatitis-associated aplastic anemia: A report of 3 cases associated with HAV. Journal of Pediatric Hematology/Oncology 2019; 41 (3): E164-E166.

286.Berrueco R, Sarquella-Brugada G. Worldwide Variability of Antithrombotic Therapy During Cardiac Catheter Ablation in Children: A Survey from 50 Centers Around the World. Pediatric Cardiology 2019; 40 (2): 456-458.

287. Bhavani SV, Carey KA, Gilbert ER, Afshar M, Verhoef PA, Churpek MM. Identifying novel sepsis subphenotypes using temperature trajectories. American Journal of Respiratory and Critical Care Medicine 2019; 200 (3): 327-335.

288.Chay JWM, Kim JH, Taha NSBM, Chiew SH, Chin KW, Lim SH, Ho LP. Urgent delivery - Validation and operational implementation of urgent blood delivery by modern high speed hospital pneumatic tube system to support bleeding emergencies within a hospital massive transfusion protocol. Lab Medicine 2019; 50 (4): E59-E69.

289.Chin V, Cope S, Yeh CH, Thompson T, Nascimento B, Pavenski K, Callum J. Massive hemorrhage protocol survey: Marked variability and absent in one-third of hospitals in Ontario Canada. Injury 2019; 50 (1): 46-53

290.del Arroyo AG, Sanchez, J, Patel S, Phillips S, Reyes A, Cubillos C, Fernando R, David AL, Reeve A, Sodha S, Ciechanowicz, S, Olearo E, Dick J, Stewart A, Sultan P, Ackland GL, EPIFEVER Investigators.Role of leucocyte caspase-1 activity in epidural-related maternal fever: a single-centre observational mechanistic cohort study. British Journal of Anaesthesia 2019; 122 (1): 92-102.

291.Eze IC, Essé, C, Bassa FK, Koné, S, Acka F, Schindler C, Imboden M, Laubhouet-Koffi V, Kouassi D, N'Goran EK, Utzinger J, Bonfoh B, Probst-Hensch N. Asymptomatic Plasmodium infection and glycemic control in adults: Results from a population-based survey in south-central Côte d'Ivoire. Diabetes Research and Clinical Practice 2019; 156, art. no. 107845.

292.Fidut-Wronska J, Choluj K, Chmiel J, Pikto-Pitkiewicz, K, Majcher P. Observation using thermography of post-operative reaction after fascial manipulation®. Annals of Agricultural and Environmental Medicine 2019; 26 (3): 468-471.

293.Fujita M, Takahashi A, Imaizumi H, Hayashi M, Okai K, Abe K, Ohira H. Endogenous Endophthalmitis Associated with Pyogenic Liver Abscess Caused by Klebsiella pneumoniae. Internal Medicine 2019; 58 (17): 2507-2514

294. Hirschmann JV. The Discovery of Q Fever and Its Cause. American Journal of the Medical Sciences 2019; 358 (1): 3-10.

295.Jørgensen E, Bay L, Skovgaard LT, Bjarnsholt T, Jacobsen S. An equine wound model to study effects of bacterial aggregates on wound healing. Advances in Wound Care 2019; 8 (10): 487-498.

296.Kapek L, Cholewka A, Szlag M, Wojcieszek P, Stanek A, Kellas-Sleczka S, Slosarek K, Cholewka A. Thermal evaluation of skin temperature due to brachytherapy treatment on basal cell carcinoma. Thermology international 2019, 29(2) 84

297.Kuo C-Y, Chan C-K, Wu C-Y, Phan D-V, Chan C-L. The short-term effects of ambient air pollutants on childhood asthma hospitalization in Taiwan: A national study. International Journal of Environmental Research and Public Health 2019; 16 (2), art. no. 203.

298.Margarido C, Ferns J, Chin V, Ribeiro T, Nascimento B, Barrett J, Herer E, Halpern S, Andrews L, Ballatyne G, Chapmam M, Gomes J, Callum J. Massive hemorrhage protocol activation in obstetrics: a 5-year quality performance review. International Journal of Obstetric Anesthesia 2019; 38: 37-45.

299.Numahata K, Akaiwa Y, Yoshizawa K, Norimine S, Onoue H, Miyamoto T. Cryptococcal meningoencephalitis in an immunocompetent patient caused by late onset exacerbation. Clinical Neurology 2019; 59 (4): 190-194.

300.Park M, Hur M, Yi A, Kim H, Lee HK, Jeon EY, Oh K-M, Lee MH. Utility of temperature-sensitive indicators for temperature monitoring of red-blood-cell units. Vox Sanguinis 2019; 114 (5): 487-494.

301.Rajagopal MC, Brown JW, Gelda D, Valavala KV, Wang H, Llano DA, Gillette R, Sinha S. Transient heat release during induced mitochondrial proton uncoupling. Communications Biology 2019; 2 (1), art. no. 279.

302.Reymond B, Huette P, Roger P-A, Tredez, E, Gagneur O, Sanguin S, Guihéneuf R, Dupont H, Mahjoub Y, Abou Arab O. Fatal Fusobacterium necrophorum infection with gynecological Lemierre's syndrome. Medecine et Maladies Infectieuses 2019; 49 (1): 72-74.

303.Ruaro B, Smith V, Sulli A, Pizzorni C, Tardito S, Patané, M, Paolino S, Cutolo M. Innovations in the assessment of primary and secondary Raynaud's phenomenon. Frontiers in Pharmacology 2019; 10 (3), art. no. 360.

304.Sanader B, Grohmann R, Grötsch P, Schumann T, Toto S, Fernando P, Stübner S. Clozapine-Induced DRESS Syndrome: A Case Series from the AMSP Multicenter Drug Safety Surveillance Project. Pharmacopsychiatry 2019; 52 (3): 156-159.

305.Saxena K, Vu K, Nye HE. A 54-Year-Old Man with Pancytopenia. JAMA - Journal of the American Medical Association 2019; 321 (9): 895-896.

306.Villard P, Muñoz, F, Balenghien T, Baldet T, Lancelot R, Hénaux V. Modeling Culicoides abundance in mainland France: Implications for surveillance. Parasites and Vectors 2019; 12 (1), art. no. 391.

307.Wagenaar L, Van Roest M, Kruijssen LJW, Simons PJ, Boon L, Vonk MM, Van Esch BCAM, Knippels LMJ, Garssen J, Pieters RHH, Smit JJ. Non-digestible oligosaccharides scFOS/lcFOS facilitate safe subcutaneous immunotherapy for peanut allergy. Clinical and Molecular Allergy 2019; 17 (1), art. no. 7.

308.Weatherall A, Gill M, Milligan J, Tetlow C, Harris C, Garner A, Lee A. Comparison of portable blood-warming devices under simulated pre-hospital conditions: a randomised in-vitro blood circuit study. Anaesthesia 2019; 74 (8): 1026-1032.

309.Yang J, Wang Q, Wang S, Zhang Y, Wang Z. Unusual drug fever caused by imipenem/cilastatin and a review of literature. Heart Surgery Forum 2019, 22 (2): E119-E123.

310.Zhong X, Chang Y, Tan S, Wang J, Sun X, Wu A, Peng L, Lau AY, Kermode AG, Qiu W. Relapsing optic neuritis and meningoencephalitis in a child: Case report of delayed diagnosis of MOG-IgG syndrome. BMC Neurology 2019, 19 (1), art. no. 94.

311.Ahsan MJ, Ahmad S, Latif A, Reddy JT. Chryseobacterium spp-associated bacteraemia in a haemodialysis patient: a diagnostic challenge. BMJ Case Reports 2019; 12 (11), art. no. 232000

312.Anwar A, Khan N, Ayub M, Nawaz, F, Shah A, Flahault A. Modeling and predicting dengue incidence in highly vulnerable countries using panel data approach. International Journal of Environmental Research and Public Health 2019; 16 (13), art. no. 2296.

313.de Melo DP, Bento PM, Peixoto LR, Martins SKLD, Martins CC. Is infrared thermography effective in the diagnosis of temporomandibular disorders? A systematic review. Oral Surgery Oral Medicine Oral Pathology and Oral Radiology 2019; 127 (2): 185-192.

314.Earland D, Buchwald AG, Sixpence A, Chimenya M, Damson M, Seydel KB, Mathanga DP, Taylor TE, Laufer MK. Impact of multiplicity of plasmodium falciparum infection on clinical disease in Malawi. American Journal of Tropical Medicine and Hygiene 2019; 101 (2): 412-415.

315.Foo CPZ, Seabrook JA, Sangha G, Foster JR. Presumed Systemic Inflammatory Response Syndrome in the Pediatric Emergency Department. Pediatric Emergency Care 2019; 35 (8): 522-526.

316.Kümin M, Deery J, Turney S, Price C, Vinayakam P, Smith A, Filippa A, Wilkinson-Guy L, Moore F, O'Sullivan M, Dunbar M, Gaylard J, Newman J, Harper CM, Minney D, Parkin C, Mew L, Pearce O, Third K, Shirley H, Reed M, Jefferies L, Hewitt-Gray J, Scarborough C, Lambert D, Jones CI, Bremner S, Fatz, D, Perry N, Costa M, Scarborough M. Reducing Implant Infection in Orthopaedics (RIIiO): Results of a pilot study comparing the influence of forced air and resistive fabric warming technologies on postoperative infections following orthopaedic implant surgery. Journal of Hospital Infection 2019; 103 (4): 412-419.

317.Lee B-W, Park J-G, Ha TKQ, Pham HTT, An J-P, Noh J-R, Lee C-H, Oh W-K. Constituents of the Edible Leaves of Melicope pteleifolia with Potential Analgesic Activity. Journal of Natural Products 2019; 82 (8): 2201-2210.

318.Magee CA, Thompson Bastin ML, Graves K, Burgess D, Nestor M, Lamm JR, Cook AM. Fever Burden in Patients With Subarachnoid Hemorrhage and the Increased Use of Antibiotics. Journal of Stroke and Cerebrovascular Diseases 2019; 28 (11), art. no. 104313.

319.Stephenson D, Perry A, Appleby MR, Lee D, Davison J, Johnston A, Jones AL, Nelson A, Bourke SJ, Thomas MF, De Soyza A, Lordan JL, Lumb J, Robb AE, Samuel JR, Walton KE, Perry JD. An evaluation of methods for the isolation of nontuberculous mycobacteria from patients with cystic fibrosis bronchiectasis and patients assessed for lung transplantation. BMC Pulmonary Medicine 2019; 19 (1), art. no. 19

320.Tonkaboni A, Saffarpour A, Aghapourzangeneh F, Fard MJK. Comparison of diagnostic effects of infrared imaging and bitewing radiography in proximal caries of permanent teeth. Lasers in Medical Science 2019; 34 (5): 873-879.

321.Topalidou A, Ali N, Sekulic S, Downe S. Thermal imaging applications in neonatal care: A scoping review. BMC Pregnancy and Childbirth 2019; 19 (1), art. no. 381.

322.Van Haren M, Lenaerts A, Paridaens H, Machiels P. A 33-year-old man with jaundice dyspnoea and fever. Clinics and Research in Hepatology and Gastroenterology 2019; 43 (1): 104-107.

323.Alfieri FM, Lima ARS, Battistella LR, de Oliveira Vargas e Silva NC. Superficial temperature and pain tolerance in patients with chronic low back pain. Journal of Bodywork and Movement Therapies 2019; 23 (3): 583-587.

324.Ali-Ahmed F, Goyal V, Patel M, Orelaru F, Haines DE, Wong WS. High-power low-flow short-ablation duration-the key to avoid collateral injury? Journal of Interventional Cardiac Electrophysiology 2019; 55 (1): 9-16.

325.An J, Lee I, Yi Y. The thermal effects of water immersion on health outcomes: An integrative review. International Journal of Environmental Research and Public Health 2019; 16 (7), art. no. 1280.

326.Anosov AA, Balashov IS, Erofeev AV, Zhdankina YS, Sharakshane AA, Mansfel'd AD. Measurement of the core human body temperature by means of passive acoustic thermometry. Obshchaya Reanimatologiya 2019; 15 (1): 39-46.

327.Bhatti F, Naiman M, Tsarev A, Kulstad E. Esophageal temperature management in patients suffering from traumatic brain injury. Therapeutic Hypothermia and Temperature Management 2019; 9 (4): 238-242.

328.Das K, Bhowmik MK, Chowdhuary O, Bhattacharjee D, De BK. Accurate segmentation of inflammatory and abnormal regions using medical thermal imagery. Australasian Physical and Engineering Sciences in Medicine 2019; 42 (2): 647-657

329.Demo H, Willoughby C, Jazayeri M-A, Razminia M. Fluoroless Catheter Ablation of Cardiac Arrhythmias. Cardiac Electrophysiology Clinics 2019; 11 (4): 719-729.

330.Dietrich WD. Summer-Time for the Journal. Therapeutic Hypothermia and Temperature Management 2019; 9 (2), p. 97

331.Eniko K, János G, Béla M, Endre Z. Possibilities of post-resuscitation neuroprotection in 2019 [A postresuscitatiós ellátás neuroprotekciós lehetoségei 2019-ben]. Orvosi Hetilap 2019; 160 (46): 1832-1839.

332.Gil-Calvo M, Priego-Quesada JI, Jimenez-Perez, I, Lucas-Cuevas A, Pérez-Soriano P. Effects of prefabricated and custom-made foot orthoses on skin temperature of the foot soles after running. Physiological Measurement 2019; 40 (5), art. no. 054004

333.Gilchrist IC. Hand Thermography: A Novel Approach to Evaluate Hand Function After Transradial Access. Cardiovascular Revascularization Medicine 2019; 20 (6): 450-451.

334.Gough H, Faulknall-Mills S, King M-F, Luo Z. Assessment of overheating risk in gynaecology scanning rooms during near-heatwave conditions: A case study of the royal berkshire hospital in the UK. International Journal of Environmental Research and Public Health 2019; 16 (18), art. no. 3347.

335.Grobler L, Derman W, Racinais S, Ngai ASH, van de Vliet P. Illness at a Para Athletics Track and Field World Championships under Hot and Humid Ambient Conditions. PM and R, 2019; 11 (9): 919-925.

336.Gulsen M, Pekyavas NO, Atici E, Sahin FN, Güler Ö.Effects of kinesio taping on postural stability in young soccer players. Acta Medica Mediterranea 2019; 35 (1): 169-174.

337.Hadži?, V, Širok B, Malnerši?, A, ?oh M. Can infrared thermography be used to monitor fatigue during exercise? A case study. Journal of Sport and Health Science 2019; 8 (1): 89-92.

338.Hodges GJ, Ferguson SAH, Cheung SS. Cardiac autonomic function during hypothermia and its measurement repeatability. Applied Physiology Nutrition and Metabolism 2019; 44 (1): 31-36.

339.Kadado AJ, Akar JG, Hummel JP. Luminal esophageal temperature monitoring to reduce esophageal thermal injury during catheter ablation for atrial fibrillation: A review. Trends in Cardiovascular Medicine 2019; 29 (5): 264-271

340.Kampmeier J, Werner JU, Wagner P, Lang GK, Russ D. In Vitro Study of Subablative Er:YAG Laser and Diode Laser Therapy vsThermal Cautery in Microbial Keratitis Klinische Monatsblätter fur Augenheilkunde 2019; 236 (11): 1331-1338.

341.Lee W-S, Kim W-S, Lim Y-H, Hong Y-C. High temperatures and kidney disease morbidity: A Systematic Review and Meta-analysis. Journal of Preventive Medicine and Public Health 2019; 52 (1): 1-13.

342.Linde LD, Srbely JZ. The Acute Effect of Skin Preheating on Capsaicin-Induced Central Sensitization in Humans. Pain Practice 2019; 19 (8): 811-820.

343.Liu Q, Li C. Predictive value of myoglobin and D-dimer on severe heat stroke: A clinical analysis of 38 patients with severe heat stroke Zhonghua Wei Zhong Bing Ji Jiu Yi Xue 2019; 31 (5): 594-597.

344.Mansor Z, Ismail R, Ismail NH, Hashim JH. Effects of hydration practices on the severity of heat-related illness among municipal workers during a heat wave phenomenon. Medical Journal of Malaysia 2019; 74 (4): 275-280.

345.Mody P, Kulkarni N, Khera R, Link MS. Targeted temperature management for cardiac arrest. Progress in Cardiovascular Diseases 2019; 62 (3): 272-278.

346.Okano T, Okada A, Tabata H, Kobayashi H, Shoin W, Yoshie K, Oguchi Y, Shoda M, Kuwahara K. Wire perforation causing cardiopulmonary arrest during radiofrequency hot balloon ablation for pulmonary vein isolation. Journal of Cardiology Cases 2019; 19 (5): 169-172.

347.Pasquinelli C, Hanson LG, Siebner HR, Lee HJ, Thielscher A. Safety of transcranial focused ultrasound stimulation: A systematic review of the state of knowledge from both human and animal studies. Brain Stimulation 2019; 12 (6): 1367-1380.

348.Pradhan B, Kjellstrom T, Atar D, Sharma P, Kayastha B, Bhandari G, Pradhan PK. Heat Stress Impacts on Cardiac Mortality in Nepali Migrant Workers in Qatar. Cardiology (Switzerland) 2019; 143 (1): 37-48.

349.Prescott HC. Identifying sepsis subtypes from routine clinical data. American Journal of Respiratory and Critical Care Medicine 2019; 200 (3): 272-273.

350.Pürerfellner H, Deneke T. Esophageal Temperature Monitoring: The Faster the World Turns the Less Latency Will Be Acceptable. JACC: Clinical Electrophysiology 2019; 5 (11): 1289-1291.

351.Rathjen NA, Shahbodaghi SD, Brown JA. Hypothermia and Cold Weather Injuries. American family physician 2019; 100 (11): 680-686.

352.Reddy VY, Grimaldi M, De Potter T, Vijgen JM, Bulava A, Duytschaever MF, Martinek M, Natale A, Knecht S, Neuzil P, Pürerfellner H. Pulmonary Vein Isolation With Very High Power Short Duration Temperature-Controlled Lesions: The QDOT-FAST Trial. JACC: Clinical Electrophysiology 2019; 5 (7): 778-786.

353.Sánchez-Sánchez, M-L, Ruescas-Nicolau M-A, Carrasco JJ, Espí-López, G-V, Pérez-Alenda S. Cross-sectional study of quadriceps properties and postural stability in patients with chronic stroke and limited vs. non-limited community ambulation. Topics in Stroke Rehabilitation 2019; 26 (7): 503-510.

354.Tan D, Mohamad NA, Wong YH, Yeong CH, Cheah PL, Sulaiman N, Abdullah BJJ, Fabell MK, Lim KS. Experimental assessment on feasibility of computed tomography-based thermometry for radiofrequency ablation on tissue equivalent polyacrylamide phantom. International Journal of Hyperthermia 2019; 36 (1): 554-561.

355.Tumilty S, Adhia DB, Smoliga JM, Gisselman AS. Thermal profiles over the Achilles tendon in a cohort of non-injured collegiate athletes over the course of a cross country season. Physical Therapy in Sport 2019; 36: 110-115.

356.Turagam MK, Miller S, Sharma SP, Prakash P, Gopinathannair R, Lakkireddy P, Mohanty S, Cheng J, Natale A, Lakkireddy D. Differences in Transient Thermal Response of Commercial Esophageal Temperature Probes: Insights From an Experimental Study. JACC: Clinical Electrophysiology 2019; 5 (11): 1280-1288.

357.Variane GF, Cunha LM, Pinto P, Brandao P, Mascaretti RS, Magalhães M, Sant'Anna GM. Therapeutic Hypothermia in Brazil: A MultiProfessional National Survey. American Journal of Perinatology 2019; 36 (11): 1150-1156.

358.Wei Q, Park H-J, Lee JH. Development of a wireless health monitoring system for measuring core body temperature from the back of the body. Journal of Healthcare Engineering 2019, art. no. 8936121.

359.Winkle RA, Mohanty S, Patrawala RA, Mead RH, Kong MH, Engel G, Salcedo J, Trivedi CG, Gianni C, Jais P, Natale A, Day JD. Low complication rates using high power (45-50 W) for short duration for atrial fibrillation ablations. Heart Rhythm 2019; 16 (2): 165-169.

360.Yeoman K, Dubose W, Bauerle T, Victoroff T, Finley S, Poplin G. Patterns of Heat Strain among a Sample of US Underground Miners. Journal of Occupational and Environmental Medicine 2019, 61 (3): 212-218.

361.You YH, Park JS, Yoo IS, Min JH, Jeong WJ, Cho YC, Ryu S, Lee JW, Kim SW, Cho SU, Oh SK, Ahn HJ, In YN, Kwack CH, Yi KS, Lee DH, Lee BK, Park KH, Lee IH, Kim SM, Kwon IS. Usefulness of a quantitative analysis of the cerebrospinal fluid volume proportion in brain computed tomography for predicting neurological prognosis in cardiac arrest survivors who undergo target temperature management. Journal of Critical Care 2019, 51: 170-174.

362.Yufang L, Yanning Z, Jiacheng W. Preventive oral rehydration salts III could protect intestinal function in rats with exertional heatstroke. Zhonghua Wei Zhong Bing Ji Jiu Yi Xue 2019, 31 (5): 598-602.

363.Allen DR, Huang M, Morris NB, Chaseling GK, Frohman EM, Jay O, Davis SL. Impaired Thermoregulatory Function during Dynamic Exercise in Multiple Sclerosis. Medicine and Science in Sports and Exercise 2019; 51 (3): 395-404

364.Aydin MD, Kanat A, Yolas C, Calik M. New insights of the fever following subarachnoid hemorrhage and introducing a new thermoregulator like structure in choroid plexuses; preliminary study. Acta Neurologica Taiwanica 2019; 28 (1): 1-11.

365.Berardi A, Sandoni M, Toffoli C, Boncompagni A, Gennari W, Bergamini MB, Lucaccioni L, Iughetti L. Clinical characterization of neonatal and pediatric enteroviral infections: An Italian single center study. Italian Journal of Pediatrics 2019; 45 (1), art. no. 94.

366.Brotherton EJ, Moseley SE, Langan-Evans C, Pullinger SA, Robertson CM, Burniston JG, Edwards BJ. Effects of two nights partial sleep deprivation on an evening submaximal weightlifting performance; are 1 h powernaps useful on the day of competition? Chronobiology International 2019; 36 (3): 407-426.

367.Cai W, Chen A-W, Ding L, Shen W-D. Thermal Effects of Acupuncture by the Infrared Thermography Test in Patients With Tinnitus. JAMS Journal of Acupuncture and Meridian Studies 2019; 12 (4): 131-135.

368.Cao Z, Gore JC, Grissom WA. Low-rank plus sparse compressed sensing for accelerated proton resonance frequency shift MR temperature imaging. Magnetic Resonance in Medicine 2019; 81 (6): 3555-3566.

369.Carlsen HK, Oudin A, Steingrimsson S, Åström DO. Ambient temperature and associations with daily visits to a psychiatric emergency unit in Sweden. International Journal of Environmental Research and Public Health 2019; 16 (2), art. no. 286.

370.Chaseling GK, Allen DR, Vucic S, Barnett M, Frohman E, Davis SL, Jay O. Core temperature is not elevated at rest in people with relapsing-remitting multiple sclerosis. Multiple Sclerosis and Related Disorders 2019; 29: 62-67

371.Cho Y, Julier SJ, Bianchi-Berthouze N. Instant stress: Detection of perceived mental stress through smartphone photoplethysmography and thermal imaging. Journal of Medical Internet Research 2019; 21 (4), art. no. e10140.

372.De Stefani E, Ardizzi M, Nicolini Y, Belluardo M, Barbot A, Bertolini C, Garofalo G, Bianchi B, Coudé, G, Murray L, Ferrari PF. Children with facial paralysis due to Moebius syndrome exhibit reduced autonomic modulation during emotion processing. Journal of Neurodevelopmental Disorders 2019; 11 (1), art. no. 12.

373.Gagliardo C, Midiri M, Cannella R, Napoli A, Wragg P, Collura G, Marrale M, Vincenzo Bartolotta T, Catalano C, Lagalla R. Transcranial magnetic resonance-guided focused ultrasound surgery at 1.5T: a technical note. Neuroradiology Journal 2019; 32 (2): 132-138.

374.Grewal SS, Tatum WO. Laser thermal ablation in epilepsy. Expert Review of Neurotherapeutics 2019; 19 (12): 1211-1218.

375.Hamzah Airlangga PS, Machin A, Rehatta NM. Anesthesia and intensive care management in acute ischemic stroke patient. Critical Care and Shock 2019; 22 (3): 131-146.

376.He Y, Inoue T, Nomura S, Maruta Y, Kida H, Yamakawa T, Hirayama Y, Imoto H, Suzuki M. Limitations of local brain cool-

ing on generalized motor seizures from unknown foci in awake rats. Neurologia Medico-Chirurgica 2019; 59 (4): 147-153.

377.Henderson AD, Ramulu PY, Lawler JF. Teaching Neuro Images: Thermal imaging in Horner syndrome. Neurology 2019; 93 (13): e1324-e1325.

378.Huggins J, Rakobowchuk M. Utility of lacrimal caruncle infrared thermography when monitoring alterations in autonomic activity in healthy humans. European Journal of Applied Physiology 2019; 119 (2): 531-538.

379.Jorge A, Fish EJ, Dixon CE, Hamilton KD, Balzer J, Thirumala P. The Effect of Prophylactic Hypothermia on Neurophysiological and Functional Measures in the Setting of Iatrogenic Spinal Cord Impact Injury. World Neurosurgery 2019; 129: e607-e613.

380.Kingma CF, Hofman II, Daanen HAM. Relation between finger cold-induced vasodilation and rewarming speed after cold exposure. European Journal of Applied Physiology 2019; 119 (1): 171-180.

381.Kotsirilos C, Elntib S. Temperature fluctuations at sympathetic preganglionic neuron sites in the thoracolumbar section of the spinal column as cues to deception: a preliminary study. Journal of Forensic Psychiatry and Psychology 2019; 30 (4): 706-725.

382.Krishna V, Sammartino F, Agrawal P, Changizi BK, Bourekas E, Knopp MV, Rezai A. Prospective tractography-based targeting for improved safety of focused ultrasound thalamotomy. Clinical Neurosurgery 2019; 84 (1): 160-168.

383.Lanska DJ. The development and evolution of "cerebral thermometry": The physiology underlying a nineteenth-century approach to cerebral localization and neurological diagnosis. Journal of the History of the Neurosciences 2019; 28 (2): 195-225.

384.Lanska DJ. The development and evolution of "cerebral thermometry": Clinical applications of a nineteenth-century approach to cerebral localization and neurological diagnosis. Journal of the History of the Neurosciences 2019; 28 (2): 226-261.

385.Leppla IE, Nucifora FC, Sedlak TW. Extended Requirement of Granulocyte Colony-Stimulating Factor for Clozapine-Associated Neutropenia. Journal of Clinical Psychopharmacology 2019; 39 (2): 169-172.

386.Luo Y, Chen L, Shih AJ. Hollow Notched K-Wires for Bone Drilling With Through-Tool Cooling. Journal of Orthopaedic Research 2019; 37 (11): 2297-2306.

387.Madrid-Navarro CJ, Cuesta FJP, Escamilla-Sevilla F, Campos M, Abellán FR, Rol MA, Madrid JA. Validation of a device for the ambulatory monitoring of sleep patterns: A pilot study on Parkinson's disease. Frontiers in Neurology 2019; 10 (4), art. no. 356.

388.Menzel M, Bräuer A. Temperature monitoring with zero-heat-flux technology in neurosurgical patients. Journal of Clinical Monitoring and Computing 2019; 33 (5): 927-929.

389.Miller TR, Zhuo J, Eisenberg HM, Fishman PS, Melhem ER, Gullapalli R, Gandhi D. Targeting of the dentato- rubrothalamic tract for MR-guided focused ultrasound treatment of essential tremor. Neuroradiology Journal 2019; 32 (6): 401-407.

390.Nachtigal D, Andrew K, Green BG. Selective Effects of Temperature on the Sensory Irritation but not Taste of NaCl and Citric Acid. Chemical Senses 2019; 44 (1): 61-68.

391.Neubauer-Geryk J, Hoffmann M, Wielicka M, Piec K, Kozera G, Brzezinski M, Bieniaszewski L. Current methods for the assessment of skin microcirculation: Part 1. Postepy Dermatologii i Alergologii 2019; 36 (3) 247-254.

392.Palma AE, Wicks RT, Popli G, Couture DE. Corpus callosotomy via laser interstitial thermal therapy: A case series. Journal of Neurosurgery: Pediatrics 2019; 23 (3): 303-307.

393.Pesonen E, Silvasti-Lundell M, Niemi TT, Kivisaari R, Hernesniemi J, Mäkinen M-T. In response to: "Temperature monitoring with zero-heat-flux technology in neurosurgical patients". Journal of Clinical Monitoring and Computing 2019; 33 (5): 931-932.

394.Picetti E, Oddo M, Prisco L, Helbok R, Taccone FS. A Survey on Fever Monitoring and Management in Patients with Acute Brain Injury: The SUMMA Study. Journal of Neuro- surgical Anesthesiology 2019; 31 (4): 399-405.

395.Say B, Ergün U, Turgal E, Yardimci I. Cold effect in median nerve conductions in clinical carpal tunnel syndrome with normal nerve conduction studies. Journal of Clinical Neuroscience 2019; 61: 102-105.

396.Shioda K, Goto K, Uchida S. The effect of 2 consecutive days of intense resistance exercise on sleep in untrained adults. Sleep and Biological Rhythms 2019; 17 (1): 27-35.

397.Unnerbäck M, Ottesen JT, Reinstrup P. Increased Intracranial Pressure Attenuates the Pulsating Component of Cerebral Venous Outflow. Neurocritical Care 2019; 31 (2): 273-279.

398.Van der Veeken L, Van der Merwe J, Devroe S, Inversetti A, Galgano A, Bleeser T, Meeusen R, Rex S, Deprest J. Maternal surgery during pregnancy has a transient adverse effect on the developing fetal rabbit brain. American Journal of Obstetrics and Gynecology 2019; 221 (4): 355.e1-355.e19.

399.Walker MR, Zhong J, Waspe AC, Looi T, Piorkowska K, Hawkins C, Drake JM, Hodaie M. Acute MR-guided high-intensity focused ultrasound lesion assessment using diffusion-weighted imaging and histological analysis. Frontiers in Neurology 2019; 10 (10), art. no. 1069

400.Yogo N, Imamura T, Muto Y, Hirai K. Cardiopulmonary failure as a result of brainstem encephalitis caused by enterovirus D68. BMJ Case Reports 2019, 12 (11), art. no. e231990.

401.Zago S, Piacquadio E, Monaro M, Orrù, G, Sampaolo E, Difonzo T, Toncini A, Heinzl E. The detection of malingered amnesia: An approach involving multiple strategies in a mock crime. Frontiers in Psychiatry 2019, 10, art. no. 424

402.Zannou AL, Khadka N, Truong DQ, Zhang T, Esteller R, Hershey B, Bikson M. Temperature increases by kilohertz frequency spinal cord stimulation. Brain Stimulation 2019, 12 (1): 62-72.

403.Atroshi I, Tadjerbashi K, McCabe SJ, Ranstam J. Treatment of carpal tunnel syndrome with wrist splinting: Study protocol for a randomized placebo-controlled trial. Trials 2019; 20 (1), art. no. 531.

404.Baymakova M, Popov GT, Andonova R, Kovaleva V, Dikov I, Plochev K. Fever of unknown origin and Q-fever: A case series in a Bulgarian hospital. Caspian Journal of Internal Medicine 2019; 10 (1): 102-106.

405.Cheng C, Zou C, Wan Q, Qiao Y, Pan M, Tie C, Liang D, Zheng H, Liu X. Dual-step iterative temperature estimation method for accurate and precise fat-referenced PRFS temperature imaging. Magnetic Resonance in Medicine 2019; 81 (2): 1322-1334.

406.Chuah YY, Lee YY, Lin LF, Kuo CJ. Fatal anaphylaxis of ranitidine injection: Have we not learnt the lesson yet? Acta Gastro-Enterologica Belgica 2019; 82 (3): 449-450.

407.Dakappa PH, Rao SB, Ganaraja B, Bhat GK, Mahabala C. Unique temperature patterns in 24-h continuous tympanic temperature in tuberculosis. Tropical Doctor 2019; 49 (2): 75-79.

408.D'souza AW, Notley SR, Brown EK, Poirier MP, Kenny GP. The hexoskin physiological monitoring shirt does not impair whole-body heat loss during exercise in hot-dry conditions. Applied Physiology Nutrition and Metabolism 2019; 44 (3): 332-335.

409.Elphick HE, Alkali AH, Kingshott RK, Burke D, Saatchi R. Exploratory Study to Evaluate Respiratory Rate Using a Thermal Imaging Camera. Respiration 2019; 97 (3): 205-212.

410.Goodacre S, Horspool K, Nelson-Piercy C, Knight M, Shephard N, Lecky F, Thomas S, Hunt BJ, Fuller G, the DiPEP research group. The DiPEP study: an observational study of the diagnostic accuracy of clinical assessment D-dimer and chest x-ray for suspected pulmonary embolism in pregnancy and postpartum. BJOG: An International Journal of Obstetrics and Gynaecology 2019; 126 (3): 383-392.

411.Kollmann Camaiora A, Brogly N, Alsina E, Celis ID, Huercio I, Gilsanz, F. Validation of the Zero-Heat-Flux thermometer

(SpotOn®) in major gynecological surgery to monitor intra- operative core temperature: A comparative study with esophageal core temperature. Minerva Anestesiologica 2019; 85 (4): 351-357.

412.Kosinski S, Podsiadlo P, Pasquier M, Darocha T. Temperature measurement in severely traumatized patients. Journal of Trauma and Acute Care Surgery 2019; 86 (4), p. 759.

413.Landry GJ, Liem TK, Abraham CZ, Jung E, Moneta GL. Predictors of perioperative morbidity and mortality in open abdominal aortic aneurysm repair. American Journal of Surgery 2019; 217 (5): 943-947.

414.Levata L, Dore R, Jöhren O, Schwaninger M, Schulz, C, Lehnert H. Nesfatin-1 Acts Centrally to Induce Sympathetic Activation of Brown Adipose Tissue and Non-Shivering Thermogenesis. Hormone and Metabolic Research 2019; 51 (10): 678-685.

415.Li X, Chen M, Jiang Z, Liu Y, Lu L, Gong X. Visualized identification of the maximal surgical delay effect in a rat flap model. Wound Repair and Regeneration 2019; 27 (1): 39-48.

416.Morita M, Tomioka H. Infective endocarditis presenting as diffuse alveolar hemorrhage: A case report. Respiratory Medicine Case Reports 2019; 28, art. no. 100931.

417.Podsiadlo P, Darocha T, Kosinski S, Sanak T, Galazkowski R. Body temperature measurement in ambulance: A challenge of 21-st century? BMC Emergency Medicine 2019; 19 (1), art. no. 44.

418.Pokorna J, Balintova Z, Bernard V, Staffa E, Oslejskowa H, Morstein V. Infrared Thermography: A New Approach For Examination Of Brachial Plexus Injury. Thermology international 2019, 29(2) 81-82

419.Teller J, Bernasconi R, Simonetti GD, Lava SAG. Performance of axillary and rectal temperature measurement in private pediatric practice. European Journal of Pediatrics 2019; 178 (10): 1501-1505.

420.Tse CF, Chan YYF, Poon KM, Lui CT. Clinical prediction rule to predict pneumonia in adult presented with acute febrile respiratory illness. American Journal of Emergency Medicine 2019; 37 (8): 1433-1438.

421.Tsen LC. Too cold too hot or just right? Temperature regulation during caesarean section. Anaesthesia 2019; 74 (8): 973-975.

422.Kryukov AI, Ivoylov AY, Bokshanskiy VB, Sakharov AA, Arzamazov SG, Panasov SA, Gorovaya EV, Tsarapkin GY. Features of thermal effect at high-frequency laser impact on biological tissue (experiment). Technique of laser ablation of a pharyngeal tonsil. Vestnik Otorinolaringologii 2019; 84 (4): 13-16

423.Lv C, Wang X, Chen J, Yang N, Fisk I. A non-invasive measurement of tongue surface temperature. Food research international 2019, 116, 499-507.

424.Yafit D, Basov S, Katzir A, Fliss D, DeRowe A. Laser Soldering of Cartilage Graft Interposed Into a Tracheal Incision in a Porcine Model. Laryngoscope 2019, 129 (1): 58-62.

425.Burian A, Schuhfried O, Crevenna R. A mysterious case of complex regional pain syndrome in a 9-year-old girl. Disability and Rehabilitation 2019; 41 (8): 991-993.

426.Carvalho H, Najafi N, Poelaert J. Intra-operative temperature monitoring with cutaneous zero-heat- flux-thermometry in comparison with oesophageal temperature: A prospective study in the paediatric population. Paediatric Anaesthesia 2019; 29 (8): 865-871.

427.Chefdeville E, Pages AS. Parental management of children's fever: Assessment of knowledge and use of health record information. Archives de Pediatrie 2019; 26 (5): 275-281

428.De Farias TMT, De Lima ME, Da Silva Mattos S, De Araujo JSS, Mozer LRDN, Mourato FA. Automatic Segmentation of Neonates Thermal Imaging for Evaluation of Trunk Thermal Asymmetry. Proceedings - 2018 IEEE International Conference on Bioinformatics and Biomedicine BIBM 2019, art. no. 8621553: 989-992.

429.Englisz-Jurgielewicz B, Poletek J,. Winkler R, Teuster L, Sieron K, Siemianowicz A, Stanek A, Cholewka A- Side curvature spine evaluation for children by using thermal imaging and x-ray. Thermology international 2019, 29(2) 79

430.Fernandez, N, Lorenzo A, Chua M, Koyle MA, Farhat W, Matava C. Real-time kidney graft perfusion monitoring using infrared imaging during pediatric kidney transplantation. Journal of Pediatric Urology 2019; 15 (3): 222.e1-222.e7.

431.Garbern SC, Mbanjumucyo G, Umuhoza C, Sharma VK, Mackey J, Tang O, Martin KD, Twagirumukiza FR, Rosman SL, McCall N, Wegerich SW, Levine AC. Validation of a wearable biosensor device for vital sign monitoring in septic emergency department patients in Rwanda. Digital Health 2019; 5.

432.Iguchi A, Aoki Y, Kitazawa K. Prepatellar septic bursitis in an 8-year-old boy. BMJ Case Reports 2019; 12 (1), art. no. e228564.

433.Lee NH, Nam SK, Lee J, Jun YH. Clinical impact of admission hypothermia in very low birth weight infants: Results from Korean neonatal network. Korean Journal of Pediatrics 2019; 62 (10): 386-394.

434.Martini G, Cappella M, Culpo R, Vittadello F, Sprocati M, Zulian F. Infrared thermography in children: A reliable tool for differential diagnosis of peripheral microvascular dysfunction and Raynaud's phenomenon? Pediatric Rheumatology 2019; 17 (1), art. no. 68

435.Moffett BS, Gutierrez, K, Davis K, Sigdel B, Strobel N. Antipyretic Efficacy of Acetaminophen and Ibuprofen in Critically Ill Pediatric Patients. Pediatric critical care medicine : a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies 2019; 20 (8): e386-e393.

436.Peko Cohen L, Ovadia-Blechman Z, Hoffer O, Gefen A. Dressings cut to shape alleviate facial tissue loads while using an oxygen mask. International Wound Journal 2019; 16 (3) 813-826.

437.Robinson LJ, Law J, Astle V, Gutiérrez-García M, Ojha S, Symonds ME, Pitchford N, Budge H. Sexual Dimorphism of Brown Adipose Tissue Function. Journal of Pediatrics 2019; 210: 166-172.e1.

438.Tanigasalam V, Vishnu Bhat B, Adhisivam B, Balachander B, Kumar H. Hypothermia detection in low birth weight neonates using a novel bracelet device. Journal of Maternal-Fetal and Neonatal Medicine 2019; 32 (16): 2653-2656

439.Tay VYJ, Bolisetty S, Bajuk B, Lui K, Smyth J, on behalf of the New South Wales and the Australian Capital Territory Neonatal Intensive Care Units' Data Collection. Admission temperature and hospital outcomes in extremely preterm infants. Journal of Paediatrics and Child Health 2019; 55 (2): 216-223.

440.Türe E, Yazar A. How Should We Measure Body Temperature in the Pediatric Emergency Department? Which One Is the Most Accurate? Journal of Pediatric Infectious Diseases 2019; 14 (3): 121-126.

441.Vesnovsky O, Zhu L, Grossman LW, Casamento JP, Chamani A, Wijekoon N, Topoleski LDT. Identifying critical design parameters for improved body temperature measurements: a clinical study comparing transient and predicted temperature measurements. Journal of Medical Devices Transactions of the ASME 2019; 13 (1), art. no. 011005-1.

442.Amaro AM, Paulino MF, Neto MA, Roseiro L. Hand-arm vibration assessment and changes in the thermal map of the skin in tennis athletes during the service. International Journal of Environmental Research and Public Health 2019; 16 (24), art. no. 5117.

443.Bernard V, Pokorna J, Staffa E, Hanakova P, Balintova Z, Oslejskova H, Morstein V. Facial palsy - contactless thermographic study. Thermology international 2019, 29(2) 81

444.Bernard V, Staffa E, Can V, Farkašová M, Pokorná J, Mitáš L, Zetelová A, Mornstein V, Kala Z. Semi-Quantitative Comparison of Infrared Thermography with Indocyanine Green Imaging in Porcine Intestinal Resection. IRBM 2019, 40(6), 307-312.

445.de Araujo WJB, Timi JRR, Kotze LR, Vieira da Costa CR. Comparison of the effects of endovenous laser ablation at 1470

nm versus 1940 nm and different energy densities. Phlebology 2019; 34 (3): 162-170.

446.Englisz-Jurgielewicz B, Cholewka A, Firganek E, Knefell G, Kawecki M, Glik J, Nowak M, Sieron K, Stanek A. Evaluation of hyperbaric oxygen therapy effects in hard-to-heal wound using thermal imaging and planimetry. Thermology international 2019, 29(2) 80-81

447.Gambier N, Warling J, Van Elsue N, Yegles M. AEME production in cocaine positive hair after thermal hair treatment. Forensic Science International 2019; 302, art. no. 109894.

448.Glik J, Cholewka A, Stanek A, Englisz B, Sieron K, Mikus-Zagórska K. Thermal imaging and planimetry evaluation of the results of chronic wounds treatment with hyperbaric oxygen therapy. "Advances in Clinical and Experimental Medicine" (2019, 28(2). 229-236

449.Huertas T, Jurado C, Salguero M, Soriano T, Gamero J. Stability studies in biological fluids during post-analysis custody. Opiate compounds derived from heroin consumption. Forensic Science International 2019; 297: 326-334.

450.Jaspers MEH, van Haasterecht L, van Zuijlen PPM, Mokkink LB. A systematic review on the quality of measurement techniques for the assessment of burn wound depth or healing potential. Burns 45 (2): 261-281

451.Kaliszan M, Wujtewicz, M. Eye temperature measured after death in human bodies as an alternative method of time of death estimation in the early post-mortem period. A successive study on new series of cases with exactly known time of death. Legal Medicine 2019; 38: 10-13.

452.Kaminski J, Delpech P-O, Kaaki-Hosni S, Promeyrat X, Hauet T, Hannaert P. Oxygen Consumption by Warm Ischemia-Injured Porcine Kidneys in Hypothermic Static and Machine Preservation. Journal of Surgical Research 2019; 242: 78-86.

453.Kishore Kumar S, Thulasiram E, Sreenivasan P. Role of thermography in diagnosis of patients with temporomandibular disorder. Indian Journal of Public Health Research and Development 2019; 10 (8): 1771-1774.

454.Kotelnikova LP, Fedachuk AN. Endothelial dysfunction in patients with adrenal tumors during skin thermometry with local heating. Novosti Khirurgii 2019; 27 (1): 66-71.

455.Kravchuk B, Getman V, Sokur P, Bilokon O. Clinical and diagnostics aspectes of benign mediastinal formations in children. Georgian medical news 2019; (289): 55-61.

456.Mariani LPR, Sampaio F, Silveira AB, Bastos LF, Weber SH, Michelotto PV. Pressuring of Acupoints as a Complement to the Diagnosis of Stifle Diseases in Horses. JAMS Journal of Acupuncture and Meridian Studies 2019; 12 (5): 151-159.

457.Murphy TA, Mathews JA, Whitehouse MR, Baker RP. Investigation of thermally induced damage to surrounding nerve tissue when using curettage and cementation of long bone tumours modelled in cadaveric porcine femurs. Archives of Orthopaedic and Trauma Surgery 2019; 139 (8): 1033-1038.

458.Novak CB, Li Y, von Schroeder HP, Anastakis DJ, McCabe SJ. Effect of Forearm Warming Compared to Hand Warming for Cold Intolerance Following Upper Extremity Trauma. Journal of Hand Surgery 2019; 44 (8): 693.e1-693.e6.

459.Ohyama S, Takahashi S, Tamai K, Hori Y, Hirakawa Y, Hoshino M, Suzuki A, Nakamura H. Prevention of Nerve Root Thermal Injury Caused by Bipolar Cauterization Near the Nerve Roots. Spine 2019; 44 (6): E321-E328.

460.Piorkowska K, Waspe AC, Wang T, Mougenot C, Ryan G, Drake JM, Gerstle JT. Noninvasive ablation of rabbit fetal and placental tissue targets in utero using magnetic resonance-guided high-intensity focused ultrasound. Prenatal Diagnosis 2019; 39 (5): 394-402.

461.Ponticorvo A, Rowland R, Baldado M, Burmeister DM, Christy RJ, Bernal NP, Durkin AJ. Evaluating clinical observation versus Spatial Frequency Domain Imaging (SFDI), Laser Speckle Imaging (LSI) and thermal imaging for the assessment of burn depth. Burns 2019; 45 (2): 450-460.

462.Sastre JA, Pascual MJ, López, T. Evaluation of the novel non-invasive zero-heat-flux Tcore™ thermometer in cardiac surgical patients. Journal of Clinical Monitoring and Computing 2019; 33 (1): 165-172.

463.Saxena K, Vu K, Nye HE. A 54-Year-Old Man with Pancytopenia. JAMA - Journal of the American Medical Association 2019; 321 (9): 895-896.

464.Sebastian AP, Dasgupta R, Jebasingh F, Saravanan B, Chandy B, Mahata KM, Naik D, Paul T, Thomas N. Clinical features radiological characteristics and offloading modalities in stage 0 Acute Charcot's neuroarthropathy - A single centre experience from South India. Diabetes and Metabolic Syndrome: Clinical Research and Reviews 2019; 13 (2): 1081-1085.

465.Sheldon RR, Loughren MJ, Marenco CW, Winters JR, Bingham JR, Martin MJ, Eckert MJ, Burney RO. Microdermal Implants Show No Effect on Surrounding Tissue During Surgery With Electrocautery. Journal of Surgical Research 2019; 241: 72-77.

466.Tao CS, Dong F, Wang DC, Guo CB. Diagnostic test for detection of cervical lymph node metastasis from oral squamous cell carcinoma via infrared thermal imaging. Beijing da xue xue bao. Yi xue ban = Journal of Peking University. Health sciences 2019; 51 (5): 959-963

467.Urakov AL, Alies MY, Nikolenko VN, Gadelshina AA. Dynamics of local temperature in the hands of healthy adult volunteers under the frosty air and cold metal object. Thermology international 2019, 29(2) 73-74

468.Urakov NA, Urakov AL. In Pregnant Women With Thrombophilia The Fingers Local Temperature Can Indicate The Status And Prognosis Of Fetus Health. Thermology international 2019, 29(2) 76-77

469.van Doremalen RFM, van Netten JJ, van Baal JG, Vollenbroek-Hutten MMR, van der Heijden F. Validation of low-cost smartphone-based thermal camera for diabetic foot assessment. Diabetes Research and Clinical Practice 2019; 149: 132-139

470.Vidal LWM, Cabral PGA, Dos Santos Junior MB, Antunes F, da Mota MR, da Silva TOB, Monteiro GAS, Scheffer JP, Ribeiro MDS, Oliveira ALA. Videothermometry to evaluate metabolic activity in real time during pneumectomy in rats. Acta Cirurgica Brasileira 2019; 34 (3), art. no. e201900302.

471.Zelen CM, Gould LJ, Li WW. Clinical achievement of wound closure and tissue quality with a novel microvascular tissue graft. Wounds 2019, 31 (4): E29-E32.

472.Ahmad S, Abbasi WM, Rehman T. Evaluation of antipyretic activity of Belladonna and Pyrogenium ultrahigh dilutions in induced fever model: Antipyretic effects of Belladonna and Pyrogenium. Journal of Complementary and Integrative Medicine 2019; 16 (1), art. no. 0127.

473.Alayat MS, Elsodany AM, Miyajan AF, Alzhrani AA, Alzhrani HMS, Maqliyah AM. Changes in local skin temperature after the application of a pulsed Nd:YAG laser to healthy subjects: a prospective crossover controlled trial. Lasers in Medical Science 2019; 34 (8): 1681-1688.

474.Ashigai H, Mizutani M, Ikeshima E, Nakashima K, Taniguchi Y, Matsukura Y, Yajima H. Roasted barley extract (Mugicha) containing cyclo(D-Phe-L-Pro) prevents a decrease in skin temperature in cold conditions: A randomized double-blind placebo-controlled crossover study. Journal of Nutritional Science and Vitaminology 2019; 65 (1): 90-93.

475.Cantürk M, Cantürk FK, Kocaoglu N, Hakki M. The effects of crystalloid warming on maternal body temperature and fetal outcomes: a randomized controlled trial . Brazilian Journal of Anesthesiology 2019; 69 (1): 13-19.

476.Cosoroaba M-R, Cirin L, Anghel MD, Talpos-Niculescu CI, Argesanu V, Farkas AZ, Negrutiu ML. The use of thermal imaging in evaluating musculoskeletal disorders in dentists. Journal of medicine and life 2019; 12 (3): 247-252.

477.Mohanty R, Agrawal K, Meher B. Thyroid scintigraphy in fever of unknown origin. Indian Journal of Nuclear Medicine 2019; 34 (4): 307-308

478.Oliva-Hernández, R, Fariñas-Medina M, Infante-Bourzac JF, Hernández-Salazar T, Núñez-Martínez, D, Quintero-Pérez, A, Campa-Huergo C, Sierra-González, G. Local tolerance study of the VA-MENGOC-BC® antimeningococcal vaccine in Sprague Dawley rats. Evaluation at 24 and 36 months of shelf.. Vacci Monitor 2019; 28 (1): 9-18.

479.Samson Isaac J, Kingston Stanley P, Vijay Daniel P, Pamela D. A novel instrumentation system for monitoring of foot ulcer. Research Journal of Pharmacy and Technology 2019; 12 (4): 1504-1506.

480.Wang AZ, Lupov IP, Sloan BK. A Novel Technique for Ice Water Immersion in Severe Drug-Induced Hyperthermia in the Emergency Department. Journal of Emergency Medicine 2019; 57 (5): 713-715.

481.Aliahmad B, Tint AN, Poosapadi Arjunan S, Rani P, Kumar DK, Miller J, Zajac JD, Wang G, Ekinci EI. Is Thermal Imaging a Useful Predictor of the Healing Status of Diabetes-Related Foot Ulcers? A Pilot Study. Journal of Diabetes Science and Technology 2019; 13 (3): 561-567.

482.Antonaci F, Rossi E, Voiticovschi-Iosob C, Dalla Volta G, Marceglia S. Frontal infrared thermography in healthy individuals and chronic migraine patients: Reliability of the method. Cephalalgia 2019; 39 (4): 489-496.

483.Astasio-Picado A, Martínez EE, Gómez-Martín B. Influence of cardiovascular risk factors on the occurrence of foot risk, prior to the complementary study with infrared thermography. Enfermería Global 2019, 18(3), 47-57.

484.Audigier C, Kim Y, Ziegle J, Friebe M, Boctor EM. Con-f ormal radiofrequency ablation to validate ultrasound thermometry. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10951, art. no. 1095122.

485.Bräuer A, Müller MM, Wetz, AJ, Quintel M, Brandes IF. Influence of oral premedication and prewarming on core temperature of cardiac surgical patients: A prospective randomized controlled trial. BMC Anesthesiology 2019; 19 (1), art. no. 55.

486.Carbonell L, Priego Quesada JI, Retorta P, Benimeli M, Cibrián Ortiz De Anda RM, Salvador Palmer R, González Peña RJ, Galindo C, Pino Almero L, Blasco MC, Mínguez, MF, Macián-Romero C. Thermographic quantitative variables for diabetic foot assessment: preliminary results. Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization 2019; 7 (5-6): 660-666.

487.Christie D, Chanchlani N, Salehian S. Fever and tachypnoea in a child. 2019; BMJ (Online), 365, art. no. l1288.

488.Côrte AC, Pedrinelli A, Marttos A, Souza IFG, Grava J, José Hernandez, A. Infrared thermography study as a complementary method of screening and prevention of muscle injuries: Pilot study. BMJ Open Sport and Exercise Medicine 2019; 5 (1), art. no. e000431.

489.Da Silva BP, Souza GADS, Filho AADN, Pinto AP, Guimarães CL, Pereira APC, Neves MFD, Martins PSLL, Lima FPS, Lopes-Martins RAB, Lima MO. Analysis of the effects of low-level laser therapy on muscle fatigue of the biceps brachii muscle of healthy individuals and spastic individuals: Study protocol for a single-center randomized double-blind and controlled clinical trial. Medicine (United States) 2019; 98 (39), art. no. e17166.

490.García-Montero M, Rico-del-Viejo L, Llorens-Quintana C, Lorente-Velázquez, A, Hernández-Verdejo JL, Madrid-Costa D. Randomized crossover trial of silicone hydrogel contact lenses. Contact Lens and Anterior Eye 2019; 42 (5): 475-481

491.Händel P, Wahlström J. Digital contraceptives based on basal body temperature measurements. Biomedical Signal Processing and Control 52: 141-151

492.Hohenauer E, Deliens T, Clarys P, Clijsen R. Perfusion of the skin's microcirculation after cold-water immersion (10°C) and partial-body cryotherapy (-135°C). Skin Research and Technology 2019; 25 (5): 677-682.

493.Hosokawa Y, Nagata T, Hasegawa M. Inconsistency in the standard of care-toward evidence-based management of exertional heat stroke. Frontiers in Physiology 2019; 10 (2), art. no. 108.

494.Jiang Q-R, Li J-S, Chen S-H, Li X-P, Liu X-W, Yu J, Li W. Orthogonal test on local temperature influenced by different parameters and manipulation types of An-pressing Xinshu (BL 15) Journal of Acupuncture and Tuina Science 2019; 17 (3): 147-154.

495.Jouffroy R, Saade A, Durand S, Philippe P, Carli P, Vivien B. Predicting value of prehospital body temperature for ICU admission of septic shock patients. Acute Medicine 2019; 18 (1): 56-58.

496.Latteri S, Stella G, Gueli AM, Mazzaglia S, Palumbo V, Guastella T. Safety Profile of the New Harmonic Focus: Different Emissivity and Temperature Behavior between the Active and the Inactive Blade. Surgical Laparoscopy Endoscopy and Percutaneous Techniques 2019; 29 (5): E79-E83

497.Maki KA, Griza DS, Phillips SA, Wolska BM, Vidovich MI. Altered Hand Temperatures Following Transradial Cardiac Catheterization: A Thermography Study. Cardiovascular Revascularization Medicine 2019; 20 (6): 496-502.

498.Markota A, Skok K, Burja S, Mori J. Surface Body Temperature and Thermoregulation after Cardiac Arrest. Therapeutic Hypothermia and Temperature Management 2019; 9 (3): 204-208.

499.Martinez-Tellez, B, Quesada-Aranda A, Sanchez-Delgado G, Fernández-Luna JM, Ruiz, JR. Temperatus ® software: A new tool to efficiently manage the massive information generated by iButtons. International Journal of Medical Informatics 2019; 126: 9-18.

500.Mercan U, Sumer M, Kaya OA, Keskiner I, Meral DG, Erdogan O. An in-vitro study on thermal changes during implant drilling with different irrigation volumes. Nigerian Journal of Clinical Practice 2019; 22 (3): 350-354.

501.Ming A, Walter I, Alhajjar A, Leuckert M, Mertens PR. Study protocol for a randomized controlled trial to test for preventive effects of diabetic foot ulceration by telemedicine that includes sensor-equipped insoles combined with photo documentation. Trials 2019; 20 (1), art. no. 521.

502.Monaghan AJ, Schmidt CA, Hayden MH, Smith KA, Reiskind MH, Cabell R, Ernst KC. A simple model to predict the potential abundance of aedes aegypti mosquitoes one month in advance. American Journal of Tropical Medicine and Hygiene 2019; 100 (2): 434-437.

503.Nakajima M, Aso S, Yasunaga H, Shirokawa M, Nakano T, Miyakuni Y, Goto H, Yamaguchi Y. Body temperature change and outcomes in patients undergoing long-distance air medical transport. American Journal of Emergency Medicine 2019; 37 (1): 89-93.

504.Pesonen E, Silvasti-Lundell M, Niemi TT, Kivisaari R, Hernesniemi J, Mäkinen M-T. The focus of temperature monitoring with zero-heat-flux technology (3M Bair-Hugger): a clinical study with patients undergoing craniotomy. Journal of Clinical Monitoring and Computing 2019; 33 (5): 917-923

505.Pitkänen M, Kaikkonen O, Koskelainen A. In vivo monitoring of mouse retinal temperature by ERG photoresponses. Experimental Eye Research 2019; 187, art. no. 107675

506.Rusli N, Md Yusof H, Sidek SN, Ishak NI. GLCM correlation approach for blood vessel identification in thermal image. 2018 IEEE EMBS Conference on Biomedical Engineering and Sciences IECBES 2018 - Proceedings 2019; art. no. 8626697: 112-116.

507.Saiki Y, Watanabe K, Ito K, Kanda K, Takahashi G, Hayatsu Y, Yoshioka I, Motoyoshi N, Kawatsu S, Adachi O, Akiyama M, Kumagai K, Kawamoto S. Differential selective hypothermic intercostal artery perfusion: a new method to probe spinal cord perfusion during thoracoabdominal aortic aneurysm repair. General Thoracic and Cardiovascular Surgery 2019; 67 (1): 180-186

508.Sato T, Yasuhara T, Fukumoto M, Mimura M, Kobayashi T, Kida T, Kojima S, Oku H, Ikeda T. Investigation of scleral thermal injuries caused by ultrasonic pars plana phacoemulsification and aspiration using pig eyes. International Ophthalmology 2019; 39 (9): 2015-2021.

509.Svedin BT, Dillon CR, Parker DL. Effect of k-space- weighted image contrast and ultrasound focus size on the accuracy of pro-

ton resonance frequency thermometry. Magnetic Resonance in Medicine 2019; 81 (1): 247-257.

510.Taylor L, Thornton HR, Lumley N, Stevens CJ. Alterations in core temperature during World Rugby Sevens Series tournaments in temperate and warm environments. European Journal of Sport Science 2019; 19 (4): 432-441

511.Ueshima H, Otake H. The accuracy of continuous temporal artery thermometers during general anesthesia. Journal of Clinical Anesthesia 2019; 55: 69-71.

512.Wittenborn J, Clausen A, Zeppernick F, Stickeler E, Meinhold-Heerlein I. Prevention of Intraoperative Hypothermia in Laparoscopy by the Use of Body-Temperature and Humidified CO 2: A Pilot Study. Geburtshilfe und Frauenheilkunde 2019; 79 (9): 969-975.

513.Wong S, Srinivasan S, Murphy PJ, Jones L. Comparison of meibomian gland dropout using two infrared imaging devices. Contact Lens and Anterior Eye 2019; 42 (3): 311-317.

514.Zakharieva NN, Alhakim A. Age-related features of morpho-functional status and temperature homeostasis in highly skilled football players.Human Sport Medicine 2019, 19 (1): 135-139

515.Anonymous. Weather and Disease. JAMA - Journal of the American Medical Association 321 (7), p. 712.

516.Gómez-Romero FJ, Fernández-Prada M, Fernández-Suárez FE, Gutiérrez-González, C, Estrada-Martínez, M, Cachero-Martínez, D, Suárez-Fernández, S, García-González, N, Picatto-Hernández, MD, Martínez-Ortega C, Navarro-Gracia JF. Intraoperative temperature monitoring with two non-invasive devices (3M Spoton® and Dräger Tcore®) in comparison with the Swan-Ganz catheter. Cirugia Cardiovascular 2019; 26 (4): 191-196.

517.Haines A, Ebi K. The imperative for climate action to protect health. New England Journal of Medicine 2019; 380 (3): 263-273.

518.Jack JM, Ellicott H, Jones CI, Bremner SA, Densham I, Harper CM. Determining the accuracy of zero-flux and ingestible thermometers in the peri-operative setting. Journal of Clinical Monitoring and Computing 2019; 33 (6): 1113-1118.

519.Kim T, Lee E. Nose region detection for measurement of non-contact respiration rate using convolutional neural network. Indian Journal of Public Health Research and Development 2019; 10 (5): 949-954.

520.Kong KH, Chong WT, Koh VL. Human behaviour-dependent and variable-flow-reversible mechanical ventilation system design in an underground parking facility. Indoor and Built Environment 2019; 28 (10): 1324-1340.

521.Krepkogorskii, NV, Ignat'ev IM, Bredikhin RA. Use of thermal imager in preparation of non-reversed autovein for femoropopliteal bypass grafting Angiologiia i sosudistaia khirurgiia = Angiology and Vascular Surgery 2019; 25 (2): 118-123

522.Mitchell D, Kornhuber K, Huntingford C, Uhe P. The day the 2003 European heatwave record was broken. The Lancet Planetary Health 2019; 3 (7): e290-e292.

523.Mouchtouri VA, Christoforidou EP, der Heiden MA, Lemos CM, Fanos M, Rexroth U, Grote U, Belfroid E, Swaan C, Hadjichristodoulou C. Exit and entry screening practices for infectious diseases among travelers at points of entry: Looking for evidence on public health impact. International Journal of Environmental Research and Public Health 2019; 16 (23), art. no. 4638.

524.Nunes AR. Misdiagnosing vulnerability to heatwaves in the media. The Lancet Planetary Health 3 (7), p. e293.

525.Pollard A, Jones T, Sherratt S, Sharpe RA. Use of simple telemetry to reduce the health impacts of fuel poverty and living in cold homes. International Journal of Environmental Research and Public Health 2019; 16 (16), art. no. 2853

526.Samaniego-Rascón D, Gameiro da Silva MC, Ferreira AD, Cabanillas-Lopez, RE. Solar energy industry workers under climate change: A risk assessment of the level of heat stress experienced by a worker based on measured data. Safety Science 2019; 118: 33-47.

527.Altindis T, Güngörmüs M. Thermographic evaluation of occlusal splint and low level laser therapy in myofascial pain syndrome. Complementary Therapies in Medicine 2019; 44: 277-281.

528.Bilkhu P, Wolffsohn J, Mahmood Q, Purslow C. Investigating the subjective cooling effect of eyelid cleansing gel on eyelid and ocular surface temperature. Contact Lens and Anterior Eye 2019; 42 (4): 411-414.

529.Blackwell J, Oluniran G, Tuohy B, Destrade M, Kraʔny MJ, Colgan N. Experimental assessment of clinical MRI-induced global SAR distributions in head phantoms. Physica Medica 2019; 66: 113-118

530.Chen R, Huang Z-Q, Chen W-L, Ou Z-P, Li S-H, Wang J-G. Value of a smartphone-compatible thermal imaging camera in the detection of peroneal artery perforators: Comparative study with computed tomography angiography. Head and Neck 2019; 41 (5): 1450-1456.

531.Chen, J, Bai X. Thermal face segmentation based on circular shortest path. Infrared Physics & Technology 2019, 97, 391-400

532.De Fazio C, Skrifvars MB, Søreide E, Creteur J, Grejs AM, Kjærgaard J, Laitio T, Nee J, Kirkegaard H, Taccone FS. Intravascular versus surface cooling for targeted temperature management after out-of-hospital cardiac arrest: An analysis of the TTH48 trial. Critical Care 2019; 23 (1), art. no. 61

533.De Souza MA, Bueno AP, Magas V, Nogueira Neto GN, Nohama P. Imaging Fusion between Anatomical and Infrared Thermography of the Thyroid Gland. Pan American Health Care Exchanges PAHCE, 2019-March art. no. 8717347.

534.Diaz-Piedra C, Gomez-Milan E, Di Stasi LL. Nasal skin temperature reveals changes in arousal levels due to time on task: An experimental thermal infrared imaging study. Applied Ergonomics 2019, 81, 102870

535.Doesburg F, Smit JM, Paans W, Onrust M, Nijsten MW, Dieperink W. Use of infrared thermography in the detection of superficial phlebitis in adult intensive care unit patients: A prospective single-center observational study. PloS ONE 2019, 14(3) e0213754

536.Feragalli B, Dugall M, Luzzi R, Ledda A, Hosoi M, Belcaro G, Cesarone MR. Pycnogenol®: Supplementary management of symptomatic osteoarthritis with a patch. An observational registry study. Minerva Endocrinologica 2019; 44 (1): 97-101.

537.Freymüller C, Eisel M, Ströbl S, Rühm A, Sroka R. Investigations on thermography in laser medicine. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 11079, art. no. 1107909.

538.Fuentes-Oliver EI, García-Segundo C, Serrano-Loyola R, Solalinde-Vargas R, Ortiz-Sosa R, Gastélum-Strozzi A. Quantification of thermal asymmetry in diabetic foot disease. In AIP Conference Proceedings 2019, 2090, (1). 040002.

539.Alexander J, Selfe J, Rhodes D, Fowler EM, May KA, Richards J. Mapping of skin surface sensitivity and skin surface temperature at the knee over a re-warming period following cryotherapy. Journal of Quantitative Research in Rehabilitation Medicine 2019, 2(1), 1-5

540.Almeida jr H, De Andrade Bastos A, Martins FJA , De Souza RF, Martins COD, Da Silva AG, Sousa TA, Regi RP. Comparison of the thermal profile of judokas and Brazilian jiu-jitsu athletes. Journal of Physical Education & Sport 2019, 19 (Suppl1) 3 - 7

541.Alvarez-Prats D, Carvajal-Fernández, O, Valera Garrido F, Pecos-Martín D, García-Godino A, Santafe MM, Medina- Mirapeix F. Acupuncture Points and Perforating Cutaneous Vessels Identified Using Infrared Thermography: A Cross-Sectional Pilot Study. Evidence-based Complementary and Alternative Medicine 2019, ,

542.Caraway DL, Bradley K. Response to: "Tissue Temperature Increases by a 10 kHz Spinal Cord Stimulation System: Phantom and Bioheat Model". Neuromodulation 2019; 22 (8): 986-987.

543.Chen M, Li X, Jiang Z, Gong X. Visualizing the Pharmacologic Preconditioning Effect of Botulinum Toxin Type A by In-

frared Thermography in a Rat Pedicled Perforator Island Flap Model. Plastic and Reconstructive Surgery 2019; 144 (6): 1016e-1024e

544.Cherifi D, Kaddari R, Zair H, Nait-Ali A. Infrared face recognition using neural networks and HOG-svm. BioSMART 2019 - Proceedings: 3rd International Conference on BioEngineering for Smart Technologies 2019;art. no. 8734221.

545.Darrow DP, O'Brien P, Richner TJ, Netoff TI, Ebbini ES. Reversible neuroinhibition by focused ultrasound is mediated by a thermal mechanism. Brain Stimulation 2019; 12 (6): 1439-1447.

546.Debiec-Bk A, Wójtowicz D, Pawik L, Ptak A, Skrzek A. Analysis of body surface temperatures in people with Down syndrome after general rehabilitation exercise. Journal of Thermal Analysis and Calorimetry 2019, 135(4), 2399-2410

547.Galan-Carracedo J, Suarez-Segade A, Guerra-Balic M, Oviedo GR. The Dynamic and Correlation of Skin Temperature and Cardiorespiratory Fitness in Male Endurance Runners. International Journal of Environmental Research and Public Health 2019, 16(16) 2869

548.Griffin MO, Kulkarni NM, O´Connor SD, Sudakoff GS, Lea WB, Tutton SM. Magnetic Resonance-Guided Focused Ultrasound: A Brief Review With Emphasis on the Treatment of Extra-abdominal Desmoid Tumors. Ultrasound quarterly 2019; 35 (4): 346-354.

549.Haobin Huyahui Zhengqinchun Xin H, Chao C. Design of Cortical Bone Drilling Temperature Measurement Instrument in Virtual reality system. IEEE MTT-S 2019 International Microwave Biomedical Conference IMBioC 2019 - Proceedings art. no. 8777826.

550.Hu S, Hosoi M, Belcaro G, Dugall M, Feragalli B, Cotellese R, Luzzi R. Management of mild primary Raynaud Syndrome: supplementation with Pycnogenol®. Minerva cardioangiologica 2019; 67 (5): 392-398

551.Igarawi M, Nouizi F, Luk A, Mehrabi M, Erkol H, Ünlu MB, Gulsen G, Ha S. High-resolution chromophore concentration recovery using multi-wavelength photo-magnetic imaging. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 10871, art. no. 108710F.

552.Jian BL, Chen CL, Huang MW, Yau HT. Emotion-specific facial activation maps based on infrared thermal image sequences. IEEE Access 2019, 7, 48046-48052.

553.Kasprzyk T, Cholewka A, Kucewicz M, Sieron K, Sillero-Quintana M, Morawiec T, Stanek A. A quantitative thermal analysis of cyclists' thermo-active base layers. Journal of Thermal Analysis and Calorimetry 2019, 136(4), 1689-1699.

554.Kasprzyk T, Stanek A, Sieron K, Cholewka A. Application of thermal imaging in athlete's thermoregulation mechanisms assessment after dynamic training. Thermology international 2019, 29(2) 82-83

555.Kim DH, Kim YS, Shin SJ, Kang H, Kim S, Shin HY. Retrospective outcome evaluation of cervical nucleoplasty using digital infrared thermographic imaging. Neurospine 2019; 16 (2): 325-331.

556.Kim NE, Park B, Moon YR, Lee SY, Gil HY, Kim S, Lee S, Chang HS, Jeong HW, Park H, Lee AR, Ahn S, Kim TK, Kim JE, Choi JB. Changes in facial temperature measured by digital infrared thermal imaging in patients after transnasal sphenopalatine ganglion block: Retrospective observational study. Medicine 2019; 98 (15), p. e15084

557.Kornicka-Garbowska K, Pedziwiatr R, Wozniak P, Kucharczyk K, Marycz, K. Microvesicles isolated from 5-azacytidine-and-resveratrol-treated mesenchymal stem cells for the treatment of suspensory ligament injury in horse - A case report. Stem Cell Research and Therapy 2019; 10 (1), art. no. 394

558.Kubicek J, Vilimek D, Krestanova A, Penhaker M, Kotalova E, Faure-Brac B, Noel C, Scurek R, Augustynek M, Cerny M, Kantor T. Prediction model of alcohol intoxication from facial temperature dynamics based on K-means clustering driven by evolutionary computing. Symmetry 2019, 11(8), 995

559.Loarce-Martos J, Bachiller-Corral J., Cuevas IF, Quintana MS, Díaz MV. Utility of infrared thermography for the evaluation of rheumatoid arthritis. Ann Rheum Dis 2019, 78 (Suppl 2) 313-314

560.Lozano III A, Hassanipour F. Infrared imaging for breast cancer detection: An objective review of foundational studies and its proper role in breast cancer screening. Infrared Physics & Technology, 2019, 97, 244-257.

561.Macdonald A, Petrova N, Ainarker S, Allen J, Lomas C, Tang W, Plassmann P, Whittam A, Bevans J, Ring F, Kluwe B, Simpson R, Rogers L, Machin G, Edmonds M. Between visit variability of thermal imaging of feet in people attending podiatric clinics with diabetic neuropathy at high risk of developing foot ulcers. Physiological Measurement 2019; 40 (8), art. no. 084004

562.Machin G, Simpson R, McEvoy HC, Whittam A. NPL contributions to the standardisation and validation of contemporary medical thermometry methods. Physiological Measurement 2019; 40 (5), art. no. 05TR01.

563.Maciejewski A, Jung A, Byszek A, Pypkowska A, Jaremek H, Krause-Piorek A, Szczesniak A, Trzyna M, Ornowski G. A novel tool based on liquid crystal thermography for adjunctive breast cancer detection used by medical professionals. Thermology international 2019, 29(2) 83-84

564.Najafi A, Sartoretti E, Binkert CA. Sacroiliac Joint Ablation Using MR-HIFU. (2019) CardioVascular and Interventional Radiology 2019; 42 (9): 1363-1365

565.Neumann W, Uhrig T, Malzacher M, Kossmann V, Schad LR, Zoellner FG. Risk assessment of copper-containing contraceptives: the impact for women with implanted intrauterine devices during clinical MRI and CT examinations. European Radiology 2019; 29 (6): 2812-2820.

566.Nicolini Y, Manini B, De Stefani E, Coudé G, Cardone D, Barbot A, Bertolini C, Zannoni C, Belluardo M, Zangrandi A , Bianchi B, Merla A, Ferrari PF. Autonomic Responses to Emotional Stimuli in Children Affected by Facial Palsy: The Case of Moebius Syndrome. Neural Plasticity, 2019, 7253768.

567.Niepel AL, Dominik S, Lewicki M, Fuat S, Gerhard K, Helga P, Dirk H, Kömürcü, F. Decision between contralateral and ipsilateral DIEP flap harvesting for unilateral breast reconstruction. European Journal of Plastic Surgery 2019; 42 (1): 29-32.

568.Odebowale AA, Abdel-Rahman M. Design and optical simulation of a sensor pixel for an optical readout-based thermal imager. 2019 8th International Conference on Modeling Simulation and Applied Optimization ICMSAO 2019, art. no. 8880308.

569.Odéen H, Parker DL. Improved MR thermometry for laser interstitial thermotherapy. Lasers in Surgery and Medicine 2019; 51 (3): 286-300.

570.Oh G, Chung E. Label-free tumor detection with active infrared thermal laparoscopic system in a mouse tumor model. Progress in Biomedical Optics and Imaging - Proceedings of SPIE 2019; 11073, art. no. 110731D.

571.Oliver B, Munro A, Gerald SM, Herrington LC. The reliability of an Achilles tendon infrared image analysis method. Thermology international 2019, 29(4) 136-145

572.Pauk J, Wasilewska A., Ihnatouski M. Infrared thermography sensor for disease activity detection in rheumatoid arthritis patients. Sensors 2019, 19(16), 3444.

573.Pavlidis I, Garza I, Tsiamyrtzis P, Dcosta M, Swanson JW, Krouskop T, Levine, J. A.. Dynamic Quantification of Migrainous Thermal Facial Patterns-A Pilot Study. IEEE Journal of Biomedical and Health Informatics, 2019; 23(3), 1225-1233

574.Priego-Quesada JI, Oficial-Casado F, Gandia-Soriano A, Carpes FP. A preliminary investigation about the observation of regional skin temperatures following cumulative training loads in triathletes during training camp. Journal of Thermal Biology 2019, 84, 431-438.

575.Raccuglia M, Heyde C, Lloyd A, Hodder S, Havenith G. The use of infrared thermal imaging to measure spatial and temporal

sweat retention in clothing. International Journal of Biometeorology 2019, 63(7), 885-894

576.Ramalho JFCB, Correia SFH, Fu L, António LLF, Brites CDS, André, PS, Ferreira RAS, Carlos LD. Luminescence Thermometry on the Route of the Mobile-Based Internet of Things (IoT): How Smart QR Codes Make It Real. Advanced Science 2019; 6 (19), art. no. 1900950

577.Rodriguez-Sanz, D, Losa-Iglesias ME, Becerro-de-Bengoa-Vallejo R, Dorgham HAA, Benito-de-Pedro M, San-Antolín M, Mazoteras-Pardo V, Calvo-Lobo C. Thermography related to electromyography in runners with functional equinus condition after running. Physical Therapy in Sport 2019; 40: 193-196.

578.Saxena A, Ng EYK, Lim ST. Infrared (IR) thermography as a potential screening modality for carotid artery stenosis. Computers in Biology and Medicine 2019; 113, art. no. 103419

579.Scheidt S, Rüwald J, Schildberg FA, Mahlein AK, Seuser A, Wirtz DC, Jacobs C. A Systematic Review on the Value of Infrared Thermography in the Early Detection of Periprosthetic Joint Infections. Z Orthop Unfall. 2019 Sep 16. [Epub ahead of print]

580.Selvarani A, Suresh GR. Infrared Thermal Imaging for Diabetes Detection and Measurement. Journal of Medical Systems 2019; 43 (2), art. no. 23

581.Shaikh S, Akhter N, Manza, R. Current Trends in the Application of Thermal Imaging in Medical Condition Analysis. International Journal of Innovative Technology and Exploring Engineering (IJITEE) 2019, 8(8) 2708-2712

582.Shi Q, Wang L, Chu X, Li T, Shi X, Xu M, Cheng L. The association between knee temperature and pain in patients with knee osteoarthritis: a pilot study. Chronic Diseases Prevention Review 2019, 9: 34-40

583.Shlykov V, Kotovskyi V, Dubko A, Višniakov N, Šešok A. Temperature monitoring for high frequency welding of soft biological tissues: A prospective study. Technology and Health Care 2019; 27 (6): 643-649.

584.Siah CJR, Childs C, Chia CK, Cheng KFK. An observational study of temperature and thermal images of surgical wounds for detecting delayed wound healing within four days after surgery. Journal of Clinical Nursing 2019, 28(11-12), 2285-2295.

585.Sillero Quintana M, Adamczyk JG, Karabas S. Thermal profile of elite masters athletes and the influence of athletic competition on their skin temperature. Thermology international 2019, 29(2) 82

586.Sillero Quintana M, Fernandez-Cuevas I, Alba-Lopez D. Efficiency and validity of several thermal imaging cameras using an automatic software for the selection of ROI. Thermology international 2019, 29(2) 82

587.Sinha V, Mehta S, Kalantzis G, Steinberg F, LeBlang SD. Artifact from myomectomy/C-Section on MRI images-what does this mean for MR-guided focused ultrasound candidacy for uterine fibroids? International Journal of Hyperthermia 2019; 36 (1) 1079-1083

588.Staffa E, Can V, Bernard J, Pokorna J, Zetelova A, Farkasova M, Mornstein V, Kala Z. Usefulness of blood supply visualisation by infrared thermography and indocyanine green fluorescence angiography for invasive esophagectomy performed after ischemic gastric conditioning. Thermology international 2019, 29(2) 80

589.Strakowska M, Wiecek B. A new method and software for screening of skin pathologies using cold provocation and thermal impedance analysis. Thermology international 2019, 29(2) 77-79

590.Sun T, Shi W-Q, Shao Y. Research progress on dry eye imaging technology. International Eye Science 2019; 19 (6): 937-940.

591.Svedin BT, Payne A, Parker DL. Simultaneous proton resonance frequency shift thermometry and T 1 measurements using a single reference variable flip angle T 1 method. Magnetic Resonance in Medicine 2019; 81 (5): 3138-3152.

592.Transue S, Nguyen P, Vu T, Choi M-H. Volumetric reconstruction of thermal-depth fused 3D models for occluded body posture estimation. Smart Health 2019; 11: 29-44.

593.Zadorozhnyy O. New possibilities of infrared thermography in ophthalmology. Oftalmologija. Vostochnaja Evropa 2019, 9 (2): 184-191.

594.Zhang HY, Kim DW, Lee HK, Song HJ, Yang KH. Fever Screening IR Camera Equipped With Body Temperature Data. Thermology international 2019, 29(2) 74-75

595.Zhang HYl, Youk T, Lee HK, Song HJ, Yang KH. Reference standard temperature data of normal Korean extremities. Thermology international 2019, 29(2) 67-72

596.Zivkovic I, de Castro CA, Webb A. Design and characterization of an eight-element passively fed meander-dipole array with improved specific absorption rate efficiency for 7 T body imaging. NMR in Biomedicine 2019, 32 (8), art. no. e4106.

597.Ageeva AI, Kulikov AG, Volovets SA, Gerasimenko MY, Yarustovskaya OV. Gonarthrosis concurrent with chronic venous insufficiency: a new look at therapy . Voprosy kurortologii fizioterapii i lechebnoi fizicheskoi kultury 2019; 96 (5): 29-35

598.Ahn S-Y, Baek S-E, Park EJ, Kim H-W, Ryuk J-A, Yoo J-E. Effects of dangguijakyaksan on lower-extremity blood circulation disturbances in climacteric and postmenopausal women: Study protocol for a randomized double-blind placebo-controlled pilot trial. Medicine (United States) 2019;98 (37), art. no. e17039.

599.Alfieri FM, Dias CDS, Santos ACAD, Battistella LR. Acute Effect of Robotic Therapy (G-EO System™) on the Lower Limb Temperature Distribution of a Patient with Stroke Sequelae. Case Reports in Neurological Medicine, 2019, 8408492

600.Alhaidary D, Franzen R, Hilgers R-D, Gutknecht N. First Investigation of Dual-Wavelength Lasers (2780 nm ErCr:YSGG and 940 nm Diode) on Implants in a Simulating Peri-Implantitis Situation Regarding Temperature Changes in an in Vitro Pocket Model. Photobiomodulation Photomedicine and Laser Surgery 2019; 37 (8): 508-514.

601.Canturk M, Karbancioglu Canturk F. Effects of isothermic crystalloid coload on maternal hypotension and fetal outcomes during spinal anesthesia for cesarean section: A randomized controlled trial. Taiwanese Journal of Obstetrics and Gynecology 2019; 58 (3): 428-433

602.De Nardi,M, Silvani S, Ruggeri P, Luzi L, La Torre A, Codella R. Local cryostimulation acutely preserves maximum isometric handgrip strength following fatigue in young women. Cryobiology 2019, 87, 40-46

603.Groene P, Zeuzem C, Baasner S, Hofmann-Kiefer K. The influence of body mass index on temperature management during general anaesthesia-A prospective observational study. Journal of Evaluation in Clinical Practice 2019; 25 (2): 340-345

604.Han L-H. Mass-producing wearable sensors: No sweat. Science Translational Medicine 2019; 11 (522), art. no. eaaz9766.

605.Horá?ek J, Novotný J. Thermal response of hands to computer work: comparison of three assessment procedures. Studia sportiva, 2019, 13(1), 27-39.

606.Kawamori A, Fukaya K, Kitazawa M, Ishiguro M. A self-excited threshold autoregressive state-space model for menstrual cycles: Forecasting menstruation and identifying within-cycle stages based on basal body temperature. Statistics in Medicine 2019; 38 (12): 2157-2170.

607.Mohammadi A, Ma L-X, Yang Y, Song Y, Wang J-X. Immediate Analgesic Effect of Perpendicular Needling or Transverse Needling at SP 6 in Primary Dysmenorrhea: A Pilot Study. Medical Acupuncture 2019; 31 (4): 207-217

608.Montalti A, Belliato M, Gelsomino S, Nalon S, Matteucci F, Parise O, de Jong M, Makhoul M, Johnson DM, Lorusso R. Continuous monitoring of membrane lung carbon dioxide removal during ECMO: experimental testing of a new volumetric capnometer. Perfusion (United Kingdom) 2019; 34 (7): 538-543

609.Rubin R. In Hot Humid Weather Fans Benefit Health and Environment. JAMA - Journal of the American Medical Association 2019; 322 (14): 1340-1341.

610.Šegulja S, Ružic A, Dujmi? D, Baždaric K, Roganovic J. Simple predictors of the re-occurrence of severe febrile neutropenia episode: a single-center retrospective cohort study in pediatric patients with malignant diseases. Croatian Medical Journal, 2019, 60(1), 20-25.

611.Alston RP, Connelly M, MacKenzie C, Just G, Homer N. The depth of anaesthesia associated with the administration of isoflurane 2.5% during cardiopulmonary bypass. Perfusion (United Kingdom), 2019; 34 (5): 392-398.

612.Antink CH, Lyra S, Paul M, Yu X, Leonhardt S. A Broader Look: Camera-Based Vital Sign Estimation across the Spectrum. Yearbook of medical informatics 2019; 28 (1): 102-114.

613.Binek M, Drzazga Z, Pokora I. Preliminary studies of impact of cryotherapy on thermal mapping of body during endurance treatment, Thermology international 2019, 29(2).86

614.Broday EE, Moreto JA, Xavier AADP, de Oliveira R. The approximation between thermal sensation votes (TSV) and predicted mean vote (PMV): A comparative analysis. International Journal of Industrial Ergonomics 2019; 69: 1-8.

615.Chapurin N, Gelbard A. Epiglottitis. New England Journal of Medicine 2019; 381 (9), p. E15

616.Chivot M, Airaudi S, Galland A, Gravier R. Analysis of parameters influencing intraarticular temperature during radiofrequency use in shoulder arthroscopy. European Journal of Orthopaedic Surgery and Traumatology 29 (6): 1205-1210.

617.Dehkhoda F, Soltan A, Ponon N, O'Neill A, Jackson A, Degenaar P. A current-mode system to self-measure temperature on implantable optoelectronics. BioMedical Engineering Online 2019; 18 (1), art. no. 117.

618.Drost T, Reimann S, Frentzen M, Meister J. Effectiveness of photopolymerization in composite resins using a novel 445-nm diode laser in comparison to LED and halogen bulb technology. Lasers in Medical Science 2019, 34 (4) 729-736

619.Freitas MHBD, Lima LC, Couceiro TCDM, Costa MCFD, Freitas MHBD. Anesthesia and perioperative challenges for surgical separation of thoraco-omphalopagus twins: case report Brazilian Journal of Anesthesiology 2019; 69 (2): 214-217.

620.Futyma P, Ciapala K, Gluszczyk R, Sander J, Futyma M, Kulakowski P. Bipolar ablation of refractory atrial and ventricular arrhythmias: Importance of temperature values of intra- cardiac return electrodes. Journal of Cardiovascular Electrophysiology 2019; 30 (9): 1718-1726.

621.Gabriel P, Höcker J, Steinfath M, Kutschick KR, Lubinska J, Horn E-P. Prevention of inadvertent perioperative hypothermia - Guideline compliance in German hospitals. GMS German Medical Science 2019; 17, art. no. Doc07

622.Ha FJ, Han H-C, Sanders P, Teh AW, O'Donnell D, Farouque O, Lim HS. Prevalence and prevention of oesophageal injury during atrial fibrillation ablation: A systematic review and meta-analysis. Europace 2019; 21 (1): 80-90

623.He Y, Huang NT, Caspi A, Roy A, Montezuma SR. Trade-off between field-of-view and resolution in the thermal-integrated argus II system. Translational Vision Science and Technology 2019; 8 (4), art. no. 29.

624.Howell K. The European Association of Thermology: promoting the science of temperature measurement in medicine and biology across Europe. Thermology international 2019, 29(2) 67

625.Iqbal R, Bhandare D, St Louis M, Ruchi R. Think before you leap: Cutaneous hypersensitivity to polytetrafluoroethylene arteriovenous graft masquerading as infection. BMJ Case Reports 2019, 12 (9), art. no. e230401

626.Komagata H, Hattori T, Ohshima R, Kakinuma E, Ishikawa M, Shinoda K, Kobayashi N. Development of human behavior monitoring system around bed using infrared depth sensor. 2019 IEEE 1st Global Conference on Life Sciences and Technologies LifeTech 2019, art. no. 8884068: 117-118.

627.Kumar N, Dubey PK, Kumar A, Singh V. Core body temperature monitoring using Baska airway. Trends in Anaesthesia and Critical Care 2019; 25: 36-37.

628.Lau JWY. Editor's perspectives - July 2019. International Journal of Surgery 2019; 67, p. 130.

629.Miyauchi S, Nakano Y, Ikeuchi Y, Okamura S, Okubo Y, Hironobe N, Tokuyama T, Kihara Y. HotBalloon ablation of atrial fibrillation in patients with dextrocardia and situs inversus by "mirror image" approach. Journal of Arrhythmia 2019; 35 (6): 855-857

630.Molliex S, Passot S, Morel J, Futier E, Lefrant JY, Constantin JM, Le Manach Y, Pereira B, Bruder N, Vaisse C, Bechis C, Bernard L, Leone M, Poirier M, Vincent A, Abdelkrim N, Paugam C, Lion F, Montravers P, Langeron O, Raux M, Baussier M, Xu K, Bart F, Dagois S, Plaud B, Rabuel C, Roland E, Biais M, Nouette-Gaulain K, Cabart A, Hanouz, JL, Lambert C, Godet T, Thibault S, Bouhemad B, Chambade E, Bouzat P, Garot M, Lebuffe G, Lallemant F, Lemery C, Tavernier B, de Jong A, Jaber S, Verzilli D, Delannoy M, Meistelman C, Carles M, Tran L, Bertran S, Cuvillon P, Ripart J, Simon-Pene S, Boisson M, Debaene B, Beloeil H, Godet G, Collange O, Mertes PM, Diemunsch P, Joganah D, Oehlkern L, Baulieu M, Beauchesne B, Beraud AM, Berthier-Berrada S, Bien JY, Dupont G, Gavory J, Lambert P, Lanoiselée J, Zufferey P, Ferré, F, Martin C, Minville V, Planté, B, Baffeleuf B, Ben Abdelkarim M, David JS, Incagnoli P, Khaled M, Laplace MC, Lefevre M, Piriou V, Aubrun F, Cero V, Delsuc C, Faulcon C, Meuret P, Rimmelé, T, Truc C, Opti-Aged group Azurea clinical research Network. A multicentre observational study on management of general anaesthesia in elderly patients at high-risk of postoperative adverse outcomes. Anaesthesia Critical Care and Pain Medicine 2019; 38 (1): 15-23.

631.Nguyen DT, Zheng L, Zipse MM, Borne RT, Tzou WS, Fleeman B, Sauer WH. Bipolar radiofrequency ablation creates different lesion characteristics compared to simultaneous unipolar ablation. Journal of Cardiovascular Electrophysiology 2019; 30 (12): 2960-2967

632.Ozenne V, Bour P, de Senneville BD, Toupin S, Vaussy A, Lepetit-Coiffé, M, Jaïs P, Cochet H, Quesson B. Assessment of left ventricle magnetic resonance temperature stability in patients in the presence of arrhythmias. NMR in Biomedicine 2019; 32 (11), art. no. e4160

633.Parsian Z, Rahmani F, Mahmoodpoor A, Pouraghaei M, Jalali MB, Esfanjani RM, Soleimanpour H. Association between core body temperature and mean airway pressure with endo-tracheal cuff pressure in intubated patients of emergency department. Pakistan Journal of Medical Sciences 2019; 35 (5): 1248-1552.

634.Simpson G, Rodseth RN. A prospective observational study testing liquid crystal phase change type thermometer placed on skin against oesophageal/pharyngeal placed thermometers in participants undergoing general anesthesia. BMC Anesthesiology 2019; 19 (1), art. no. 206.

635.Tomaeva DI, Daurova FY, Dikopova NZ. Optimal operation modes of high frequency monopolar diathermocoagulation in endodontic treatment. Stomatologiia 2019; 98 (4): 4-7.

636.Trummer G, Benk C, Beyersdorf F. Controlled automated reperfusion of the whole body after cardiac arrest. Journal of Thoracic Disease 2019; 11: S1464-S1470.

637.Wu TC, Pisani C, Scanavacca MI. Approaches to the Diagnosis and Management of Atrial-Esophageal Fistula After Catheter Ablation for Atrial Arrhythmias. Current Cardiovascular Risk Reports 2019; 13 (4), art. no.

638.Kopec KT, Kim T, Mowry J, Aks S, Kao L. Role of dantrolene in dinitrophenol (DNP) overdose: A continuing question? American Journal of Emergency Medicine 2019; 37 (6): 1216.e1-1216.e2.

639.McMonnies CW. Reducing the invasive nature of tear stability assessments. Ocular Surface 2019; 17 (2): 174-175

640.Howell K. The Thermal Human Body -Review of the book "The Thermal Human Body: A Practical Guide to Thermal Imaging by Kurt Ammer and Francis Ring (Jenny Stanford Publishing, Singapore). Thermology international 2019, 29(3) 116

641.Ammer K. Obituary: Prof Edward Francis John Ring 1935-2019. Thermology international 2019, 29(3) 108-110

642.Pascoe D, Purohit R. Conwell T, Mercer JB, Vardasca R, Howell K, Hoekstra P, Urakov A, Usuki H, Zuber J, Jung A. Memory Notes from around the globe. Thermology international 2019, 29(3) 110-114

643.Ammer K. Obituary: Hooshang Hooshmand1934-2019. Thermology international 2019, 29(3) 115

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2020

17th-19th April 2019

24th Conference of the Polish Association of Thermology Combined with the European Association of Thermology in Zakopane

Conference venue:
HYRNI Hotel, Pilsudskiego str 20, Zakopane

Abstract deadline March 15th 2019
Please send your abstract to
a.jung@spencer.com.pl or
armand.cholewka@gmail.com

Accepted abstracts will be published in Thermology International.

Accommodation (2 nights) / meals, welcome dinner 130 E per person (participant, accompanying person) will be paid in cash/credit card on arrival in hotel reception

EARLY RESERVATION FOR ACCOMMODATION before March 15th to ensure hotel reservation by email to a.jung@spencer.com.pl

Organising Committee

Prof.Armand Cholewka Ph.D, Eng

Prof.Anna Jung MD, Ph.D

Dr.Janusz Zuber MD,Ph,D

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PROGRAMME AT A GLANCE.

17th April, Friday - 7 p.m.
Welcome Dinner (HYRNY Hotel)

18th April, Saturday

9.00 - 11.00 Session I

11.00 - 11.20 Coffee break

11.20 -13.00 Session II: In Memory of Francis Ring

13.00 - 14.15 Lunch

14.30 - 16.00 Session III

16.00 - 16.15 Coffee break

16.15 - 18.00 EAT board meeting

Further information:

Prof Anna Jung
a.jung@spencer.com.pl or

Prof. Armand Cholewka
armand.cholewka@gmail.com

6th - 10th July 2020

The 15th Conference on Quantitative InfraRed Thermography in Porto, Portugal

Abstract submission has now closed,
a provisonal programme schedule is available at
http://www.qirt2020.com

A short introductional course on "Biomedical Application of infrared thermography"is scheduled on Monday, 6th July 2020

The cost of Pre-conference short courses is 200 € and is not included in the QIRT2020 conference registration fee, you can register in the courses through the conference e-mail: qirt2020@fe.up.pt and you will receive an invoice to perform the payment. An attendance certificate will be provided.

For further information and updates, please visit the website: http://**www.qirt2020.**com **or** contact the organizing committee at **qirt2020@fe.up.pt** 20th – 23rd July 2020

15th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2020) in Amsterdam

The conference is co-sponsored by the International Centre for Heat and Mass Transfer (ICHMT) and the American Society of Thermal and Fluids Engineering (ASTFE).

Venue

NH Collection Amsterdam Grand Hotel Krasnapolsky, Amsterdam, Netherlands

Purpose

The conference is broad in scope and provides a forum for specialists in heat transfer, fluid mechanics and thermodynamics from all corners of the globe to present the latest

progress and developments in the field. The broad scope brings together a wide range of research areas from narrow fundamental work in nanofluids to import applications such as in the broad fields of energy, manufacturing, biomedical processes, production, education, instrumentation and control, and MEMS. This will not only allow the dissemination of the state of the art, but it will serve as a catalyst for discussions on future directions and priorities in these areas. The additional purpose of this conference is to initiate collaboration in research.

Important deadlines

28 February 2020 Deadline for submission of online abstracts

31 March 2020: Deadline for submission of full papers

Abstract submission portal:
https://www.eiseverywhere.com/eSites/hefat2020/Homepage

Dates

19th July 2020 | Arrival, Registration & Welcome Function

20th - 22nd July 2020 | Conferencing & Banquet Dinner (22nd July 2020)

23rd July 2020 | Checkout & Departure

Conference website:
https://www.eiseverywhere.com/ehome/hefat2020

17th - 19th September 2020

V International Consensus and Guidelines on Medical Thermology (2020 ICGMT) in Curitiba, Brazil.

This meeting is held every year and devoted to the science of Medical Thermology. The ICGMT will be done together with the VI South Brazilian Congress of Pain (VI CSBDor) and South Brazilian Congress of Intervention in Pain. The main event theme will be "Technology and Innovation in Pain", and it is been locally organized by Brazilian Association of Medical Thermology (ABRATERM), with partnership to Brazilian Medical Association, Brazilian Society for the Study of Pain, Brazilian Association of Physical Medicine and Rehabilitation, Brazilian Association of Legal Medicine. Curitiba city is the capital of Parana State at Brazil, and near the international Iguazu Falls, the largest waterfall in the world!!

Please let us know about your intention to attent by sending an email to the address: termometria@yahoo.com.br (information required: short paper's title, authors, and affiliations), until 31st July 2020.

Deadline for sending the short paper: 19th August (email:termometria@yahoo.com.br).

On behalf of the Organizing Committee

Prof Manoel Jacobsen Teixeira, ICGMT President

Prof Marcos Brioschi, Local Organizing Committee, Neurology Department, Sao Paulo University Hospital.

19th -20th November 2020

International Congress on Application of Infrared Thermography in Sport Science in Valencia

The Reseach Group in Sport Biomechanics (GIBD), research group of the Faculty of Physical Activity and Sports Science of the University of Valencia are delighted to invite you to the **I International Congress on Application of Infrared Thermography in Sport Science** scheduled to take place in Valencia, Spain at 19-20 November 2020. In our debut congress, we intend to carry out a meeting for researchers, students and every professional interested in explore the applicability of this technique in the sport field.

Registration

	Reduced (deadline: 31/03)	Regular (deadline: 30/06)	Advanced
Students of the University of Valencia, EAT-members	50 €	75 €	100 €
Students	85€	110 €	135 €
Professionals of the University of Valencia, collaborating organizations and EAT -members	120 €	145 €	170 €
Professionals	165 €	190 €	215 €

Key dates - Abstract

- Deadline first submission of communications 10/03
- First period of acceptance of communications 20/03
- Second submission of communications deadline 31/05
- Second period of acceptance of communications deadline 15/06

Registration and abstract submission must be performed via the congress website at

http://esdeveniments.uv.es/46102/section/23124/i-international-congress-on-application-of-infrared-thermography-in-sport-science.html

12th - 13th December 2020

4th Asian Congress of Thermology and 40th Korean Society of Thermology

Venue: National Health Insurance Service Ilsan Hospital

Further Information:

Ho Yeol Zhang, M.D., Ph.D.

Department of Neurosurgery, National Health Insurance Service ILSAN Hospital
Clinical Professor, Yonsei University College of Medicine
President, Korean Society of Thermology
Director, Data Center for Korean Body Temperature, Republic of Korea

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FIRST ANNOUNCEMENT

WROCŁAW UNIVERSITY OF ENVIRONMENTAL AND LIFE SCIENCES

XV Congress of the European Association of Thermology

1st – 4th September 2021

Faculty of Biology and Animal Science

Wrocław University of Environmental and Life Sciences

Wrocław, Poland

XV Congress of the European Association of Thermology

Wrocław • POLAND 2021

www.eurothermology.org

The EAT and Wrocław University of Environmental and Life Sciences are delighted to invite you to participate in the XV EAT Congress in Wrocław, Poland from 1st to 4th September 2021.

The European Association of Thermology exists to promote, support and disseminate research in thermometry and thermal imaging in the fields of human and veterinary medicine and biology. We do this through our peer-reviewed journal Thermology International, regional seminars around Europe, and our flagship Congress, which takes place every three years.

Following on from the most recent meetings in Porto (2012), Madrid (2015) and London (2018) the Congress heads to eastern Europe for 2021 to Wrocław in Poland.

The Organising Committee looks forward to welcoming you to Wrocław University of Environmental and Life Sciences in the summer of 2021.

Dr. Kevin Howell
EAT President

VENUE.

Wroclaw lies on the banks of the River Oder in western Poland, and is the capital of the Lower Silesian Vovoideship. It was the European Capital of Culture in 2016, and won the "European Best Destination" title in 2018.

Our venue will be the Faculty of Biology and Animal Science at the prestigious University of Environmental and Life Sciences on Chelmonskiego Street in the eastern suburbs of Wrocław. The Faculty building boasts excellent conference facilities including a large lecture theatre, ample lobby space for networking and poster presentations, and a spacious restaurant for lunch breaks. This is the perfect environment for delegates to present their thermological research at Europe's flagship biomedical temperature congress.

XV Congress of the European Association of Thermology
Wrocław · POLAND 2021

XV EAT CONGRESS, 1st – 4th September 2021, Wrocław

ORGANISING COMMITTEE	INTERNATIONAL SCIENTIFIC COMMITTEE
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Kurt Ammer (AUT)	John Allen (GBR)
Wanda Górniak (POL)	Danilo Gomes Moreira (BRA)
Kevin Howell (GBR)	Kevin Howell (GBR)
Anna Jung (POL)	Anna Jung (POL)
Damian Knecht (POL)	Mariusz Korczyński (POL)
Alicja Kowalczyk (POL)	Robert Kupczyński (POL)
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	Mari Vainionpää (FIN)
	Ricardo Vardasca (POR)
	Ho Yeol Zhang (KOR)

KEY DATES.

Abstract submission will open online on 31st August 2020, and authors will be notified of acceptance for oral or poster presentation by 1st March 2021.

January 2020. Publication of the First Announcement.
July 2020. Publication of the "Call for Abstracts" document.
31st August 2020. Opening of abstract submission and registration.
31st December 2020. Abstract submission deadline.
1st March 2021. Acceptance notification to authors.
3rd May 2021. End of Early Registration and deadline for registration of presenting authors.

XV Congress of the European Association of Thermology
Wrocław · POLAND 2021

XV EAT CONGRESS, 1st – 4th September 2021, Wrocław.

REGISTRATION FEES (*)

	Early Registration (Until 03 MAY 2021)	Late Registration (After 03 MAY 2021)
EAT MEMBER	€250	€300
Non-Member	€300	€350
One-day registration	€100	€150
Student	€100	€150
Accompanying person	€50	€50

(*) Further information about the registration process will be provided in the "Call for abstracts" document. Registration includes access to all congress sessions, congress lunch and coffee breaks, the Gala Dinner, and other congress social programme events.

ACCOMMODATION

Recommended hotels:

1. **Hotel ZOO**

Address: ul. Wroblewskiego 7, 51-627 Wroclaw
website: http://zoo-hotel.pl/

2. **Radisson Blu Hotel Wroclaw*****

Address: ul. Purkyniego 10, 50-156 Wroclaw
website: https://www.radissonblu.com/pl/hotel-wroclaw

3. **Grape Hotel & Restaurant*****

Address: Parkowa 8, 51-616 Wroclaw
website: https://www.grapehotel.pl

4. **URO Wroclaw Old Town*****

Address: Pawła Włodkowica 6, 50-072 Wroclaw
website: https://purohotel.pl/pl/wroclaw

5. **HOTEL EUROPEUM *****

Address: ul. Kazimierza Wielkiego 27A, 50-077 Wroclaw
website: https://europeum.pl

6. **Hotel Mercure Wroclaw Centrum******

Address: pl. Dominikański 1, 50-159, Wroclaw
website: https://www.accorhotels.com/pl/hotel-3374-hotel-mercure-wroclaw-centrum/index.shtml

ACCOMPANYING PERSONS

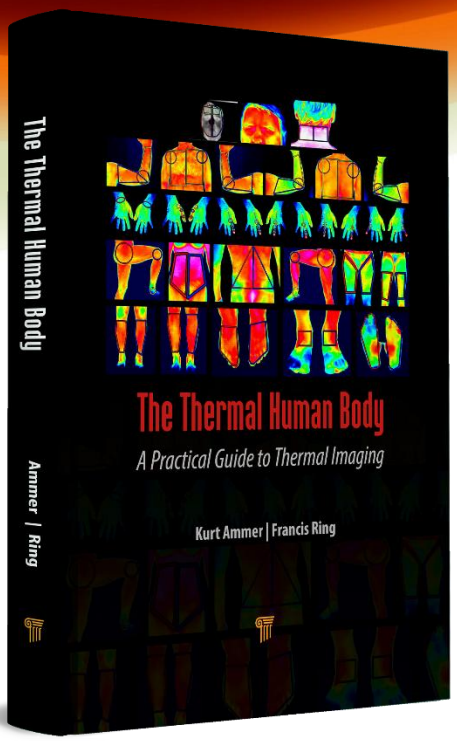
All accompanying persons will be invited to join the Congress Gala Dinner and full social programme upon payment of the appropriate €50 fee.

XV Congress of the European Association of Thermology
Wroclaw · POLAND 2021

XV EAT CONGRESS, 1st – 4th September 2021, Wroclaw.

The Thermal Human Body

A Practical Guide to Thermal Imaging



by
Kurt Ammer & Francis Ring

978-981-4745-82-6 (Hardback)
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US$149.95
260 Pages – 19 Color & 38 B/W Illustrations
May 2019

Key Features

- Combines the physics of heat transfer with thermal physiology to understand skin temperature distribution
- Provides a framework for standardized recording and analysis of medical thermal images
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Reviews

"There is no way to study thermal imaging and not learn from the writings of Francis Ring and Kurt Ammer. Pioneers of the application of infrared thermography in medicine, the authors unveil the direction for a sensible use of the method. Luck for us—students, professionals and enthusiasts—because we can be grateful to receive a differentiated material that shortens the learning path. No doubt a remarkable book."
- **Prof. Danilo Gomes Moreira**, Science and Technology of Minas Gerais, Brazil

"This book is set to become essential reading for anyone who wants to perform reliable thermal imaging of the human body, whether it be in medicine, clinical practice, sports science or research."
- **Prof. Graham Machin**, National Physical Laboratory, UK

"This book is a wonderful practical guide that takes the reader through all the main stages required and will be of special interest for those interested in entering the fascinating field of clinical thermal imaging."
- **Prof. James B. Mercer**, UiT—The Arctic University of Norway, Norway

Description

This book is a guide for the constantly growing community of the users of medical thermal imaging. It describes where and how an infrared equipment can be used in a strictly standardized way and how one can ultimately comprehensively report the findings. Due to their insight into the complex mechanisms behind the distribution of surface temperature, future users of medical thermal imaging should be able to provide careful, and cautious, interpretations of infrared thermograms, thus avoiding the pitfalls of the past. The authors are well-known pioneers of the technique of infrared imaging in medicine who have combined strict standard-based evaluation of medical thermal images with their expertise in clinical medicine and related fields of health management.

JENNY STANFORD PUBLISHING

progress and developments in the field. The broad scope brings together a wide range of research areas from narrow fundamental work in nanofluids to import applications such as in the broad fields of energy, manufacturing, biomedical processes, production, education, instrumentation and control, and MEMS. This will not only allow the dissemination of the state of the art, but it will serve as a catalyst for discussions on future directions and priorities in these areas. The additional purpose of this conference is to initiate collaboration in research.

Important deadlines

28 February 2020 Deadline for submission of online abstracts

31 March 2020: Deadline for submission of full papers

Abstract submission portal:
https://www.eiseverywhere.com/eSites/hefat2020/Homepage

Dates

19th July 2020 | Arrival, Registration & Welcome Function

20th - 22nd July 2020 | Conferencing & Banquet Dinner (22nd July 2020)

23rd July 2020 | Checkout & Departure

Conference website:
https://www.eiseverywhere.com/ehome/hefat2020

17th - 19th September 2020

V International Consensus and Guidelines on Medical Thermology (2020 ICGMT) in Curitiba, Brazil.

This meeting is held every year and devoted to the science of Medical Thermology. The ICGMT will be done together with the VI South Brazilian Congress of Pain (VI CSBDor) and South Brazilian Congress of Intervention in Pain. The main event theme will be "Technology and Innovation in Pain", and it is been locally organized by Brazilian Association of Medical Thermology (ABRATERM), with partnership to Brazilian Medical Association, Brazilian Society for the Study of Pain, Brazilian Association of Physical Medicine and Rehabilitation, Brazilian Association of Legal Medicine. Curitiba city is the capital of Parana State at Brazil, and near the international Iguazu Falls, the largest waterfall in the world!!

Please let us know about your intention to attent by sending an email to the address: termometria@yahoo.com.br (information required: short paper's title, authors, and affiliations), until 31st July 2020.

Deadline for sending the short paper: 19th August (email:termometria@yahoo.com.br).

On behalf of the Organizing Committee

Prof Manoel Jacobsen Teixeira, ICGMT President

Prof Marcos Brioschi, Local Organizing Committee, Neurology Department, Sao Paulo University Hospital.

19th -20th November 2020

International Congress on Application of Infrared Thermography in Sport Science in Valencia

The Reseach Group in Sport Biomechanics (GIBD), research group of the Faculty of Physical Activity and Sports Science of the University of Valencia are delighted to invite you to the **I International Congress on Application of Infrared Thermography in Sport Science** scheduled to take place in Valencia, Spain at 19-20 November 2020. In our debut congress, we intend to carry out a meeting for researchers, students and every professional interested in explore the applicability of this technique in the sport field.

Registration

	Reduced (deadline: 31/03)	Regular (deadline: 30/06)	Advanced
Students of the University of Valencia, EAT-members	50 €	75 €	100 €
Students	85€	110 €	135 €
Professionals of the University of Valencia, collaborating organizations and EAT -members	120 €	145 €	170 €
Professionals	165 €	190 €	215 €

Key dates - Abstract

- Deadline first submission of communications 10/03
- First period of acceptance of communications 20/03
- Second submission of communications deadline 31/05
- Second period of acceptance of communications deadline 15/06

Registration and abstract submission must be performed via the congress website at

http://esdeveniments.uv.es/46102/section/23124/i-international-congress-on-application-of-infrared-thermography-in-sport-science.html

12th - 13th December 2020

4th Asian Congress of Thermology and 40th Korean Society of Thermology

Venue: National Health Insurance Service Ilsan Hospital

Further Information:

Ho Yeol Zhang, M.D., Ph.D.

Department of Neurosurgery, National Health Insurance Service ILSAN Hospital
Clinical Professor, Yonsei University College of Medicine
President, Korean Society of Thermology
Director, Data Center for Korean Body Temperature, Republic of Korea

Email: hyzhang@nhimc.or.kr

FIRST ANNOUNCEMENT

WROCŁAW UNIVERSITY OF ENVIRONMENTAL AND LIFE SCIENCES

XV Congress of the European Association of Thermology

1st – 4th September 2021

Faculty of Biology and Animal Science

Wrocław University of Environmental and Life Sciences

Wrocław, Poland

XV Congress of the European Association of Thermology

Wrocław • POLAND 2021

www.eurothermology.org

The EAT and Wrocław University of Environmental and Life Sciences are delighted to invite you to participate in the XV EAT Congress in Wrocław, Poland from 1st to 4th September 2021.

The European Association of Thermology exists to promote, support and disseminate research in thermometry and thermal imaging in the fields of human and veterinary medicine and biology. We do this through our peer-reviewed journal Thermology International, regional seminars around Europe, and our flagship Congress, which takes place every three years.

Following on from the most recent meetings in Porto (2012), Madrid (2015) and London (2018) the Congress heads to eastern Europe for 2021 to Wrocław in Poland.

The Organising Committee looks forward to welcoming you to Wrocław University of Environmental and Life Sciences in the summer of 2021.

Dr. Kevin Howell
EAT President

VENUE.

Wroclaw lies on the banks of the River Oder in western Poland, and is the capital of the Lower Silesian Vovoideship. It was the European Capital of Culture in 2016, and won the "European Best Destination" title in 2018.

Our venue will be the Faculty of Biology and Animal Science at the prestigious University of Environmental and Life Sciences on Chelmonskiego Street in the eastern suburbs of Wrocław. The Faculty building boasts excellent conference facilities including a large lecture theatre, ample lobby space for networking and poster presentations, and a spacious restaurant for lunch breaks. This is the perfect environment for delegates to present their thermological research at Europe's flagship biomedical temperature congress.

XV Congress of the European Association of Thermology
Wrocław · POLAND 2021

XV EAT CONGRESS, 1st – 4th September 2021, Wrocław

ORGANISING COMMITTEE	INTERNATIONAL SCIENTIFIC COMMITTEE
Maria Soroko (POL), Chair	**Kurt Ammer (AUT), Chair**
Kurt Ammer (AUT)	John Allen (GBR)
Wanda Górniak (POL)	Danilo Gomes Moreira (BRA)
Kevin Howell (GBR)	Kevin Howell (GBR)
Anna Jung (POL)	Anna Jung (POL)
Damian Knecht (POL)	Mariusz Korczyński (POL)
Alicja Kowalczyk (POL)	Robert Kupczyński (POL)
Sebastian Opaliński (POL)	James Mercer (NOR)
Adam Roman (POL)	Sebastian Opaliński (POL)
Adérito Seixas (POR)	David Pascoe (USA)
Manuel Sillero-Quintana (ESP)	Adérito Seixas (POR)
Ricardo Vardasca (POR)	Manuel Sillero-Quintana (ESP)
Klaudia Wlaźlak (POL)	Maria Soroko (POL)
Anna Zielak-Steciwko (POL)	Hisashi Usuki (JPN)
	Mari Vainionpää (FIN)
	Ricardo Vardasca (POR)
	Ho Yeol Zhang (KOR)

KEY DATES.

Abstract submission will open online on 31st August 2020, and authors will be notified of acceptance for oral or poster presentation by 1st March 2021.

January 2020. Publication of the First Announcement.
July 2020. Publication of the "Call for Abstracts" document.
31st August 2020. Opening of abstract submission and registration.
31st December 2020. Abstract submission deadline.
1st March 2021. Acceptance notification to authors.
3rd May 2021. End of Early Registration and deadline for registration of presenting authors.

XV Congress of the European Association of Thermology
Wrocław · POLAND 2021

XV EAT CONGRESS, 1st – 4th September 2021, Wrocław.

REGISTRATION FEES (*)

	Early Registration (Until 03 MAY 2021)	Late Registration (After 03 MAY 2021)
EAT MEMBER	€250	€300
Non-Member	€300	€350
One-day registration	€100	€150
Student	€100	€150
Accompanying person	€50	€50

(*) Further information about the registration process will be provided in the "Call for abstracts" document. Registration includes access to all congress sessions, congress lunch and coffee breaks, the Gala Dinner, and other congress social programme events.

ACCOMMODATION

Recommended hotels:

1. **Hotel ZOO**

Address: ul. Wroblewskiego 7, 51-627 Wroclaw
website: http://zoo-hotel.pl/

2. **Radisson Blu Hotel Wroclaw*****

Address: ul. Purkyniego 10, 50-156 Wroclaw
website: https://www.radissonblu.com/pl/hotel-wroclaw

3. **Grape Hotel & Restaurant*****

Address: Parkowa 8, 51-616 Wroclaw
website: https://www.grapehotel.pl

4. **URO Wroclaw Old Town*****

Address: Pawła Włodkowica 6, 50-072 Wroclaw
website: https://purohotel.pl/pl/wroclaw

5. **HOTEL EUROPEUM *****

Address: ul. Kazimierza Wielkiego 27A, 50-077 Wroclaw
website: https://europeum.pl

6. **Hotel Mercure Wroclaw Centrum******

Address: pl. Dominikański 1, 50-159, Wroclaw
website: https://www.accorhotels.com/pl/hotel-3374-hotel-mercure-wroclaw-centrum/index.shtml

ACCOMPANYING PERSONS

All accompanying persons will be invited to join the Congress Gala Dinner and full social programme upon payment of the appropriate €50 fee.

XV Congress of the European Association of Thermology
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