Middle-European Buiatrics Associations

NEWSLETTER 1 - 2019

Dear Colleagues,

After a very successful Middle-European Buiatrics Congress in Lviv, Ukraine between May 22-25, 2019 we have decided to start to compile regularly a newsletter like we did it in case of the World Association for Buiatrics.

Will you be so kind to send this newsletter to your members.

Yours sincerely,

Otto Szenci   Walter Baumgartner

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Dear Colleagues,

We are grateful for your attendance at the XIXth Middle-European Buiatrics Congress.
Thank you very much for sharing your ideas and experience. We appreciate you for taking the time and effort to contribute.
We certainly hope that the congress has been all like you had expected it and participants had the opportunity to make new friends and renew old acquaintances.

The organizer of the XIXth MEBC, Prof. Dr. Vasyl Vlizlo, gave a short report during the meeting of the presidents and representatives of participating National Buiatrics Associations:

It is an honour for us to hold the XIXth Middle-European Buiatrics Congress in Lviv. This is the international event that unites scientists all around the world. We are very fortunate to have a large group of well-known experts in their respective fields participated in our Congress. Their involvement resulted in our very successful workshops, oral and poster sessions.

We deeply appreciate our International Committee:
Walter Baumgartner (Austria)
Tomas Wittek (Austria)
Marko Samardzija (Croatia)
Ozren Smolec (Croatia)
Josef Illek (Czech Republic)
Klaus Doll (Germany)
Alexander Starke (Germany)
Martin Höltershinken (Germany)
Otto Szenci (Hungary)

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Arcangelo Gentile (Italy)
Przemyslaw Sobiech (Poland)
Krzysztof Kubiak (Poland)
Krzysztof Niemczuk (Poland)
Ivan Amon (Slovenia)
Jože Starič (Slovenia)
Pavol Mudroň (Slovak Republic)
Susana Astiz Blanco (Spain)
Vasyl Vlizlo (Ukraine)

The Middle-European Buiatrics Congress took place with the attendance of **more than two hundred people** from **15 countries**. During the Congress **44 oral** and **43 poster** presentations were made.

We also thank our sponsors and congress staffs who contributed the grants for Ukrainian participants.

The table below includes all countries represented at the XIXth MEBC.

Country	The number of delegates
Austria	43
Belgium	2
Croatia	8
Czech Republic	13
Germany	13
Hungary	9
Italy	1
Poland	30
Slovak Republic	20
Slovenia	24
Spain	1
Ukraine	70
China	3
Egypt	1
Turkey	2

We also thank Lviv folk ensemble of bandura players "**Kobza**" and Student Dance Ensemble "**Pidgiria**" (Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies Lviv), **Lviv Virtuosos** Academic Chamber Orchestra during the welcome party, the **Pravda-orchestra** on Thursday evening and **Oleksandr Bozhyk** virtuoso violinist during the Gala dinner who greatly contributed to the great success of the social programs.

We look forward to seeing you in Ukraine again!

Sincerely,
President of Ukraine Association for Buiatrics
Prof. Dr. Vasyl Vlizlo
Secretary of Ukraine Association for Buiatrics
Mariya Kozak

Middle-European Buiatrics Associations

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Dear Colleagues,

We would like to inform you that during XIXth Middle-European Buiatrics Congress in Lviv the executive committee of the Middle European Buiatrics Associations represented by the Polish, Czech, Slovakian, Austrian, Hungarian, Slovenian and Ukrainian Associations has decided that the **XXth Middle European Buiatrics Congress** will be organized by the **Polish Buiatrics Association in 2020** and XXIst Middle European Buiatrics Congress will be organized by the Slovenian Buiatrics Association in 2021. The exact date and place will be advertised in time.

We also would like to let you know that Arcangalo Gentile, president elect of the World Association for Buiatrics, as a honorary participant was also taking part in our meeting and Germany was represented by Klaus Doll (Giessen University) and Alexander Starke (Leipzig University), while Hasan Batmaz (President of Farm Animal Veterinary Medicine Association, Turkey) was invited as an observer for our meeting.

Otto Szenci   Walter Baumgartner

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As far as you may know we sent the following e-mail letter to the National Middle-European Buiatrics Associations at the beginning of this year:

Dear President,

First of all we would like to wish you and your Associations all the best for 2019.

We would like to inform you that during the last Middle-European Buiatrics Congress in Eger we decided on one hand that we try to convince the missing Middle-European countries like Albania, Bosnia-Hercegovina, Kosovo, Montenegro, Macedonia, Bulgaria, Estonia, Latvia and Lithuania to join us and on the other hand to improve our collaborations among our associations because if we will not support each other nobody will help us.

First of all we would like to collect the addresses of the existing Middle-European Buiatrics Associations. Enclosed please find our Questionnaire. Will you be so kind to fill in and send it back to my e-mail address (szenci.otto@univet.hu).
After it we would like to find an active colleague in each missing country for being a correspondent.

Yours sincerely,

Otto Szenci   Walter Baumgartner
President of the HBA   President of the AAB
e-mail: szenci.otto@univet.hu   e-mail: walter.baumgartner@vetmeduni.ac.at

Middle-European Buiatrics Associations

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Dear Colleagues,

We are very glad to inform you that several associations have sent back our questionnaire with confirming the importance to strengthen our co-operations. These countries from north to south are Poland, Ukraine, Moldova, Czech Republic, Slovak Republic, Austria, Hungary, Slovenia, Croatia and Serbia. We have still missing countries, so you are very welcome to help us. Please do not forget that our motto is:

"If we will not support each other nobody will help us".

Otto Szenci   Walter Baumgartner

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International congresses in Middle-Europe

Dear Colleague,

The Hungarian Association for Buiatrics is very pleased to invite you to participate in the

XXIX International Congress of the Hungarian Association for Buiatrics,

which will be held at the Danubius Health Spa Resort Hévíz, Hévíz, Hungary from November 13 to 16, 2019. Lectures and posters will be presented on November 14 and 15 while on November 16 a workshop will be organised.

The programme of the Congress will aim at updating the scientific knowledge and professional skills of veterinary surgeons and stock breeders in ruminants practice to enable them to achieve an ever increasing qualification and help the veterinary surgeons and stock breeders to get more familiar with each other.

In addition to the scientific programme social programmes will be organised for the participants and accompanying persons. The exhibition area will serve to present products manufactured by various companies.

The organisers will spare no efforts in offering you successful and agreeable days in Hévíz, Hungary.

If you need more information, please visit our web-site where you can find our first announcement: www.mbuiatrikus.org

Middle-European Buiatrics Associations

IMPORTANT DEADLINES

July 1, 2019	preliminary registration
July 1, 2019	submission of abstract(s)
August 5, 2019	notification of authors
September 2, 2019	submission of full paper(s)
October 15, 2019	final registration with transfer of the reduced fee

We are looking forward to welcoming you to Hévíz, just a few minutes' drive from lake Balaton, Hungary.

Dr. Ottó Szenci   Dr. Endre Brydl

President of the HAB   Secretary of the HAB

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Scientific abstracts

We would like to continue to add to our Newletters the scientific abstracts as we did in case of the World Association for Buiatrics, however in this case we will use only those abstracts which were published by Middle-European experts. You are very welcome to send them to one of our e-mail addresses: szenci.otto@univet.hu or walter.baumgartner@vetmeduni.ac.at

Lying down frequency as a discomfort index in heat stressed Holstein bull calves

Kovács L, Kézér FL, Bakony M, Jurkovich V, Szenci O.

Changes in lying behaviour in response to extreme ambient temperatures have not been examined in dairy calves so far. In this study, lying time, and frequency of lying down were investigated in shaded (n = 8) and non-shaded (n = 8) Holstein bull calves during a 5-d period [temperature, average/max (°C); Day 1 (control, all calves shaded): 22.9/29.4, Day 2 (heat stress day): 28.3/38.8, Day 3: 26.2/33.5, Day 4: 23.7/28.7, and Day 5: 21.2/24.7]. The thermal environment around the calves was characterized by the temperature–humidity index (THI). A

three-dimension accelerometer was used to record posture of the calves and lying time and lying down frequency were analysed with 4-h sampling intervals. On Day 1 no differences were found in THI between the shaded and non-shaded environments. On Days 2, 3 and 4 maximal and average THI were higher in the shaded than those recorded for the non-shaded environment. On Day5 no significant differences in THI were observed between calf environments. A similar diurnal pattern of lying time and lying down frequency was observed in both groups. Lying times were shorter during the afternoon ($P = 0.003$); however, no group differences were found in lying time ($P = 0.551$). During the daytime (between 8:00 and 20:00), the frequency of lying down was 50, 33, and 41% higher, respectively, than during the nighttime on Days 2, 3 and 4 ($P < 0.001$, $P = 0.011$, and $P < 0.001$). On the heat stress day, non-shaded calves changed posture 88.4 and 76.6% more often than shaded ones between 8:00 and 12:00 and 12:00 and 16:00, respectively ($P < 0.001$ for both intervals). Similar group differences were observed for Day 3 between 8:00 and 12:00 (71.2%) and Day 4 between 12:00 and 16:00 (76.6%), respectively ($P = 0.003$, and $P = 0.001$). On Day 5, there was no difference between groups ($P = 0.732$). As indicated by our results, heat stress causes changes in lying down frequency and lying time in dairy calves. Supplemental shading reduces discomfort as indicated by lying down frequency, but not by lying time.

Assessment of heat stress in 7-week old dairy calves with non-invasive physiological parameters in different thermal environments

Kovács L, Kézér LF, Ruff F, Jurkovich V, Szenci O.

We estimated thermal stress in 7-week old Holstein bull calves during a warm episode in summer to study acute physiological responses of calves to heat stress. Data were collected over a 5-day period: day 1 (control), day 2 (heat stress), and a 3-day post-stress period in shaded (n = 8) and unshaded (n = 8) thermal environments. On the control day, both groups were shaded. Thermal environment was characterized by relative humidity, ambient temperature, and the temperature–humidity index (THI). Physiological variables included respiratory rate, rectal temperature, ear skin temperature and heart rate. Correlations between animal-based and meteorological indices were calculated, and ambient temperature correlated slightly better with physiological measures than THI. Rectal temperature was the only animal-based parameter that showed stronger correlations with the thermal indices when calculated for the shaded than for the unshaded environment [$r = 0.42$ vs. $r = 0.47$, $P = 0.032$ (ambient temperature), $r = –0.39$ vs. $r = –0.45$, $P = 0.012$ $P = 0.015$ (relative humidity), $r = 0.41$ vs. $r = 0.46$, $P = 0.022$ (THI)]. No differences were found between groups during the control day for any of the physiological parameters. During days 2 and 3, average and maximal values of respiratory and heart rates were higher in unshaded calves than in shaded ones. Maximal respiratory rates were in average by 25.9, 17.8 and 10.1 breaths/min lower in shaded calves than in unshaded calves for days 2, 3 and 4, respectively ($P < 0.001$, $P < 0.001$ and $P = 0.024$). Maximal heart rate was 127.4 ± 8.5 vs. 99.2 ± 6.3 beats/min on the heat stress day ($P < 0.001$), and 121.0 ± 6.9 vs. 103.4 ± 7.7 beats/min on day 3 ($P = 0.006$) in unshaded and shaded calves, respectively. Maximal body temperatures were higher measured either in the rectum or on the ear skin in unshaded calves than in shaded ones (with 0.5 and 1.6°C, $P = 0.040$ and $P = 0.018$, respectively), but only on the heat stress day. Based on our results, shading of young calves may be adequate for alleviating acute heat stress in continental regions. Ambient temperature is appropriate to estimate acute heat stress in dairy calves.

Heart rate, cardiac vagal tone, respiratory rate and rectal temperature in dairy calves exposed to heat stress in a continental region

Kovács L, Kézér LF, Ruff F, Jurkovich V, Szenci O.

Changes in non-invasive stress biomarkers were studied in shaded (n = 8) and non-shaded (n = 8) Holstein bull calves exposed to extreme heat load conditions in a continental region. Ambient temperature and humidity data were recorded for the S and NS hutch and exercise pen environments. Temperature-humidity-index (THI) was also calculated. Respiratory rate, rectal temperature, heart rate, and the root mean square of successive differences between R-R intervals (RMSSD) were recorded as animal-based indicators during three periods: (1) day 1, control day, during which all calves were shaded for 24 h (shade removal from non-shaded calves at 2400 h); (2) day 2, heat stress day, with shade over shaded calves; and (3) days 3-5, post-stress period, with shade over shaded calves. On the heat stress day, the maximum temperatures were 44.3 and 46.7 °C for the non-shaded hutch and pen environments, respectively. The temperatures were with 6.2 and 6.9 °C (P = 0.015 and P = 0.008) and the THIs were with 5.9 and 4.2 units higher (P = 0.020 and P = 0.032) in the non-shaded than in the shaded environment for the hutch and exercise pen, respectively. Shaded calves had with 42.3 ± 3.2 breaths/min higher respiratory rate than non-shaded ones on the heat stress day at 1200 h (P = 0.001), which was moderated to 20.1 ± 2.4 breaths/min at 1600 h (P = 0.023). Significant differences in respiratory rate occurred earlier than in any other animal-based parameter between shaded and non-shaded calves on day 2. The only significant group difference in rectal temperature was found at 1200 h on day 2 when THI exceeded 91 units, with 0.59 °C higher values for non-shaded calves (P = 0.045). The heart rate on days 2 and 3 was higher for non-shaded calves than for shaded ones. Group differences were also significant at 0800 h (18.2 ± 1.2 beats/min, P = 0.008), 1200 h (22.3 ± 1.4 beats/min, P = 0.003), 1600 h (15.3 ± 0.8 beats/min, P = 0.012), and 2000 h (19.0 ± 1.1 beats/min, P = 0.010) on day 2. Following a rapid daytime reduction, RMSSD showed a nighttime overcompensation in non-shaded calves on day 3 (between 0000 and 0600 h) and day 4 (between 0000 and 0800 h), exceeding the levels recorded on day 1 (control) and the levels for shaded calves, thus suggesting a recovery of the autonomic nervous system from heat stress. Based on our results, shading effectively reduced heat stress as evidenced by heart rate and RMSSD in addition to traditional measures of heat stress. Respiratory rate and heart rates exhibited by non-shaded calves support that the well-being of pre-weaned calves can be impaired in continental regions during following a heat stress day without providing shade.

Association between human and animal thermal comfort indices and physiological heat stress indicators in dairy calves.

Kovács L, Kézér LF, Ruff F, Szenci O, Jurkovich V.

Warm <u>summer</u> episodes have a significant effect on the overall health and well-being of young cattle; however, it is not known which temperature measure should be used for estimating heat

stress in dairy calves. In this study, generalized linear mixed-effects models were used to estimate the relationships between thermal comfort indices and animal-based heat stress indicators in sixteen Holstein bull calves that were housed in individual calf hutches. Data were collected under continental weather characteristics over a 5-day period: day 1 (lower-temperature day), days 2 and 3 (heat stress days), and a 2-day post-stress period. Relative humidity, ambient temperature, the heat index, the humidex and five different temperature–humidity indices (THI) were used as thermal indices. Physiological variables monitored included respiratory rate, rectal temperature, ear skin temperature and heart rate. The heat index and the humidex measuring human thermal comfort were more closely associated with physiological measures than were the ambient temperature or the THIs (in case of heat index: $R^2 = 0.87$ for respiratory rate, $R^2 = 0.63$ for rectal temperature, $R^2 = 0.70$ for ear skin temperature, and $R^2 = 0.78$ for heart rate, respectively; in case of humidex: $R^2 = 0.85$ for respiratory rate, $R^2 = 0.60$ for rectal temperature, $R^2 = 0.68$ for ear skin temperature, and $R^2 = 0.75$ for heart rate, respectively). Based on our results, parameters of human outdoor comfort seem better to estimate heat stress in dairy calves in a continental region than those of THIs or ambient temperature.

Prediction of stillbirth in Holstein-Friesian dairy cattle by measuring metabolic and endocrine parameters during the peripartal period

Szenci O, Abdelmegeid MK, Solymosi N, Brydl E, Bajcsy CÁ, Biksi I, Kulcsár M.

The aim of this study was to determine whether measurements of certain metabolic (non-esterified fatty acid, β-hydroxybutyrate, glucose, total protein, albumin, urea-nitrogen, aspartate aminotransferase, total calcium, inorganic phosphate and magnesium) and endocrine (cortisol, thyroxine, triiodothyronine, insulin and insulin-like growth factor) parameters in the peripartal period (2 months and 3 weeks before expected calving and within 1 hr after calving) were related to the prevalence of stillbirth in a Holstein-Friesian farm in Hungary. All together 155 dairy cattle (n = 22 primiparous, n = 133 multiparous cows) were monitored in two separate years selected randomly on the same farm. Overall, the prevalence of stillbirth was 11% (n = 17). Significantly higher stillbirth rate was detected in case of heifer calvings (OR = 8.5), and when ≥3 assistants (severe dystocia; OR = 8.9) were needed to assist at calving while the body condition score of the dams, the bodyweight and gender of the newborn calves, the percentage of posterior presentations had no significant effect on stillbirth rate. There were no significant differences between cows without and with stillbirth in case of any measured metabolic and endocrine parameters during the examined time periods. At the same time, some of the metabolic parameters (TP, AST and inorg.P) showed some significant differences among the stillbirth groups, but stillbirth could not be predicted by the measured parameters and therefore the role of metabolic and/or endocrine changes on the prevalence of stillbirth needs further elucidation.

Fetal metacarpal/metatarsal bone thickness as possible predictor of dystocia in Holstein cows

Vincze B, Gáspárdy A, Kézér FL, Pálffy M, Bangha Zs, Szenci O, Kovács L.

Dystocia and perinatal calf mortality cause significant economic losses in the dairy cattle industry. Despite advanced ultrasound examination procedures, there is no reliable method to estimate the birth weight of calves in order to predict, prepartum, the risk of dystocia. The aim of this study was to predict calf birth weight and dystocia based on transrectal ultrasonographic (TRUS) examinations in late-term Holstein heifers and cows. Therefore, TRUS examination was performed on 128 animals that were between 265 and 282 d of gestation to measure the bone thickness of the fetal metacarpus (MC) or metatarsus (MT). Fetal TRUS measurements were successful in 104 cases. Excluding twin deliveries, 97 fetal MC/MT bone thicknesses were measured and the mean (±SD) MC/MT thickness was 2.54 ± 0.37 cm. A novel index, the metacarpal/metatarsal index [MCTI = maternal body weight (kg)/fetal MC or MT thickness (cm)], was also calculated to study its association with calving ease. The average MCTI was 257.3 kg/cm in the studied population. A lower MCTI was associated with the risk of dystocia with an odds ratio of 2.074 that was not significantly different from 1 (95% confidence interval: 0.002-11.104). Fetal presentation, fetal age, fetal sex, body condition score of the dam, age of dam, and intercoxal and interischiadic distances were not related to dystocia. A fair phenotypic correlation (0.226) was found between MC/MT thickness and calf birth weight. The genetic correlation between MC/MT thickness and calf birth weight was 0.235. Our results indicate that late-term measurement of the fetal MC/MT bone thickness by means of TRUS examination augmented with the MCTI may have clinical significance in the prediction of dystocia in Holstein cattle. Because the odds ratio for dystocia based on MCTI determination was not significant, the applied technique should be improved based on further studies on prepartum TRUS examinations combined with dam pelvic measurements.