4TH ANNUAL CONFERENCE

PTNCE 2017 KRAKOW 20-22 SEPTEMBER

POLISH SOCIETY FOR HUMAN AND EVOLUTION STUDIES

PLENARY SPEAKERS:
KATIE HINDE ANTHROPOLOGY
REBECCA SEAR DEMOGRAPHY
BOGUSŁAW PAWŁOWSKI EVOLUTIONARY PSYCHOLOGY
JONATHAN C.K. WELLS PUBLIC HEALTH

*All Presentations and Plenary lectures will be held in **Aula C**, Conference Centre Faculty of Medicine, 16 Sw. Lazarza St.*

Wednesday, September 20th

11.00 am – 2.00 pm – Registration

2.00 pm – 2.20 pm – Conference Opening

PTNCE Honorary Award for Professor Adam Łomnicki

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2.20 pm – 3.20 pm – Plenary Lecture 1 – Jonathan C.K. Wells
Maternal capital and the metabolic ghetto: an evolutionary perspective on how society shapes the intergenerational transmission of health

This talk presents a multi-disciplinary approach to chronic noncommunicable disease. The first part presents a physiological model of disease susceptibility. The second part considers how human plasticity to ecological stresses evolved. The third part explores how human societal interactions impact our metabolic plasticity, helping understand why social and ethnic groups differ in their susceptibility to disease.

3.20 pm – 4.30 pm – Session 1 (Chair: Bogusław Pawłowski)
Reproduction and parental investment

3.20 pm - 3.40 pm Bovet J, Raiber E, Ren W, Wang C, Seabright P
Parent-offspring conflict over mate choice: An experimental investigation using Chinese marriage markets

Both parents and offspring have evolved mating preferences that enable them to select mates and in-laws to maximize their inclusive fitness. Although such preferences may substantially overlap, evolutionary theory of parent-offspring conflict predicts that in-law and mating preferences can differ with respect to material resources and physical attractiveness of a potential mate. Indeed, individuals are expected to value physical attractiveness more in their mates than in their in-laws, and to value material resources more in their in-laws than in their mates. We tested this hypothesis in China, where parents have an active role in the search of a marital partner for their sons and daughters. In particular, parents from several Chinese cities organize "marriage markets" where they advertise the characteristics

of their adult children and look for a potential son or daughter-in-law. To experimentally test the hypothesized parent-offspring conflict in mating preferences, we presented 800 parents and young adults from the city of Kunming (Yunnan) with hypothetical mating candidates varying in their levels of income and physical attractiveness. Consistent with evolutionary theory, we found significant differences between offspring and parents' preferences, when children regarded physical attractiveness as more important than parents. We also found a strong effect of the sex of the mating candidate on preferences, as physical attractiveness was deemed more valuable in a female potential mate or in-law, thus underlining the specific role of female physical appearance in the evolution of mate choice.

3.40 pm - 4.00 pm Szala A, Antfolk J, Karlsson LC, Söderlund J
Cracking Patterns of Willingness to Invest in Children: Effects of Emotional Closeness and Psychological Kinship Estimates

Objective: The objective of this study was to understand how emotional closeness and psychological kinship estimates are associated with the willingness to invest in children. Psychological kinship estimation was examined in both women and men. Additionally, earlier studies were extended by examining members outside the core family.

Methods: Data were obtained from 2246 adult-child dyads (877 from males, 1369 from females). Respondents were asked to fill out an on-line questionnaire and assess their willingness to invest, estimated biological relatedness, and emotional closeness with children of various relatedness levels (own children, sibling's children, step-children, and friend's children).

Results: Participants were more willing to invest in own children than in sisters' children, brothers' children, stepchildren, or friends' children, respectively. Additionally, willingness to invest was negatively correlated with child's age and the number of children in participant's care. Psychological kinship estimates better predicted the willingness to invest than putative relatedness, and this association was partially mediated by emotional closeness.

Conclusions: Our findings were in line with previous findings. There was an association between willingness to invest and psychological kinship estimates, corroborating evolutionary expectations. Investment in stepchildren was, however, higher than expected.

4.00 pm - 4.20 pm Borras-Guevara M, Perrett DI, Batres C
Domestic violence shapes partner preferences in Colombian women

Potential protection from public violence has been suggested as an explanation to women's preferences for more masculine partners. Previous studies, however, have not taken into account that violence may also be directed towards women, for example, in the form of domestic violence. Therefore, we tested the effect of perceptions of public violence (i.e., vulnerability to public crime) and domestic violence (i.e., likelihood of within partnership violence) on masculinity preferences of women from Colombia, a country known for its high rates of violence. Eighty-three adult heterosexual women (mean age ± S.D. 26.7 ± 6.01) answered a survey that included questions about health (e.g., frequency of illnesses during the last year and during childhood), access to media (e.g., time spent watching television, frequency of internet use), education (i.e., highest level achieved) and violence perceptions (e.g., feelings of danger from public violence, likelihood of domestic violence against women). Participants' masculinity preferences for Salvadoran, European and Colombian male faces were recorded. We found that women who reported higher perceptions of domestic violence preferred significantly less masculine Colombian faces. Even after controlling for participant age, education, access to media (TV and internet), and health-related factors, domestic violence contributed significantly to explaining masculinity preferences. The results presented here suggest that women's masculinity preferences may be a strategy to avoid violent partners and that the source of violence matters in mate choice.

4.20 pm – 5.00 pm – Coffee break

5.00 pm – 6.20 pm – Session 2 (Chair: Jerzy Bańbura)
Archeology and Primatology

5.00 pm – 5.20 pm Molak M
Human evolution through a palaeogenomic lens

Around 30 years ago scientists discovered that it is possible to analyse DNA from long-dead organisms. This "ancient DNA" raised high hopes for human evolutionary research as it brought a potential to directly compare the genetic makeup of modern humans with this of ancestral hominin groups. Quite soon, however, it became apparent that the processes of decay that affect DNA molecules post-mortem severely limit the lifespan of analysable ancient DNA and thus any skeletal remains older than a few thousand years were deemed unfit for genetic analysis. The last few years of tremendous progress in genetic analysis technologies, however, have enabled retrieval of genetic information even from highly degraded material. The potential of analysing genetic information of the ancestors and extinct relatives of Homo sapiens has since become a reality and soon the amount of genetic data from ancient hominins has started building up. Today, full genetic information for several Neandertals is available. About Denisovans we know barely anything, but we do know their entire genome. The oldest hominin remains with retrieved genetic information is around 400,000 years old. The accumulating knowledge has made our view of human evolutionary history much more complete but also much more complex. In my talk, I would like to review the state of the art ancient hominin genetics, the influence of its newest findings on our understanding of human evolution as well as the potential and the challenges palaeogenomics faces for the future, including the perspective of analysing Homo floresiensis or H. naledi.

5.20 pm – 5.40 pm Lee K, Rogers MP, Galbarczyk A, Jasienska G, Polk JD, Clancy KBH
Bone maintenance as a result of reproductive and energetic status: a life history perspective

Objective: Understand how energetic conditions and reproduction interact to affect bone maintenance in healthy pre-menopausal women.

Methods: Women (n=25, age 19-44) from the rural Mogielica Human Ecology Study Site in southern Poland collected first-morning void urine daily for one full menstrual cycle. These daily samples were analyzed for estrogen, progesterone, and C-peptide. One blood sample was collected to measure bone alkaline phosphatase (BAP), a marker of bone formation, and urine from that day was additionally analyzed for deoxypyridinoline (DPD), a marker of bone resorption. Daily physical activity was measured both using an accelerometer and via a daily self-report calendar. Anthropometry was measured before and after the menstrual cycle using standard techniques.

Results: Preliminary analysis using stepwise linear regression shows that lower average luteal phase E1G, higher average luteal phase C-peptide, and negative energy balance (weight gain or loss) were associated with higher levels of BAP (F=6.1 on 3 and 21 df, p=0.004, adjusted R^2=0.39). Positive energy balance and increased age were associated with lower levels of DPD (F=7.7 on 2 and 22 df, p=0.003, adjusted R^2=0.36).

Conclusions: In this sample, circulating levels of markers associated with bone formation and bone resorption were both affected by energy balance. This suggests that the maintenance of bone mass in healthy, ovulating women may be affected by energetic conditions before energetic constraints noticeably affect the menstrual cycle. A life history approach to understanding bone health should consider the allocation of energetic resources during reproductive years in addition to earlier life events which affect development.

5.40 pm – 6.00 pm López-Torres S, Silcox M
The success of paromomyids: the longest-lived, northernmost group of fossil primates

Plesiadapiforms represent the first primate radiation, appearing around 64 million years ago. Eleven families of plesiadapiforms are recognized, including the Paromomyidae from North America, Europe, and Asia. Paromomyids represent the longest-lived family of fossil primates known, persisting

approximately 27 million years. Our goal is to understand the relationships among paromomyid species, and how they can inform us about early primate diversity and evolution. One element of paromomyid biology that is of particular interest is their diet, which has been described as generally frugivorous, but prior to our work had not been assessed using quantitative methods. We used methods for quantifying the 3D form of the teeth (dental topographic analysis) to assess changes in the morphology of the lower second molar as a proxy for diet. The results from this study showed that paromomyids had a more diverse diet than previously thought. This diversity may have contributed to paromomyids becoming very broadly distributed in North America, reaching as far north as Ellesmere Island, and may help account for their extraordinary persistence in the fossil record. The monophyly of the European paromomyids suggests that the group reached the continent once, around the Paleocene-Eocene boundary, via a route that is inferred to have gone from North America to Europe through Greenland. Such a route would have been facilitated by the high tolerance of this group to colder climates. In sum, our expanded understanding of the biology of this group of early primates helps to contextualize the success of some of our earliest relatives.

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6.30 pm – 8.00 pm – Welcome Reception (Aula, Institute of Public Health, 20 Grzegorzecka St.)

Thursday, September 21st

9.00 am – 10.00 am – Plenary Lecture 2 – Bogusław Pawłowski
Body height on mate market – is it also a cue of physiological conditions?

Body size matters in majority of animals and its variation within a population has many biological consequences. The most important, stable in adult life, trait of human body size is height. In all populations, variation in height within each sex is observed and, therefore, the question is, if this variation has any biological consequences, e.g. if it is related to different mortality and fertility patterns or to reproductive success. As many studies show, it is a male body height that is much more important trait on human mate market than female height. In Western societies women prefer relatively tall men and this preference seems to be also related to the male-taller-norm that is the prevalent mating pattern in these societies. However, it is not clear if height preferences are biologically relevant and related to better biological quality of taller men. If so, to what extent body height may inform about fitness? Within some populations, morbidity, mortality and reproductive success are related to body height. Does it mean that body height, that is often related to the level of physical attractiveness, is also a cue of an individual's physiological quality? In this talk I will present new data on relationship between body height and diverse immunological parameters. The results will be discussed in the light of such evolutionary concepts as immunohandicap, energy allocation and trade-offs.

10.00 am – 11.00 am – Session 3 (Chair: Benedict Jones)
Human perception

10.00 am – 10.20 am Wacewicz S, Perea-García JO, Danel D, Lewandowski Z, Zywiczynski P
Sclera size index does not predict perceived trustworthiness: first empirical steps towards a reassessment of the functions of the overexposed human sclera

Objective: Hypotheses about the evolutionary origins of the peculiar morphology of the human eye (in particular, scleral depigmentation and size of exposed sclera) have profound implications in the fields of comparative and evolutionary psychology, which are relevant for disciplines like language evolution or interaction studies. Building upon a review of the literature on human eyes in social cognition, we take the first steps towards testing hypotheses regarding the origins of our particular eye morphology.

Methods: We test the "honest eye hypothesis" - closely related to Tomasello et al.'s (2007) "cooperative eye hypothesis". We do this by looking for a correlation between perceived trustworthiness and an index of the exposed sclera size (SSI) in the material from the Chicago Face Database (2.0.3), comprised of the total of 596 faces of human females and males, categorised into fours self-declared "races". Following Kobayashi & Kohshima (1997), we measured the size of the area of the visible sclera as the SSI, i.e. the width of the exposed eyeball (the distance between the corners of the eye) divided by the diameter of the iris.

Results: Overall, contrary to our hypothesis, a higher SSI was not associated with a higher perceived trustworthiness. This association was only statistically significant for "White" women in the first two quartiles of the SSI distribution.

Conclusions: We discuss our results in terms of experimental methodology and rationale motivating the hypothesis. Lastly, we propose new methods to further investigate a topic with far-reaching implications for our understanding of human evolution.

10.20 am – 10.40 am Kleisner K, Saribay SA
Facing Strangers: A New Measure of Cross-Cultural Typicality and Distinctiveness

Objective: Facial averageness is the most common measure of typicality. However, it varies radially in all directions from population mean and does not reflect how far a face is from outgroup standards. We propose a measure of distinctiveness/typicality based on position of an individual along the vector between ingroup and outgroup mean. We used attractiveness/trustworthiness ratings and non-shape features (eye/hair color) as benchmark of proposed measure.

Methods: 100 Cameroonian and 110 Czech male faces were superimposed by Procrustes fit and mean configuration was computed separately for each culture. Scores of distinctiveness/typicality (SDT) were calculated by projecting individual faces on axis connecting the Czech and Cameroonian mean shape. The more a face is distant from its ingroup mean the more distinct it is and the more it resembles outgroup standards. Averageness was computed as Procrustes distance of each face from population mean.

Results: SDT correlated with averageness for Cameroonians (r=.21, p=.032) but not Czechs. Czechs closer to Cameroonian mean had darker hair (τ=.23, p=.023) and eye color (τ=.31, p=.004). Cameroonian women preferred Cameroonian men closer to Czech mean. (r=.18, p=.059). Cameroonian men with more Czech-like faces were perceived as more trustworthy by Cameroonians (r=.31, p=.03). Averageness correlated with attractiveness but not with trustworthiness in both cultures. SDT showed stronger association with trustworthiness than with attractiveness.

Conclusions: SDT can be used to generate manipulated stimuli that respect the natural variation of human faces within a particular population and can be applied to any "shape" such as parts of human body.

10.40 am – 11.00 am Fink B, Wübker M, Ostner J, Butovskaya ML, Mezentseva A, Muñoz-Reyes JA, Sela Y, Shackelford TK
Cross-cultural investigation of male gait perception in relation to physical strength and speed

Objective: Previous research documented that men and women can accurately assess male physical strength (as assessed by handgrip strength) from gait, but also that the sexes differ in attractiveness judgements of strong and weak male walkers. Women's attractiveness assessments of strong male walkers were higher than for weak male walkers, whereas no such difference was found in men. Here, we extend this research to assessments of strong and weak male walkers in Chile, Germany, and Russia.

Methods: Men and women judged short videos of virtual characters, animated with the walk movements of motion-captured men, on strength and attractiveness. In two countries (Germany and Russia), these videos were additionally presented at 70% (slower) and 130% (faster) of their original speed.

Results: Stronger walkers were judged as stronger and more attractive than weak walkers, and this effect was independent of country (but not gender). Women provided higher attractiveness judgements than men to strong walkers, and men assigned higher attractiveness ratings than women to weak walkers. In addition, German and Russian women rated strong walkers most attractive at slow speed.

Conclusions: We conclude that men and women across countries can assess male physical strength from gait, although they differ in attractiveness assessments of strong and weak male walkers. Moreover, attractiveness assessments of male gait may be influenced by society-specific emphasis of male physical strength.

11.00 am – 11.30 am – Coffee break

11.30 am – 12.50 pm – Invited Session 4 (Chair: Vit Třebický)
Acoustic communication

11.30 am – 11.50 am Šebesta P, Kleisner K, Třebický V, Kočnar T, Akoko R, Havlíček J
Male voice and body shape in two African countries: Beyond voice pitch and formants – acoustic measures related to voice quality predicts differences in body shape

Relationship of basic body variables as height and weight and acoustic measures as fundamental frequency and formants has been thoroughly studied. But recent research indicated that also voice perturbation measures might be associated to differences in body shape as circumference of shoulders, chest, waist, hips, and related ratios. Perturbation measures are correlates of perceived differences in voice quality as breathiness or hoarseness. Body size measures (circumferences of shoulders, chest, waist, and hips) of men from two African countries (Cameroon, n = 43; Namibia, n = 48) and derived ratios of shoulders-to-hips (SHR), chest-to-hips (ChHR), and waist-to-hips (WHR) were assessed. Recordings of short utterances produced by participants were analysed using Praat for F0, F0SD, and formants (Pf). Perturbation related variables – jitter, shimmer, HNR, and amplitudes of first three harmonics measured from FFT spectrum and cepstrum based measures: rahmonics-to-noise ratio (RhNR) and cepstral peak prominence of smoothed cepstrum (CPPs).F0, F0SD and Pf, were not related to body shape or body size. But voice quality variables CPPs, RhNR, and ratio of first to second harmonics amplitudes and amplitude of first harmonic were associated with SHR, ChHR, and WHR in men from Cameroon and CPPs with SHR and WHR in Namibian men. Bivariate Kendall's correlations were utilized. These results suggest that differences in acoustical correlates of voice quality, (breathiness or hoarseness) can be associated with more masculine body shape features (higher SHR, ChHR, and WHR). Results imply that less breathy or hoarse voices may advertise more masculine body shape.

11.50 am – 12.10 pm Tognetti A, Barkat M, Durand V, Hopfensitz A
Does he sound cooperative? Vocal traits as cues of cooperativeness

Objective: The assortment of individuals by cooperative behaviour has been suggested to lead the evolution of cooperation. Hence, the abilities to identify cooperative individuals and to interact specifically with them are likely to be selected. Recently, it has been suggested that fundamental frequency could be a cue of cooperativeness because higher pitch voice was associated with perceived cooperativeness. However, no study examined whether fundamental frequency is associated with individual's cooperativeness. Here, we investigated whether voice can be used to assess an individual's cooperativeness and whether fundamental frequency is involved in this assessment.

Methods: We used a public goods game to assess cooperativeness of 82 French men and we recorded their voice. Then, we selected the eight men who contributed the most and the least to the public good and measured their fundamental frequency using Praat Software. Moreover, we used their voice to form a series of 64 pairs of voice consisting of one high and one low contributor. 80 French male and women were asked to distinguish the most and the least cooperative individual from those pairs.

Results: Although fundamental frequency between high and low contributors to the public good was not significantly different, both men and women raters were able to identify the highest contributor to the public good above chance expectation.

Conclusions: Our results suggest that some vocal cues of male cooperativeness, different from fundamental frequency, exist. Further investigations are needed to examine which specific vocal traits are involved in this assessment.

12.10 pm – 12.30 pm Pisański K, Reby D
Women's voice pitch changes due to pregnancy

Objective: Women's voice pitch (measured as fundamental frequency, F0) can indicate reproductive age and potential. Hormonal and anatomical changes at puberty, throughout the menstrual cycle, and following menopause, affect vocal fold dynamics and therefore their vibratory rate and resultant F0. Yet the effects of pregnancy on women's voices remain under-investigated. Here we tracked within-individual variation in women's F0 before, during and after pregnancy.

Methods: We acoustically analyzed archival voice recordings of 20 women over a span of 10 years surrounding their first pregnancy. Women were aged 27 to 41 at pregnancy. We extracted 407 interview clips (197 min of free speech) and measured five voice pitch parameters (F0 mean, minimum, maximum, standard deviation and the coefficient of variation) using Praat software.

Results: Linear Mixed Models (LMMs) indicated that all F0 parameters changed significantly as a function of pregnancy phase, controlling for mother's age. Women's voices became lower-pitched (decreased F0 mean, min, max) and more monotonous (decreased F0 variance) one year postpartum compared to one year pre-pregnancy. Women's F0 parameters did not decrease within-individuals over a five-year period prior to conception above and beyond the effects of age, indicating that F0 changes could be attributed to pregnancy not age. However, after one year postpartum, women's F0 parameters increased or 'recovered', approaching pre-pregnancy levels.

Conclusions: Our findings demonstrate that pregnancy has a transient masculinizing effect on women's voices. To understand the potential mechanisms driving this, future work should examine covariation between changes in women's F0, hormone levels and self-perceptions due to pregnancy.

12.30 pm – 12.50 pm Třebický V, Šebesta P, Fialová J, Havlíček J
Intimidating vocalisation in Mixed Martial Arts fighters: No relationship between fundamental frequency, fighting success and strength

Antagonistic interactions are principal determinant of access to various resources across many species. Information about relative fighting ability is often conveyed by diverse behavioural, olfactory, visual or acoustic cues. Fighting capacity is expected to be associated with various physical (strength) and physiological factors (hormone levels). Previous research found an association between acoustic correlates of lower pitch of speech (such as lower F0) and fighting success in professional Mixed Martial Arts (MMA) fighters and men's upper-body strength can be assessed from yelling and roars. Here, we tested acoustical correlates of intimidating vocalisation (shouts) produced by amateur MMA fighters in relation to their fighting success, physical traits and hormone levels. 51 amateur MMA contestants (mean age = 24.03yrs, SD = 4.33) attending amateur European MMA Championships participated in the study. We collected data concerning their MMA score, testosterone levels and hand-grip strength. Further, we recorded three consecutive intimidating shouts under standardised conditions at championships site. We did not find any significant connection between shouts' F0 and fighting success or hand grip strength. On the other hand, we revealed negative correlation between F0 and testosterone levels. These results suggest that in amateur MMA fighters shout pitch is not a salient cue to fighting success and strength. However, we provide an additional evidence concerning negative relationship between voice pitch and testosterone levels.

12.50 pm – 1.40 pm – Lunch break

1.40 pm – 3.20 pm – Session 5 (Chair: Bernhard Fink)
Behavior & co.

1.40 pm – 2.00 pm Misiak M, Butovskaya M, Sorokowski P
Examination of digit ratio, hand grip strength and their link to hunting skills and warriorship status among men of Yali tribe

Objective: Human male-male competition is considered as a selective pressure that shapes masculine physiological as well as behavioral characteristics. It has been shown that anthropometric indicators of physiological features may help us to predict male aggressiveness, competitiveness, physical performance, health and reproductive success. However, most of these studies were conducted in rich western societies of stable ecologies. Here, we tested a hypothesis that anthropometric indicators of health and masculinity allow us to predict performance of men inhabiting harsh ecology in male-specific activities.

Methods: We conducted our study among 49 men of the Yali tribe which inhabits New Guinea highlands. To measure physiological traits, we took anthropometric measures of digit ratio, which indicates prenatal exposure to sex hormones, and hand grip strength which is an indicator of overall health. We also assessed hunting skills and determined warriorship status of Yali men, as these activities of male-male competition are predictors of reproductive success and social status.

Results: Results of our study show that digit ratio and hand grip strength cannot be linked to hunting performance nor warriorship status, and therefore contradicts our hypothesis.

Conclusions: It might be because our sample was too small, or because hunting skills and warriorship status depends on other traits than physical performance and masculinization (i.e. intelligence and creativity). Nonetheless, to draw further conclusions it is necessary to conduct more research on larger samples. Our findings are to be discussed in context of human behavioral ecology and evolution of male-male competition.

2.00 pm – 2.20 pm Szarejko M
Human territoriality vs urban sociology in urban dynamics modelling and planning

Urban sociology models, used by city planners, define neighbourhood communities as the most valuable social environment where higher human needs as affiliation can be alimented. Basic technique of implementation of those social values in architecture is to create semi-public meeting places with some basic recreation facilities. Unfortunately, widely used theory doesn't work. Thousands of meeting points integrate mostly pathologies such as crime and vandalism. Hunting-gathering human origins shaping also details of Hamilton rule human specific show us patterns of present-day human behaviour including self-organisation of social groups with distinct vulnerability to public-private context of space. Using this paradigm to analyse, contemporary urban live we can divide urban spaces into human territories and check if territorial patterns predict how do human behave. This simple method was useful to explain strong relations between gene-community due to Hamilton rule private space one hous, one flat altruism self-organisation, self-defence and self-care including strength of altruistic grandmother-grandchildren self-satisfactionary relation. Three-generation family seems to be more efficient as a social unit On the contrary public spaces dynamics evoked by hunting behavioural pattern can be explained by classical egoistic rules of economy including creating value through competition. Our model shows that the main spatial-related urban pathologies are evoked by mixed territories semi-public means private for someone but public for the others. Although our territorial model is used instead of urban sociology model in large-scale plans currently for district inhabited by 20 000 people and it wasn't done by biologists and therefore it requires urgent scientific verification.

2.20 pm – 2.40 pm Nowak M, Bańbura A
Fatigue as an adaptive signal in the context of self-control behaviours

The aversive sensation of fatigue can be detrimental to performance of tasks requiring self-control. Importantly, while this state often appears in the case of actions connected with the pursuit of long-term goals, it is not present in the case of behaviors which are instantly gratifying. This relationship seems to be disadvantageous because of the potential significant losses following from the much lower frequency of future-oriented actions and the higher frequency of present-oriented actions. However, new models focusing on self-control as a decision-making process posit that fatigue is not a purely negative state but rather an adaptive stop-signal appearing due to cost-benefit computations. In this context, the appearance of fatigue leads to advantageous task-switching when the costs of the action outweigh the benefits. Such mechanism should lead to the sustenance of the appropriate balance between the exploration of the environment in the search of new resources and the exploitation of resources that are already available. The views on the exact nature of cost-benefit computations and fatigue itself vary depending on a theoretical approach. Thus, we will provide an exhaustive overview of the models of self-control and fatigue which are rooted in evolutionary psychology (e.g. opportunity costs model, intrinsic cost of control model, shifting priorities model, motivational control model) and present the available empirical data supporting their main assumptions.

2.40 pm – 3.00 pm Kuna B, Jasienska G
Dark Triad – predictor of parenting behavior?

Objective: From evolutionary perspective, parental emotional reaction to infant's cry may affect survival of a child. Personality of caregiver is a strong predictor of caring behavior. Dark Triad personality (Machiavellianism, narcissism, psychopathy) is related to higher attractiveness, short-time mating strategy and thus, higher chance of having children. However, studies on relation between Dark Triad (DT) personality and emotional reactions to infants are lacking. This study investigates if particular DT components may be related to emotional perception of infant's cry as a predictor of potential parenting behavior.

Methods: Data was obtained from 1066 participants of online survey, with Short DT questionnaire. All participants listened to infant's cry and reported their emotional response to this stimuli on 5 point scale. The impact of DT components on emotional responses was assessed in regression analysis. Regression was conducted separately for each sex, with confounders as age, marital status and having siblings. Results: In both sexes, high DT was related to higher level of anger and irritation ($p<0.001$) as a reaction to cry. In women, level of Machiavellianism was strongly related to all emotional responses ($p<0.001$). Analyses showed no relationship between narcissism and emotional response to infant's cry in women. Narcissism level affected negatively willingness of help, but only in men ($p<0.05$).

Conclusions: Dark Triad personality is related to emotional reactions evoked by infant's cry. Impact of DT on perception of this stimuli differs strongly between sexes. Dark Triad level may be a significant predictor of parenting and caring behavior.

3.00 pm – 3.20 pm Hicks TC
The Bili-Uéré chimpanzee behavioral realm of Northern DR Congo

Over a twelve-year period, we documented chimpanzee tools and artifacts at 20 survey areas and gathered data on dung, feeding remains and nests. We describe a new set of tool use, nesting and food-pounding behaviors in the Bili-Uéré population of Eastern chimpanzees (Pan troglodytes schweinfurthii). This 'behavioral realm' is spread across an area of at least 50,000 km² area in northern DRC. It includes long probes used to harvest epigaeic driver ants (Dorylus spp.), wands to dip for Dorylus kohli, short probes used to extract ponerine ants and the arboreal nests of stingless bees and stout digging sticks used to access underground meliponine nests. Epigaeic Dorylus tools were significantly longer than the other tool-types and Dorylus kohli tools were significantly thinner. Tools classified as terrestrial honey tools were a significant predictor for brushed and blunted tools ends, consistent with their presumed use. We also describe two potential new tool-types, an 'ant scoop' and a

'fruit hammer'. The Bili-Uéré chimpanzees were also documented to pound open Cubitermes sp. and Thoracotermes macrothorax termite mounds, while ignoring the abundant Macrotermes muelleri mounds which are preyed upon using tools by chimpanzees in other populations. This is consistent with the results of dung washes, which revealed a substantial proportion of driver ants, but no evidence of termites. Our results demonstrate multiple behaviors shared across a large, ecologically-diverse region but with subtle differences in prey choice and techniques. Possible explanations for this behavioral uniformity are a recent chimpanzee expansion across the region and population interconnectedness.

3.20 pm – 3.40 pm – Coffee break

3.40 pm – 4.40 pm – Plenary Lecture 3 – Katie Hinde
Lactation and Life History Tradeoffs

Unlike WEIRD adults- Westernized, Educated, Industrial, Rich, Democratic- far removed from the ancestral conditions that shaped our bodies and behavior, the breastfed infant develops within an "adaptively relevant environment." Lactation represents the intersection of behavioral care and physiological investment. As such, cross-cultural investigations combined with an evolutionary viewpoint yield new perspectives of mothers, milk, and infants. For example, breast milk nourishes, protects, and informs the developing neonate through nutrients, defenses, and hormones. Milk varies across evolutionary time, human populations, individuals within populations, and within mother across time. In this way mother's milk reflects the "here and now" and the "there and then." Here we refine and extend our understanding of how life history tradeoffs manifest in the magnitude, sources, and consequences of variation in milk synthesis. The intersection between the life sciences and the social sciences provides rich opportunity to understand lactation. Findings at this interface can directly translate to more personalized clinical recommendations and health optimization for mothers and their infants as well as substantiate the importance of infrastructure and institutional support for breastfeeding. Although breast milk is described as liquid gold, and breastfeeding as the gold standard of early life nutrition, scientists have yet to identify "liquid gold standards." Decoding mother's milk is necessary to enhance precision medicine for the most fragile and vulnerable infants in diverse clinical and ecological contexts.

4.40 pm – 5.20 pm – Invited Session 6 (Chair: Anna Ziomkiewicz)
Breastmilk and maternal social environment

4.40 pm – 5.00 pm Babiszewska M, Pawłowski B
Number of helpers and the amount of essential fatty acids in human mother's milk

Fat in human milk is essential not only due to the fact that more than 50 of the energy necessary for the infant development is satisfied by fats but also because its importance in visual and brain development. Among all fatty acids linoleic acid LA and alpha linoleic acid ALA are considered as essential fatty acids EFA EFA cannot be synthesized in human body and are indispensable for cell membrane synthesis, neuronal growth, development of synapses and myelination. In humans the amount of EFA in the mother's milk is highly variable between individuals. Differences in maternal diet or body composition do not explain most of this variability. Here we test if the support from kin and non-kin helpers influences the breast milk fatty acids composition and thus improve mother's physiological investment in her offspring. We have examined 57 mothers of healthy born at term infants with appropriate birth weight. Milk samples were collected only once between 3rd and 6th month of lactation average 4,5 month. The milk composition analyses were carried out using Gas chromatography. Controlling for diet and mother's adipose tissue distribution the number of helpers thus the size of social network of a mother has a major impact on the ALA content in human milk. Larger mother's social network of helpers the bigger maternal investment in amount of ALA in the milk was observed. This result goes along with the other recent evolutionary studies on humans that emphasize the role of cooperative breeding for the human growth.

5.00 pm – 5.20 pm Ziomkiewicz A, Babiszewska M, Pawłowski B
The association between social stress and breast milk composition in Polish urban women

Objective: Breast milk composition is tailored to support infant development under specific environmental pressures. While several studies found the impact of physical stressors such as undernutrition or hard work on milk composition, the effect of social stressors remains unclear. In fact, very few studies found any effect of perceived maternal stress on the nutritional content of milk.

Methods: The analysis was conducted on a sample of 65 urban women from Wroclaw, Lower Silesia, who exclusively breastfed healthy, born at term infants. Data about maternal social stress, socioeconomic status, and general life satisfaction were collected using structured questionnaires when infants were around 4 months old. Breast milk samples were taken simultaneously, during the second, morning episode of breastfeeding. Samples were analyzed to assess general and fatty acids (FAs) composition using liquid gas chromatography.

Results: Mothers who perceived higher social stress produce milk with higher content of middle chain fatty acids (MCFAs) ($t=-2,41$, $p<0.02$). The association between MCFA and stress was independent of infant's age or sex and maternal BMI or diet. Perceived stress had no significant effect on general milk composition e.g. content of proteins, fats or lactose. No association was found between FAs composition of milk and maternal socioeconomic status.

Conclusions: We found that breast milk composition may change under the influence of social stress. MCFAs, that are higher in the milk of stressed mothers, have profound antiviral and antibacterial activity. We thus propose that FAs composition of human milk is optimized to help prevent anticipated or on-going infections.

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5.20 pm – 6.20 pm – Poster session (Lobby of Conference Centre Faculty of Medicine)
(see the abstracts below)

7 pm – Music and Drinks, Pauza, 5/3 Stolarska St.

Friday, September 22nd

9.00 am – 10.00 am – Plenary Lecture 3 – Rebecca Sear
Beyond the nuclear family: the evidence for, and implications of, cooperative breeding in humans

Human reproduction has several unusual features in comparison with other apes. In particular, our long childhoods and short interbirth intervals result in the 'stacking' of offspring, whereby mothers have to care for multiple dependent children at different developmental stages. One explanation for this unusual pattern of human reproduction is that humans are 'cooperative breeders': mothers receive help from other individuals to raise children. This talk will present cross-cultural data suggesting that mothers do get help from other family members, such as grandmothers and older children; including evidence that the role of fathers is often important but variable across societies. This talk will also consider the implications of this reproductive strategy, and suggest that the evolutionary social sciences have placed too much emphasis on the nuclear family. An understanding of the human family which incorporates cooperative relationships beyond the married couple changes our perspective on many topics of interest to evolutionary scientists, including parenting, mate choice, and the development of life history strategy.

10.00 am – 10.40 am – Session 6 (Chair: Grazyna Jasienska)
Oxidative stress and immunity

10.00 am – 10.20 am Nowak J, Borkowska B, Augustyniak D, Drulis-Kawa Z, Pawłowski B
Handgrip strength and immune system efficacy in men

Objectives: Physical strength is associated with positive health outcomes, number of sexual partners, attractiveness and masculinity in men. Non-invasive biomarker of muscle strength is Handgrip Strength (HGS). Highly heritable HGS is also supposed to be an honest indicator of a man's fitness or his biological quality. Whereas some of studies show that HGS is associated with SHR, 2D:4D, nutritional status or mortality risk, the studies linking HGS with immune quality - one of the most important component of human biological condition, are still limited. The aim of this study is to check if HGS is an indicator of immunity in men.

Methods: The immune quality was evaluated for 96 healthy men aged 19-36. Multiple immunity measurements included: complement activity, lysozyme activity, neutrophil function, lymphocyte count, immunoglobulin levels, and post-vaccination response. General health status was assessed by medical examination and basic biochemical test of blood. Free testosterone, BMI, physical activity and smoking status were controlled. The right and left HGS were double measured. The higher value of right and left hand were average and used in the analyses.

Results: Multiple regression models controlling for confounders show, that none of the analyzed immune functions was predicted by HGS. There was also no difference in immune factors between extreme tertiles of HGS.

Conclusions: The results suggest that muscle function expressed by HGS is not related to immune quality in healthy men. Further studies involving individuals with some immune disorders might be helpful to verify if HGS can be related to immune system efficacy.

10.20 am – 10.40 am Żelaźniewicz A, Nowak J, Groyecka A, Sorokowski P, Pawłowski B
Human empathy and oxidative stress in adults

Objective: Empathy is defined as the ability to share affect and to understand feelings and intentions of others. As such, empathy is an essential part of normal social functioning, enabling to comprehend what is happening in social environment and predict actions of others. Although empathy seems to be a crucial adaptation to function in social environment, its physiological mechanisms are poorly understood. Empathy was shown to be negatively linked to an individual's testosterone level. Recent studies also suggest that autism, perceived as an empathy deficit disorder, is related to an increased oxidative stress level. The aim of this study was to test if empathy level in healthy people is linked to oxidative stress.

Methods: 91 women (age M=26.4, SD=2.75) and 137 men (age M=27.99 SD=2.98) participated in the study. All participants had no diagnosed chronic diseases, hormonal disorders, or current infections (based on declaration of health, CR-P level and blood morphology with smear). Women were recruited between 2nd and 4th menstrual cycle day. 8-OH-dG and testosterone levels were measured in blood serum. Participants also answered Empathy Quotient (EQ) questionnaire.

Results: The results showed that empathy was negatively related to oxidative stress level in men but not with testosterone level. There was no relationship between 8-OH-dG and empathy in women.

Conclusions: The results indicate that oxidative stress level might influence in empathy level in men. This is in accordance with previous research linking oxidative stress with autism, which is perceived as empathy deficit disorder.

10.40 am – 11.00 am – Coffee break

11.00 am – 11.20 am Klatt W, Lobmaier JS
Revisiting cycle-dependent changes in women's voices

Objective: An increasing number of studies suggest that women's voices are affected by menstrual cycle. For example, voice pitch has been found to vary across the cycle. However, voice pitch variation during speaking can also occur spontaneously for a number of reasons. In the present study we investigated whether changes in women's voices as they occur across the menstrual cycle (between-sessions) are larger than naturally occurring variation within a single session.

Methods: The voice of 42 naturally cycling female speakers was recorded once around ovulation and once in the luteal phase. We recorded sentences that suggested a mating context and neutral sentences. Each sentence was recorded twice in each session, the order of sentences within and between sessions was randomized. Voice recordings were analysed acoustically using Praat software.

Results: Differences in 17 acoustic parameters between sessions (menstrual cycle phases) and within sessions between repetitions of each sentence were calculated. The variation across menstrual cycle phases (between-sessions) was larger compared to the variation within sessions. However, the variation across sessions was not related to menstrual cycle phase: There was no systematic change between ovulatory and luteal phase sessions. Interestingly, even within sessions, acoustic measurements showed highly significant differences between two identical sentences (fundamental frequency, mean loudness).

Conclusions: The robustness of cycle-dependent voice changes should be questioned. Using acoustic analyses, we found no indication that women's voices convey cues of fertility.

11.20 am – 11.40 am Tureček P, Lobmaier JS, Probst F, Roberts SC, Třebický V, Havlíček J
Cyclic variation and inter-individual differences in facial attractiveness: What difference does it make?

Previous research show cyclic fluctuations in female physical attractiveness. It was argued that perception of such fluctuations is not an adaptation but perceptual spandrel of inter-individual differences in attractiveness. This assumes cyclic fluctuations in attractiveness being considerably smaller compared to the inter-individual variation. Here we test this claim in 2 studies. Study 1 is based on publicly available dataset collected by Jones et al. which contains male ratings of 249 female faces, each woman was photographed 5 times while her oestradiol and progesterone levels were assayed. Study 2 focuses on international (CZ, UK, CH) dataset of male ratings of 90 female faces photographed during fertile and non-fertile cycle phase. To compare the cyclic fluctuation and inter-individual differences in facial attractiveness we performed a permutation test. For each combination of rater and female face 1000 populations of potentially competing women were sampled from the actual ratings of other female faces. We measured systematic cycle-related benefit as difference between the percentile ranks of rated attractiveness of target female in high desirability and low desirability condition (predicted from hormonal levels in study 1, based on fertile/non-fertile phase in study 2). Between-individual differences were estimated in the comparison of yielded percentile ranks of each pair of women. Between-subject differences were 5.78 times more important than systematic within-subject differences. The average benefit of being random more appealing woman in low desirability condition was 9.90 percentile ranks. Raters choose more attractive woman in non-fertile over less-attractive woman in fertile phase in 75% of simulated forced-choice situations.

11.40 am – 12.00 pm Jones B, Hahn A, Fisher C, Wang H, Kandrik M, Han C, Fasolt V, Morrison D, Lee A, Holzleitner I, Roberts C, Little A, DeBruine L
Women's preferences for facial masculinity are not related to their hormonal status

Objective: Although widely cited as strong evidence that sexual selection has shaped human facial attractiveness judgments, evidence that preferences for masculine characteristics in men's faces are related to women's hormonal status is equivocal and controversial. Consequently, we conducted the largest ever longitudinal study of women's preferences for facial masculinity.

Methods: Five hundred and eighty heterosexual women were tested weekly (519 women completed at least five test sessions, 176 women completed at least ten test sessions). In each test session, women completed a standard facial masculinity preference test, reported whether or not they were using oral contraceptives, and provided a saliva sample.

Results: Analyses showed no evidence that preferences for facial masculinity were related to changes in women's salivary steroid hormone levels (estradiol, progesterone, estradiol-to-progesterone ratio, testosterone, cortisol). Furthermore, both within-subject and between-subject comparisons showed no evidence that oral contraceptive use decreased masculinity preferences. However, women generally preferred masculinized over feminized versions of men's faces, particularly when assessing men's attractiveness for short-term, rather than long-term, relationships.

Conclusions: Our results do not support the hypothesized link between women's preferences for facial masculinity and their hormonal status.

12.00 pm – 12.20 pm Lobmaier JS, Bachofner LM
Is the peri-ovulation paradigm flawed? Some critical thoughts on the methods used to determine current fertility in women

There is increasing evidence that naturally cycling women undergo a variety of psychological and behavioural changes throughout a single menstrual cycle. Recently, however, concerns have been raised regarding the robustness of such findings, since they are not always replicated. The inconsistent findings regarding the influence of current fertility on women's behaviour and perception may result from too simplistic methodologies regarding the determination of current fertility status. Indeed, many of the earlier studies relied on counting methods, which have low validation resulting from wide inter- and intra-individual variations concerning the onset of ovulation and cannot detect anovulatory cycles. Presently, most studies confirm ovulation with hormonal measures (LH tests, Estradiol, Progesterone), but even these more advanced methods are based on a simplistic concept of fertility. I will discuss potential problems with the current "Golden Standard" of cycle monitoring. For example, only ovulatory cycles with an adequate luteal phase can produce a continuing pregnancy and thus the fertile interval in luteal deficient ovulatory cycles should be classified as infertile. Another problem with many hormonally controlled cycle studies is that women are tested very close to ovulation. However, given that sperm can survive up to 5 days in a woman's body, the fertile window should be assumed to consist of six days, the day of ovulation and the five previous days. I will suggest a number of cycle monitoring methods which, in combination, may help to overcome some of the problems encountered in many cycle studies.

12.20 pm – 1.40 pm – Lunch break

1.40 pm – 3.00 pm – Session 9 (Chair: Przemysław Żywiczyński)
How we see and hear each other

1.40 pm – 2.00 pm Szabo E, Bereczkei T
Competing and avoiding: The darkest styles of conflict resolution

Personality traits influence how individuals interact with others in various situations, among them during conflicts. By taking an evolutionary perspective on conflict resolution, the most self-serving ways to

win a conflict would be „fight" (engage in direct competition with others) and „simulated flight" (avoid direct competition and prepare to attack from the back); similarly to the two uncooperative conflict management styles: competing (assertive) and avoiding (non-assertive). In this research, we consider individual differences among dark personalities—i.e. the Dark Triad: Machiavellianism, narcissism, and psychopathy—to explore the ways they manage the outcomes of conflicts. We used the Thomas-Kilmann Conflict Mode Instrument (TKI) to measure different behaviors (competing, collaborating, avoiding, accommodating, and compromising) in conflict situations. One hundred and forty-three university students completed the TKI along with the Dark Triad questionnaires (Mach IV, NPI, LSRP). Results indicated that the dominant conflict style of the Dark Triad traits was either competing or avoiding. Narcissistic individuals were found highly competitive, which supports the idea of building their self-esteem on outperforming others. This might also explain why narcissists declined to use such non-assertive conflict styles as avoiding and accommodating. On the other hand, primary psychopaths who also favored competition might use it as a tool for their „first strike" tactic of exploitation. In contrast, the strategic, manipulative Machiavellians as well as the emotionally unstable, hostile secondary psychopaths were found to avoid direct conflicts. These results support the theory that the various dark traits operate with different socially aversive strategies.

2.00 pm – 2.20 pm Csajbók Z, Havlíček J, Demetrovics Z, Berkics M
The convergent and discriminant validity of the Mate Value Scale

Objective: Mate value refers to how a person is appreciated as a potential partner on the mating 'market'. It can be assessed either along distinct factors or as a general evaluation without articulating its components. In this research, we examine and correlate general mate value as measured by a short scale, the MVS (Edlund & Sagarin, 2014) to distinguish it from related constructs and to test theoretically predicted demographic differences.

Methods: Study 1 tested the convergent and discriminant validity of MVS against loneliness, sociosexual orientation, self-esteem, and life satisfaction, with confirmatory factor analysis in a heterosexual sample (N = 1,131). Study 2 tested mate value across age, gender, sexual orientation, relationship status and level of education in a large on-line sample (N = 24,372).

Results: Data from Study 1 suggest that although mate value is highly correlated with self-esteem, loneliness and satisfaction, they are distinct factors. In Study 2, data suggest that mate value is the highest between age 18 and 35, it stagnates between 36 and 45 and falls over 46. Men have lower self-perceived mate value, as well as asexual and ambiguous participants. Single participants had the lowest mate value, while dating and engaged people had the highest, with married, divorced and widowed people in between. When controlled for age, singles still scored lowest, with no large differences among other groups. Education was positively related to mate value.

Conclusions: Mate value is a distinct factor of mating that is correlated with other related constructs.

2.20 pm – 2.40 pm Podlipniak P, Gorzelańczyk EJ, Walecki P, Karpiński M, Tarnowska E
Skin conductance changes in response to pitch syntax violations as the indication of biological importance of musical pitch

Reactions of the autonomic nervous system to pitch syntax violations are explained as a result of the general mechanism of prediction. The perception of surprising stimuli is accompanied by changes in physiologic markers of autonomic nervous system reactivity. From this perspective equally unexpected stimuli should cause comparable reactions. In order to check whether pitch syntax is based on the general mechanism of prediction the comparison of skin conductance levels reacting to specifically prepared melodies were recorded. In this study, 28 subjects (18 women, 10 men) listened to randomly ordered three types of 18 melodies i.e. 6 syntactically correct, 6 syntactically violated, and 6 syntactically correct but with one note played in a different timbre. Since the change of timbre in melody is at least as unexpected as an out-of-key note (syntactically incorrect) the reactions to timbral change should be greater. However, although changes in skin conductance levels were also observed in response to the change in timbre (the maximum amplitude: mean = 855.32 [nS]), the reactions to pitch syntax violations were significantly stronger (the maximum amplitude: mean = 1311.57 [nS]). We also observed that the

reactions to out-of-key notes were more frequent (68.75%) than to notes played in a different timbre (50.71%). These results suggest that, in certain conditions, information about the congruency of the listened pitch structure seems to be biologically more important than the cues of the sound source. This supports the claim that pitch structure is a part of the human-specific form of vocalization.

2.40 pm – 3.00 pm Polowczyk J, Ascher D, Wielicka-Regulska A, Vieira da Silva W, Souza A
The role of foreign language in the cognitive biases at risky decision-making

Objective: In a globalized world people face daily the inevitability of making risky decisions. In many cases, these decisions arise in a foreign language environment. This study aimed to investigate the influence of Foreign Language Effect (FLE) in decision-making behavior analyzing Brazilians' and Poles' choices in experiments.

Methods: The experimental approach on cognitive bias was made through three experimental procedures regarding: framing bias, mental accounting and loss aversion in risk aversion. The effects are evaluated by comparing results between control groups in the native language, vis-à-vis groups that did the experiments in English, as a foreign language. The data collection was done simultaneously in Brazil and Poland, totalizing a sample of 250 people, being 158 of Poland and 92 of Brazil.

Results: The results confirmed the FLE on loss aversion in risk aversion, which was also partially confirmed in mental accounting, but it was not possible to confirm FLE in the framing bias. Further studies have shown differences in one of the three experiments between countries in their native language, which raised up new questions about the role of foreign and native language in the bounded rationality proposed by Simon (1955), bringing a new assortment of studies that can improve the knowledge of issues which influence the risk decision-making of individuals.

Conclusions: The research confirms the previous studies that demonstrated FLE in small controlled groups in simple tasks. Next researches should be provided to verify the direct FLE impact in multilingual organizations and its effect on a firm's performance.

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Prof. Strzalko Award for an outstanding young scientist: Agnieszka Sorokowska
Announcement of the best Student's Presentation Award
Announcement of the best Student's Poster Award

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3.00 pm – 3.20 pm – Conference closing

3.20 pm – 5.30 pm – PTNCE General Assembly (Aula C, Conference Centre Faculty of Medicine)

Barańska I, Kowalika E, Galbarczyk A
Environmental risk factors of allergy in early life

Introduction: The incidence of allergic diseases is increasing. Epidemiological studies conducted in Poland show that 40% of people suffer from allergic symptoms and 10% of Poles suffer from asthma. However there is no accurate data on the incidence of allergic diseases in the world and information on the causes of their development. One of the theories that explain the occurrence of allergic diseases is the hygienic hypothesis. Aim. The aim of the study was to evaluate the association between allergy and selected factors associated with childhood conditions.

Material and methods: A retrospective cross-sectional study was performed. The questionnaire included question about incidence of allergy, childhood conditions and socio-demographic characteristics has been filled in by 179 people. The study was conducted online in 2015.

Results: The incidence of allergy in the sample was 29.6%. Compared to the sick, healthy people were characterized by more likely to grow up in a house with a garden (22.9% vs 40.0%, $\chi 2=5.96$, $p=0.01$). Multivariate analysis showed that people who had daily contact with other children (OR=0.47, 95%CI 0.23-0.97) and those who had a home with a garden (OR=0.32, 95%CI 0.13-0.80) had a lower chance of developing the disease.

Conclusions. A significantly lower chance of developing allergies were people who, in childhood, had daily contact with other children and lived in a house with a garden.

Bovet J, Barkat-Defradas M, Durand V, Faurie C, Raymond M
Women's attractiveness is linked to expected age at menopause

A great number of studies have shown that features linked to immediate fertility explain a large part of the variance in female attractiveness. For short-term relationships, men should prefer females of the age at which fertility peaks. However, for long-term relationships, a high residual fertility (the expected future reproductive output, linked to age at menopause) becomes relevant too. In that case, young age AND late menopause are expected to be preferred by men. Here, we show that expected age at menopause influences facial attractiveness of young women. As menopause is heritable, we used the mother's age at menopause as a proxy for her daughter expected age of menopause. We found that men judged faces of women with a later expected age at menopause as more attractive than those of women with an earlier expected age at menopause, even when controlling for age and other components of attractiveness.

da Silva Nascimento B, Little AC
Keeping your partner close: A cross-cultural study on mate retention strategies

Introduction: Mate retention strategies (MRS) prevent costs associated with a possible infidelity and, therefore preserve a long-term relationship. MRS range from positive inducements (e.g. expressing love and care towards the partner) to negative inducements (e.g. violence towards the partner or a potential rival). Previous studies have shown that variables such as self-esteem and the difference in attractiveness between partners influence such strategies. Although MRS are observed in different societies, cultural context may influence in their frequency.

Objectives: To addresses this issue, this study compared MRS between Brazil and the United Kingdom, testing if culture moderates the association between MRS and (1) self-esteem; (2) mate value; and (3) perceived facial attractiveness disparity between one and one's partner. Two hundred and thirty women (54.8% Brazilians) completed a self-report questionnaire evaluating these variables.

Results: Results demonstrated that Brazilians perform strategies of direct guarding, intersexual and intrasexual negative inducements to retain their partners more often than British women. Nationality also moderated the association between MRS and perceived facial attractiveness disparity, and mate value. Specifically, the association between facial attractiveness disparity and positive inducements was

positive among British women, but negative among Brazilians. A negative association between facial attractiveness disparity and intrasexual negative inducements was observed only among British women. A positive association between mate value and positive inducements was found only among British women.

Conclusions: These findings provide important insights on how MRS can vary cross-culturally and how culture can influence the association between these strategies and personal variables.

Dubrowski A, Żurawiecka M
Parental absence at age at menarche

Objectives: The aim of the study was to examine the relationships between girls' pubertal timing and parental absence in a sample of Polish female students.

Methods: The data were collected in a cross-sectional research carried out among 1308 female university students aged 19 to 25 years. A questionnaire was used to obtain information on the age at menarche, the socioeconomic status of the family and parental absence when the surveyed students were 7-14 years old.

Results: The majority (70.6% or 923) of the participants lived with both parents when aged 7- 14 y.; 22.5% (295) with their mother but no father; 3.5% (47) with their father and no mother; and 3.4% (44) with other relatives (e.g., grandparents). There was no significant relationship between the socioeconomic status and the fact that parents stayed for longer periods outside the place of residence of the child. The age at menarche was negatively correlated with the socioeconomic status. The results indicated that females from father-absent homes experienced menarche significantly earlier than females from father-present homes. The age at menarche in females from mother-absent home and both parents-absent homes was slightly higher than in females from both parents-present homes but the differences were not statistically significant. The socioeconomic status did not influence the relationships between father and/or mother absence and the age at menarche.

Conclusions: The results support the thesis that parental absence in childhood is associated with the pace of reproductive maturity in humans. Absence of fathers during middle childhood predicted an earlier age at menarche.

Dudojć O
Communion versus agency: willingness to interact with people of different behavioral dimention

People tend to describe others in terms that can be organized into two behavioral dimensions, e.g. agency (highly competent, dominant, ambitious), or communion (caring, trustworthy, warm). The aim of the study was to test if people are more willing to interact with highly communal but not agentic person, or highly agentic but not very communal one, and whether this preference is mediated by social situation and level of social anxiety.
Polish teenagers (N=164; 60 males, 104 females) read a short story about highly agentic but low communal, or highly communal but low agentic person. They rated their willingness to be this person's friend, classmate, schoolmate, school project co-worker, or participant in volunteering team. Fear of Negative Evaluation Scale was used as social anxiety measurement.
Ratings of willingness to interact were significantly correlated with described person's agentic or communal profile. When considering the person as a friend, classmate, schoolmate, or participant in volunteering team, people rated communal traits as more important than agentic ones. The only difference was observed when considering working together on school project. In such situation, people rated agency as more desired $(F(1,162)=3,95; p<0,05)$. In general, women were more socially anxious than men $(F(1,162)=7,83; p<0,05)$, but it did not moderate the willingness to interact.
The main assumption in present research was confirmed. Care, trustworthiness, and warmth in most social situations are more desirable than competence, domination, and ambitions. The findings confirm evolutionary psychology expectations – having a communal friend is more desired than having an agentic one.

Klein L, Goonatilleke E, Galbarczyk A, Kotlinska A, Lebrilla C, Jasienska G, Hinde K
Secretory IgA and Lactoferrin Concentrations Similar in Urban and Rural Polish Mothers' Milk

Objective: Mother's milk contains immune proteins that protect the infant during a vulnerable period while its own immune system develops. The concentrations of these proteins are thought to be shaped by the mother's lifetime immune exposures and to prepare her infant's developing immune system for the challenges it is likely to face in early life. Exposure to pathogens is generally positively associated with immune protein concentrations, but the specific environmental factors that contribute to this variation are still unclear. In this study, we examine how two key milk immune protein concentrations, Secretory IgA and lactoferrin, relate to specific environmental exposures in mothers living in southern Poland.

Methods: Milk samples were collected from mothers living in Krakow (n=18) and at the Mogielica Human Ecology Study Site (n=33). Immune protein concentrations were determined using triple-quadrupole/time-of-flight mass spectrometry. Guided oral interviews were used to collect data about mothers' current environments.

Results: Milk Secretory IgA and lactoferrin concentrations were similar among women living in urban, rural, and farming environments. Similarly, household size, household composition, and contact with domesticated animals were not associated with concentrations of either immune protein.

Conclusions: Despite differences in their local environments, all mothers in this study had relatively low pathogen burdens and access to modern medical care. Under these conditions, stable concentrations of Secretory IgA and lactoferrin may reflect their crucial role in providing immune protection to the infant. Funding support for this work was provided to LDK by the National Science Foundation (BCS-1455455) and the Wenner-Gren Foundation.

Klimek M, Galbarczyk A, Nenko I, Jasienska G
Is facial fluctuating asymmetry, a biomarker of developmental stability, related to risk of cardiovascular diseases?

Objectives: Low degree of fluctuating asymmetry (FA) is proposed as a signal of developmental stability and good genetic quality, thus individuals with low FA should be in better biological condition and have better health. Facial FA levels are reflecting mostly the conditions of the first trimester of pregnancy, when the cardiovascular system and digestive tracts are developing. Therefore, we analyse a potential relationship between levels of facial FA and risk factors of cardiovascular disease (i.e., hypertension and cholesterol levels).

Methods: The participants were 263 women aged 45-92 (mean=60.9; SD=10.94) and 81 men aged 47-87 (mean=64.9; SD=10.83) from rural population at the Mogielica Human Ecology Study Site in Southern Poland. Fasting blood sample was collected for cholesterol (total, LDL and HDL-cholesterol) levels analyses. Degree of facial FA was calculated from facial images, according to standard procedures. Age, body mass, smoking, diabetes, alcohol consumption and taking drugs lowering cholesterol were included as potential covariates in the analyses.

Results: Among women lower level of facial FA was associated with lower risk of hypertension [OR=0.87; 95% CI: 0.76-0.99], lower concentration of total cholesterol (R^2=0.12; p=0.04) and LDL-cholesterol (R^2=0.05; p=0.02). Facial FA was not related to levels of HDL-cholesterol (p=0.19). No statistically significant results were observed for men.

Conclusions: Our results suggest that among older women (but not men) higher degree of facial FA might be a visual biomarker of poorer health. This study adds to the growing body of evidence that early developmental conditions are important for later health.

Kościński K, Zalewska M
Compatibility of facial perception between frontal and profile view

Consistent with the hypothesis of redundant signals, it has been proven that attractiveness of various body parts or characteristics in humans is intercorrelated. Also, facial attractiveness in frontal and profile view have been shown to be interrelated, although it is not known whether the reason for this relationship is skin condition (seen in both views) or facial shape (even though different aspects of facial shape are seen in each view).

To address this issue, we took frontal and profile photographs of faces of 76 women and 75 men (aged between 18-27 years). Each photograph was digitally manipulated in two ways: (1) skin smoothing with facial shape being intact, (2) standardizing of facial shape with skin appearance being intact. We thus had 3 facial images from each photograph: Original, Smoothed, and Proportional. 28 people rated attractiveness for all faces, skin health for Proportional faces, and femininity/masculinity for Smoothed faces.

Coefficients of Pearson correlation between frontal and profile facial images were as follows: (1) attractiveness of Original faces: females 0.52*, males 0.64*, (2) attractiveness of Proportional faces: females 0.69*, males 0.78*, (3) attractiveness of Smoothed faces: females 0.20 (p=0.083), males 0.33 (p=0.004), (4) skin health of Proportional faces: females 0.77*, males 0.76*, (5) femininity/masculinity of Smoothed faces: females 0.23 (p=0.045), males 0.25 (p=0.028). (* indicates p-value<0.001).

The results suggest that although a strong correlation exists between frontal and profile facial attractiveness in both sexes, it is caused chiefly by skin condition, while perception of facial shape is weakly interrelated between both views.

Kuncová L, Tureček P, Taskovská K, Havlíček J, Štěrbová Z
Women do have their type! Repeatability of female mate choice in personality

It is well established that individuals choose partners on the basis of absolute (e.g. high Emotional Stability) and relative (e.g. self-similar Extraversion) preferences. However, it remains unknown, whether people consistently choose partners who resemble each other in personality characteristics. Therefore, the main objective of our study was to test the similarity in personality among women's long-term (ex)partners. The total sample consisted of 398 heterosexual women (range 18-45 years, mean 31 years, SD 5.8). By using Ten-Item Personality Inventory (TIPI) women reported about personality of all their long-term partners (N=1055, mean 2.6 partners). The TIPI is based on the Big Five personality model (Extraversion, Emotional Stability, Openness, Agreeableness, and Conscientiousness) and takes about a minute to complete. Random reassignment permutation test revealed consistent mate-choice across all five dimensions (all p<.001). Effect size for Extraversion was 9.61%, Emotional stability 8.06%, Openness 8.94%, Agreeableness 10.33%, and Conscientiousness 10.18%. The effect sizes indicate the proportion of variability explained by consistency of mate choice. Our results showed that women systematically choose partners who resemble each other in all Big Five personality traits. This pattern might arise as a consequence of several distinct mechanisms, for example, heritability of preferences, imprinting-like effect, homogamy etc. Simultaneously, these results suggest that personality plays an important role in mate choice since women systematically look for certain level of given characteristics in long-term partners.

Marcinkowska U, Jasienska G
Average cycle progesterone levels, rather than daily hormone levels and their fluctuations are related to facial masculinity preference

Hormones are of crucial importance for human behavior. Cyclical changes of sex hormones throughout women's menstrual cycle are suggested to underlie fluctuation in masculinity preference for both faces and bodies. In this study we tested this hypothesis based on daily measurements of estradiol and progesterone and multiple measurements of women's preference towards masculinity of faces and bodies of men. We found a negative relationship between average progesterone levels and facial masculinity preference, but only among women in long-term relation. This finding could be explained by the fact that women who have high progesterone levels (which may indicate pregnancy) pay attention

towards fathering and social abilities rather then good genes. There was no relationship between facial masculinity preference and neither of the estradiol measurements. For body masculinity preference there was a positive relationship between progesterone and preference measured during luteal phase, but only among single women with ovulatory cycles, and negative relationship between body masculinity preference and follicular estradiol level, also only among single women. Results of our study further suggest that overall cycle levels of sex hormones (namely progesterone) are better predictors of facial masculinity preference than daily fluctuations of hormones. Moreover, we did not find support for the hypothesis that peak of estradiol around ovulation increases women's preference towards masculinity.

Mijas M, Koziara K
Health and subcultural identities among MSM population. The case of Bear Culture

Objective: The paper is aimed at discussing the significance of subcultural identities distinguished among men who have sex with men for understanding health risks and health needs in this population. Men who have sex with men form extremely diverse population not only in terms of age, religion or ethnicity but also subcultural identities exemplified by the bear identity. Bears form a subculture positioned outside the mainstream gay community that values and eroticizes traditional notions of masculinity. This is reflected by a particular body look - heavier, less sculpted physique and more pronounced secondary sex characteristics such as facial hair and general body hirsuteness. Health needs and determinants only recently have gained research interest.

Methods: Qualitative literature review was conducted including articles indexed through Medline and PsycINFO databases. Literature search was performed using key words such as "bears or bear" and "health or health needs" and "MSM or men who have sex with men".

Results: Literature search yielded 10 original papers and 1 systematic review. Previous studies have shown greater prevalence of overweight and obesity among bears compared to other gay men. They also revealed that bears are characterized by lower self-esteem, are more sexually adventurous and therefore more exposed to HIV risk. Bears also report exposure to weight stigma and discrimination from both heterosexual majority and the gay minority.

Conclusions: Bears form unique group among MSM population in terms of health risks and public health needs. Implications for future research and heath promotion interventions for this population will be discussed.

Miłkowska K, Galbarczyk A, Klimek M, Nenko I, Jasienska G
Do symmetrical women menstruate earlier?

Objective: The degree of asymmetry is considered a reliable index of developmental conditions. Random differences from the perfect symmetry between the left and the right side are called fluctuating asymmetry (FA). The influences of genetic and environmental factors during fetal development may influence both FA and sexual maturation. The aim of this study is to analyze the relationship between FA and age at menarche.

Methods: 697 rural Polish women (mean age=47.7; SD=16.9) participated in the study. Participants were divided into two groups: symmetrical and non-symmetrical, based on a comparison of the length of the fourth fingers in both hands. Participants were also divided into groups according to the decade in which they were born. Factorial ANOVA was used to analyze the relationship between FA and age at menarche.

Results: Symmetrical women had an earlier age at menarche (mean=14,56; SD=0,076) than asymmetrical women (mean=14,79; SD=0,082). Furthermore, women who were born in earlier decades had their menarche later than women born in later decades.

Conclusions: We have shown that a simple measurement of symmetry in women is associated with age at menarche. Other studies have shown that symmetry in women is related to levels of estradiol or number of offspring. Our results, combined with existing literature, suggest that FA is a good indicator of quality of fetal life.

Nenko I, Galbarczyk A, Klimek M, Fernandez P, Jasienska G
Reproduction and cognitive function in men and post-reproductive women

Objective: It is predicted that more than 15 million people will be living with dementia by 2050 and higher prevalence is expected in low income countries. Therefore, it is important to detect as many risk factors for dementia as possible. Reproduction, due to its costs, may have negative impact on health, but its impact on mental health is not well understood.

Methods: Our study tests association between fertility (number of children, number of daughters and sons) and cognitive functioning assessed by Mini-clock test (consisting of Mini-Mental State Examination and clock-drawing test). We examined 408 women and 98 men over 45 years of age from Polish rural population with a high birth rate.

Results: Lifetime fertility was not related to cognitive function in women. In men, however, those with higher number of children, or daughters and sons performed better in Mini-clock test. Age and years of education were included as covariates in all analysis.

Conclusions: Reproductive investment is not related to cognitive functioning in post-reproductive age women, but reduces a risk of dementia in men. It is likely that support provided by children, especially in older age, counteracts costs of reproduction in women and that having children has positive impact on men.

Nowak T
Can number of siblings influence human health? Case of quantity-quality trade-off

Objective: Quantity-quality trade-offs influence children survival and their reproductive success – especially in pre-demographic transition settings. Aim of this study was to investigate if quantity-quality trade-offs influence offspring health in later life.

Methods: Analyses were based on data collected from Mogielica Human Ecology Study Site – cross-sectional study in southern rural Poland. Information about number of siblings and health status was collected from 1474 women and men, between 21 and 92 years old. Number of siblings was divided into two groups based on median value (0-3 and 4 and more siblings). Analyses were controlled to age and/or BMI.

Results: People with 4+ siblings had higher odds of hypertension (non-smokers: age and BMI control OR 1,34, 95%CI 1.00-1.81, p=0,053), high level of cholesterol (OR 1.31, 95%CI 1.00-1.70, p=0.05) and percentage of body fat (mean [SD] 0-3: 32% [9.5]; 4+: 35% [8.5] p=0.02 – for 65-74y cohort). Risk factors for other diseases (e.g. BMI, smoking and alcohol drinking) and incidence of diseases such as myocardial infarction, diabetes mellitus, cardio-vascular disease neoplasms) did not differ between groups.

Conclusions: Number of siblings can be an early predictor of human health in later life.

Walter A
Evolutionary origins of selected aspects of human sexuality - perspectives for evolutionary therapy

Human sexuality is a complex and fruitful area of evolutionary-oriented research. It appears that some of human sexuality characteristics evolved under little known evolutionary pressures that we only began to investigate. Moreover, phenomena that are currently viewed as dysfunctions - like premature ejaculation or female anorgasmia - might have been adaptive in the past. The female orgasm does not bear any scientifically proven distinct function nor influence on fertility. It is not commonly experienced during vaginal intercourse without additional stimulation either. There are several hypotheses on its evolutionary emergence: it may allow greater sperm retention; prove to a man that his partner is satisfied and faithful (female fidelity hypothesis); or encourage women to be sexually active and attain greater reproductive success (hedonism hypothesis). It also tests the ability of sexually satisfying the woman as

a proof of man's good quality (pair-bond hypothesis). Finally, it may be a by-product of genital development shared with men or a homologue of endocrine surge that induced ovulation in distant ancestors. Premature ejaculation, currently undesirable and considered a dysfunction, might have emerged as an adaptation. It is suggested that short-timed intercourse has been favored by evolution. It might reduce the risk of being interrupted due to surrounding threats. In conclusion, in the light of evolutionary psychology, neither lack of orgasm in women nor premature ejaculation in men are physiological dysfunctions. Applying evolutionary approach in sexuological therapy might increase patients' well-being and help them more effectively in the future.

Węzik M
Why do we get addicited – evolutionary role of reward system

People experimenting with addictive substances for centuries. Psychoactive plants were consumed 10,000 years ago if nor earlier. It is commonly known that consumption of such substances can easily lead to addiction, which constitutes a large social problem. Why would natural selection favor a mechanism that is detrimental to human body? Why don't we avoid the consumption of such substances, but contrary, we are lured by it? It seems to be a great paradox which is caused by a common neurotrasmitter, dopamine. The process of getting addicted starts in the reward system - small mesolimbic system that accounts for the feeling of joy. It provokes appetitive drives. Their function is to make us associate a stimulus with pleasure and repeat the actions connected with it. The reward system played an important part in evolutionary past. It encouraged humans to engage in activities important for survival, e.g. searching for food or sexual intercourse. The more pleasure we experienced during those activities, the more likely we were to get involved in them and to survive. Addictive substances disturb the regular functioning of the reward system by creating a sensation of excessively strong pleasure. In consequence, they cause insensitivity to standard, everyday stimuli. The reward system acts analogically to a parasite. It is necessary for survival and the stronger it is, the greater the chance to gain resources like food. In consequence, it had been favored by evolution, which has lead to negative consequences in the present society, i.e. addictions.

Żurawiecka M
Is Digit Ratio correlated with adult body size and shape in young women?

Digit ratio which is the proportion of the index finger to ring finger is determined in utero by the action of sex hormones. Because its value does not change during development, it is used in numerous studies as a marker of effects of hormones in the fetal period. The 2D:4D digit ratio is sexually dimorphic and correlated with other sex-linked phenotype and behaviors traits. The aim of the study was to examine correlation between digit ratio andbody size and shape in young women. A cross-sectional research was conducted among 730 Polish female university students, aged 19 to 25. Anthropometric measurements and the questionnaire was used. The following measurements were taken: body height and mass, waist and hip circumference, the length of index and ring finger. Women were divided into three groups based on hand-specific tertiles of 2D:4D. No statistically significant difference were detected between stature, BMI and digit ratio. In women with longer finger 4 than 2,in either left or right hand, the highest waist circumference, WHtR and WHR, were observed. The higher values of these anthropometric parameters in women with low digit ratios were also apparent after dividing the material into groups with uniform socio-economic status. Additionally, "male" digit ratios were associated with a higher incidence of abdominal obesity determined by the waist circumference as well as WHR, WHtR and WHR criteria, however in the case of WHR, differences were not statistically significant. The results suggest that low values of digit ratio in women are associated with android type of obesity.