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Conference Theme: Visualizing and Interacting with the Human Body in the 21st Century

Sub-Theme: Navigating Cutting-Edge Anatomical Methods and Ethical Considerations

ABSTRACTS PRESENTED AT THE CONFERENCE

ASNK-S 001-NA: Symposium Title: Anatomical Characterization of the Brain of Under-explored Giant African Rodents

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Background: The brain in mammals is critically involved in controlling and coordinating various bodily functions. Mammalian species, including rodents, present unique anatomical and physiological characteristics that make them thrive in their natural habitat. Unique neuroanatomical characteristics are indicators of potential research models that could aid in elucidating phenomena that are not well established in neuroscience and related fields. Recently, under-explored giant African rodent species including the African grasscutter (AGC) and African giant rat (AGR), have been observed to display unique behavioral adaptations with specialized senses and movement patterns enabling them to survive in challenging environments. These adaptations could be associated with well-developed neuroanatomical features in these species. **Focus**: This talk intended to share recent research findings on the neuromorphological characteristics of the AGC and AGR, emphasizing their relevance as a potential tool in neuroscience investigations. **Hamisu Sule** spoke on morphological characteristics of the olfactory pathway components in the African grasscutter (*Thryonomys swinderianus*). **Zainab Yusha'u** discussed on histomorphological characteristics of the cerebrum and ventricles of African grasscutter (*Thryonomys swinderianus*). **Hamza S. Magaji** focused his talk on comparative histomorphology of thalamus and hypothalamus in the African giant rat (*Cricetomys gambianus*) and the African grasscutter. **Aisha N. Ahmad** talked on comparative characteristics of the midbrain grey matter of adult and juvenile African grasscutter. **Abel N. Agbon** based his talk on morphological characteristics of the brain stem (pons and medulla) in African grasscutter across age groups, and sexual dimorphism in the of visual pathway structures of African giant rats.

***Keywords*:** African giant rat, African grasscutter, Neuromorphology

ASNK 045-AR: "Unique Marks": Exploring Fingerprint Patterns among Hausa Type 2 Diabetic Clients in Kano.

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Background: Fingerprints are unique patterns made by friction ridges and furrows which appear on the pads of the fingers and thumbs. Several studies have confirmed relationship between fingerprints and some diseases, such as schizophrenia, Down's syndrome and type II diabetes mellitus (T2DM). This study was to determine fingerprint profiles of T2DM clients of the Hausa ethnic group attending Murtala Muhammed Specialist Hospital, Kano. The specific variations may be used as a valuable diagnostic tool for early detection of type II diabetes mellitus. **Methods:** A cross-sectional study was conducted on 100 systematically recruited diabetic clients, and their fingerprints were taken by the fingerprint scanner method. Data analysis included descriptive statistics and chi-square tests with $p \leq 0.05$. **Results**: The highest frequency of the fingerprint patterns was ulnar loops in all the digits. Significant association between T2DM and fingerprint patterns in the ring digits of both hands, and sexual dimorphism in the right thumb. **Conclusion**: Fingerprint ridge thickness and ridge density may hold potential promise as a mass screening and supplementary tool in the provision of a cheap, safe, accurate and non-invasive way of predicting T2DM.

Keywords: facial anthropometry; sexual dimorphism; pediatric prosthodontics; orthodontics

ASNK 006-AE: Awareness and Attitude of Nursing Students Towards Bridging Nursing Anatomy Education and Virtual Dissection Tools; A Study of The Perspectives of Nursing Students at the College of Nursing Sciences, National Orthopedic Hospital, Igbobi, Lagos Nigeria

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Background: Anatomy is a foundational pillar of Nursing education. However, in many Nigerian Nursing institutions, Anatomy instruction remains reliant on the classroom, with limited access to cadaveric dissection or technological alternatives. Virtual dissection tools (VDTs) offer an innovative, interactive, and ethical approach to Anatomy education, yet their adoption in Nigerian Nursing programs is minimal. This study aimed to assess the awareness, attitudes, and perceived challenges of Nursing students toward virtual dissection tools at the College of Nursing Sciences, National Orthopedic Hospital, Igbobi Lagos. **Methods:** A descriptive cross-sectional survey was conducted among 84 Nursing students selected via simple random sampling. Data were collected using a structured questionnaire. Descriptive statistics, t-tests, and correlation analyses were employed to analyze the data. **Results:** Awareness of virtual dissection tools was low, with only 27.4% of students indicating familiarity. Awareness was significantly higher among Year Two students, with a mean awareness score of 1.93 (SD = 0.74). Despite limited exposure, students exhibited moderately positive attitudes toward VDTs. Most students had access to smartphones (64.3%) and consistent internet (59.5%), but 73.8% had never had formal exposure to VDTs. Students recognized the benefits of VDTs. However, challenges such as poor internet connectivity, cost, and lack of training were barriers. **Conclusion:** Although awareness of virtual dissection tools among Nursing students was low, their attitudes were generally positive, with strong support for integrating VDTs into Anatomy education. Targeted interventions, including awareness campaigns, are recommended to facilitate its adoption, and align Nursing Anatomy education in Nigeria with global standards.

Keywords: Anatomy education, Nursing, Virtual Dissection Tools

ASNK 023-AR: Optimizing the Effect of Gestational Hypertension on Sex-Specific Neonatal Anthropometric Characteristics and Apgar score

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Background: The study aimed to investigate the effect of gestational hypertension on neonatal anthropometric characteristics and Apgar scores, with particular consideration of sex differences among neonates. **Methods**: Maternal and neonatal anthropometric characteristics were obtained using direct standard anthropometric protocol. Diagnosis of gestational hypertension was established based on standard clinical criteria, while socio-demographic data were collected structured questionnaire. Clinicians recorded the mode of delivery and Apgar scores of the newborns at birth. Chi-square tests, ANOVA, correlation, and stepwise-forward regression analyses were performed at a significance level of $p<0.05$. **Results**: Residence areas and educational status show significant associations with gestational hypertension. Maternal age, WHR, percentage body fat and Apgar score differ between the two groups ($\eta^2 = 0.004 – 0.049$*). Gestational hypertension correlated with maternal weight, height, BMI, WHR, % body fat and Apgar score of the newborn (r= -0.430 – 0.467). A final regression model predicted gestational hypertension based on Apgar score (adjusted R^2= 0.035, p = 0.077). **Conclusion**: The study contributes to understanding the role of gestational hypertension in influencing the Apgar score of newborns, emphasizing the importance of maternal blood pressure regulation for favorable on neonatal outcomes. Understanding the effect of gestational hypertension on neonatal features has implications for the close monitoring and early intervention in the treatment and management of maternal blood pressure during pregnancy.

Keywords: gestational hypertension, maternal BMI, WHR, educational status, Apgar score

ASNK 009-AR: Sexual Dimorphism in the Corpus Callosum; Methodological Considerations in MRI Morphometry of Adult Nigerians

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Background: This study aimed to analyze changes in the size of the corpus callosum (CC) in relation to sexual dimorphism and to establish reference data for Nigerians, which are necessary for clinical and research applications. **Methods:** A total of 200 mid-sagittal T1-weighted MRI images of neurologically healthy Nigerian adults (Female = 102, Male = 98) were evaluated using 1.5T MRI scanners. Corpus callosum morphometric parameters measured included CC length, height, area, and subregional widths (genu, body, splenium, isthmus). Sex-stratified means ± SD were computed, and independent *t*-tests were performed to compare male and female parameters. **Results: CC length was the only parameter showing a statistically significant sex difference** ($t(198) = 2.83$, $p = 0.0051$). Males had a longer CC (77.29 ± 4.21 mm) compared to females (75.35 ± 4.12 mm). CC height (M: 25.23 ± 3.11 mm; F: 24.45 ± 2.98 mm), CC area (M: 7921.97 ± 650.24 mm²; F: 7610.77 ± 630.45 mm²), and subregional widths (genu, body, splenium, isthmus) were not significantly different between sexes (all $p > 0.05$). These results indicate that sexual dimorphism in this population is primarily expressed in CC length rather than thickness or cross-sectional area. **Conclusion:** This study provides Nigerian-specific CC normative values and confirms that sexual dimorphism is largely confined to callosal length. The normative data will aid in clinical interpretation of neuroimaging and provide a baseline for future research on neurodegenerative, developmental, and psychiatric conditions in Nigerian populations.

***Keywords*:** Corpus callosum, sexual dimorphism, MRI, morphometry

ASNK 014-HR Sesame Oil enchances Motor Coordination and Decrease Zinc Levels in Male Adult Wistar Rats

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Background: Mercury ranks as the third most hazardous heavy metal, posing severe health threats due to its toxic biochemical and pathological effects. Sesame oil, known for its antioxidant and anti-inflammatory properties, has been investigated for potential neuroprotective benefits. This study aimed to assess the protective effect of sesame oil on mercury chloride-induced neurotoxicity in adult male Wistar rats. **Methods:** Twenty-five Wistar rats were randomly assigned into five groups (n=5). Group I served as control and received 2 ml/kg distilled water. Group II-V were administered 5 mg/kg of mercury chloride ($Hgcl^2$) daily for 14 days. In addition, Group III received 1190mg/kg of ascorbic acid (vitamin c), Group IV was treated with 750 mg/kg sesame oil and Group v received 1000mg/kg sesame oil. Motor coordination was evaluated using the beam-walking test. On day 15, rats were euthanized; Brain tissues and serum were collected for biomarker and zinc level assessments. **Results:** Rats exposed to $HgCl_2$ showed a significant ($p<0.05$) decline in spontaneous alternation compared to controls. however, groups treated with sesame oil (750mg/kg and 1000mg/kg) showed improved performance. Zinc levels significantly increased ($p<0.05$) in the Hgcl2-only group, while the treated groups exhibited a notable decrease ($p<0.01$). **Conclusion:** Sesame oil improved motor coordination and reduced elevated zinc levels linked to mercury-induced neurotoxicity.

Keywords: Sesame Oil, Mercury Chloride, Neurotoxicity, Neuroprotective

ASNK 008-AE: Student Perceptions of Transition from Microscope to Projector-Based Histology Practical: A Study at Federal University Birnin Kebbi

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Background: Traditional histology practical using microscopes continuously posed challenges to effective student learning. Some anatomy programs have adopted projector-based microscopy for histology practical teaching especially in larger classes. This study evaluated the student perceptions following a transition from traditional microscope use to projector-based, instructor-led projection of histological images. **Method**: A self-administered questionnaire was shared online via google forms to a cross-section of 58 undergraduate learners to assess demographics, prior microscope experience, satisfaction, visual clarity, effectiveness for interpretation, engagement, participation, concentration, technical difficulties, preparedness for assessment, and future method preference. **Results:** Most respondents had prior microscope experience (84.5%). Overall satisfaction with the projector setup was high: 60.3% reported being satisfied or very satisfied. A strong majority (86.2%) judged the projector clarity as better or much better than traditional microscopy. Sixty-six percent rated the projector effective or very effective for identifying histological features; 67.2% reported increased engagement during sessions, and 63.8% agreed that projector use improved group discussions and interactive learning. Improvements in concentration were reported by 60.3% of respondents. Despite acceptance of the projector-based practical, 15.5% judged the method ineffective and a small proportion reported technical challenges and concerns about exam preparedness. **Conclusion**: Projector-based histology teaching was well received by the majority of students at our institution by improving clarity, engagement, and group participation. However, a notable minority prefers traditional microscopy or reported challenges. Therefore, we recommend a blended approach – targeted hands-on microscope sessions and projector-based teaching for group demonstrations– and continued attention to technical quality.

Keywords: Histology, Microscopes, Projector, Anatomy Education, Anatomy Pedagogy

ASNK 004-AE: Our Experience at Tissue Processing for Histology Slides Production at the Anatomy Department of The College of Medicine, Veritas University, Abuja

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Background: The need for promotion of knowledge and skills for tissue processing procedures among instructors, technologists and students led to introduction of in-house production of Histology slides at the department. We aimed to document the variety and quality of Histology slides producible using standard histology slide production technique within our histology lab at the university. Also to document possible limitations encountered during the procedure, as well as report observed cost benefits of this undertaking in-house, with capacity building among instructors, technologists and students. **Methods:** Organ and tissue specimen obtained from Wistar rats underwent fixation, dehydration, clearing, infiltration, embedding, microtomy, staining and mounting for histology slide production. **Results:** Quality histology slides of the pancreas, liver, spinal cord, heart, kidney, tongue, testis, lungs, eye, intestines, brain, stomach, urinary bladder, skin, skeletal muscle and ovary were produced. Average cost of in-house histology slide production was #1200 per slide compared to #3500 per slide at commercial rate. Limitations arose from irregularity of power supply. **Conclusion:** Relevant reagents and equipment for histology slides production are readily available. Limitations to histology slide production are surmountable. Procedures undertaken in-house are cost effective when compared to purchases at commercial rates.

***Keywords*:** Tissue Processing, Histology, Wistar Rats

ASNK 002-NA: Neuroprotective Effect of Methanol Leaf Extract of *Carica Papaya* on The Histomorphology of Cerebellar Cortex of Wistar Rats Exposed To Mercury Chloride Toxicity

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Background: Mercury chloride ($HgCl_2$) is a well-known neurotoxicant that disrupts motor coordination and cerebellar histoarchitecture. The pawpaw (*Carica papaya*) plant, widely used in ethnomedicine, contains bioactive compounds with antioxidant and neuroprotective potential. This study evaluated the neuroprotective effect of methanol leaf extract of *Carica papaya* (MLCP) on mercury chloride–induced cerebellar toxicity in Wistar rats. **Methods:** Twenty-four female Wistar rats (120–163 g) were divided into six groups (n=4): control (distilled water), $HgCl_2$ only (8 mg/kg), vitamin C + $HgCl_2$ (100 mg/kg), and three preventive groups (MLCP at 200, 400, and 600 mg/kg + $HgCl_2$). Treatments were administered orally for three consecutive days. Acute toxicity (LD_{50}) of MLCP was determined at 5000 mg/kg. Phytochemical screening, behavioral and physical assessments, body weight monitoring, and histological examination of the cerebellar cortex were performed. Data were analyzed using Student's t-test ($p \leq 0.05$). **Results:** Phytochemical analysis revealed flavonoids, saponins, tannins, cardiac glycosides, alkaloids, and phenols. No mortality occurred at LD_{50}. Rats exposed to $HgCl_2$ showed reduced activity, sluggishness, weight loss, and distorted cerebellar architecture with Purkinje cell degeneration. Preventive treatment with MLCP, particularly at higher doses (400–600 mg/kg), improved physical activity, mitigated weight loss, and preserved cerebellar histoarchitecture, comparable to the vitamin C group. **Conclusion:** Methanol leaf extract of *Carica papaya* demonstrated significant neuroprotective effects against mercury chloride–induced cerebellar damage in rats, likely mediated by antioxidant phytochemicals. MLCP shows promise as a potential adjunct in managing heavy metal–related neurotoxicity.

***Keywords*:** *Carica papaya*, mercury chloride, neuroprotection, cerebellar cortex, Wistar rats

ASNK 002-HR: Ameliorative Role Of L-Citrulline Supplementation on Sexual Behaviour in Paroxetine - Induced Male Wistar Rats

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Background: Male sexual health are critical aspects of overall well-being and closely linked to the proper functioning of the male reproductive system. Selective Serotonin Receptors Inhibitors (paroxetine) effective in treating psychological disorder has been linked with sexual dysfunction causing poor treatment adherence. L- Citrulline a precursor of L-arginine is a non-essential amino acid present in watermelon. It increases L-arginine level hence increasing nitric oxide synthesis and bioavailability, thereby improving erectile function. To investigate the ameliorative role of oral L-Citrulline supplementation on sexual behavior and organ weight of paroxetine- induced reproductive dysfunction. **Methods**: Forty-eight male Wistar rats weighing 160±20 g, randomly grouped into six and treated for 56 days; A. Control; B. paroxetine 10 mg/kg/bwt; C. L-Citrulline 300 mg/kg/bwt; D. 600mg/kg/bwt; E&F combining group B with C&D. Assessed for mount, intromission, ejaculatory latency and frequency on days 14, 28, 42 and 56. Excision and organ weight assessment was done after sacrifice. **Results**: Paroxetine increased mount and intromission latency but reduced their frequencies as against control. Amelioration in a time-dependent manner by the L-Citrulline; improvements noticed from Day 14, more pronounced by day 42. However, organs weight showed no significant difference. **Conclusion**: L-Citrulline ameliorate and restore male sexual behavior

Keywords: L-Citrulline, sexual behavior

ASNK 009-AE: Histomorphological and Biochemical Effects of Monk Fruit Sweetener on the Liver of Adult Male Wistar Rats

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Background: Monk fruit sweetener (MFS) is a plant based non-nutritive sweetener (NNS), use of which is increasing because of their higher sweetening capacity than sugar and low calorie content. Sugar substitutes have emerged due to increased awareness of the link between sugar intake and metabolic disorders; however, studies show they affect metabolism, insulin resistance, as well as overall liver health. The study aims to determine the effect of MFS on the histormorphology and selected biochemical indices of the liver of adult male Wistar rats. **Methods:** Twenty (20) adults male Wistar rats were grouped into four (4) groups. Group A being control, group B, C and Das treatment groups and received orally 100, 150 and 200 mg/kg body weight of MFS respectively, daily for 4 weeks. Weights of animal, serum AST, ALT and MDA measured were analyzed using one way analysis of variance. **Results:** Data analysis showed that weight change in groups administered with MFS were significantly lower than the control group $p = 0.049$. Significant increases in ALT ($p = 0.001$) and MDA ($p = 0.002$) levels were also observed in treated groups, indicating liver damage and oxidative stress. Histological examination of H&E stained liver sections showed striking levels of hepatic damage in the groups that received MFS (necrosis, vacuolation, congestion of the central veins). **Conclusion:** The study shows that the oral administration of MFS affects the morphology, histology and biochemistry of the liver of adult Wistar rats. The study recommends cautious use of MFS and other alternative sweeteners.

***Keywords*:** Sweeteners, Hepatotoxicity, Oxidative Stress

ASNK 014-NA: Immunohistochemical studies of n-butanol fraction of *Phoenix dactylifera* L. against lead acetate exposure on the hippocampus of adult Wistar rats

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Background: Continuous exposure to lead (Pb) persistently compromises hippocampal integrity, underpinning cognitive deficits. The *n*-butanol fraction of *Phoenix dactylifera* L. (*n*-BFPD) has demonstrated antioxidant and neuroprotective potential in prior *in vitro* studies. This study immunohistochemically assessed the ameliorative effect of *n*-BFPD on lead acetate (PbA)-induced hippocampal neurodegenerative changes in Wistar rats. **Methods**: Forty-two rats (110-180 g) were randomized into seven groups of six rats (*n*= 6). Group I (control) was administered distilled water (2ml/kg); Group II was administered PbA (120 mg/kg0; Group III was administered PbA (120 mg/kg), allowed for natural recovery; Groups IV, V, and VI were administered PbA (120 mg/kg) followed with *n*-BFPD (500 mg/kg, 750 mg/kg and 1000 mg/kg, respectively), while group VII followed with Vitamin C (100 mg/kg). Two experimental phases were employed for this study: Toxicity and Treatment-phases, each phase lasted 14 days. Toxicity phase: all rats received PbA, except the control, with group II sacrificed on day 15, while group III allowed to naturally recover. At the treatment-phase, *n*-BFPD and vitamin C (standard-drug) were administered. At the end (28 days), brains were harvested, perfusion-fixed and processed for immunohistochemistry to express glial reactivity using astrocytic glial fibrillary acidic protein (GFAP), microglial ionized calcium-binding adaptor molecule-1 (Iba1). **Results**: PbA exposure elicited elevated immunoreactivity of GFAP and in Iba-1, indicating gliosis associated to hippocampal neurodegeneration. Treatment with *n*-BFPD markedly attenuated hippocampal glial reactivity indicating neuropreservation. **Conclusion**: Immunohistochemical evidence demonstrates that the *n*-BFPD ameliorative properties following PbA-evoked hippocampal neurodegenerative changes. Finding supports the therapeutic potentials of *n*-BFPD as a neurotherapeutic botanical against heavy-metal neurotoxicity.

Keywords: CA1, CA3, GFAP, IBA1, Morris Water Maze

ASNK 028-AR: Prediction of Stature from Cephalometric Measurements Among Jarawa (Jhar) Adult Population of Nigeria

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Background: Stature is the height of an individual when standing in an upright position. It is an important anthropometric parameter. Several studies have been carried out to estimate stature from various body measurements across ethnic populations. In this study, an attempt is made to correlate and predict stature from head measurements (cephalometry) of adult Jarawa (Jhar) ethnic population resident in Bauchi State of North East Nigeria. **Methods:** A total of 1100 individuals (comprising of 650 males and 450 females) of Jarawa ethnic nationality resident in Bauchi state volunteered for the study. Stature (S), Head circumference (HC), Head length (HL), and Head breadth (HB) were measured using standard anthropometric instruments and the data analyzed using statistical package for social sciences (SPSS) version 23. **Results:** The results show positive correlation (P less than 0.05) between height and the various head measurements with combined sex regression equations for prediction of Stature (in cm) from head circumference, head length, and head breadth as Stature= 39.42 + 2.26 x HC (r = 0.51 and p=0.001), Stature =119 + 2.33 x HL (r = 0.18 and p=0.001), Stature = 130 + 2.23 x HB (r = 0.09 and p = 0.17), respectively. **Conclusion:** This is a baseline study on adult Jarawa (Jhar) ethnic population of Nigeria. The regression equations obtained could be used in forensic human identification.

Keywords: Stature, Head circumference, Head length, Head breadth, Jarawa

ASNK 003-AE: Advancing Anatomical Visualization: Cutting-Edge Methods and Ethical Imperatives in the 21st Century

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Background: The 21st century has witnessed a paradigm shift in anatomical visualization, driven by innovations such as 3D imaging, virtual reality (VR), augmented reality (AR), 3D printing, and haptic-enabled digital dissection platforms, biomolecular data visualization, and artistic and cross disciplinary approaches. These technologies have reshaped how the human body is visualized, taught, and understood and have ultimately transformed medical education, surgical planning, and patient care by enabling precise, interactive, and scalable representations of the human body, thereby addressing the limitations of traditional methods like cadaveric dissection. However, their integration raises pressing ethical questions such as data privacy, equity, consent, historical accountability, respectful treatment of human remains and the potential phasing out of empathy in medical practice. **Methods**: We synthesized recent literatures (2000−2025) drawing from peer-reviewed journals, global case studies, and interdisciplinary frameworks. We critically examined the integration of VR/AR platforms, AI-driven imaging, and artistic approaches in anatomy education, while also analyzing ethical guidelines and historical context to evaluate current advancements in anatomical methods and their applications. **Results**: Digital technologies such as VR, AR, and AI have transformed anatomical education by boosting engagement, spatial comprehension, and clinical relevance. These tools enhance retention and broaden access, especially in underserved regions. Yet, ethical challenges remain, including consent for digital replication, data privacy, inequity and historical injustices etc. **Conclusion**: We recommend further research and a balanced framework that integrates technological progress with ethical imperative, ensuring that anatomy remains both scientifically rigorous and morally grounded in an era of rapid revolution.

***Keywords*:** Medical education, Ethics, Anatomical visualization, Digital innovations, Dehumanization

ASNK 003-AE: Dermatoglyphic Patterns in Fibroadenoma in Breast Clinic of Murtala Muhammad Specialist Hospital, Kano

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Background: Fibroadenoma is the most common benign breast tumor in women, particularly those aged 14-35, and it increases the risk of breast cancer. Dermatoglyphics—the patterns of epidermal ridges on the fingertips—are genetically determined early in embryonic life and serve as a useful, non-invasive tool for screening for ailments with a potential hereditary cause. This study aims to investigate the association between dermatoglyphic patterns and fibroadenoma in women in Kano, Nigeria, and evaluate their utility as a potential non-invasive screening tool. **Methods**: A cross-sectional study was conducted, comparing women diagnosed with fibroadenoma (cases, n=100) to normal healthy women (controls, n=100). Digital fingerprint data was collected, and patterns (loops, whorls, arches) were classified. The Chi-square test was used for statistical analysis to identify correlations. **Results**: Overall, the loop pattern was significantly higher (592 vs. 448) and the whorl pattern significantly lower (258 vs. 364) in cases compared to controls ($p<0.001$). Specifically, the loop pattern was significantly increased in the right hand's Digit I and the left hand's Digits III, IV, and V in fibroadenoma cases ($p<0.05$ for all). Risk assessment showed the highest frequency of fibroadenoma in the 18-24 age group (62 out of 100 cases). **Conclusion**: This study demonstrates a highly significant association between fibroadenoma and a distinct dermatoglyphic pattern, characterized by an increased prevalence of the loop pattern, and a decrease in the whorl pattern. These findings suggest that specific fingerprint variations may serve as early, non-invasive biomarkers for identifying predispositions to fibroadenoma in the Kano population.

Keywords: Fibroadenoma, Fingerprints, Dermatoglyphics, Loop pattern

ASNK 053-HR: POSTER: Weight Modulation Effects of Cannabidiol on Sleep-Deprived Adult Male Wistar Rats

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Background: Sleep deprivation (SD) disrupts metabolic regulation, increasing the risk of weight gain and obesity. Cannabidiol (CBD), a non-psychoactive constituent of *Cannabis sativa*, has been proposed to possess neuroprotective and metabolic modulatory effects. This study evaluated the impact of CBD administration on body weight changes in sleep-deprived adult male Wistar rats. **Methods:** Twenty-four rats were randomly assigned into four groups (n=6): Group I (positive control; Tween 80 without SD), Group II (negative control; SD + Tween 80), Group III (SD + 10 mg/kg CBD), and Group IV (SD + 20 mg/kg CBD). Absolute and weekly body weights were recorded, and statistical analysis was conducted using two-way repeated measures ANOVA. **Results:** All groups showed an increase in body weight from baseline to the end of the experiment. A significant weight gain ($p<0.05$) was observed in the positive control group. However, no statistically significant intergroup differences were detected when weights were compared weekly across groups. **Conclusion:** CBD administration at 10 mg/kg and 20 mg/kg did not significantly influence body weight changes in sleep-deprived rats. The findings suggest that under the experimental conditions, CBD has limited modulatory effects on weight gain associated with sleep deprivation. Further studies incorporating larger cohorts, varied dosing, and metabolic biomarkers are recommended.

Keywords: Body weight changes, Cannabidiol, Metabolic regulations, Sleep deprivation

ASNK 003-AE: Advancing Anatomical Visualization: Cutting-Edge Methods and Ethical Imperatives in the 21st Century

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Background: The 21st century has witnessed a paradigm shift in anatomical visualization, driven by innovations such as 3D imaging, virtual reality (VR), augmented reality (AR), 3D printing, and haptic-enabled digital dissection platforms, biomolecular data visualization, and artistic and cross disciplinary approaches. These technologies have reshaped how the human body is visualized, taught, and understood and have ultimately transformed medical education, surgical planning, and patient care by enabling precise, interactive, and scalable representations of the human body, thereby addressing the limitations of traditional methods like cadaveric dissection. However, their integration raises pressing ethical questions such as data privacy, equity, consent, historical accountability, respectful treatment of human remains and the potential phasing out of empathy in medical practice. **Methods**: We synthesized recent literatures (2000−2025) drawing from peer-reviewed journals, global case studies, and interdisciplinary frameworks. We critically examined the integration of VR/AR platforms, AI-driven imaging, and artistic approaches in anatomy education, while also analyzing ethical guidelines and historical context to evaluate current advancements in anatomical methods and their applications. **Results**: Digital technologies such as VR, AR, and AI have transformed anatomical education by boosting engagement, spatial comprehension, and clinical relevance. These tools enhance retention and broaden access, especially in underserved regions. Yet, ethical challenges remain, including consent for digital replication, data privacy, inequity and historical injustices etc. **Conclusion**: We recommend further research and a balanced framework that integrates technological progress with ethical imperative, ensuring that anatomy remains both scientifically rigorous and morally grounded in an era of rapid revolution.

***Keywords*:** Medical education, Ethics, Anatomical visualization, Digital innovations, Dehumanization

ASNK 025-AR: Sexual Dimorphism, Age Estimation and Ethnic prediction Using Fingerprint White Lines in Fulani and Higgi Tribes of Michika, Nigeria

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Background: Human identification and authentication are key processes in biometrics and forensic sciences particularly in the era of smart technology. Fingerprint is crucial in this regard. This study aimed to determine sexual dimorphism, age estimation and ethnic prediction using fingerprint white lines in Fulani and Higgi tribes of Michika, Nigeria. **Methods:** 511 participants of 5 to 19 years were recruited. These constituted both Fulani and Higgi male and female. Fingerprints of all ten digits were captured using live scanner device and white line counts were determined. Data were expressed in mean ± SD, frequency and percentages. Sexual dimorphism and ethnic differences were determined using independent sample t test. Age–developmental stage differences were analysed using one-way ANOVA. Binary logistic regression analysis was used to discriminate sex, age–developmental stage and ethnicity from fingerprint white line count. SPSS version 26.0 statistical software was used for statistical analysis and $p < 0.05$ was set as the level of significance. **Results:** White lines (WL) showed significant sex differences in both ethnicities with females displaying more WL than males. Fulani displayed more WL in both sexes and on both hands than Higgi. The number of WL increases significantly from childhood to pre adolescence and decrease slightly to adolescence in Fulani female and Higgi male. These suggest that FWLC might be used to estimate the age of an individual and can thus be good in geriatric studies. **Conclusion:** fingerprint WL are good in estimation of age, prediction of sex and ethnic group in Fulani and Higgi tribes of Michika

***Keywords*:** Fingerprint, White-line, Michika

ASNK 026-HR: Evaluating the Influence of Mode of Death and Depositional Environment on the Decomposition Metrics Pig Models

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Background: Body size, environmental conditions, and mode of death, influences decomposition. This study examined the postmortem effects of body size on decomposition in Cross River State, Nigeria, using Sus scrofa domestica L. (domestic pigs) as human analogs. **Methods**: Twelve pigs, categorized into juvenile (20–25 kg) and adult (45–50 kg) groups, were subjected to different death modes (blunt force, stabbing, poisoning) and depositional environments (surface vs. hanged). Treatment effects were analyzed via one-way ANOVA, and Generalized Linear Model (GzLM). **Results**: Significant differences were observed in the abdominal circumference of surface adult pig carcasses, with poisoned carcasses showing a contrast in mean AC compared to others, suggesting the poison interfered with abdominal bloating and deflation. In contrast, stabbed carcasses exhibited consistent mean±SD values across groups, indicating more rapid decomposition ($p < 0.05$). The stabbed group displayed significantly lower mean±SD values across both juvenile and adult groups and depositional environments, while poisoned carcasses showed higher mean±SD values, indicating weight retention and a slower decomposition rate ($p < 0.05$). The GzLM analysis indicated that ADD, AC, and weight ($p < 0.005$) significantly affected decomposition changes in all carrions, irrespective of the mode of death or depositional environment. **Conclusion**: The regression models showed high predictive reliability, with R^2 values ranging from 0.81 to 0.96 across treatments. These findings imply that the mode of death and depositional environment significantly influence decomposition rates, with stabbed carcasses decomposing faster and poisoned carcasses showing slower decomposition.

Keywords: Decomposition, Mode of death, Body size, PMI, Total body score

ASNK 027-HR: Mode of Death and Disposal Affects the Assemblage and Diversity Of Insect Species on Decomposing Swine Models

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Background: Medicolegal entomology is gaining international recognition as it helps confirm carcass relocation, estimate postmortem interval, determine cause of death, and assist in other forensic cases. This study aimed to examine the effects of modes of death and disposal on the diversity and assemblage of insect species on decomposing pig models. **Methods**: Insects were collected from 12 pigs using nets and pitfall traps and preserved in 70% ethanol, with the status of the carcass and decomposition stage recorded through reports and photographs. Normality of continuous data was tested with the Shapiro-Wilk test, treatment effects were analyzed via one-way ANOVA, Generalized Linear Model (GzLM) and Kruskal-Wallis H tests as appropriate. All statistical analyses were performed in R statistical environment version 4.4.2, with significance set at $p \leq 0.05$. **Results**: Poisson Regression and ANOVA revealed a significant difference in insect species diversity based on the mode of death ($\chi 2 = 11.224$; DF = 2; $p = 0.001$). Post-hoc tests showed higher diversity in blunt force and stabbed carrions compared to the poisoned ones. Negative binomial regression and ANOVA indicated a significant difference in insect species abundance ($\chi 2 = 10.673$; DF = 2; $p = 0.001$), with adult carrions showing significantly higher abundance than juvenile carcasses, with no significant differences found between juvenile hanged and surface carcasses. **Conclusion**: The findings from this study demonstrated that carcass size, mode of death, and depositional environment affected the abundance and diversity of insect species.

Keywords: Entomology, Postmortem interval, Decomposition, Pigs.

ASNK 024-NA: Neurobehavioral and Histological Assessment of the Effects of Methanol Extract of *Phoenix dactylifera* on Aluminium Chloride and D-Galactose-Induced Neurotoxicity

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Background: Environmental exposure to neurotoxins like aluminium chloride ($AlCl_3$) and D-galactose (D-gal) is associated with oxidative stress and neurodegeneration. Several plants have been reported in mitigating oxidative stress. Date palm is plant rich in flavonoids, antioxidants and has neuroprotective properties This study evaluated the neuroprotective potential of methanol extract of *Phoenix dactylifera* (MEPd) against $AlCl_3$ and Dgal-induced cerebellar damage in adult female Wistar rats. **Methods**: Twenty female rats were divided into five groups (I-V) of 4 rats each. Group I (control) received distilled water (orally) + normal saline (subcutaneously). Group II was administered $AlCl_3$ (100zmg/kg, orally) and D-gal (100 mg/kg, subcutaneously) only. Groups III and IV received $AlCl_3$ (100 mg/kg) + D-gal (100 mg/kg) followed concurrently with MEPd (500 mg/kg and 1000mg/kg respectively, orally). Group V received MEPd (1000 mg/kg). All administration lasted for 14 days. Effect of MEPd was assessed via neurobehavioral test using hang wire test for muscular strength and beam walking test for motor coordination and microscopic assessment of cerebellar cortex. **Results**: $AlCl_3$ + D-gal co-administration revealed significant motor deficits, reduced muscular strength and cerebellar cortex histoarchitectural distortions such as perineuronal vacuolation. However, MEPd treatment was able to significantly improve motor coordination, muscular strength and confer some preservation of the cerebellar histoarchitecture. **Conclusion**: *Phoenix dactylifera* exhibits significant neuroprotective effects against $AlCl_3$+D-gal-induced neurotoxicity and may be effective in managing cerebellar neurotoxicity and associated motor dysfunction.

Keywords: Neuroprotective, Cerebellum, Beam Walk, Hang-wire.

ASNK 003-AR: Morphometric Analysis of The Sella Turcica for Gender Evaluation Using Computed Tomography Scan Images in Patients Who Attended Kapital Diagnostic Centre, Minna, Niger State

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Background: The Northern part of Nigeria in recent times have witnessed several occurrences of homicides, explosions etc., leaving the deceased bodies mutilated beyond recognition. Hence, the Sella Turcica being protected in the base of the skull becomes an important feature for assessment to determine gender. Therefore, understanding the sella turcica is crucial. Thus, this study focuses on analyzing the CT scan images of patients who attended Kapital Diagnostic Center, Niger state, Minna, to establish gender standard reference for this region. **Methods:** This was a retrospective study where CT images were obtained from the archives in the workstation of Kapital Diagnostic Center, Minna, Niger State. The sample size was 150 (97 males, 53 females). The length, depth, anteroposterior diameter, and shape were measured and statistically analyzed. **Results:** Males showed higher mean values for sella length (11.07±2.15mm), Antero-posterior diameter (11.56±2.08mm), and area (76.89±20.52mm2), while females had a slightly greater mean depth(7.19±1.40mm). A statistically significant sexual dimorphism was observed in sella length ($p < 0.020$), whereas other parameters showed no significant difference. Morphologically, the round shape was most prevalent (68%), while the flat shape was least prevalent (10%). There was however, no significant relationship between gender and the sella shape ($p < 0.699$) when the Pearson's chi-square test of independence was conducted. **Conclusion:** The study showed that the sella length displays significant sexual dimorphism, thus could be relied upon for gender estimation and providing a foundational morphometric data on the sella turcica in a Nigerian sub-population.

***Keywords*:** Computed Tomography, Morphometry, Sella Turcica.

ASNK 017-NA: Stereological and Immunohistochemical Characterisation of the Cerebrum in *Thryonomys swinderianus* (African Grasscutter)

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Background: Understanding the neuroanatomy of unique mammalian species, the African grasscutter (*Thryonomys swinderianus*) provides invaluable insights into their behavioral adaptations, including motor and cognitive abilities, and evolutionary development. The cerebrum of the African grasscutter (AGCs) plays a crucial role in motor and sensory acuity and adaptive behaviors. This study stereologically and immunohistochemically described features of the cerebral cortex (M1 region) in adult AGCs. **Methods:** Four AGCs (3000 ± 250 g) were procured and euthanized using chloroform. The brains were excised for histological processing for light microscopic examination of the cerebral M1 region using H&E stains for stereological characteristics (cell count; pyramidal neurons of layers III and V), and Immunostains (GFAP and IBA-1) for immunolocalization of astrocytic and microglia cells, respectively. **Results:** The mean count of pyramidal neurons in the M1 cerebral region was $1 \times 10^7 \pm 5.8 \times 10^6$ in layer III and $2 \times 10^7 \pm 5.2 \times 10^6$ in layer V. The M1 region exhibited positive immunoreactivity; astrocytic cells appeared as darkly stained stellate-shaped cells predominant in layer III compared to layer V. The microglial cells, characterized by extensive dendritic processes, were observed to be predominant in layer V relative to layer III. **Conclusion:** The M1 region of the cerebral cortex in AGCs contains more pyramidal neurons in layer V than in layer III. Additionally, astrocytic and microglial cells show distinct patterns of predominance between these layers.

Keywords: Cell count, GFAP, IBA-1, Pyramidal neurons, Stereology.

ASNK 039-AR: Determination of Depression Risk Factors Among Type 2 Diabetes Mellitus Patients at Ahmadu Bello University Teaching Hospital Zaria (ABUTH).

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Background: Type-2 diabetes mellitus (T2DM) is often associated with depression, which worsen the disease outcomes. There is dearth of data addressing depression risk factors among individuals with T2DM in Nigeria, specifically Kaduna state. This study determined socio-demographic factors, medical characteristics, and adiposity indices with risk of depression in T2DM patients attending clinic at ABUTH. **Methods**: Cross-sectional study involving 400 T2DM patients (159-males, 187-females) was conducted. Patient health care questionnaire assessed depression level. Socio-demographics (age, sex, marital status, level of education; non-formal/ formal), medical characteristics (duration of T2DM (DOD) and adiposity indices: body adiposity index (BAI), waist-to-hip ratio (WC/HC), waist-to-height ratio (WC/HT), conicity index (CI), a body shape index (ABSI), body mass index (BMI), and skinfold thickness were assessed. Data were analysed using Pearson's chi-square test. **Results**: Result revealed that marital status: χ^2 (1) = 11.25, educational level: χ^2 (4) = 8.20, employment status: χ^2 (1) = 9.26, DOD: χ^2 (1) = 10.09, BMI: χ^2 (1) = 8.05, WHR: χ^2 (1) = 17.03, WHtR: χ^2 (1) = 41.46, CI: χ^2 (1) = 67.93, ABSI: χ^2 (1) = 5.93 and SF: χ^2 (1) = 49.04, were significantly ($p<0.05$) associated with increased depression risk in T2DM. **Conclusion**: There exist significant association between socio-demographic factors, medical characteristics and adiposity indices with risk of depression among T2DM. Understanding the interplay of these factors will enhance early detection and improved management of depression related to T2DM in Nigerian clinical settings.

***Keywords*:** Adiposity Indices, Depression Risk, Type 2 Diabetes Mellitus

ASNK 044-AR: Relationship Between Age, Height and Weight with Foot Anthropometry among Hausa Ethnic Group in Kano State

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Background: The aim of the study was to determine relationship between age, height and weight with foot anthropometry among Hausa ethnic group in Kano state. **Methods**: A total of 391 subjects comprising 190 males and 201 females age range 12–19 years participated. Mann-Whiteny U test to test for sex differences in the variables. The Pearson's correlation was used to determine the relationship between biological profiles and foot dimensions. The stepwise binary logistic (forward conditional) regression analyses were performed to predict age, height and weight from foot dimensions. Statistical significance was declared at $p<0.05$. **Results**: The results showed a significant sexual dimorphism was observed in the foot dimensions, age and height, in all the variable that exhibited significant sexual dimorphism the males have higher values. **Conclusion**: With regards to prediction, both right and left foot dimensions were the best predictors of height for adolescence of Hausa ethic group in Kano state.

Keywords: Anthropology. Foot dimensions, Hausa ethnic group

ASNK 027-NA: Efficacy of polyphenolic fraction of *Phoenix dactylifera* in MPTP mouse model of Parkinson's disease

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Background: The prevalence of PD is at increasing rate which has become both an economic and societal burden. *Phoenix dactylifera* L. has been used in the management of various ailments such as memory disturbances, fever and nervous disorder. This study aimed at assessing the efficacy of polyphenolic fraction of *Phoenix dactylifera* in a MPTP mouse model of Parkinson's disease. **Methods:** Thirty-five mice were divided into five groups (I-V) of seven mice each. Group I serve as control and was administered normal saline (2ml/kg, i.p), while groups II-V was the treatment groups and was administered MPTP (30mg/kg for 5 consecutive days). 1 day after MPTP treatment, group III was administered Levodopa (10 mg/kg, orally), groups IV and V was administered polyphenolic fraction of *Phoenix dactylifera* (10% and 20% of the LD_{50}, orally) for a period of 14days. Effect of polyphenolic fraction of *Phoenix dactylifera* was assessed by neurobehavioural tests using pole test for bradykinesia, footprint analysis for gait and beam walk test for motor coordination, and assessment of oxidative stress parameters (malondialdehyde, MDA; superoxide dismutase, SOD and reduced glutathione, GSH). **Results:** Results revealed administration of MPTP induced some alterations in motor coordination and gait parameters, remarkable increase in MDA level and decease in SOD & GSH was also observed. However, polyphenolic fraction of *Phoenix dactylifera* was able to attenuate this effect by reversal of motor deficits and reduced the MDA level and increased the antioxidants level. **Conclusion:** These findings suggest the efficacy of *Phoenix dactylifera* in the management of Parkison's-like symptoms.

Keywords: Neuroprotective, Motor deficit, Oxidative stress, Bradykinesia

ASNK 057-NA: POSTER: High Dose Caffeine Induced Cogno-hippocampal Impairment; The Role of Probiotic and Coenzyme Q10 Administration

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Background: Psychoactive stimulant, caffeine consumption is ageless. However, the recent surge in its high-dose abuse among growing population and accompanying neurotoxicity cannot be undermined. This study evaluates the neuroprotective potential of coenzyme Q10 (CoQ10) and probiotics in high dose caffeine-induced fronto-hippocampal toxicity in adult male Wistar rats. **Methods:** Twenty-five adult male rats weighing 150–170 g were assigned to five groups (n = 5). Group A received 1ml/100g normal saline orally. Group B given caffeine 150 mg/kg intraperitoneally (i.p). Groups C, D, and E, in addition to i.p. 150 mg/kg caffeine, were treated probiotics (39 mg/kg), CoQ10 (100 mg /500 g of feed), and co-administered probiotics and CoQ10 orally, respectively. All daily for 21 days. Behavioral assessments conducted while the frontal cortex and hippocampal sections homogenized for oxidative stress markers (SOD, GSH, TAC, catalase), inflammatory cytokine (IL-1β), dopamine, and neuron-specific enolase. Histomorphological assessments using hematoxylin and eosin and cresyl violet staining and statistical analysis using ANOVA followed by Tukey's post hoc test ($p < 0.05$). **Results:** High-dose caffeine inhibited locomotion activities while increasing anxiety, oxidative stress and neuronal degeneration in the hippocampus. Administration of probiotics and CoQ10, both individually and adjunct, significantly reversed these alterations by restoring antioxidant enzyme activity, reducing IL-1β levels, improving dopaminergic balance, and preserving hippocampal cytoarchitecture. **Conclusion:** Co-administration of CoQ10 and probiotics via cytokines and neurotransmitter regulation, targeting mitochondrial function and gut-brain signaling provide insight in the management of caffeine-related neurotoxicity.

Keywords: Caffeine toxicity, Hippocampus, Coenzyme Q10, Probiotics.

ASNK 005-HR: Effect Of (*Allium sativum*) Methanol Extract on Fertility and Ovarian Morphology of Stress-Induced Female Wistar Rats

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Background: *Allium sativum* has beneficial effects on the female reproductive system, potentially promoting estrogen production and balancing hormone levels. The current study was to investigate the effects of (*Allium sativum*) methanol extract on fertility and ovarian morphology in stress-induced mature female rats. **Methods**: Thirty-six adults female Wistar rats which were in proestrus phase and weighing 150-250g were divided into six groups of six animals. Group 1 (control) received distilled water. Group 2 was subjected to stress and given distilled water daily (Resistant Stress [RS] + distilled water). Group 3 was subjected to stress daily for twenty-one days before the administration of 200mg/kg of *Allium sativum* extract (RS + 200mg/kg). All administrations were orally beginning at the proestrus phase for twenty-one days. Three rats from each group were sacrificed through perfusion method at day twenty-one for gross histological examinations during the first phase. The remaining three rats (in each group) were allowed to mate with a proven fertile male rat; two females to one male at the second phase. **Result**: Histological findings showed normal histological findings in all test groups. The mated rats all conceived without abortion. There were no significant differences ($p>0.05$) in litter size, live birth weight and neonatal mortality across the groups. **Conclusion**: These findings suggest that stress and methanol garlic extracts may have no negative effect on the histology of the ovaries and reproductive outcome of female rats.

Keywords**:** *Allium sativum,* Ovarian profile, Fertility, Stress

ASNK 093-NA: POSTER: Neurotoxic Effect of Rohypnol (Flunitrazepam) On the Basolateral Amygdala Of Adult Male Wistar Rats

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Background: Rohypnol, also known as Flunitrazepam, is a benzodiazepine drug with sedative, muscle relaxant, anxiolytic and hypnotic properties. Rohypnol is no longer legally approved in many nations due to its potential for abuse and involvement in drug facilitated crimes. The basolateral amygdala (BLA) plays a central role in the processing of fear, anxiety, and emotional learning. Due to its high neuronal density and involvement in stress, the BLA is highly susceptible to insults. Understanding Rohypnol's neurotoxic potential in the BLA is essential for evaluating its long-term effects on the central nervous system. **Methods:** 24 Wistar rats were separated into 4 groups (n=6). The Group-1 as control while Group-2, Group-3, and Group-4 received doses of 0.5mg/kg, 1mg/kg, 2mg/kg of Rohypnol respectively daily. The rats were sacrificed after cervical dislocation, and Amygdala were dissected out, homogenized in 0.1M PBS for the estimation of Malondialdehyde (MDA), Nitric oxide (NO), total antioxidant capacity (TAC), and Peroxynitrite (PXNi). Data were analyzed using One-way ANOVA in IBM SPSS version-26. **Results:** The result revealed higher NO_2 levels in Group-1(9.43±1.16) when compared to Group-2(8.87±0.47), Group-3(8.67±0.63) and Group-4(9.21±1.35). Similar trend was seen in the level of PXNi and TAC. However, Group-4(1.22±0.09) showed peak levels for MDA. MDA showed significant difference (p<0.05) between Group-4 and other groups. The other tests were not statistically (p>0.05) significant. **Conclusion:** Oral administration of Rohypnol induced oxidative stress in the amygdala of adult male Wistar rats at 2mg/kg dose as seen in the elevated MDA levels of group-4(received 2mg/kg dosage daily).

Keywords: Rohypnol, Hypnotic, Neurotoxic, Amygdala, Basolateral.

ASNK 046-NA: Comparative Neuroanatomy of the Substantia Nigra in Juvenile and Adult African Grass Cutters (*Thryonomys swinderianus*): Histological, Histochemical, and Immunocytochemical Studies

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Background: The African grass cutter (AGCs: Thryonomys swinderianus), a prolific rodent in Sub-Saharan Africa, is gaining attention as a model species in comparative neurobiology. The substantia nigra (SN), a key component of the basal nuclei implicated in motor control, remains poorly characterized in this species. This study aimed to compare the microstructural features of the SN in juvenile and adult AGCs using histological, histochemical, and immunocytochemical techniques. **Methods:** Four AGCs (two juveniles, 410.6± 15.35g; two adult, 2243.5± 22.50g) were obtained from a registered farm in Zaria. Following perfusion fixation, brain tissues were processed for light microscopy. Hematoxylin & Eosin (H&E) was employed for general cytoarchitecture, Cresyl Violet for Nissl substance localization, while immunocytochemistry targeted tyrosine hydroxylase (dopaminergic neurons), choline acetyltransferase (cholinergic neurons), and glial fibrillary acidic protein (astrocytes). **Results:** The SN subdivisions—pars compacta (SNpc), pars reticulata (SNpr), and pars lateralis (SNpl)—were identified in both age groups, displaying notable differences in neuronal morphology, density, and fiber reticulations. Histochemical staining confirmed perikaryal Nissl substance distribution, while immunocytochemistry revealed dopaminergic and cholinergic neurons, alongside astrocytic glial cells. Quantitative immuno-analysis indicated a higher abundance of resting astrocytes in juvenile compared to adult AGCs. **Conclusion**: The SN of AGCs exhibits age-related variations in cellular composition and organization, reflecting potential differences in neurodevelopmental dynamics and motor regulation. These findings underscore the relevance of AGCs as an emerging comparative model for investigating basal nuclei structure-function relationships and their behavioral correlates in mammals.

Keywords: Substantia Nigra, *Thryonomys swinderianus*, Immunocytochemistry

ASNK 037-NA: Protective Effects of Ethanolic Extract of *Telfairia occidentalis* Leaves Against Monosodium Glutamate-Induced Oxidative Stress in the Hippocampus of Adult Male Wistar Rats

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Background: Monosodium glutamate (MSG) is the sodium salt of glutamic acid which excites umami flavor sensation that improves taste in foods. However, MSG neurotoxicity has been widely reported. This study was designed evaluated the protective effects of ethanolic extract of *Telfairia occidentalis* (TO) leaves against MSG- induced oxidative stress in the hippocampus of adult male Wistar rats.
Methods: Forty adult male Wistar rats (180-220 g) was divided into five groups (n=8); Control (distilled water), MSG (4 g/kg), TO (400 mg/kg), TO+MSG (400 mg/kg and 4 g/kg), MSG+TO (4 g/kg and 400 mg/kg). All treatments were done orally for 30 days. The rats were weighed and neurobehavioral studies done. Rats were then sacrificed and their hippocampus dissected out, preserved for oxidative stress, as well as histological and immunohistochemical evaluations. Data was analyzed by descriptive statistics and ANOVA at $p<0.05$. **Result:** Increased body weight across the groups with no significant changes in locomotion, in spontaneous and percentage alternation, and discrimination ratio, significant increase escape latency and decreased time spent in target quadrant was observed in the MSG-treated group compared to the control and other treated groups. There was significant increase in LPO and hippocampal glutamate level, and decreased GSH in the MSG- treated group. Histologically, there was significant decrease in pyramidal cell densities, astrogliosis and mild apoptosis in the CA1 and dentate gyrus of MSG-treated group compared to the control and other treated groups. **Conclusion:** Monosodium glutamate did not significantly impact the rats' behavior but affected the rat hippocampal structure, and administration of *Telfairia occidentalis* leaves extract offered significant protection against monosodium glutamate neurotoxicity in Wistar rat.

***Keywords*:** Monosodium glutamate, Hippocampus, Neurobehavior, Astrogliosis, Apoptosis

ASNK 004-AR: Relationship of Selected Fingerprint Profiles with Cranial Capacity and Measures of Academic Performance among Health Sciences Students of Newgate University Minna, Niger State, Nigeria

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Background: Academic performance is a measure of intellectual attainment by individuals in schools and institutions. Several factors have been reported to influence the level of academic performance, including socio-demographic, environmental, dermatoglyphic and anthropometric variables. This study determined the relationship of selected fingerprint profiles with cranial capacity and measures of academic performance among Health Sciences students of Newgate University, Minna (NUM). **Methods**: Three hundred and five subjects, male and female were recruited for this study. Cephalometric characteristics of head length, head breathe and head height was carried out using the sliding caliper. Fingerprint of the ten digits were captured using the Fingerprint Livescanner. Academic performance of participants was determined using the cumulative grade point average (CGPA) of the subjects, collected from the institution's records, and Intelligence Quotient (IQ) assessed using the Stanford-Binet Intelligence Scale. Collected data were analyzed using SPSS version 21.0. **Results**: The results revealed a less frequent arch patterns across the fingers, and a predominant loop pattern across the sexes. There was no relationship between anthropometric parameters and academic performance levels. For the fingerprint whiteline, the highest mean count recorded was sixteen and the least was six. More whiteline was observed on the left hand. Relative to cephalometric characteristics, higher mean values were observed in males compared to females for measured parameters; more subjects fell within the brachycephalic and mesocephalic classifications of cranial capacity. **Conclusion**: The results indicated no relationship between fingerprint profiles, cranial capacity and measures of academic performance among Health Sciences students of NUM.

Keywords: Arch, Cephalometric characteristics, Loop, Whiteline

ASNK 047-AR: Maternal Nutritional Status During Pregnancy and Its Effects on Infants' Head Circumference and Cognition

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Background: Maternal nutrition during pregnancy is a critical determinant of fetal growth and neurodevelopment, influencing infant outcomes such as head circumference (HC) and cognitive abilities. This study examines the relationship between maternal nutritional status during pregnancy and its effects on infant head circumference and cognition at three months old. **Methods:** A prospective cohort design was used, enrolling 40 pregnant women from Federal Teaching Hospital Birnin Kebbi and Sir Yahya Memorial Hospital Birnin Kebbi, Kebbi State using a cluster sampling method. Data were collected at birth and followed up at three months using self-structured questionnaire. Anthropometric measurements of HC were taken, and cognitive development was assessed using the Hammersmith Infant Neurological Examination (HINE). **Results:** Findings showed a moderate, positive correlation between maternal dietary intake and infant head circumference (rho = 0.621, p = .030) and cognition (rho = 0.516, p = .018). Maternal BMI was weakly, but positively, correlated with head circumference (r = 0.221, p = .017), whereas its association with cognition was weak and negative (r = -0.223, p = .166), though not statistically significant. A significant positive correlation was found between infant head circumference and cognition (r = .342, p = .031). **Conclusion:** The study highlights the importance of maternal nutrition during pregnancy in influencing infant head circumference, a key indicator of brain development. The findings indicates the need for enhanced maternal nutrition interventions, particularly in resource-limited settings, to prevent developmental delays and promote better cognitive development in infants.

Keywords: Cognition, Head circumference, Maternal nutrition.

ASNK 091-NA: Histomorphologic Differences in the Inferior Colliculus of Adult and Juvenile African Grasscutter (*Thryonomys swinderianus*)

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Background: The inferior colliculus (IC) is the largest subcortical acoustic center in mammalian species, critical for modulation of auditory impulses including visual tracking of objects, orienting body towards auditory stimuli and generating the startle response. Under explored species such as the African Grasscutter (AGC), a semi nocturnal species exhibits a highly sensitive auditory ability. This study comparatively assessed histomorphologic features of the IC in adult and juvenile AGCs. **Methods**: Six AGCs (adult/juvenile, n= 3) were procured for this study. Brains were harvested and histologically processed for light microscopy stained with H&E. Sagittal sections were used to demonstrate subdivisions and cytoarchitectural characteristics of the IC. Histometry (2D estimation) of pyramidal cell soma area and perimeter was conducted using micrographs and computer running imaging software (AmScope MT *version* 3.0.0.5, USA). Results were statistically compared using a statistical software; GraphPad Prism. **Results**: The Inferior colliculus appeared as dorsally elevated compared to the superior colliculus. Histoarchitectural observations presented with three distinct regions; dorsal, central and lateral nuclei. Heterogenous cell morphology (neurons and glia) were observed; fusiform, stellate and oval shaped. Juvenile AGCs presented with larger and more distributed cells within the parenchyma. Lateral nuclei presented with densely distributed cells, central nuclei with sparse distribution and dorsal nuclei with least distribution. Histometric characteristics revealed a higher ($p<0.05$) mean values in juvenile compared to the adult AGCs. **Conclusion**: Findings suggest a conserved architectural organization across mammalian species, while variations point to differences in physiologic activity of the neurons associated with developmental needs.

Keywords: Cell density, Fusiform cell, Histoarchitecture, Histometry

ASNK 092-NA: POSTER: Immunohistochemical Localization and Distribution of Glial fibrillary Acidic Protein and S100A1 Protein in the Male Japanese Quail (*Curtonix japonica*) Brain

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Background: This study examined an age-related distribution of cells immunoreactive to both S100A1 protein (calcium-binding protein) and GFAP (intermediate filament protein) in the brain of the juvenile, subadult and adult Japanese quail (*Coturnix Japonica*). **Methods:** standard immunohistochemistry to localize the expression of astrocytes using S100A1 and GFAP antibodies. Brains were frozen in crushed dry ice and sectioned into 50µm-thick on a freezing microtome in a coronal plane in 1 in 6 series. The fourth and fifth series were used for S100A1 and GFAP immunohistochemistry. S100A1 immunoreactive (S100A1-ir) astrocytes are abundant in the quail brain**. Results:** The caudal most brain regions showed a high density S100A1-ir in the processes, cell body and nucleolus, but absent in the subventricular zone. S100A1 immunoreactive elements are also exhibited in neurons and oligodendrocytes. GFAP Immunoreactive (GFAP-ir) cell bodies and processes were observed within the brain of the experimental groups, and different cell types can be identified based on their regional location and morphology. A first-class of astrocytes is composed of intensely stained unipolar cells lining the inner surface of the pia mater and the large blood vessels and hippocampus. A second type is represented by multipolar astrocytes of variable size, provided with an irregular cell body found in the ventricular wall and large fiber tracts. Similar elements represent the last type, showing an immunonegative cell body identified only by converging processes scattered within the white and grey matter. These three types of cells, and several isolated processes, show a differential distribution within the quail brain, both in the grey and white matter. GFAP immunoreactive cells' density was devoid in the brain stem, and there is a decline in both S100A1 and GFAP positive elements in the 12 weeks adult quail. **Conclusion:** The decline in the population of S100A1-ir and GFAP-ir cells may support the general phenomenon whereby the population of astrocytes are markedly reduced in adult animals and may explain the reduced behavioural plasticity in aged animals.

Keywords: Astrocytes, Japanese quails, Immunohistochemistry, S100A1, GFAP

ANATOMY-BASED RESEARCH IN NANOTECHNOLOGY BY IBBIH ODOLODZI ANNA, ANATOMY PROGRAMME, BOWEN UNIVERSITY, IWO, OSUN STATE.

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ABSTRACT

Background: Nanotechnology, first conceptualized in the mid-20th century, has evolved into a transformative field with significant applications. In anatomy-based research, nanotechnology enhances understanding of the human body at a molecular level, offering opportunities for targeted therapies, regenerative medicine and disease monitoring. Its integration with anatomical insights has fostered innovations in tissue engineering, cancer therapy, cardiovascular diagnostics, mRNA vaccines and neurotherapeutics. This research paper critically reviewed historical milestones, current application and emerging breakthroughs in nanotechnology as they relate to human anatomy.
Method: Content/document analysis method was used. Literature from scientific journals, textbooks, and recent case studies were examined to highlight nanotechnological tools, devices, and delivery systems. Special focus was placed on applications such as nanobiosensors, nanodevices for diabetes, 3D-printed nanobatteries, and blood-brain barrier drug delivery.
Result: Findings indicate that nanotechnology enables precise diagnostic and therapeutic interventions, including early detection of heart attacks, improved disease management and enhanced cancer drug delivery. Advances in nanomaterials, such as graphene and polymeric nanoparticles, show promising outcomes in tissue repair and brain-targeted therapy. However, issues of nanotoxicity, environmental impact, and ethical dilemmas regarding safety, equity and privacy remain significant challenges. Incorporating nanotechnology into anatomy education could enhance learning by providing nanoscale models of tissues and organs. This approach would help students better understand cellular-level processes and the impact of nanotechnology on biological systems
Conclusion: While nanotechnology promises improved disease treatment and regenerative medicine, further studies are required to address toxicity, safety and ethical concerns to ensure sustainable and responsible applications.

Keywords: Nanotechnology, Anatomy, Nanomedicine, Tissue Engineering, Targeted Drug Delivery.