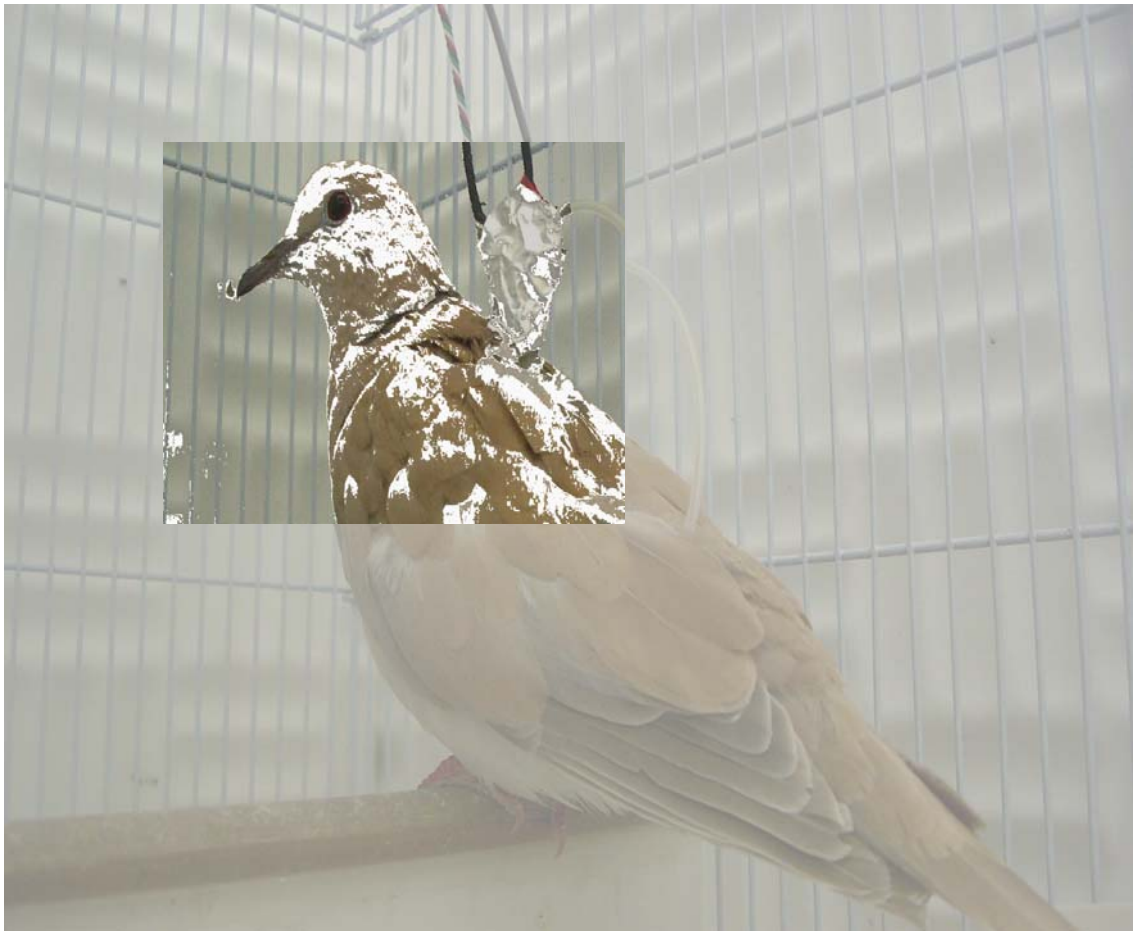
NEDERLANDSE ANATOMEN VERENIGING



168ste WETENSCHAPPELIJKE VERGADERING

VRIJDAG 6 EN ZATERDAG 7 JANUARI 2006

CONFERENTIECENTRUM 'DE WERELT'

TE LUNTEREN

NEDERLANDSE ANATOMEN VERENIGING

168ste WETENSCHAPPELIJKE VERGADERING

VRIJDAG 6 EN ZATERDAG 7 JANUARI 2006

Conferentiecentrum 'De Werelt'
Lunteren

Programma van vrijdag 6 januari 2006

09.15 - 10.00 u ONTVANGST EN KOFFIE

10.00 - 12.30 u **SYMPOSIUM**: '*Basale aspecten van pijn'*

Gerbrand Groen en Johan Holstege presenteren een programma waarin de laatste concepten over de anatomische en functionele achtergronden van het verschijnsel pijn worden belicht.

13.00 - 14.00 u LUNCH

14.00 - 16.30 u **SYMPOSIUM:** *'New concepts on the development of the urogenital system'*
Moderator: Prof. dr. W.H. Lamers

Sprekers:
Prof. dr. K.H. Wrobel (Regensburg)
'New aspects on the development of the vertebrate gonad and its duct system'

Dr. S.C.J. van de Putte (Utrecht)
'The development of the perineum in man'

Prof. dr. T.P.V. de Jong (Utrecht)
'Reconstruction of congenital malformations of the external genitals'

17.00 - 18.00 u **POSTERPRESENTATIES** EN BORREL

18.30 - 20.00 u DINER

20.00 - 21.00 u **POSTERPRESENTATIES**

21.00 - 22.00 u **AVONDLEZING**
Prof. dr. Herman van Rossum (VUmc)
"Curricula zijn tegenwoordig competentiegericht, taakgestuurd, outcome based en contextgesitueerd! Heel mooi, maar hoe verkrijgt de student nu een driedimensionaal beeld van het lichaam?"

Programma van zaterdag 7 januari 2006

08.30 - 10.50 u **VOORDRACHTEN IN HET KADER VAN DE BOLKPRIJS**

08.30 - 09.00 u ***B1*** *A localized Sequence of Myocardial Cell Growth and Proliferation Characterizes the Formation of the Cardiac Tube and Early Chamber Formation*
G. van den Berg, A.T. Soufan, J.M. Ruijter, P.A.J. de Boer, M.J.B. van den Hoff and A.F.M. Moorman
Department of Anatomy & Embryologie, University of Amsterdam, Meibergdreef 15, 1105 AZ Amsterdam, The Netherlands

09.00 - 09.30 u ***B2*** *Zinc Chloride Embalming Technique and Silicone Plastination*
Ian van Toor[1] , Veronique Verplancke[1], Francis Van Glabbeek[1], Eric Van Marck[2], Hilde Bortier[1]. [1]Human Anatomy, University of Antwerp, Groenenborgerlaan 171, Antwerpen, 2020, Belgium, [2]Anatomopathology, University of Antwerp, Wilrijkstraat 10, Edegem, 2650, Belgium

09.30 - 10.00 u ***B3*** *Decreased muscle activity affects developing myotomal muscle in zebrafish (Danio rerio).*
Talitha van der Meulen, Henk Schipper, Sander Kranenbarg, & Johan L. van Leeuwen. Wageningen University, Experimental Zoology Group, Marijkeweg 40, 6709 PG Wageningen, The Netherlands

10.00 - 10.20 u KOFFIEPAUZE

10.20 - 10.50 u ***B4*** *Tissue-specific Inactivation of Glutamine Synthetase in the Mouse.*
Youji He, Theo Hakvoort, Jacqueline Vermeulen and Wout Lamers.
AMC Liver Center, University of Amsterdam, Meibergdreef 69-71, 1105 BK Amsterdam, The Netherlands

10.50 - 12.10 u **VRIJE VOORDRACHTEN**

10.50 - 11.10 u ***V1*** *The use of microMRI in morphological research.*
Bianca Hogers[1], Liesbeth Winter[1], Fanneke Alkemade[1], Rob van de Ven[2], Robert E. Poelmann[1]
[1] Department of Anatomy and Embryology, Leiden University Medical Center and Leiden Institute of Chemistry, Leiden, The Netherlands.
[2] Department of Human Clinical Genetics, Leiden University Medical Center, Leiden, The Netherlands

11.10 - 11.30 u ***V2*** *Primary cilia on chicken embryonic endocardium in areas of low shear stress; biosensors for blood flow.*
Kim van der Heiden[1], B.C.W. Groenendijk[1], H.K. Koerten[2], A.M. Mommaas[2], R.E. Poelmann[1], A.C. Gittenberger-de Groot[1], B.P. Hierck[1]
[1]Department of Anatomy and Embryology and [2]Department of Molecular Cell Biology, Leiden University Medical Center, Leiden, The Netherlands

11.30 - 11.50 u ***V3*** *Anatomical variants in Guyon's tunnel.*
Barbaix E., D'Herde K., Clarys J.P.
Ghent University and Vrije Universiteit Brussel

11.50 - 12.10 u ***V4*** *Chronic alcohol consumption affects gastrointestinal motility and the number of nitrergic and the gabaergic enteric neurons in the mouse.*
M. Krecsmarik[1], B.Y. De Winter[2], M. Bagyánszki[1], L.Van Nassauw3, E. Fekete[1], P.A. Pelckmans[2], **J.-P. Timmermans[3]**
[1]Department of Zoology and Cell Biology, University of Szeged, Egyetem u. 2, 6722 Szeged, Hungary
[2]Laboratory of Gastroenterology, University of Antwerp, Universiteitsplein 1, 2610 Antwerp, Belgium
[3]Department of Biomedical Sciences, Laboratory of Cell Biology and Histology, University of Antwerp, Groenenborgerlaan 171, B-2020 Antwerp, Belgium

12.15 - 13.00 u ALGEMENE LEDENVERGADERING. INCL. UITREIKING BOLKPRIJS EN CARL ZEISS AWARD (POSTERPRIJS)

13.00 - 13.30 u LUNCH EN AFSLUITING

Posters

P1 *Endothelial proliferation, migration and transformation during the initial phases of intimal formation*

Marco C DeRuiter[1], PHA Quax[2], CJ VanMunsteren[1], N Aoyama[3], BP Hierck[1], AC Gittenberger-de Groot[1]

[1]Anatomy and Embryology, Leiden University Medical Center, Leiden, The Netherlands. [2]TNO, Gaubius Laboratory, Leiden. The Netherlands. [3]Internal Medicine and Cardiology, Kitasato Univerisity, Kanagana, Japan

In pathological intimal proliferations cells of various origins can be present. Next to the smooth muscle cells also fibroblasts, macrophages and bone marrow-derived progenitor cells contribute to the formation and differentiation of the neointima. A contribution of mature endothelial cells to the mesenchymal intimal population has been suggested as embryonic endothelial cells appeared to transdifferentiate into smooth muscle cells during the initial phases of media formation. We have studied the changes in the endothelial monolayer in cuff-induced neointima within the femoral artery of a transgenic Tie2LacZ reporter mouse strain. Changes in the endothelial phenotype were investigated with (immuno)histochemistry in combination with beta-galactosidase (beta-gal) staining (both light and electron microscopy). After cuff placement a rapid upregulation of mRNA expression of several inflammation related genes could be observed within the first two days. At three days the first morphological signs of remodeling were visible. The endothelial cells became activated, protruded into the lumen and detached at many places from the intact internal elastic lamel. The number of proliferating endothelial nuclei per μm^2 increased significantly. Beta-gal expression (membrane bound and cytoplasmic) was solely confined to the endothelium. From day 5 the first subendothelial intimal cells were present. In these intimal cells a membrane bound beta-gal precipitate was still detected. After 1.5 week these precipitates had disappeared. Tie2lacZ bone marrow transplantations to wild type mice and immunohistochemistry did not prove bone marrow contribution to the neo-intima. These data demonstrate that the endothelial monolayer is activated by the presence of perivascular granulocytes within the cuff area. It supports the idea that endothelial cells can contribute to the earliest fase of intimal formation. The role of these endothelial-derived intimal cells has to be elucidated.

P2 *The orbitofrontal cortical projections to the striatum in rats. A neuroanatomical tracing study.*

Henk J. Groenewegen[1], Eduardo Schilman[3], Daphna Joel[3], and Harry B.M. Uylings[1,2]

[1]Dept. Anatomy, VU University medical center, [2]Netherlands Institute for Brain Research, Amsterdam, The Netherlands, [3]Dept. Psychology, Tel-Aviv University, Tel-Aviv, Israel

Disturbances of the orbitofrontal-striatal pathways in humans have been associated with several psychopathologies including obsessive-compulsive disorder and drug addiction. In subhuman primates, different subareas of the orbitofrontal cortex project topographically to central and ventromedial parts of the striatum including the nucleus accumbens. There is growing interest in the functional correlates of the orbitofrontal cortex in rats. The purpose of the present neuroanatomical tracing study was to determine in rats the striatal target area of the orbitofrontal cortex as well as the topographical organization within these projections. Like in primates, the rat orbitofrontal cortex consists of several cytoarchitectonically distinct areas. Individual animals received the anterograde tracers *Phaseolus vulgaris*-leucoagglutinin (PHA-L) and biotinylated dextran amine (BDA) in different orbitofrontal areas in the same hemisphere to determine the precise topographical relationships of the corticostriatal projections. The results show that the different orbitofrontal areas, i.e. medial orbital area, ventral orbital area, ventrolateral orbital area (VLO) and lateral orbital area, project to central parts of the caudate-putamen following a mediolateral and a rostrocaudal topographical arrangement. Dorsolateral orbitofrontal projections terminate in the lateral part of the caudate-putamen while progressively more medially located orbital areas project to successively more

medial parts of the caudate-putamen, the medial orbital area projecting in a narrow strip directly adjacent to the lateral ventricle. Terminal fields from cytoarchitectonically different areas show a considerable overlap. The most dorsolateral part of the caudate-putamen does not receive orbitofrontal projections. The projections from VLO are strongest and occupy the most extensive central striatal area. In contrast to the situation in primates, the nucleus accumbens is virtually free of orbitofrontal projections in rats. Only scarce projections from the laterally located orbital areas, including VLO, reach the most lateral part of the nucleus accumbens shell.

P3 *Distribution of Vasoactive Intestinal Polypeptide in the normal, non-inflamed, canine jejunum: a stereologic study.*

WIM A. Philips, Kris M. G. De Ceulaer, Chris J. D. Van Ginneken, Andre A. L. M. Weyns.
Laboratory of Anatomy and Embryology of the Domestic Animals, University of Antwerp, Belgium.

The enteric nervous system (ENS), by means of various neurotransmitters, is a known regulator of motility, secretoric activity, blood flow and inflammatory processes in the gut (Hansen. 2003). Vasoactive Intestinal Polypeptide (VIP) is known to mediate inhibition of gastrointestinal motility (Wang et al. 1998), to cause vasodilation and to modulate immunologic and inflammatory processes (Di Sebastiano et al. 1999).
In this study the distribution of VIP-like-immunoreactivity (VIP-IR) in the healthy canine jejunum was quantified.Five healthy adult dogs were euthanised. From each dog five random biopsies were taken from the jejunum and fixed in 4% paraformaldehyde for 2h. Cryostat sections were made and processed for ßIII-tubuline (a panneuronal marker) and VIP immunohistochemistry. From each biopsy 10 systematically random chosen sections were examined using stereologic methods. As such the volume-density of the VIP-IR could be determined. The total neuronal population in the jejunum (ßIII-like-immunoreactivity) was determined as the reference volume. Of the total ENS in the jejunum 46.2% showed VIP-IR (cell bodies and neuronal processes). The immunoreactivity was distributed as follows: in the muscle layers 63.6% of the ENS was VIP-IR. In the mucosa and submucosa, respectively 41.3% and 37.0% of the ENS showed VIP-IR.
The results for the submucosa are in agreement with previous results of Accili et al. (1995) who showed that 31% of the PGP 9.5-like-immunoreactive neurons in the submucosal plexus are VIP-IR. In this study only a slightly higher density (37%) was found.
The highest density was found in the muscle layers. This could be expected as VIP is known to be an important inhibitory moto-neurotransmitter (Wang et al. 1998). It can be concluded that the distribution of the VIP immunoreactivity is not equal throughout the entire gut wall.

References:
Accili EA, Dhatt N, Buchan AMJ 1995. Neural somatostatin, vasoactive intestinal polypeptide and substance P in canine and human jejunum. Neuroscience Letters 185: 37-40.
Di Sebastiano P, Fink T, di Mola FF, Weihe E, Innocenti P, Friess H, Bühler MW 1999. Neuroimmune appendicitis. The Lancet 354: 461-466.
Hansen MB 2003: The enteric nervous system II: gastrointestinal functions. Pharmacology and Toxicology 92: 249-257.
Wang YF, Mao YK, Fox-Threlkeld JET, McDonald TJ, Daniel EE 1998. Colocalization of inhibitory mediators, NO, VIP and Galanin, in canine enteric nerves. Peptides 19(1): 99-112.

P4 *Abnormal development of the coronary system in a mouse model with altered VEGF-isoform expression*

Nynke M.S. van den Akker, Daniël G.M. Molin, Heleen Lie-Venema, Marco C. DeRuiter, Robert E. Poelmann, Peter Carmeliet and Adriana C. Gittenberger-de Groot
Department of Anatomy and Embryology, Leiden University Medical Center, Leiden, The Netherlands, Department of Vascular Physiology, Maastricht University, Maastricht, The Netherlands, Center for Transgene Technology & Gene Therapy, University Leuven, Belgium

Proper regulation of VEGF-expression is crucial for normal cardiovascular development, as even little alterations in expression levels can cause severe abnormalities or embryonic lethality. The *Vegf*-gene consists of 8 exons and alternative splicing of *Vegf* mRNA gives rise to several different isoforms of which VEGF120, VEGF164 and VEGF188 in mouse are the most prominent. In the model used here, exons 6 and 7 of the *Vegf*-gene were deleted. Therefore, only the VEGF120 isoform could be produced. VEGF120 differs from VEGF164 and VEGF188 in its biological properties, as it lacks the heparin-binding and neuropilin-binding domains present in the other isoforms.
One of the critical phases during heart development is the formation of the coronary vasculature. First, a primitive supepicardial endothelial network is formed, after which the ingrowth into the aorta and arterio-venous differentiation take place.
In this mouse model, many coronary abnormalities were observed, such as abnormal coronary orifices, in morphology and in number, and an increase in number, combined with severe enlargement, of veins. Furthermore, the arteries were small in number and badly maturated.
In this model, using both ISH and qPCR, it was observed that the levels of total *Vegf* mRNA were increased in the developing heart. This was confirmed on protein level using IHC and Western blotting. This might account for the increased amount of vessels, as VEGF is known to have proliferating effect on endothelial cells. While VEGFR-2 is expressed normally in coronary endothelial cells in this model, expression of its coreceptor NP-1 was decreased. As it is known that the VEGFR-2/NP-1 combination is involved in arterial differentiation of endothelial cells, the lack of NP-1-binding isoforms could explain the decreased arterial differentiation.
We conclude that proper regulation of VEGF protein levels and the presence of a NP-1 binding isoform are necessary for normal embryonic coronary network formation.

P5 *The effect of the axillary arch of Langer on the range of motion of the NTPT**

Tom Van Hoof [*] , Bram Verhaeghe[1], Lien Van Thilborg[1], Malcolm Forward[2], Frank Plasschaert[2], Martine De Muynck[2], Katharina D'Herde[3]
[1]Department of Physical therapy and motor rehabilitation University of Ghent, Belgium, [2]Department of Physical medicine and orthopaedic surgery, [3]Department of Human anatomy, embryology, histology and medical physics

Introduction: the aim of this study was to investigate the influence of Langer's arch on the NTPT (*neural tissue provocation test of the median nerve). Langer's arch or the axillary arch (axar) is a muscular anomaly extending between the tendon of latissimus dorsi and the humerus conjoined with the tendon of the pectoralis major. This arch is present in about 7% of the population bilateral or unilateral. In literature it has been hypothesised that the arch could cause compressive disorders which can be integrated in TOS (thoracic outlet syndrome), because of it's specific topography in relation to the neurovascular bundle going underneath. An asymptomatic group was recruited possessing an axar and subjected to an anamnesis and the NTPT. Two important questions were tried to answer. Is the NTPT sensitive enough to reveal a possible subclinical state of a mechanical induced minor nerve disorder, regarding the results of the anamnesis and could the range of motion of the NTPT be restricted on a pure mechanical basis in the absence of a mechanosensitive state of the neural tissue.
Material and methods: The axillary region of 640 healthy students was examined by means of visualisation and palpation. Individuals which were diagnosed as having a bilateral or unilateral axar were then subjected to an ultra-sound examination to confirm the anomaly. The participants of the 'axar' (n=20) and the 'non-axar' group (n=20) completed a thorough anamnesis. The NTPT was performed on each side, repeated five times with the cervical spine in contralateral flexion and five times with the cervical spine in neutral position. The angles of elbow extension and neck side flexion were measured with the Vicon – system.
Results: The intratester reliability for the range of motion of elbow extension was excellent, 0.96 ($p < 0.0001$). The subtraction angle for elbow extension was determined by subtracting the elbow angle measured with the cervical spine in contralateral flexion from the elbow angle with cervical spine neutral position. There was no significant difference in the subtraction angle for the 'axar' and the 'non axar' group. A significant difference was found in elbow

extension between cervical spine contralateral flexion and cervical spine neutral position for both sides(right side: $F_{1,35} = 34.41$; $P<0.0001$ / left side: $F_{1,35} = 9.02$; $P<0.0049$). There were no significant effects for left and right side and the dominant side. Also a significant difference was present in the occurrence of neurological findings noted in the anamnesis for the 'axar' (48%) and the 'non axar' group (20%).
Conclusion: In this study no effect was found of the axar on the results of the NTPT, despite the 'axar' group noted more neurological findings.

P6 *Observations in proximal interphalangeal flexion of the finger*

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The extensor assembly of the finger, consisting of tendon fibers from extrinsic and intrinsic finger muscles, rearranged into one medial bundle and two lateral bundles, undergoes distal displacement during proximal interphalangeal flexion. The lateral bundles, conjoining distally into one terminal extensor tendon for the distal phalanx, lie slack alongside the flexed proximal interphalangeal joint (Landsmeer, 1976). The distal phalanx becomes "loose", thus allowing simultaneous distal interphalangeal flexion.
During unresisted flexion of the proximal interphalangeal joint of the finger, without simultaneous distal interphalangeal flexion, the phenomenon of the "floating distal phalanx" can be observed (Tubiana *et al.*, 1996).
To further investigate this phenomenon, morphological features of the extensor assembly in relation to the proximal interphalangeal joint were observed by means of microdissection and high resolution imaging techniques, and simulated by mathematical modelling.
In the extended proximal interphalangeal joint, the position of the *ligamenta collateralia propria* coincides with an almost frontal plane. They thereby support the lateral bundles of the extensor assembly to maintain dorsal positions. After proximal interphalangeal flexion, these collateral ligaments show transversal positions with respect to the head of the proximal phalanx, enabling the lateral bundles of the extensor assembly to shift in palmar and distal directions during subsequent distal interphalangeal flexion. Then the lateral bundles of the extensor assembly assume more sagittal positions.
References:
Landsmeer, J.M.F. (1976) Atlas of Anatomy of the Hand. Churchill Livingstone, Edinburgh London New York.
Tubiana, R., Thomine, J.-M. and Mackin, E. (1996) Examination of the Hand and Wrist. 2nd Edition, Martin Dunitz Ltd., London.

P7 *Two stereological methods to measure enteric nitrergic innervation in a piglet model of necrotizing enterocolitis*

Els R. van Haver, Marijke Oste, Andre A.L.M. Weyns, Chris J.D. van Ginneken
Laboratory of Anatomy and Embryology of the Domestic Animals, University of Antwerp, Belgium

Necrotizing enterocolitis (NEC) is a severe gastrointestinal disease of primarily premature infants. The pathophysiology has not been completely elucidated and a piglet model was developed, combining two predisposing factors for NEC (prematurity and enteral formula feeding). Piglets (92% gestation) were sacrificed immediately (NB) or given 3 days of parenteral nutrition, followed by 2 days feeding of sow's colostrum (SC) or formula (FOR) (Sangild et al. 2002).
We used 2 different stereological methods to investigate differences in the expression of nitrergic (NOS) myenteric perikarya in the small intestine between NB, SC and FOR. Nitrergic neurons may be involved in this pathology as they play an important role in gut motility and are a source of the vasodilating radical NO (Wedel et al. 1998; Di Lorenzo et al. 2001).
Method 1/ Numerical density (Ns)

Whole mount preparations were made and the longitudinal muscle layer bearing the myenteric plexus was used for NADPH-enzymhistochemistry. The number of positively stained neurons per serosal surface area was counted (Oste et al. 2005).
Method 2/ Volume density (Vv)
Paraffin sections were immunohistochemically stained for neuronal NOS. The volume of NOS immunoreactivity per volume muscle layer was measured.
Neither method showed significant differences between NB, FOR and SC. There was a significant correlation ($p < 0,05$) between both methods, validating their reliability. Both methods highlighted different aspects of the NOS perikarya. Ns only gives information about changes in neuronal number, whereas Vv also draws conclusions about their volume. The density of nerve fibers can only be measured by Vv. Both methods are necessary to measure volume per neuron, but this needs additional measurements of total muscle volume and total serosal surface area. Moreover the shrinkage of the paraffin-processing has to be taken into account to get the exact values.

Referenties

Di Lorenzo M, Krantis A. 2001. Altered nitric oxide production in the premature gut may increase susceptibility to intestinal damage in necrotizing enterocolitis. Journal of Pediatric Surgery 36: 700-705.

Oste M, Van Ginneken CJ, Van Haver ER, Bjornvad CR, Thymann T, Sangild PT. 2005. The intestinal trophic response to enteral food is reduced in parenterally fed preterm pigs and is associated with more nitrergic neurons. Journal of Nutrition, 135: 2657-2663.

Sangild PT, Petersen YM, Schmidt M, Elnif J, Petersen TK, Buddington RK, Greisen G, Michaelsen KF, Burrin DG. 2002. Preterm birth affects the intestinal response to parenteral and enteral nutrition in newborn pigs. Journal of Nutrition, 132: 2673-2681.

Wedel T, Krammer HJ, Kühnel W, Sigge W. 1998. Alterations of the enteric nervous system in neonatal necrotizing enterocolitis revealed by whole-mount immunohistochemistry. Pediatric Pathology & Laboratory Medicine 18:57-70.

P8 *Does enteral and/or parenteral feeding affect the distribution of laminin in the pig premature small intestine?*

Marijke Oste, Els R. van Haver, Andre A.L.M. Weyns, Chris J.D. van Ginneken
Laboratory of Anatomy and Embryology of the Domestic Animals, University of Antwerp, Belgium

Proliferation, migration, differentation and death of epithelial cells are influenced by extracellular matrix proteins. In the mucosal layer, laminin promotes enterocyte differentation (Caroll et al. 1988; Hahn et al. 1990).
The presence of food in the intestinal lumen is a guarantee for the maintenance of the structural and functional integrity of the mucosa. During total parenteral nutrition (TPN) the intestinal lumen is completely bypassed and several investigators (Heitman et al. 1980; Hughes and Dowling 1980) revealed mucosal atrophy after TPN. This study aimed to describe the distribution of laminin-immunoreactivity after different feeding patterns.
Premature piglets (91-94% gestation) were delivered by cesarian section and sacrificed immediately (NB), 3 d total parenteral nutrition (TPN), 3 d of enteral feeding of TPN (ENTTPN), 3 d TPN + 2 d feeding sow's colostrum (SC) or 3 d of TPN + 2 d feeding formula (FOR). Samples from proximal, mid and distal small intestine were fixed in formaldehyde and processed for paraffin sectioning.
An apicobasal gradient in the lamina basalis of the crypt-villus axis was observed in 41,6% NB, 23,8% TPN, 17,6% ENTTPN, 38,4% FOR, and 11,8% SC. Staining of the epithelial basement membrane was uniform in the remaining animals. The endothelium of the blood vessels and around the smooth muscle cells stained positively in all groups.
These findings appear to contrast with the results of Groos et al. (2003) who found a clear gradient along the crypt-villus axis in the normal adult human intestine. This gradient disappeared after TPN. However, premature piglets were less sensitive to TPN-induced mucosal atrophy compared to terms (Oste et al. 2005; Sangild et al. 2002). This could possibly explain the difference in staining between our results and those of Groos et al. (2003). Whether our staining patterns is correlated with enterocyte proliferation and/or differentiation remains to be investigated.

References:
Carroll KM, Wong TT, Drabik DL, and Chang EB. 1988. Differentation of rat small intestinal epithelial cells by extracellular matrix. American Journal of Physiology 254: G355-G360.
Groos S, Reale E, Hünefeld G, Luciano L. 2003. Changes in the epithelial cell turnover and extracellular matrix in human small intestine after TPN. Journal of Surgical Research 109: 74-85.
Hahn U, Stallmach A, Hahn EG, Riecken EO. 1990. Basement membrame components are potent promotors of rat intestinal epithelial cell differentation. Gastroenterology 98: 322-335.
Heitman DW, Tool TB, Cameron IL. 1980. Changes in proliferation and surface morphology in the rat ileum in response to total parenteral nutrition. Journal of Anatomy. 130:603-615.
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Oste M, Van Ginneken CJ, Van Haver ER, Bjornvad CR, Thymann T, Sangild PT. 2005. The intestinal trophic response to enteral food is reduced in parenterally fed preterm pigs and is associated with more nitrergic neurons. Journal of Nutrition 135: 2657-2663.
Sangild PT, Petersen YM, Schmidt M, Elnif J, Petersen TK, Buddington RK, Greisen G, Michaelsen KF, Burrin DG. 2002. Preterm Birth affects the intestinal response to parenteral and enteral nutrition in newborn pigs. Journal of Nutrition 132: 2673-2681.

P9 *A new look at the M. levator ani in asymptomatic women*

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[1]Experimental Anatomy – Vrije Universiteit Brussel
[2]Physiologie envioremental et occupationelle – Haute école P.H. Spaak

Purpose :

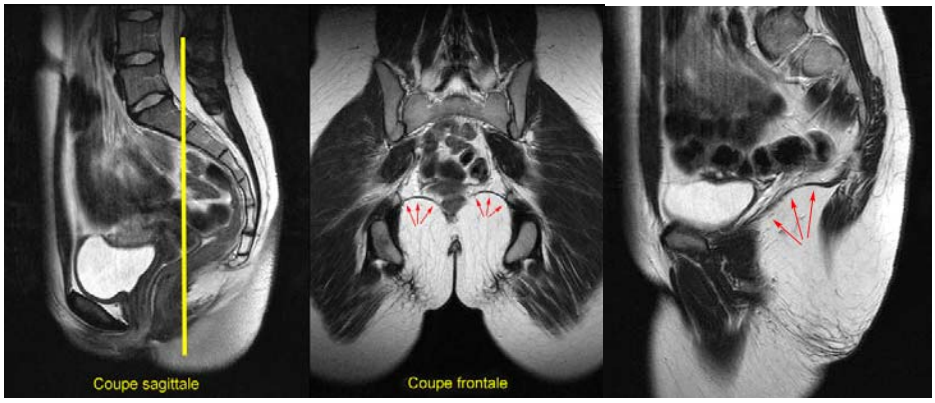
The aim of this study is to demonstrate that the descriptions in the anatomy atlases and texbooks, based on dissections, do not correspond with the reality observed in healthy in-vivo women. In fact this study is validating or referring Cadaveric evidence under in-vivo circumstances.

Methodology :

Eleven nulliparous women aged between 22 and 26 years (23,64 ±1.12) and nine multiparous women, both with no clinical symptoms (urology, gynaecology, proctology) participated in the study. Magnetic Resonance Images were produced in frontal planes, posterior of the anus and in saggital paramedian planes allowing to study of the ilio-coccygeal parts of the M. levator ani.
In the frontal plane the centre of the Dome arch was calculated and differences between the Domes were verified.
In the saggital plane the anterior - posterior ratio was compared between Domes in order to precisely locate the arches.
The data were treated with a Fisher correlation test and a Student t-test for unpaired groups.

Results:

All (100%) nullipareous women show ilio-coccygeal bundles in a double Dome topography with a inferior and posterior concavity. The left dome Arches are the highest (p=0.0166) and the most anterior (p=0.0216) in the nullipareous women while the opposite is shown in the multipareous group, characterised by significantly less concave (p=0.0360) and more posterior oriented Dome Arches (p=0.0038).



Discussion and Conclusion:
Against the atlases' evidence supported by dissections the M. levator ani does not take the shape of a hammock with its concavity oriented anterior and superior. In asymptomatic women the Magnetic Resonance Images and the ad hoc calculations we do observe an opposite topography. One can assume that the principle of a vault with its pillars and with an inferior and posterior concavity allows for a better absorption of loads (forces) generated by daily abdominal pressure and a more efficient protection of pudendal plexus.

Bibliography
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2-Constantinou and al. - *Determining the displacement of the pelvic floor pelvic organs during voluntary contractions using MRI in younger and older women.* - British journal of urology international ; n°90:pp.408-414 ; 2002
3-DeLancey and al. - *The appearance of levator ani muscle abnormalities in MR images after vaginal delivery.*-Obstetrics and gynecology ; n°101:pp.46-48 ; 2003
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7-Kruger and al. - *Alterations in levator ani morphology in elite nulliparous athletes : a pilot study.* - Australian and New Zealand journal of obstetrics and gynaecology ; n°45:pp.42-47 ; 2005

P10 *Genes involved in human epilepsy*
W. Saskia van der Hel‡ , Koen Li. Van Gassen‡, Marina de Wit, Frank C. Holstege*, Peter C. van Rijen**, Cees W. van Veelen**, Dick Lindhout***, Pierre Ne. De Graan
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Temporal lobe epilepsy (TLE) is a severe type of epilepsy with serious clinical symptoms, normally developing after an initial lesion early in life. The etiology remains elusive but appears to be multifaceted, with genetic, environmental and developmental factors all implicated. The hippocampus is often the predominant substrate in this disorder. Increased glutamate levels have been reported in the epileptic hippocampus of TLE patients and an impaired glutamate-glutamine cycle has been implicated. Gene expression of hippocampal resections from two types of therapy-resistant TLE patients and from normal autopsy controls were compared by oligonucleotide microarrays representing 21521 genes. Pathway analysis was performed on significant genes and two genes, glial fibrillary acidic protein (GFAP) and vesicular glutamate transporter type I (VGLUTI), were chosen for qPCR verification; GFAP as well known glial marker and VGLUT1 as newly implicated gene in epilepsy and in the glutamate-glutamine cycle. VGLUT1 transports glutamate into synaptic vesicles after which glutamate can be released into the synaptic cleft. Additionally, detailed expression of both genes was investigated using immunohistochemistry, western blots and in-situ hybridization. Microarray analysis identified numerous regulated genes, of which several genes have previously been implicated in epilepsy. Pathway analysis identified the metabotropic and

ionotropic glutamate receptor pathways as significantly altered in HS patients compared to nonHS patients. mRNA and protein levels of GFAP and VGLUT1 in the hippocampus, complement most findings from the microarray study; GFAP is over expressed in the HS hippocampus compared to the nonHS and control hippocampus. VGLUT1-mRNA is decreased in nonHS and HS hippocampus compared to control hippocampus. VGLUT1-protein however, is significantly over expressed in nonHS hippocampus compared to both HS and control hippocampus and to mRNA expression. This could mean, either more efficient VGLUT1 translation in hippocampal neurons, or increased amount of VGLUT1 protein in glutamatergic synapses from afferent neurons outside the hippocampus.

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P11 *De driedimensionale mens – Anatomie in 't nieuwe curriculum.*
Habets, P. , de Jong, Oostra, Moorman
Dept. of Anatomy and Embryology, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands

P12 *More lamina I neurons project to the parabrachial nuclei and the periaqueductal gray than to the thalamus in cat.*
E.M. Klop*, L.J. Mouton*, G. Holstege**; *Department of Anatomy and Embryology, ** Department of Uroneurology, University Medical Center Groningen, Groningen, The Netherlands

The spinothalamic tract, and especially its fibers originating in lamina I, is the best known pathway for transmission of nociceptive information. On the other hand, different studies have suggested that more lamina I cells project to the parabrachial nuclei (PBN) and periaqueductal gray (PAG) than to the thalamus. The exact ratio of the number of lamina I projections to PBN, PAG and thalamus is not known, because comprehensive studies examining these three projections from all spinal segments, using the same tracers and counting methods, do not exist.
In the present study, the differences in number and distribution of retrogradely labeled lamina I cells in each segment of the cat spinal cord (C1-Coc2) were determined after large WGA-HRP injections in either parabrachial nuclei (PB), periaqueductal gray (PAG) or thalamus. We estimate that approximately 6000 lamina I cells project to PBN, 3000 to PAG and less than 1500 to the thalamus. Of the lamina I cells projecting to thalamus or PAG more than 80%, and of the lamina I-PBN cells approximately 60%, was located on the contralateral side. In all cases, most labeled lamina I cells were found in the upper two cervical segments and in the cervical and lumbar enlargements.

P13 *The involvement of the nucleus accumbens in activity based anorexia.*
Linda Sterrenburg, Linda Verhagen, Jacqueline Hillebrand, Roger Adan, **Tom Roeling**
Dept. of Farmacology and Anatomy, University of Utrecht, Utrecht, The Netherlands

P14 *Two oculomotor related areas of the brainstem project to the dorsolateral periaqueductal gray.*

E.M. Klop*, L.J. Mouton*, G. Holstege**; *Department of Anatomy and Embryology, ** Department of Uroneurology, University Medical Center Groningen, Groningen, The Netherlands

The dorsolateral column of the periaqueductal gray (PAGdl) is usually associated with defensive behavior, but how this is brought about is not yet fully understood. In order to elucidate the function of PAGdl, its afferents from the brainstem were investigated in cats. Retrograde tracing results with WGA-HRP suggested that PAGdl receives projections from the nucleus prepositus hypoglossi (PPH), located in the floor of the fourth ventricle. Remarkably, anterograde tracing with [^{3}H]-leucine and WGA-HRP demonstrated that the caudal PPH projects to a patch on the dorsolateral border of PAGdl (PAGdldl), while the rostral PPH projects to PAGdl but not to PAGdldl. Because PPH is involved in oculomotor control, it was hypothesized that PAGdl plays a role in this system.
In a subsequent study, after WGA-HRP injections involving the dorsolateral and lateral PAG, retrogradely labeled cells were found in the mesencephalic tegmental field medially adjoining the parabigeminal nucleus (PBGN), but not in PBGN itself. This was interesting, because this tegmental area is also known to be involved in oculomotor control. Projections from this part of the tegmental field to PAGdl were confirmed in an anterograde tracing study using [^{3}H]-leucine and BDA. A BDA injection in the PBGN, extending into the directly adjacent tegmental field, resulted in labeled fibers in mainly the peripheral PAGdl, roughly equivalent to PAGdldl, while an injection in the more medial tegmental field not involving the tegmentum just lateral to PBGN, resulted in labeled fibers in mainly the central parts of PAGdl.
These results show that PAGdl receives afferents from at least two regions (PPH and the mesencephalic tegmentum medial to PBGN) that are involved in oculomotor control, which suggests a role for PAGdl in this system. Furthermore, the differential projections to PAGdl and PAGdldl show that the dorsolateral column of the PAG consists of at least two subregions.

AVONDLEZING

“Curricula zijn tegenwoordig competentiegericht, taakgestuurd, outcome based en contextgesitueerd! Heel mooi, maar hoe verkrijgt de student nu een driedimensionaal beeld van het lichaam?”

Prof. dr. Herman van Rossum (VUmc)

Voordrachten in het kader van de BOLKPRIJS

B1 *A localized Sequence of Myocardial Cell Growth and Proliferation Characterizes the Formation of the Cardiac Tube and Early Chamber Formation.*
G. van den Berg, A.T. Soufan, J.M. Ruijter, P.A.J. de Boer, M.J.B. van den Hoff and A.F.M. Moorman

Cell volume growth and proliferation are considered key processes in heart morphogenesis, yet their regionalization during heart development has been described only anecdotally. We have developed a quantitative reconstruction method which permits the study of the spatial and temporal contribution of cardiomyocyte volume growth and proliferation to the formation of the heart. Our reconstructions of embryonic chicken hearts range from the fusion of the heart-forming fields to early chamber formation (Hamburger and Hamilton stages 10^{-} to 12). These reconstructions reveal that the early heart tube is recruited from a pool of fast proliferating cardiac precursor cells. The proliferation of these precursor cells ceases upon overt differentiation into cardiomyocytes, giving rise to a slow proliferating straight heart tube consisting of growing cells. Subsequently, at the ventral part of the heart tube, also being the site of the forming ventricular chamber, a focus of large cardiomyocytes is observed to burst into proliferation again. This focus gives rise to a region of large proliferating cardiomyocytes. The significance of these observations is two-fold: they support a multi-step model of heart formation rather than development from a pre-configured heart tube, and, secondly, they demonstrate that regional changes in cell size contribute significantly to cardiac morphogenesis.

B2 *Zinc Chloride Embalming Technique and Silicone Plastination.*
Ian van Toor[1], Veronique Verplancke[1], Francis Van Glabbeek[1], Eric Van Marck[2], Hilde Bortier[1]. [1]Human Anatomy, University of Antwerp, Groenenborgerlaan 171, Antwerpen, 2020, Belgium, [2]Anatomopathology, University of Antwerp, Wilrijkstraat 10, Edegem, 2650, Belgium

INTRODUCTION: It is known that formol and fenol vapours are irritants to airways and eyes. Personal health of the technician and students and efficiency considerations led to the adaptation of the embalming technique 5 years
ago. Since 2000, the anatomy institute has embalmed 150 cadavers using the adapted zinc chloride embalming technique.
MATERIALS AND METHODS: The embalming solution contains 10 litre Zinc Chloride® and 100 ml Arthyl®. Embalming starts with the injection of fluid through the femoral artery. A pump is fitted to the canule and the solution is pumped into the cadaver in four hours. A cadaver was dissected and several organs and tissues
were removed and prepared for plastination using the S10® Silicone technique.
RESULTS: The joints of the cadavers are more flexible than the joints of the cadavers embalmed with formol and fenol, natural colours are preserved and odour is low. The microscopic morphology of tissues removed one year post mortem, is comparable to the microscopic morphology of specimens at the moment of embalming. The embalmed specimens were compatible with acetone dehydration for
plastination. The plastinated specimens of the pharynx, foot, a section of the lower limb, two kidneys, spleen, liver, lung, knee, cerebrum, cerebellum, part of the chest wall, testis and two hand specimens, retained their natural colour
and macroscopic morphology. CONCLUSION: The zinc chloride embalmed cadavers are used for anatomical research and education. It is possible to
plastinate specimens removed from a zinc chloride embalmed cadaver using the Silicone plastination technique.

B3 *Decreased muscle activity affects developing myotomal muscle in zebrafish (Danio rerio).*

Talitha van der Meulen, Henk Schipper, Sander Kranenbarg, & Johan L. van Leeuwen. Wageningen University, Experimental Zoology Group, Marijkeweg 40, 6709 PG Wageningen, The Netherlands

The fast muscle fibres that form the bulk of muscle tissue in teleost fish are used in fast escape and attack responses. A small band of slow fibres in the periphery of the muscle mass is responsible for slow swimming behaviour. In adult fish, the fast fibres are arranged in a pseudo-helical pattern that is thought to optimise the work output of the fibres during movement. During development, the muscle fast fibres are initially arranged in parallel with the body axis and the slow muscle fibres are located centrally instead of peripherally. The development of the pseudo-helical pattern and the migration of slow fibres towards the periphery correspond with the onset of movements in the embryo. To test whether embryonic movements are responsible for these architectural changes, we compared wild type embryos with immobile *nic*^{b107} embryos using confocal microscopy. In *nic*^{b107} mutant embryos, muscle fibres are mechanically intact and able to contract, but neuronal signalling is defective and the fibres are not activated. Despite the immobility, distinguished slow and fast muscle fibres developed at the correct location in the axial muscles, helical muscle fibre arrangements were detected and sarcomere architecture was generated. However, in *nic*^{b107} mutant embryos the notochord is flatter and the cross-sectional body shape more rounded, also affecting muscle fibre orientation. The stacking of sarcomeres and myofibril arrangement show a less regular pattern in electron microscopy analysis. Finally, judging from real time quantitative PCR, expression levels of several genes were changed. Together, these changes in expression indicate that muscle growth is not impeded and energy metabolism is not changed by the decrease in muscle activity, but that the composition of muscle is altered. In conclusion, the lack of muscle fibre activity did not prevent the basal muscle components developing, but influenced further organisation and differentiation of these components.

B4 *Tissue-specific Inactivation of Glutamine Synthetase in the Mouse.*

Youji He, Theo Hakvoort, Jacqueline Vermeulen and Wout Lamers.
AMC Liver Center, University of Amsterdam, Meibergdreef 69-71, 1105 BK Amsterdam, The Netherlands

Glutamine synthetase (GS) is expressed in a tissue-specific and developmentally controlled manner, and functions to remove ammonia or glutamate, or to produce glutamine. When its primary function appears to be the removal of glutamate or ammonia, cells contain very high GS concentrations, whereas the synthesis of glutamine appears to be associated with much lower cellular GS levels. GS is already expressed in embryonic stem (ES) cells. Complete inactivation of the gene in mice by in-frame replacement with the β-galactosidase reporter gene ($GS^{LacZ/LacZ}$) results in early embryonic lethality. Chimeras with >90% of their cells lacking GS can, nevertheless, survive until after birth, showing the GS deficiency does not entail cell-autonomous affects and that only few wild-type cells are necessary to survive.
To test the function of GS in organs separately, we generated a so-called conditional knockout (floxed) allele by flanking GS gene with two loxP sites, which are targets for the enzyme Cre recombinase. Both $GS^{fl/LacZ}$ and $GS^{fl/fl}$ mice are phenotypically normal and fertile. Through breeding with mice that express Cre in a tissue-specific manner, we successfully induced complete elimination of the floxed GS allele solely in that tissue. Thus, AlFp-Cre and MCK-Cre completely eliminated GS in liver and muscle, respectively, without affecting viability or morphology. This (unexpected) finding suggests that GS in liver and muscle exerts its function in conditions requiring an adaptive response, such as fasting, inflammation or a high-protein diet. The inactivation of GS in the astrocytes of the central nervous system by breeding $GS^{fl/LacZ}$ mice with hGFAP-Cre mice also resulted in apparently healthy newborns, but these animals all died on postnatal day 2 with the morphological symptoms of neuronal degeneration. In contrast with a recent report of GS deficiency in two human neonates *(N Engl J Med 2005; 353: 1926-33)*, the development and maturation of the mouse brain was not affected. We expect that our conditional GS knockout mouse will be a powerful tool to delineate the function of glutamine synthetase in the organs in which it is expressed.

VRIJE VOORDRACHTEN

V1 *The use of microMRI in morphological research.*

Bianca Hogers[1], Liesbeth Winter[1], Fanneke Alkemade[1], Rob van de Ven[2], Robert E. Poelmann[1]

[1] Department of Anatomy and Embryology, Leiden University Medical Center and Leiden Institute of Chemistry, Leiden, The Netherlands. [2] Department of Human Clinical Genetics, Leiden University Medical Center, Leiden, The Netherlands

Introduction: Although conventional microscopy offers a high resolution necessary for studying normal and abnormal morphology, there are certain drawbacks to the procedures. Sampling tissues is invasive and often lethal, the material is fixed and specimens cannot be used for other studies and a final reconstruction into a 3D image is often required. With micro-MRI it is possible to study nondestructively living animals like mouse or zebrafish and even embryos with a useful resolution. The technique has all signs of becoming the ultimate method to study longitudinally processes in time.
Materials and methods: Imaging was performed on a vertical Bruker 9.4 Tesla system with a gradient of 1T/m and a birdcage RF coil of 30 mm diameter. Mice were sedated with inhalation anesthesia (isoflurane with air/oxygen) and mounted into the imaging probe. Physiological conditions during the measurements were monitored by respiration frequency and ecg while the depth of the anesthesia was adapted accordingly. For embryonic imaging we studied quail embryos inside their eggs and mouse embryos in utero.
Results: Different MRI imaging sequences were used depending on the research topic. We obtained high resolution (20 um) 3D datasets of the murine brain ex-vivo with morphological detail comparable to brain atlases, while a resolution of 50-100 um was possible for in-vivo mouse brain imaging. Angiography (without contrast agent) was used for depiction of the blood vessels of the brain, the aorta and carotids. Cardiac imaging provided both functional parameters as well as the morphology of the healthy myocardium and infarct size of the same hearts over time after induction of a myocardial infarction. With spectroscopy brain metabolites were determined as well as water/lipid ratio in the liver after varying feeding conditions. Finally, subsequent stages of normal cardiac development in a single embryo over an extended period of time were studied.

V2 *Primary cilia on chicken embryonic endocardium in areas of low shear stress; biosensors for blood flow.*

Kim van der Heiden[1], B.C.W. Groenendijk[1], H.K. Koerten[2], A.M. Mommaas[2], R.E. Poelmann[1], A.C. Gittenberger-de Groot[1], B.P. Hierck[1]

[1]Department of Anatomy and Embryology and [2]Department of Molecular Cell Biology, Leiden University Medical Center, Leiden, The Netherlands

Introduction: Blood flow induced fluid shear stress is a determinative factor in cardiovascular development, as it drives gene expression in endothelial cells. Extensive remodeling during development alters patterns of this hemodynamic force considerably. The mechanism by which endothelial cells sense these alterations was unclear. We postulate a role for primary cilia as fluid shear stress sensors on endothelial cells. Such a function has already been attributed to primary cilia on epithelial cells of the adult kidney and Hensen's node in the embryo.
Methods and Results: We show a shear stress related distribution of cellular protrusions within the cardiovasculature of the chicken embryo with field emission scanning electron microscopy. We identify one of these protrusions as a cilium by immunofluorescent staining. The ciliary distribution is compared to the expression pattern of the high shear stress marker; Krüppel-like factor-2. We demonstrate the presence of primary cilia on endocardial cells in low and disturbed shear stress areas.
Conclusion: We postulate that the primary cilium is part of the mechanosensing mechanism of endothelial cells. In low shear stress areas cilia transduce the forces to the cytoskeleton, which in turn generates a response. This mechanism is already operational during the early phases of cardiovascular development and is involved in flow directed remodeling events.

Currently, we are extending our study to adult mice and we are performing functional experiments, which confirm a role for cilia in mechanosensing.

V3 *Anatomical variants in Guyon's tunnel.*

Barbaix E., D'Herde K., Clarys J.P.
Ghent University and Vrije Universiteit Brussel

Background: Ulnar nerve compressions at the wrist frequently occur in some professions like violin players and in handling pneumatic instruments. During surgical interventions anatomical variants are regularly found. One of the reported variants is the existence of a fibrous bridge joining the origins of the abductor and flexor digiti minimi brevis muscles.
Aim of the study: As soft tissue structures are susceptible to physical therapy measures, we intended to make a survey of these variants and to verify their visibility trough echography.
Material and Methods: A total of 75 embalmed hands were dissected. On 32 of them echographic evaluation was done prior to dissection and the correlation between imaging and gross anatomical finding was studied.
Results: Muscular anomalies were found in 25% of the specimens. The most frequent variant was the existence of an accessory belly of the abductor or flexor digiti minimi brevis muscle originating from the fore-arm. In 42 specimens (56%) a fibrous bridge united the origins of the abductor and flexor digiti minimi muscles. About half of them were tiny V-shaped bridges, the other half were strong arches spanned between the pisiform bone and the hamulus. In all but 6 hands the deep ramus passed cranial to the opponens muscle. In 9 specimens the edge of the muscle presented a fibrous section at the site of crossing. Echographic examination of 32 hands using a 7.5 MHz linear head proved unreliable to detect these anomalies except for the 9 strong fibrous arches which were always correctly identified.
Conclusions: Soft tissue variants are very frequent in the hypothenar. The existence of a strong fibrous arch spanned between pisiform and hamulus can be easily and reliably detected through echography

V4 Chronic alcohol consumption affects gastrointestinal motility *and the number of nitrergic and gabaergic enteric neurons in the mouse.*

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Chronic ethanol administration has been shown to alter gastrointestinal motility in alcoholic patients and laboratory animals but the cellular mechanisms underlying altered smooth muscle contraction are largely unknown. In the enteric nervous system, nitric oxide (NO) and gamma-aminobutyric acid (GABA) producing neurons play an essential role in regulating the downstream inhibitory phase of peristalsis. Our aim was to investigate how chronic alcohol consumption affects motility and whether it has an effect on the number of GABA- and NO synthase- (NOS) immunoreactive neurons in the enteric plexuses of mice. Mice received gradually increasing amounts of ethanol in water as their sole source of liquid, starting with 10% ethanol in the first, 15% ethanol in the second and 20% ethanol in the third up to the fifth week, when mice were sacrificed. The control group received an isocaloric sucrose solution. Gastric emptying and intestinal transit were measured *in vivo* 15 min after intragastric gavage of a semiliquid Evans blue bolus. Myenteric preparations from the stomach and myenteric and submucosal preparations from the duodenum and jejunum were used for GABA and NOS immunohistochemistry. The protein gene product 9.5 antibody was used as a pan-neuronal marker.
Chronic alcohol administration significantly increased gastric emptying and intestinal transit. The total number of neurons did not change after chronic alcohol consumption in any of the intestinal segments under investigation. However, the number of jejunal submucous GABA-

immunoreactive neurons increased significantly, while the number of jejunal myenteric nitrergic neurons decreased significantly.
These results are suggestive of a number of adaptive, region- and plexus-dependent quantitative changes in the number of nitrergic and GABAergic neurons within the murine enteric nervous system in response to chronic alcohol consumption and these changes may constitute part of the neuronal basis of increased gastrointestinal transit.
Supported by a bilateral project for scientific cooperation between the Flemish Community and Hungary (to EF and JPT)

NEDERLANDSE ANATOMEN VERENIGING

AGENDA

ALGEMENE LEDENVERGADERING

tijdens de

168ste VERGADERING VAN DE NEDERLANDSE ANATOMENVERENIGING

(Plaats: Conferentiecentrum 'de Werelt' te Lunteren
Zaterdag 7 januari 2006, 13:15 – 14:30 uur)

1. Opening
2. Mededelingen voorzitter (o.a. website NAV)
3. Jaarverslag 2005
4. Notulen vorige algemene ledenvergadering
5. Financiën overzicht en balans 2005
6. Bestuursverkiezingen: Geen der bestuursleden treedt af.
7. Tweedaagse wetenschappellijke vergadering 2007: voorstel 5 en 6 januari in "de Werelt" te Lunteren. Poortse voorzitter
8. European Federation for Experimental Morphology (EFEM)
9. Wat verder ter tafel komt
10. Rondvraag
11. Sluiting

Piet Hoogland
Secretaris NAV

NEDERLANDSE ANATOMEN VERENIGING

JAARVERSLAG 2005

Verslag van de tweedaagse bijeenkomst van de Nederlandse Anatomen Vereniging.

Op vrijdag 7 en zaterdag 8 januari 2005 werden de 167ste anatomendagen gehouden. Een jaarlijks terugkerende bijeenkomst die de laatste jaren als volgt is opgebouwd: Een educatief gedeelte dat is ingesteld om de leden van de anatomenvereniging op de hoogte te houden van nieuwe ontwikkelingen die met name met het onderwijs te maken hebben. Daarnaast wordt aandacht geschonken aan de wetenschappelijke resultaten van de leden van de vereniging. Dit laatste gebeurt door middel van voordrachten en posters.
Het educatieve deel bestond dit jaar uit twee symposia. Het eerste symposium was gewijd aan de ontwikkeling van hart en bloedvaten. Door de onderzoeksgroepen uit Amsterdam en Leiden werd op zeer inzichtelijke wijze uit de doeken gedaan hoe men tegenwoordig over deze moeilijke materie denkt. De heldere uiteenzettingen van Antoon Moorman van het Academisch Medisch Centrum Amsterdam en Rob Poelmann van het Leids Universitair Medisch Centrum werden op zeer illustratieve wijze aangevuld door demonstraties verzorgd door Adri Gittenberger en Margot Bartelings ook van het LUMC. Een onvervangbare bijdrage die door de aanwezigen op hoge prijs gesteld werd.
‘s Middags werd een symposium gehouden over “Endoscopische Anatomie”. De uroloog de la Rosette van het AMC liet het binnenste van onze urinewegen zien en toonde hoe een endoscopische prostaatresectie in zijn werk gaat. Het anatomisch en klinisch belang van deze voordracht was zonder meer duidelijk voor het publiek dat voor de meerderheid uit mannen van gevorderde leeftijd bestond. De Oostenrijker Dr. Stammberger demonstreerde in samenwerking met de Nederlandse anatoom Berend Hillen de anatomie van de sinussen in het hoofd en de klinische toepassing van de endoscopie bij medische ingrepen in en rond de sinussen. Het endoscopie symposium werd afgesloten door dr. Theo Rosch uit Pretoria Zuid Afrika . Hij demonstreerde de endoscopische benaderingen van het schoudergewricht en de therapeutische mogelijkheden die deze benadering heeft.
Een zeer educatieve middag voor de aanwezige anatomen omdat slechts weinigen ervaring op dit gebied hebben. Het zal het anatomie onderwijs in Nederland bijzonder ten goede komen.

Na dit symposium was een poster sessie georganiseerd. De getoonde posters (14 in totaal) toonden waar de verschillende afdelingen op onderzoeksgebied mee bezig zijn. De Carl Zeiss poster award ging naar Wilma van den Berg van het Vumc voor haar poster betreffende het onderzoek naar de bulbus olfactorius van Parkinson patiënten. Omdat reukstoornissen in een heel vroeg stadium van de ziekte van Parkinson aantoonbaar zijn is er tegenwoordig bijzonder veel belangstelling voor de reuk bij deze ziekte. Op de poster werd de aanwezigheid van de antioxidant NADPH: quinine oxidoreductase aangetoond in de reukhersenen. Deze stof beschermt waarschijnlijk de in de reukhersenen aanwezige dopamine houdende cellen. De avond werd afgesloten door een buitengewoon boeiende voordracht van Prof. van Lieburg uit Groningen over Medisch-historische excercities rond anatomische thema’s.
Het zaterdag programma bestond uit wetenschappelijke voordrachten. Voor de pauze was er gelegenheid voor jonge nog niet of zeer onlangs gepromoveerde anatomische wetenschappers om te strijden voor de “Bolkprijs”. Hoewel alle voordrachten van zeer goed niveau waren, was het Coen Elemans van de afdeling Zoölogie van de Universiteit Wageningen die met de prijs naar huis ging. Zijn voordracht “Superfast muscles control birdsong” was van uitzonderlijk gehalte. Zowel de inhoud als de presentatie maakten deze voordracht een terechte winnaar. De elegante en multidisciplinaire wijze waarop aangetoond werd dat supersnelle spieren ook bij vogels bestaan en dat zij verantwoordelijk zijn voor het zanggedrag van vogels was van hoog niveau. De tweedaagse vergadering werd afgesloten met een huishoudelijke vergadering. Alles bij elkaar een zeer geslaagde bijeenkomst met een zeer goed niveau.

Bestuursvergaderingen:

Het bestuur van de NAV is het afgelopen jaar diverse malen bijeen geweest. De voornaamste activiteit tijdens de bestuursvergaderingen betrof de organisatie van de 168ste jaarvergadering en de dingen die daarmee samenhangen. Omdat de locatie Lunteren goed was bevallen en de prijs ook redelijk is werd besloten de 168ste NAV bijeenkomst weer in congrescentrum “De Werelt” te Lunteren te houden. Als educatieve symposia werd gekozen voor de onderwerpen “Pijn”en “De ontwikkeling van het urogenitale stelsel”.

Ledenbestand:

Herman Berkhoudt heeft zijn lidmaatschap opgezegd.

Nieuw:
A van Capellen van Walsum

Piet Hoogland
Secretaris NAV

NEDERLANDSE ANATOMEN VERENIGING

Notulen algemene ledenvergadering NAV van 8 januari 2005

GEHOUDEN IN CONGRESCENTRUM “De Werelt” te Lunteren

Aanwezige bestuursleden:

Prof. Dr W.H. Lamers (voorzitter), Dr P.V.J.M. Hoogland (secretaris), mw. Dr I.E. hunnissen (penningmeester), Dr R.L.A.W. Bleys, Dr G.J. Kleinrensink, Dr P.O. Gerrits.
Afwezig met kennisgeving: Prof. Dr A. Weyns.

31 leden aanwezig

1. Opening: g.b
2. Mededelingen voorzitter:
   Overleden is mevr. Lasseel de Groot die met name in de Belgische anatomiewereld haar sporen heeft achtergelaten.

   Er zijn plannen voor een gecombineerde vergadering met de ASSA, de Zuid Afrikaanse zusterorganisatie voor het jaar 2006

   Er is een website van de Nederlandse anatomen vereniging: Voorgesteld wordt om bijvoorbeeld dia’s uit voordrachten hier op te zetten. Ook zou het een goede plek zijn om demonstraties op te zetten. Ook voor de aankondiging van symposia, promoties en publicaties is het een goed medium.
   De voorzitter stelt voor om na korte informatie over de diverse afdelingen links aan te maken naar de eigen websites van de afdelingen.
   Rob Poelmann ziet copyrightproblemen en stelt voor om alles als PDF files aan te bieden.
   De website wordt met instemming begroet.
3. Jaarverslag: geen opmerkingen
4. Notulen van de laatste algemene ledenvergadering te Woudschoten: Jan Kooloos wil zijn naam, overigens terecht, altijd met vier o’s geschreven zien.
   Verder geen opmerkingen
5. Financiën: overzicht en balans 2004: Prof K. D’Herde en Dr. J. Veening hebben de financiën van de vereniging grondig tegen het licht gehouden en hebben alles in orde bevonden. De voorzitter bedankt de penningmeester
6. Dr. Ronald Bleys was aan het eind van zijn aanstelling maar wordt met algemene stemmen voor een nieuwe periode als bestuurslid van de NAV gekozen.
7. Voorstel tweedaagse wetenschappelijke vergadering voor het jaar 2006: 6 en 7 januari in De Werelt te Lunteren. Aangezien er geen drastische prijsstijgingen te verwachten zijn en de men tevreden was met de entourage wordt dit voorstel aangenomen.
8. Internationale activiteiten: Zoals al vermeld bij punt 2, heeft de vereniging een uitnodiging gehad van de Anatomical Society of Southern Africa om deel te nemen aan de 36ste Annual Conference van deze vereniging. Deze bijeen komst wordt gehouden van 23-26 april 2006. Verdere bijzonderheden zullen op de website verschijnen.
   Prof. Dr. J. Drukker is als afgevaardigde van de NAV naar de bijeenkomst geweest van de IFAA in Kyoto Japan. Deze bijeenkomst werd bezocht door ongeveer 1000 deelnemers uit 50 landen. Mede door de stem van onze afgevaardigde wordt het volgende congres van de IFAA gehouden in 2009 te Kaapstad.
   Een van de activiteiten van de IFAA betreft de verzorging van de nomina anatomica. De nieuwe Terminologia Histologica gaat in 2005 naar de drukker (met een kleine d). Een concept van de Terminologia Embryologica wordt in concept vorm aan de

verenigingen aangeboden. De voorzitter van de NAV zal persoonlijk mensen benaderen om naar dit concept te kijken.
Als nieuwe vertegenwoordigers van de NAV bij de IFAA worden Ronald Bleys en Piet Hoogland voorgesteld. In de volgende bestuursvergadering zal hierover een besluit genomen worden.

Prof B. Hillen vraagt of er liefhebbers zijn om een volgende joint meeting met de Britse en Ierse anatomical society en mogelijk ook de Spaanse anatomen vereniging te organiseren in het voorjaar van 2006. Het bestuur zal de mogelijkheid bekijken en met name als het zou kunnen samenvallen met de jaarlijkse NAV bijeenkomst zijn er wel mogelijkheden.

9. Wat verder ter tafel komt: Prof Dubbeldam laat weten dat het erelid van de NAV Prof. Dullemeijer afgelopen jaar is overleden. Ook prof Ariëns Kappers is overleden.
10. 12.30 uur sluiting van de vergadering.

Daarna werd door de jury onder leiding van K.J. van Zwieten bekend gemaakt dat de Carl Zeiss Award voor de beste poster dit jaar is toegekend aan Wilma van de Berg en medewerkers voor haar poster Immunolocalization of NAD(P)H:quinine oxidoreductase in the olfactory bulb of Parkinson patients.

De Bolk prijs werd door een jury olv Prof J.P. Timmermans toegekend aan Ir Coen P.H. Elemans van de afdeling Experimentele Zoology van de Universiteit van Wageningen voor zijn voordracht: Superfast Muscles Control Birdsong. Voorwaar een goede voordracht. Trouwens ook bij de andere voordrachten viel veel kwaliteit te bespeuren.

DEELNEMERSLIJST 168STE WETENSCHAPPELIJKE VERGADERING
NAV, 6 & 7 JANUARI 2006

NAAM	AFDELING	INSTELLING
Mw. N. van den Akker	Anatomie & Embryologie	LUMC
Mw. M. Bagyánszki	Zoölogie en Celbiologie	Universiteit Szeged, Hongarije
Dr. E.J. Barbaix	Anatomie & Embryologie	Universiteit Gent
Dhr. G. van den Berg	Anatomie & Embryologie	AMC
R.L.A.W. Bleys	Farmacologie & Anatomie	UMC Utrecht
Mw. E. Bregman	Anatomie & Embryologie	Universiteit Maastricht
Prof.dr. K. D'Herde	Anatomie & Embryologie	Universiteit Gent
J. Drukker	Anatomie & Embryologie	Universiteit Maastricht
Prof.dr. T.M.G.J. van Eijden	Functionele Anatomie (ACTA)	AMC
Prof.dr. M. Espeel	Anatomie & Embryologie	Universiteit Gent
Dr. G.O. Gerrits	Anatomie & Embryologie	UMC Groningen
Dhr. C. van Ginneken	Anatomie & Embryologie	Universiteit Antwerpen
Mw.dr. F.M.M. Griffioen	Anatomie	AMC
Prof.dr. H.J. Groenewegen	Anatomie	VU Medisch Centrum
Mw. P.E. Habets	Anatomie & Embryologie	AMC
Mw. E. van Haver	Diergeneeskunde	Universiteit Antwerpen
Mw. K. van der Heiden	Anatomie & Embryologie	LUMC
W.S. van der Hel	Anatomie	UMC Utrecht
Prof.dr. P.V.J.M. Hoogland	Anatomie	VU Medisch Centrum
Dhr. K. Huetink	Anatomie	UMC Utrecht
Mw. B. Hogers	Anatomie	LUMC
Drs. T. van Hoof	Anatomie & Embryologie	Universiteit Gent
K.H. de Jong	Anatomie & Embryologie	AMC
Prof.dr. I. Kerckaert	Anatomie & Embryologie	Universiteit Gent
Mw. M. Krecsmarik	Zoölogie en Celbiologie	Universiteit Szeged, Hongarije
Prof.dr. L. van Leeuwen	Experimentele Zoölogie	Wageningen Universiteit
Prof.dr. G.J.R. Maat	Anatomie & Embryologie	LUMC
Mw. T. van der Meulen	Experimentele Zoölogie	Wageningen Universiteit
Prof.dr. A.F.M. Moorman	Anatomie & Embryologie	AMC
Mw. M. Oste	Diergeneeskunde	Universiteit Antwerpen
Dhr. W. Philips	Diergeneeskunde	Universiteit Antwerpen
Dhr.T. Roeling	Farmacologie & Anatomie	UMC Utrecht
M.C. de Ruiter	Anatomie & Embryologie	LUMC
Dr. W.J.A.J. Smeets	Anatomie	VU Medisch Centrum
Th. Snoeck	Anatomie	Vrije Universiteit Brussel
M . Spinder	Anatomie	UMC Utrecht
F. Thors	Anatomie & Embryologie	Universiteit Maastricht
I.E. Thunnissen	Farmacologie & Anatomie	UMC Utrecht
Dhr. J.P. Timmermans	Laboratorium voor Cel- en Weefselleer	Universiteit Antwerpen
Mw. E. Timmermans-Huisman	Anatomie	VU Medisch Centrum
Dhr. I. van Toor	Humane Anatomie	Universiteit Antwerpen
Prof.dr. H.B.M. Uijlings	Anatomie	VU Medisch Centrum
J.C. van der Wal	Anatomie & Embryologie	Universiteit Maastricht
Dhr. A. Weijns	Diergeneeskunde	Universiteit Antwerpen
Mw. Y. He	AMC Levercentrum	AMC
Dhr. K.J. van Zwieten	Anatomie	Universiteit Hasselt