

List of errata

This list of errata contains errors and their corrections for the dissertation thesis titled “Magnetic resonance imaging and advanced imaging assessment of the growth plate in the adolescent and young adult”

Page, paragraph, line	Original Text	Corrected text
Notification of submission (<i>Spikblad</i>)	Magnetic resonance imaging of the growth plate in adolescent and young adult	Magnetic resonance imaging and advanced imaging assessment of the growth plate in the adolescent and young adult
Page 3, Paragraph 2, Line 5 and 7	IHH	Ihh
Page 7, Paragraph 2, Line 5	Computer-based skeletal age scoring	Computer-assisted skeletal age scores
Page 8, Figure Caption, Line 3	BA	Bone age
Page 11, Paragraph 1, Line 5	...growth plates are of not of equal importance...	...growth plates are not of equal importance...
Page 16, Paragraph 3, Line 4	To avoid misinterpreting the apparent diffusion coefficient (ADC) can be calculated by subtracting the image with high b-value from B0 image.	To avoid misinterpreting the DWI image apparent diffusion coefficient (ADC) can be calculated from the diffusion weighted images. $ADC = -\frac{1}{b} \ln\left(\frac{DWI}{b_0}\right)$
Page 16, Paragraph 3, Line 10	...to assess if the diffusion spherical or...	to assess if the diffusion is spherical or...
Page 17, Paragraph 1, Line 3	Isotopic	Isotropic
Page 17, Paragraph 1, Line 9	Axial diffusivity (AD) is consists solely of...	Axial diffusivity (AD) consists solely of...
Page 17, Paragraph 1, Line 14	...a maximum turning angle to filter to create...	...a maximum turning angle to create...
Page 19, Paragraph 2, Line 5	...to have fluctuated with from between...	...to have fluctuated from between...
Page 19, Paragraph 2, Line 7	(15 to 16 years of age)	<i>Text deleted</i>
Page 19, Paragraph 2, Line 22	In summary, increased of standard of...	In summary, increased standard of...
Page 24, top box left side	...visualize growth? Plate?	...visualize the growth plate?
Page 24, second to lowest box left side	...remaining growth? plate Potential?	... remaining growth potential?
Page 24, bottom box left side	...other modalities (CT)? or histology?	...other modalities like CT or histology?
Page 30, paragraph 6, line 2	...3 mm with 3 mm spacing, a pixel	... 3 mm with 3 mm spacing for Philips and Siemens while GE had a 1.5 mm spacing.
Page 36, paragraph 1, line 1	...using the ITK Snap ITK Snap software...	...using the ITK Snap software...
Page 37, paragraph 2, line 1	...by measuring the from the border...	...by measuring from the border...
Page 37, paragraph 4, line 1	The DTI assessment was performed on DSI Studio...	The DTI assessment was performed with the DSI studio software...
Page 39, paragraph 5, line 2	Spearman’s ranks correlation coefficient...	Spearman’s rank correlation coefficient...
Page 47, figure 16.	“(B)” is written in bold	“(B)” is the correct format
Page 54, Equation between paragraph 1 and 2	\sqrt{NEX} (scan time= number of phase	Scan time= number of phase encoding x TR x NEX

encoding x TR x NEX).

Page 55, paragraph 1, line 9	...number of alternatives choose from.	...number of alternatives to choose from.
Page 56, paragraph 2, line 1	Improvements innutrition...	Improvements in nutrition...
Page 57, paragraph 1, line 2	In males14% were....	In males 14% were...
Page 57, paragraph 2, line 12	This is a significant increase among the 19-year-olds compared to an autopsy study that found only 40.3% (21/52) of 19-year-old males with completely closed growth plates in the distal radius.	The statement is missing its reference which is McKern et al. (Reference# [66] in the dissertation thesis). Correct ending of the sentence is: ...growth plates in the distal radius [66].
Page 58, paragraph 1, line 12	...bone so it still detectable on T1W.	...bone so it is still detectable on T1W.
Page 60, paragraph 2, line 8	...results the render DTI feasible in clinical setting.	...results that render DTI feasible in clinical setting.
Page 62, paragraph 2, line 2	Tractography calculated from DTI is a promising too to assess...	Tractography calculated from DTI is a promising method to assess...
Page 63, paragraph 1, line 6	An non-ionizing method with...	A non-ionizing method with...
Page 63, paragraph 1, line 12	...no consensus has around whether fusion follows...	...no consensus whether fusion follows...
Page 63, paragraph 2, line 5	...performed on different MRI scanners still can be comparable.	...performed on different MRI scanners can be comparable.
Page 63, paragraph 4, line 4	...while and reducing the need for...	...while reducing the need for...
Study 2, Abstract, Results	...obese or overweight subects...	...obese or overweight subjects...
Study 3, 2.2 MRI imaging, paragraph 3, line 3	FOV 6) x 60 x 60 mm ³	FOV 60 x 60 x 60 mm ³
Study 3, page 8, Figure 6, line 9	“CC” is missing	CC= calcified cartilage in the metaphysis
Study 4, Material & Methods, line 2	(registration number XXXX-XXXX)	(registration number 2017/4-31/4 for the main study and 2017/1773-32 for the amendment regarding DTI)

Title Page Study IV:

DTI assessment of the maturing growth plate of the knee in adolescents and young adults.

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Running title: Diffusion tensor imaging assessment of the growth plate closure.

Supplemental material to Study IV:

Supplemental material 1. (S1)

Assessment of skeletal maturation of everyone in the study.

All images in an examination were assessed and rated according to a staging system developed from the developmental stages by Kellinghaus' modified version of Schmeling's developmental stages [1, 2] and the developmental stages by Dedouit et al. [3] with minor modifications. We defined the scale as the following:

- Stage 1. Continuous, stripe-like, cartilage signal intensity is present between the metaphysis and the epiphysis with a thickness greater than 1.5mm with a multilaminar appearance.
- Stage 2. Continuous cartilage signal intensity is present between the metaphysis and the epiphysis with a thickness greater than 1.5 mm with increased signal intensity but without a multilaminar appearance.
- Stage 3. Continuous cartilage signal intensity is present between the metaphysis and the epiphysis with a thickness less than 1.5mm with increased signal intensity.
- Stage 4a. The cartilage is not continuous. A hazy area involving one third or less of the growth plate is present between the metaphysis and the epiphysis, representing epiphyseal-metaphyseal fusion.
- Stage 4b. The cartilage is not continuous. A hazy area involving between one third and two thirds of the growth plate is present between the metaphysis and the epiphysis, representing epiphyseal-metaphyseal fusion.
- Stage 4c. The cartilage is not continuous. A hazy area involving more than two thirds of the growth plate is present between the metaphysis and the epiphysis, representing epiphyseal-metaphyseal fusion.
- Stage 5. The epiphyseal cartilage has fused completely, with or without an epiphyseal scar.

The image with the highest grade of closure was selected and graded according to the modified staging system with the exception for Stage 5. To be graded as Stage 5 then the growth plate had to be completely closed on all images.

Supplemental material 2. (S2)

Tract based values from the femoral growth plate measured on the DTI sequence. (All data are shown as mean and standard deviation.) No growth plate was completely fused in the 14-year-old females, or the males aged between 14 to 16 years of age. The growth plate was completely fused in all 19–21-year-old, both female and male.

	Age (years)	Tract number	Tract length (mm)	Tract volume (mm ³)	FA-value	MD (10 ⁻³ mm ² /s)	AD (10 ⁻³ mm ² /s)	RD (10 ⁻³ mm ² /s)
Female	14	6060.5 ±3193.8	6.25 ±0.42	9546.8 ±4100.5	0.29 ±0.05	0.99 ±0.07	1.26 ±0.09	0.85 ±0.07
	15	2951 ± 3379.5	6.00 ±0.61	5176.8 ±5597.9	0.36 ±0.08	0.99 ±0.12	1.36 ±0.18	0.81 ± 0.12
	16	639.9 ±338.3	5.26 ±0.43	1126.1 ±597.5	0.48 ±0.04	0.88 ±0.11	1.33 ±0.16	0.66 ±0.09
	17	736.7 ±1279.2	6.30 ±2.58	1959.7 ±2854.1	0.46 ±0.05	0.93 ±0.16	1.41 ±0.26	0.70 ±0.11
	18	609.6 ±458.9	5.79 ±0.63	1057.2 ±747.7	0.50 ±0.02	0.75 ±0.14	1.15 ±0.21	0.55 ±0.11
	19	484.7 ±355.4	6.15 ±1.12	869.5 ±622.1	0.50 ±0.04	0.86 ±0.111	1.33 ±0.14	0.63 ±0.10
	20	397.6 ±296.6	5.50 ±0.67	723.9 ±528.1	0.50 ±0.04	0.92 ±0.14	1.14 ±0.19	0.68 ±0.11
	21	541.8 ±263.8	5.92 ±0.91	978.3 ±473.3	0.51 ±0.03	0.81 ±0.10	1.25 ±0.17	0.58 ±0.07
Male	14	8841.5 ±2109.6	6.35 ±0.96	13877.1 ±3366.3	0.18 ±0.05	1.26 ±0.14	1.47 ±0.13	1,15 ±0.15
	15	7788.0 ±2897.3	6.35 ±0.70	12875.1 ±3150.8	0.25 ±0.05	1.14 ±0.18	1.41 ±0.20	1.00 ±0.17
	16	7755.1 ±4024.6	6.01 ±0.33	12848.3 ±6609.2	0.28 ±0.06	0.99 ±0.18	1.26 ±0.18	0.86 ±0.18
	17	3323.6 ±2834.7	5.88 ±0.68	4817.4 ±4254.5	0.38 ±0.09	0.88 ±0.10	1.22 ±0.14	0.71 ±0.10
	18	1960.5	6.10	3384	0.41	0.87	1.25	0.68

		±2078.5	±0.50	±3456	±0.09	±0.18	±0.29	±0.14
	19	410.5 ±280.7	5.66 ±0.61	742.9 ±448.3	0.46 ±0.06	1.13 ±0.28	1.66 ±0.35	0.86 ±0.24
	20	532.0 ±197.9	6.62 ±1.17	1033.4 ±1915.8	0.48 ±0.03	0.85 ±0.13	1.29 ±0.21	0.63 ±0.09
	21	700.8 ±971.2	6.26 ±0.87	1353.3 ±1915.8	0.47 ±0.05	0.91 ±0.14	1.35 ±0.20	0.69 ± 0.12

Supplemental material 3. (S3)

Tract based values from the tibial growth plate measured on the DTI sequence. (All data are shown as mean and standard deviation.) In all age groups there was at least one female who had completely closed growth plate, whereas all males among the 14 and 16 years old had completely open growth plate. (There was one 15-year-old male with completely closed growth plate.) The growth plate was completely fused among all 18–21-year-old females and all 19–21-year-old males.

	Age (years)	Tract number	Tract length (mm)	Tract volume (mm ³)	FA-value	MD (10 ⁻³ mm ² /s)	AD (10 ⁻³ mm ² /s)	RD (10 ⁻³ mm ² /s)
Female	14	3727.8 ±3175.7	6.50 ±1.04	6200.0 ±5021.6	0.32 ±0.09	0.96 ±0.13	1.28 ±0.21	0.80 ±0.12
	15	699.7 ±1190.9	5.77 ±0.64	1326.6 ±2166.8	0.45 ±0.08	0.89 ±0.17	1.31 ±0.22	0.68 ±0.15
	16	490.9 ±392.2	5.92 ±1.18	911.9 ±776.9	0.48 ±0.03	0.88 ±0.20	1.33 ±0.30	0.65 ±0.16
	17	276.5 ±237.8	6.09 ±1.69	849.3 ±1166.4	0.48 ±0.05	0.89 ±0.30	1.33 ±0.44	0.66 ±0.23
	18	525.4 ±263.7	7.88 ±4.39	847.0 ±511.8	0.52 ±0.04	0.81 ±0.17	1.27 ±0.26	0.58 ±0.13
	19	363.1 ±253.1	7.52 ±2.19	731.4 ±521.2	0.52 ±0.04	0.79 ±0.07	1.23 ±0.11	0.57 ±0.06
	20	273.8 ±207.8	6.97 ±1.86	534.3 ±345.1	0.52 ±0.02	0.89 ±0.11	1.38 ±0.16	0.63 ±0.09
	21	371.9 ±177.3	7.99 ±3.16	739.7 ±381.3	0.53 ±0.03	0.78 ±0.11	1.25 ±0.19	0.56 ±0.08
Male	14	8112.2 ±3308.3	7.22 ±1.50	13772.2 ±5197.9	0.18 ±0.06	1.24 ±0.16	1.46 ±0.14	1.14 ±0.17
	15	5851.4 ±3963.7	8.03 ±2.32	10595.4 ±6531.0	0.26 ±0.06	1.12 ±0.16	1.40 ±0.16	0.98 ±0.16
	16	5084.3 ±4698.2	7.47 ±1.27	8327.0 ±6540.0	0.33 ±0.10	0.94 ±0.15	1.25 ±0.13	0.79 ±0.17
	17	1116.7	5.85	1527.0	0.41	0.95	1.35	0.75

		±1020.1	±0.71	±1047.9	±0.07	±0.17	±0.23	±0.15
18		703.6	6.44	1305.4	0.45	0.89	1.31	0.68
		±560.9	±1.03	±974.5	±0.08	±0.19	±0.25	±0.17
19		322.1	6.10	621.9	0.52	0.88	1.38	0.63
		±224.1	±1.32	±401.9	±0.05	±0.22	±0.32	±0.17
20		515.0	7.91	1041.6	0.48	0.78	1.17	0.59
		±247.5	±1.95	±418.4	±0.05	±0.16	±0.19	±0.14
21		270.6	6.46	524.4	0.49	0.76	1.16	0.56
		±227.1	±1.51	±394.2	±0.05	±0.21	±0.31	±0.16

- [1] A. Schmeling, R. Schulz, W. Reisinger, M. Muhler, K.D. Wernecke, G. Geserick, Studies on the time frame for ossification of the medial clavicular epiphyseal cartilage in conventional radiography, *Int J Legal Med* 118(1) (2004) 5-8.
- [2] M. Kellinghaus, R. Schulz, V. Vieth, S. Schmidt, H. Pfeiffer, A. Schmeling, Enhanced possibilities to make statements on the ossification status of the medial clavicular epiphysis using an amplified staging scheme in evaluating thin-slice CT scans, *Int J Legal Med* 124(4) (2010) 321-5.
- [3] F. Dedouit, J. Auriol, H. Rousseau, D. Rouge, E. Crubezy, N. Telmon, Age assessment by magnetic resonance imaging of the knee: a preliminary study, *Forensic Sci Int* 217(1-3) (2012) 232.e1-7.