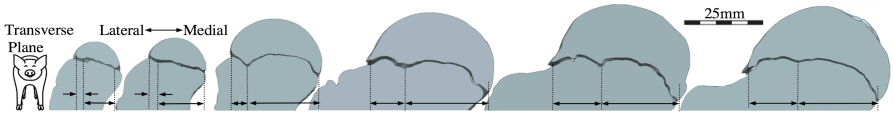
Sagittal Plane Epiphyseal Expansion [mm]

Age [Days]	Medial	Lateral	Difference
120 1R	21.0	4.0	17.0
120 2R	20.0	4.0	16.0
120 3R	22.0	4.0	18.0
120 4R	21.0	5.0	16.0
1201L	20.0	4.0	16.0
120 2L	20.0	4.0	16.0
120 3L	20.0	4.0	16.0
120 4L	21.0	5.0	16.0
Mean	20.63	4.25	16.38
SD	0.74	0.46	0.74

Age [Days]	Medial	Latera	Difference
900 1R	22.0	15.0	7.0
900 2R	22.0	13.0	9.0
900 3R	19.0	20.0	-1.0
9001L	21.0	15.0	6.0
900 2L	23.0	12.0	11.0
900 3L	19.0	16.0	3.0
Mean	21.00	15.17	5.83
SD	1.67	2.79	4.31



Medial Expansion vs Lateral Expansion 120 Days

Descriptive Statistics

	Difference
Mean	16.4
Standard Erro	0.26305214
Median	16.0
Mode	16
Standard Dev	0.74402381
Sample Varia	0.55357143
Kurtosis	3.2049948
Skewness	1.95103018
Range	2
Maximum	18.0
Minimum	16.0
Sum	131.0
Count	8
Geometric M	16.3608237
Harmonic Me	16.3472454
AAD	0.5625
MAD	0
IQR	0.25

Box Plot

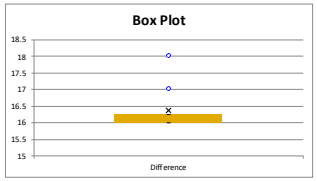
	Difference
Min	16
Q1-Min	0
Med-Q1	0
Q3-Med	0.25
Max-Q3	0
Mean	16.4
Min	16
Q1	16
Median	16.0
Q3	16.25
Max	16
Mean	16.4
Grand Min	0
Outliers	17.0
	18.0

Shapiro-Wilk Test

	Difference
W-stat	0.601283046
p-value	0.000164595
alpha	0.05
normal	no

d'Agostino-Pearson

DA-stat	11.41335714
p-value	0.003323694
alpha	0.05
normal	no



Medial Expansion vs Lateral Expansion 120 Days

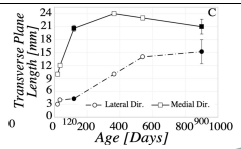
Wilcoxon Signed-Rank Test for Paired Samples

	Medial	Lateral
median	20.50	4.00
count	8	16.50
# unequal	8	
T+	0	
T-	36	
T	0	
	one tail	two tail
alpha	0.05	
mean	18	
std dev	6.82825014	ties
z-score	2.63610729	
effect r	0.65902682	
T-crit	6.76852799	4.61687564
p-value	0.00419316	0.00838632
sig (norm)	yes	yes
T-crit	5	3
sig (table)	yes	yes
p-value	0.00390625	0.0078125
sig (exact)	yes	yes

Hodges-Lehmann estimation for the difference betweenpopulation medians

Walsh Averages (row+column)/2

	17.00	16.00	18.00	16.00	16.00	16.00	16.00	16.00
17.0	17	16.5	4.0	16.5	16.5	16.5	16.5	16.5
16.0		16	17	16	16	16	16	16
18.0			18	17	17	17	17	17
16.0				16	16	16	16	16
16.0					16	16	16	16
16.0						16	16	16
16.0							16	16
16.0								16

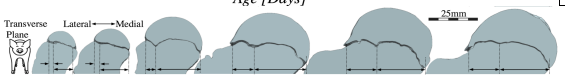


Calculate the 95% CI

alpha	0.05
T-crit	3.00 SRINV(alpha, N)
alpha	0.04 SRDIST(T-crit, N)
lower	16.00 SMALL(H7:V21,T-crit)
upper	17.00 LARGE(H7:V21,T-crit)
median	16.00 MEDIAN(H7:V21)
T-crit+	4.00 T-crit + 1
alpha	0.05 SRDIST(T-crit+, N)
lower	16.00 SMALL(H7:V21,T-crit+)
upper	17.00 LARGE(H7:V21,T-crit+)

The 95%CI for the median is:
95%CI = [16.0, 17.0]

Effect size Choen's *d* score		Effect size Choen's *r* score	
0.2	Small	0.1	Small
0.5	Medium	0.3	Medium
0.8	Large	0.5	Large



The 120-day-old average medial (*Mdn* = 20.5 mm) expansion with respect to the tubercle was larger than lateral (*Mdn* = 4.0 mm) expansion.
A Wilcoxon signed-rank test indicated this difference (16.50 mm) was statistically significant, 95% CI [16.0, 17.0], $T = 0$, $z = 2.63$ $P = .008$, with a large effect size ($r = .66$).

Medial Expansion vs Lateral Expansion 900 Day

Descriptive Statistics

	Difference
Mean	5.8
Standard Erro	1.75910331
Median	6.5
Mode	#N/A
Standard Dev	4.30890551
Sample Varia	18.5666667
Kurtosis	-0.036648
Skewness	-0.6395672
Range	12
Maximum	11.0
Minimum	-1.0
Sum	35.0
Count	6
Geometric M	#NUM!
Harmonic Me	#NUM!
AAD	3.22222222
MAD	3
IQR	4.75

Box Plot

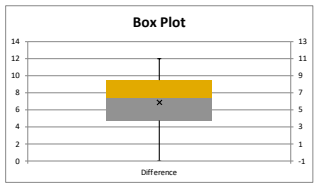
	Difference
Min	0
Q1-Min	4.75
Med-Q1	2.75
Q3-Med	2
Max-Q3	2.5
Mean	6.8
Min	-1
Q1	3.75
Median	6.5
Q3	8.5
Max	11
Mean	5.8
Grand Min	-1
Outliers	

Shapiro-Wilk Test

	Difference
W-stat	0.96975512
p-value	0.890785402
alpha	0.05
normal	yes

d'Agostino-Pearson

DA-stat	0.573107982
p-value	0.750846538
alpha	0.05
normal	yes



Medial Expansion vs Lateral Expansion 900 Day

T Test: Two Paired Samples

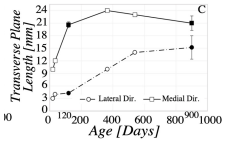
SUMMARY Alpha 0.05 Hyp Mean D 0

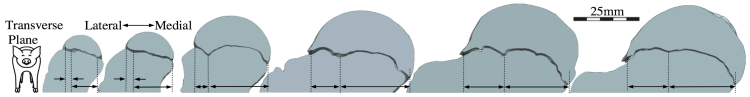
Groups	*Count*	*Mean*	*Std Dev*	*Std Err*	*t*	*df*	*Cohen d*	*Effect r*
Medial	6	21.00	1.67332005					
Latera	6	15.17	2.786874					
Difference	6	5.83	4.30890551	1.75910331	3.31608343	5	1.35378539	0.8291139

T TEST

	p-value	*t-crit*	*lower*	*upper*	*sig*
One Tail	0.01054942	2.01504837			yes
Two Tail	0.02109885	2.57058184	1.31141433	10.3552523	yes

Effect size Choen's *d* score		Effect size Choen's *r* score	
0.2	Small	0.1	Small
0.5	Medium	0.3	Medium
0.8	Large	0.5	Large





The 900-day-old average medial (21.00 ± 1.67 mm) expansion with respect to the tubercle was larger than lateral (15.17 ± 2.79 mm) expansion.
This difference (5.83 mm), 95% CI [1.31, 10.35] was statistically significant, $t(5) = 3.31$, $P < .001$, with a large effect size ($d = 1.35$).

Medial Expansion 120 to 900 Day

Test For Normality 120 Day

Descriptive Statistics

	Medial
Mean	21.0
Standard Erro	0.68313005
Median	21.5
Mode	22
Standard Dev	1.67332005
Sample Varia	2.8
Kurtosis	-1.7857143
Skewness	-0.3841806
Range	4
Maximum	23.0
Minimum	19.0
Sum	126.0
Count	6
Geometric M	20.9435332
Harmonic Me	20.8863064
AAD	1.33333333
MAD	1
IQR	2.5

Box Plot

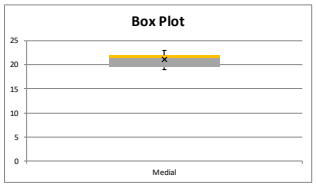
	Medial
Min	19
Q1-Min	0.5
Med-Q1	2
Q3-Med	0.5
Max-Q3	1
Mean	21.0
Min	19
Q1	19.5
Median	21.5
Q3	22
Max	23
Mean	21.0
Grand Min	0
Outliers	

Shapiro-Wilk Test

	Medial
W-stat	0.876137791
p-value	0.251785887
alpha	0.05
normal	yes

d'Agostino-Pearson

DA-stat	1.258928571
p-value	0.532877194
alpha	0.05
normal	yes



Test For Normality 900 Day

Descriptive Statistics

	Medial
Mean	21.0
Standard Erro	0.68313005
Median	21.5
Mode	22
Standard Dev	1.67332005
Sample Varia	2.8
Kurtosis	-1.7857143
Skewness	-0.3841806
Range	4
Maximum	23.0
Minimum	19.0
Sum	126.0
Count	6
Geometric M	20.9435332
Harmonic Me	20.8863064
AAD	1.33333333
MAD	1
IQR	2.5

Box Plot

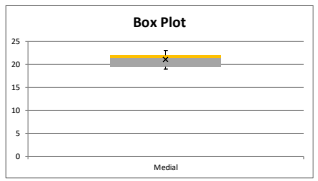
	Medial
Min	19
Q1-Min	0.5
Med-Q1	2
Q3-Med	0.5
Max-Q3	1
Mean	21.0
Min	19
Q1	19.5
Median	21.5
Q3	22
Max	23
Mean	21.0
Grand Min	0
Outliers	

Shapiro-Wilk Test

	Medial
W-stat	0.876137791
p-value	0.251785887
alpha	0.05
normal	yes

d'Agostino-Pearson

DA-stat	1.258928571
p-value	0.532877194
alpha	0.05
normal	yes



Medial Expansion 120 to 900 Day

T Test: Two Independent Samples

SUMMARY — Hyp Mean D: 0

Groups	*Count*	*Mean*	*Variance*	*Cohen d*
Medial	6	21.00	2.8	
Medial	8	20.63	0.55357143	
Pooled		0.38	1.48958333	0.30725493

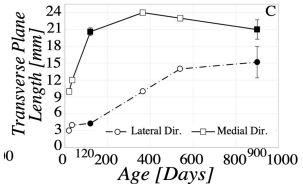
Effect size		Effect size	
Choen's *d* score		Choen's *r* score	
0.2	Small	0.1	Small
0.5	Medium	0.3	Medium
0.8	Large	0.5	Large

T TEST: Equal Variances — Alpha: 0.05

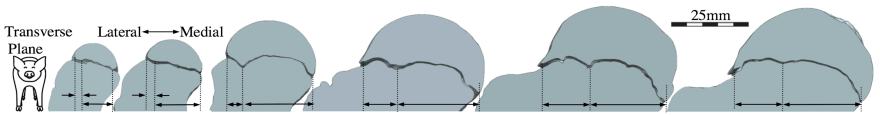
	std err	*t-stat*	*df*	*p-value*	*t-crit*	*lower*	*upper*	*sig*	*effect r*
One Tail	0.65913717	0.56892559	12	0.28994959	1.78228756			no	0.16206354
Two Tail	0.65913717	0.56892559	12	0.57989918	2.17881283	-1.0611365	1.81113652	no	0.16206354

T TEST: Unequal Variances — Alpha: 0.05

	std err	*t-stat*	*df*	*p-value*	*t-crit*	*lower*	*upper*	*sig*	*effect r*
One Tail	0.7320267	0.51227639	6.49077772	0.31271005	1.91718136			no	0.19712848
Two Tail	0.7320267	0.51227639	6.49077772	0.62542009	2.40275585	-1.3838814	2.13388144	no	0.19712848



No difference could be detected for medial expansion with respect to the tubercle from 120-days-old (20.63 ± 0.74 mm) to 900-days-old (21.00 1.67 mm).
The difference 0.38 mm, 95% CI [-1.49,2.13] was not statistically significant(6.49) = 0.51, *P* = .63, with a small effect size(*d* = .31).



Lateral Expansion 120 to 900 Day

Test For Normality 120

Descriptive Statistics

	Lateral
Mean	4.3
Standard Erro	0.16366342
Median	4.0
Mode	4
Standard Dev	0.46291005
Sample Varia	0.21428571
Kurtosis	0
Skewness	1.4401646
Range	1
Maximum	5.0
Minimum	4.0
Sum	34.0
Count	8
Geometric M	4.22948505
Harmonic Me	4.21052632
AAD	0.375
MAD	0
IQR	0.25

Box Plot

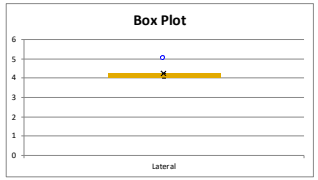
	Lateral
Min	4
Q1-Min	0
Med-Q1	0
Q3-Med	0.25
Max-Q3	0
Mean	4.3
Min	4
Q1	4
Median	4.0
Q3	4.25
Max	4
Mean	4.3
Grand Min	0
Outliers	5.0
	5.0

Shapiro-Wilk Test

	Lateral
W-stat	0.565940661
p-value	6.32298E-05
alpha	0.05
normal	no

d'Agostino-Pearson

DA-stat	3.666666667
p-value	0.159879746
alpha	0.05
normal	yes



Test For Normality 990 Day

Descriptive Statistics

	Latera
Mean	15.2
Standard Erro	1.13773654
Median	15.0
Mode	15
Standard Dev	2.786874
Sample Varia	7.76666667
Kurtosis	1.51135589
Skewness	0.99177376
Range	8
Maximum	20.0
Minimum	12.0
Sum	91.0
Count	6
Geometric M	14.9649814
Harmonic Me	14.7750592
AAD	1.88888889
MAD	1.5
IQR	2.25

Box Plot

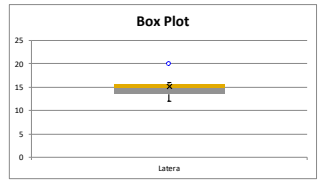
	Latera
Min	12
Q1-Min	1.5
Med-Q1	1.5
Q3-Med	0.75
Max-Q3	0.25
Mean	15.2
Min	12
Q1	13.5
Median	15.0
Q3	15.75
Max	16
Mean	15.2
Grand Min	0
Outliers	20.0

Shapiro-Wilk Test

	Latera
W-stat	0.922688914
p-value	0.524934984
alpha	0.05
normal	yes

d'Agostino-Pearson

DA-stat	2.130846152
p-value	0.344582039
alpha	0.05
normal	yes



Lateral Expansion 120 to 900 Day

Mann-Whitney Test for Two Independent Samples

Calculate the 95% CI

	Latera	Lateral	Difference
count	6	8	
median	15.00	4.00	11.00
rank sum	69	36	
U	0	48	

	one tail	two tail
alpha	0.05	
U	0	
mean	24	
std dev	7.42434368	ties
z-score	3.23260897	
effect r	0.86395109	
U-crit	11.7880414	9.44855377
p-value	0.00061333	0.00122665
sig (norm)	yes	yes
U-crit	10	7
sig (table)	yes	yes
p-value	0.000333	0.000666
sig (exact)	yes	yes

Hodges-Lehmann estimation for the difference betweenpopulation medians

(m-n) table

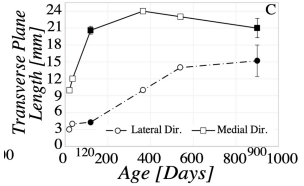
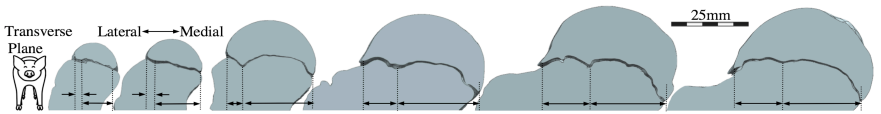
	5.0	3.0	20.0	15.0	12.0	16.0
4.0	1.0	-1.0	16.0	11.0	8.0	12.0
4.0	1.0	-1.0	16.0	11.0	8.0	12.0
4.0	1.0	-1.0	16.0	11.0	8.0	12.0
5.0	0.0	-2.0	15.0	10.0	7.0	11.0
4.0	1.0	-1.0	16.0	11.0	8.0	12.0
4.0	1.0	-1.0	16.0	11.0	8.0	12.0
4.0	1.0	-1.0	16.0	11.0	8.0	12.0
5.0	0.0	-2.0	15.0	10.0	7.0	11.0

Calculate the 95% CI

alpha	0.05	
U-crit	8.00	MWINV(alpha, n2, n1)
alpha	0.04	MWDIST(U-crit, n1, n2)
lower	1.00	SMALL(F9:P20, U-crit)
upper	15.00	LARGE(F9:P20, U-Crit)
median	9.00	MEDIAN(F9:F20)
U-crit+	9.00	U-crit+1
alpha	0.06	MWDIST(U-crit+, n1, n2)
lower	0.00	SMALL(F9:P20, U-crit+)
upper	12.00	LARGE(F9:P20, U-Crit+)

95% CI = [*1.0, 15.00]

Effect size		Effect size	
Choen's *d* score		Choen's *r* score	
0.2	Small	0.1	Small
0.5	Medium	0.3	Medium
0.8	Large	0.5	Large



The average lateral expansion with respect to the tubercle increased from 120-days-old (*Mdn* = 4.0 mm) to 900-days-old (*Mdn* = 15.0 mm).
A Mann-Whitney test indicated this difference (11.0 mm) was statistically significant, 95% CI [1.0, 15.0], U(N_1 = 6, N_{120} = 8), *z* = 3.23, *P* = .001, with a large effect size (*r* = .86).