

Babyweinen – Lied oder Lärm?

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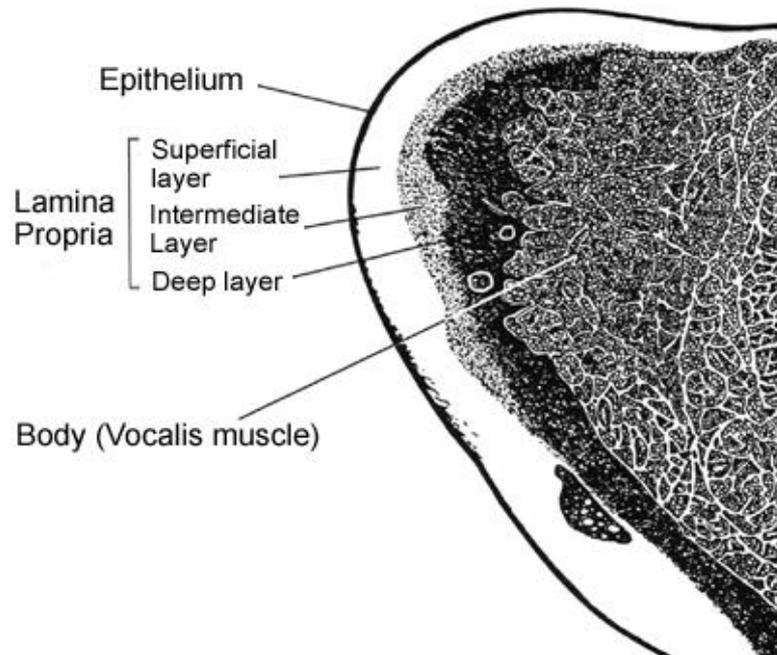
Manche Babys schreien so laut wie ein Düsenjet

Forscher finden neue Fakten zu den teils extrem lautstarken Attacken der Jüngsten.



"Eines Tages wird der Mensch den Lärm ebenso unerbittlich bekämpfen müssen wie die Cholera und die Pest."
(Robert Koch, um 1900)

„Stimmband“ beim Säugling spezifisch



Body-Cover-Modell Hirano (1974)

Stimmklappen bestehen funktionell aus einem

- **starren System** (*body /transition*), Musculus vocalis (*body*)
- mittlere und tiefe Schicht der Lamina propria (*transition*)
- **flexiblen System** (*cover*) Epithelium und obere Schicht der Lamina propria

Lamina propria jedoch noch keine Schichtstruktur, sondern gleichmäßige, hyperzelluläre Monoschicht

- **darin Hyaluronsäure gleichmäßig verteilt**

The Cry of the Child and its Relationship to Hearing Loss in Parental Guardians and Health Care Providers

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Zwei experimentelle Messungen

1. 90 Grad Winkel und ca. 45 cm vom kindlichen Mund (“Schwester”, “Arzt”)
2. 90 Grad Winkel und ca. 30 cm (“Eltern”)

Table 2

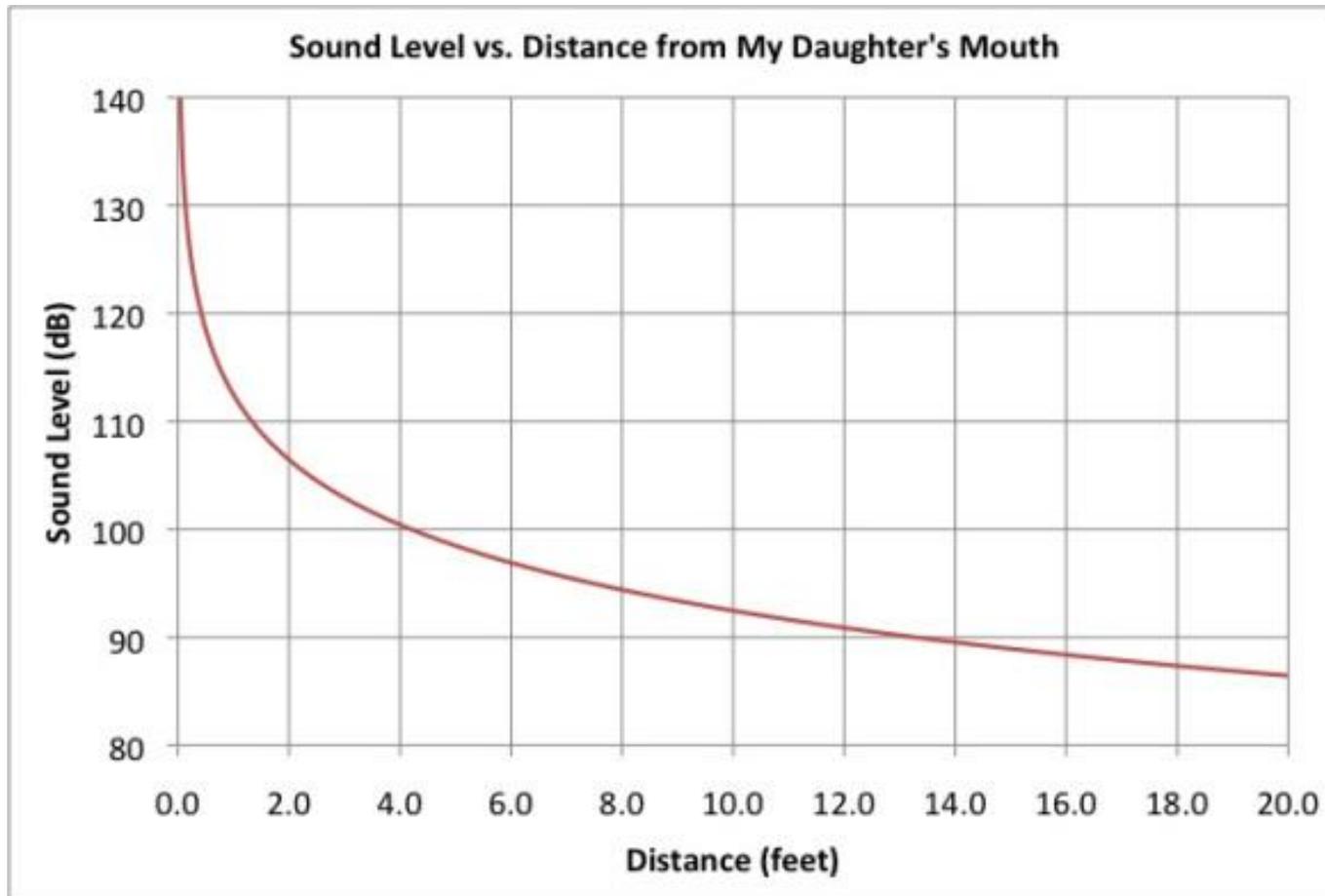
Measurement Condition 1: Sound Intensity of Child's Cries Measured 18" from the Mouth

Age (Years)	Peak dB SPL (A Scale) of Cry
1.8	106
1.24	106
1.39	106
0.29	100
2.17	109
2.64	109
0.76	102
1.14	99
1.94	106
0.99	101
1.69	108
0.65	101
2.60	108
0.92	108
1.98	105

Carney (2014)

Table 3*Measurement Condition 2: Sound Intensity of Child's Cries Measured 12" from the Mouth*

Age (Years)	Peak dB SPL (A Scale) of Cry	NIOSH Maximum Allowable Exposure	OSHA Maximum Allowable Exposure
3.73	120	None	None
2.14	108	None	0.66
1.37	116	None	None
3.83	117	None	None
1.10	102	0.16	1.52
1.95	107	None	0.76



Feet	1	2	3	4	5	6	7	8	9	10	11
Meters	0.3048	0.6096	0.9144	1.2192	1.524	1.8288	2.1336	2.4384	2.7432	3.048	3.3528

<https://lasermom.wordpress.com/2012/01/08/crying/> [25012018]

The Cry of the Child and its Relationship to Hearing Loss in Parental Guardians and Health Care Providers

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This study found that elevated noise levels produced from crying children can cause acute discomfort and pain to those exposed. In addition, there is a theoretical risk that chronic exposure to these intense sound pressures may result in noise-induced hearing loss in a parental guardian or an examining physician. Parents of young children may also be more likely to succumb to impulsive reactions while attempting to arrest the crying, which could be a precipitating factor for child abuse. Employment of noise attenuating ear plugs in situations where parents, guardians, or healthcare professionals are commonly exposed to loud crying is recommended



Lösung = Lärmdosimeter?

Moderne Lärmdosimeter sind sehr klein und können beispielsweise auf der Schulter getragen werden.

Da sie ohne Kabel oder dergleichen auskommen, ist auch die Unversehrtheit des Geräts stets gewährleistet.



Ein Lärmdosimeter ('doseBadge') von Pulsar Instruments Plc.

Quelle: Pulsar Instruments Plc

Zwillingsfrühgeborenes (m.) 26+2 SSW im Alter von 12 Wochen:

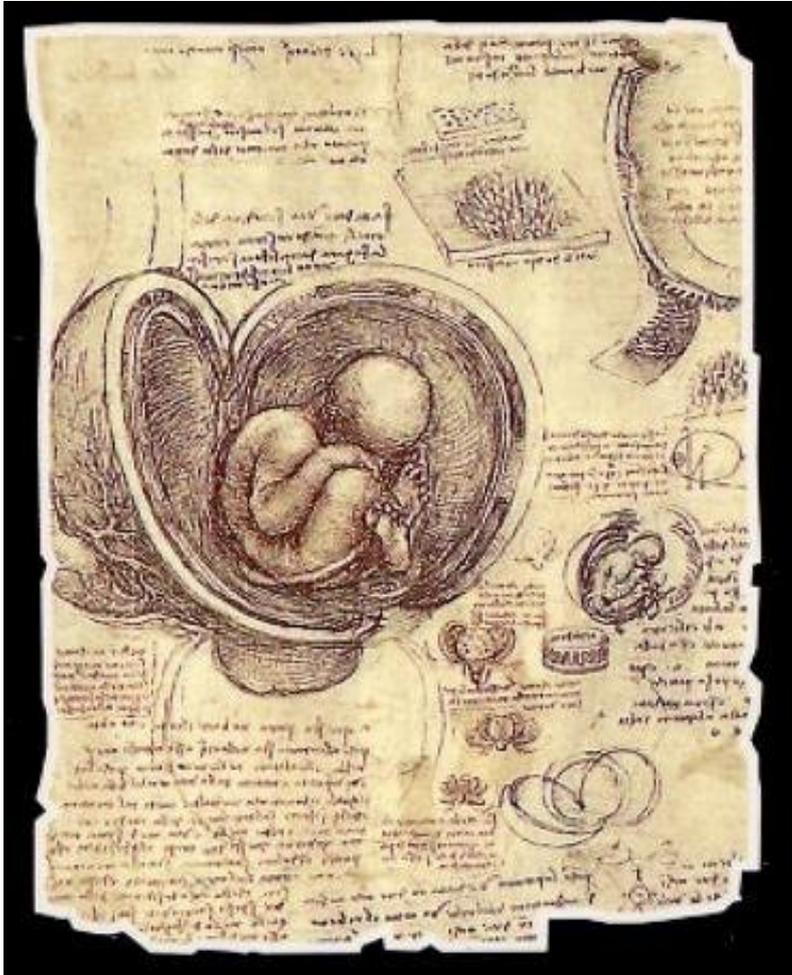
- Abgeschwächtes Weinen mit Spitzen zwischen 75 und 80 dB(A).



Foto: J. Wirbelauer

Bei einem 3 Monate alten Säugling in der Sonographie, der heftig protestierte - Spitzen bis 112 dB(A).

Mütterliches Gewebe und Uterus filtern hochfrequente Laute weg und verringern dB Level



•20 bis 35 dB

- Gerhardt & Abrams, 2000;
- Richards et al. 1992

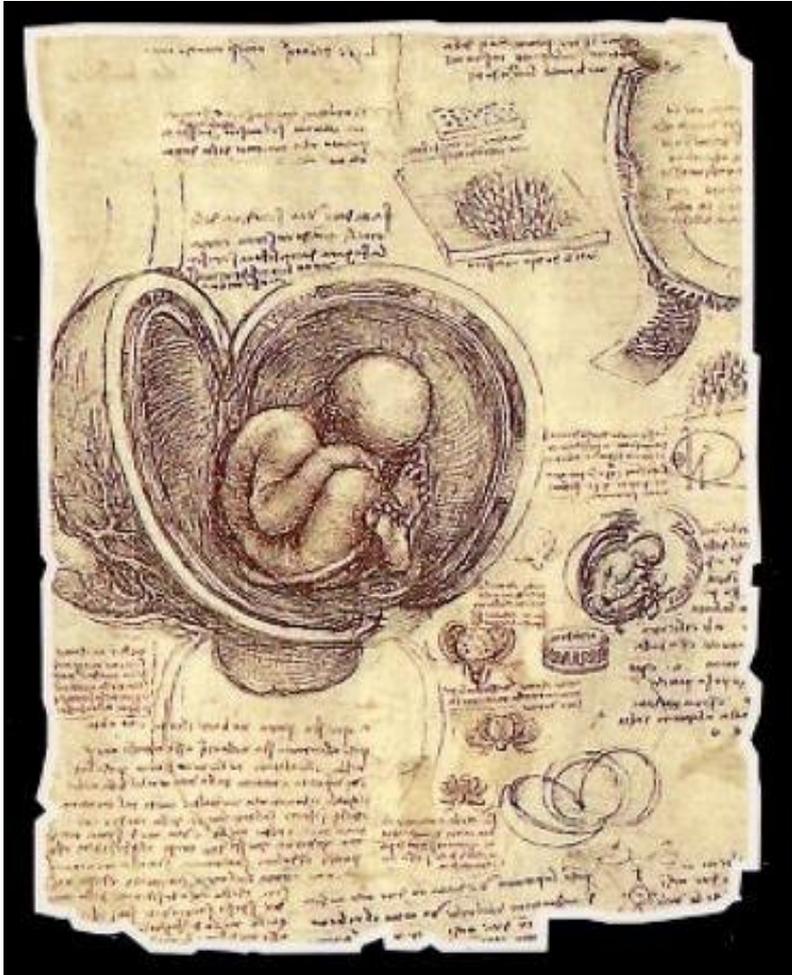
Fetus ist vor allem energiereichen tiefen Frequenzen ausgesetzt (Schädigung!, Frühgeborene!)

Frequenzen > 500 HZ werden gedämpft (40 – 50 dB)

- women should avoid prolonged exposure to low-frequency sound levels (<250 Hz) above 65 dB during pregnancy;
- sound devices, including earphones, should not be directly placed on a pregnant woman's abdomen; programs to supplement the fetal auditory experience (e.g., such as playing music) are not recommended since the voice of the mother and normal sounds of the mother's body are sufficient for normal fetal auditory development

Sound Study Group (Philbin, Robertson, & Hall, 2008),

Die Melodie der Muttersprache wird bereits intrauterin erlernt.

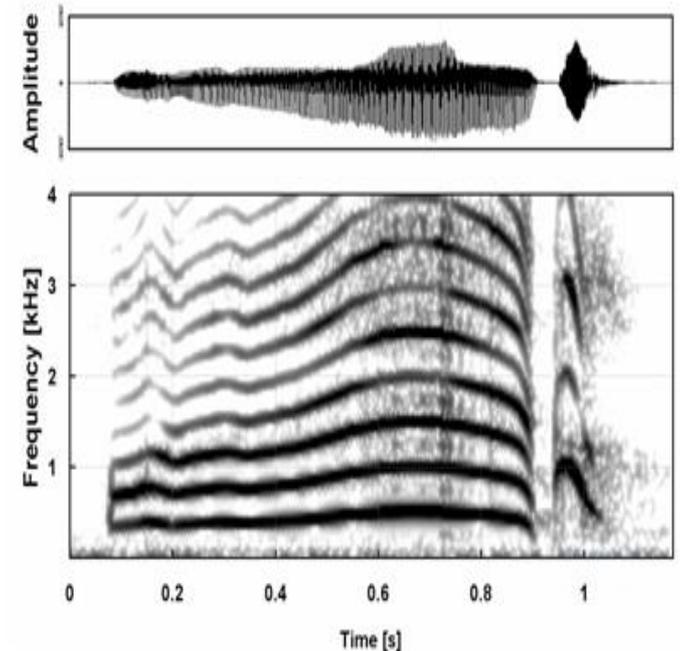
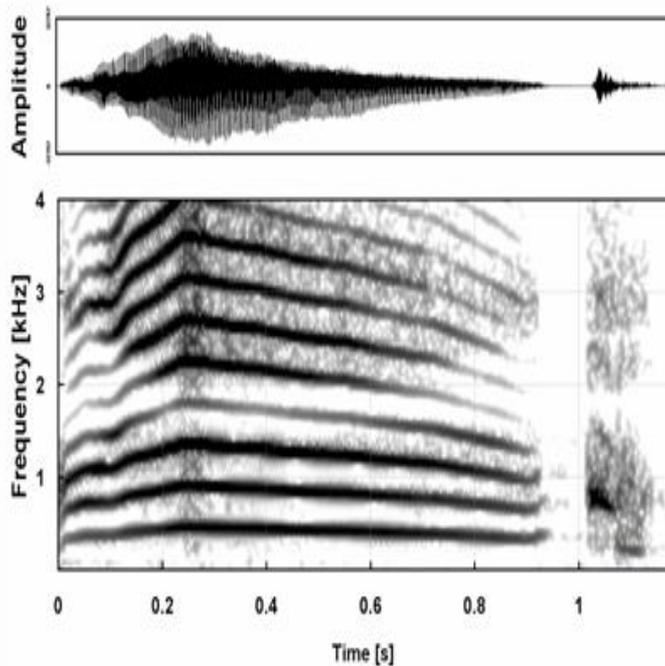


Different languages can be discriminated shortly after birth (e.g., Mehler et al. 1988).

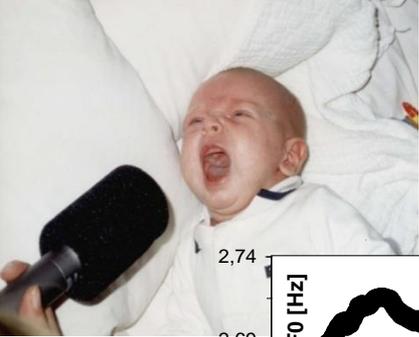
Newborns prefer their native language & the maternal voice (e.g., Moon et al. 1993; Mehler / Dupoux 1994).

Newborns are able to distinguish two foreign languages that differ in melody and rhythm (e.g., Mehler / Christophe 1995).

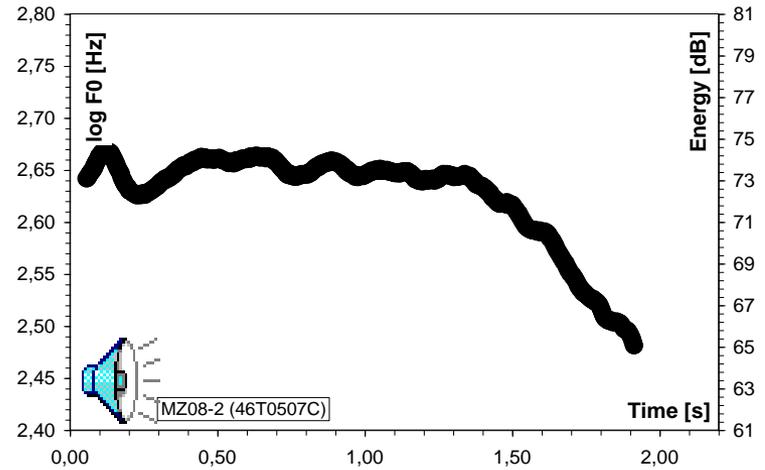
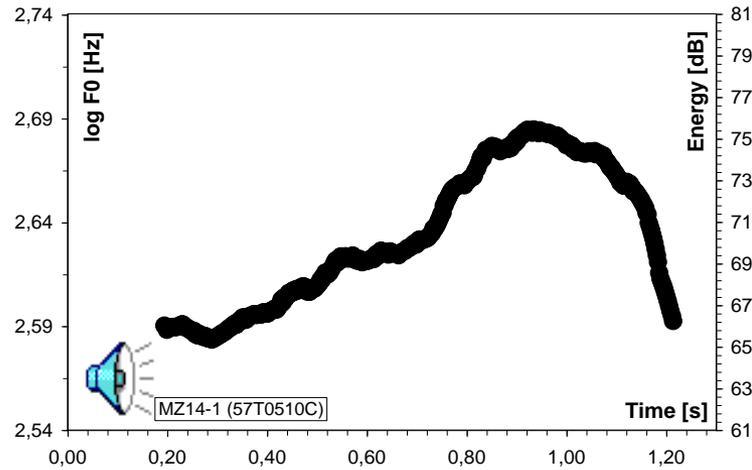
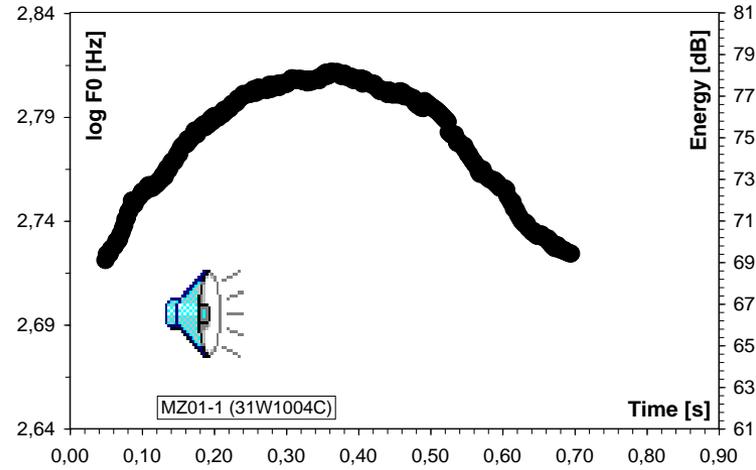
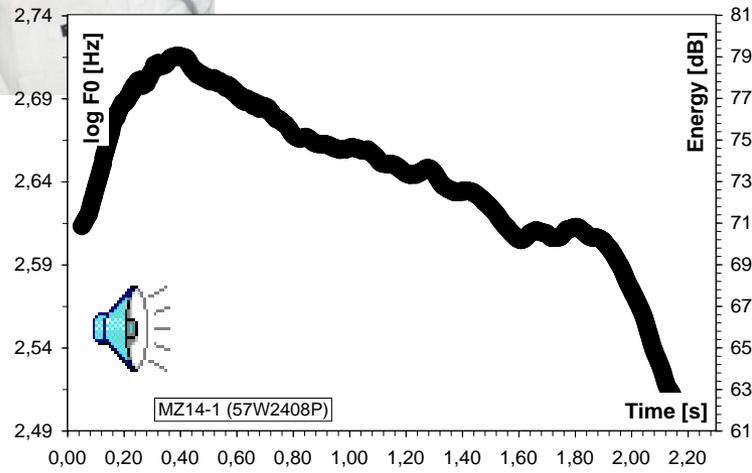
Babys imitieren markante Merkmale intrauterin gehörter Melodien in ihrem Weinen.



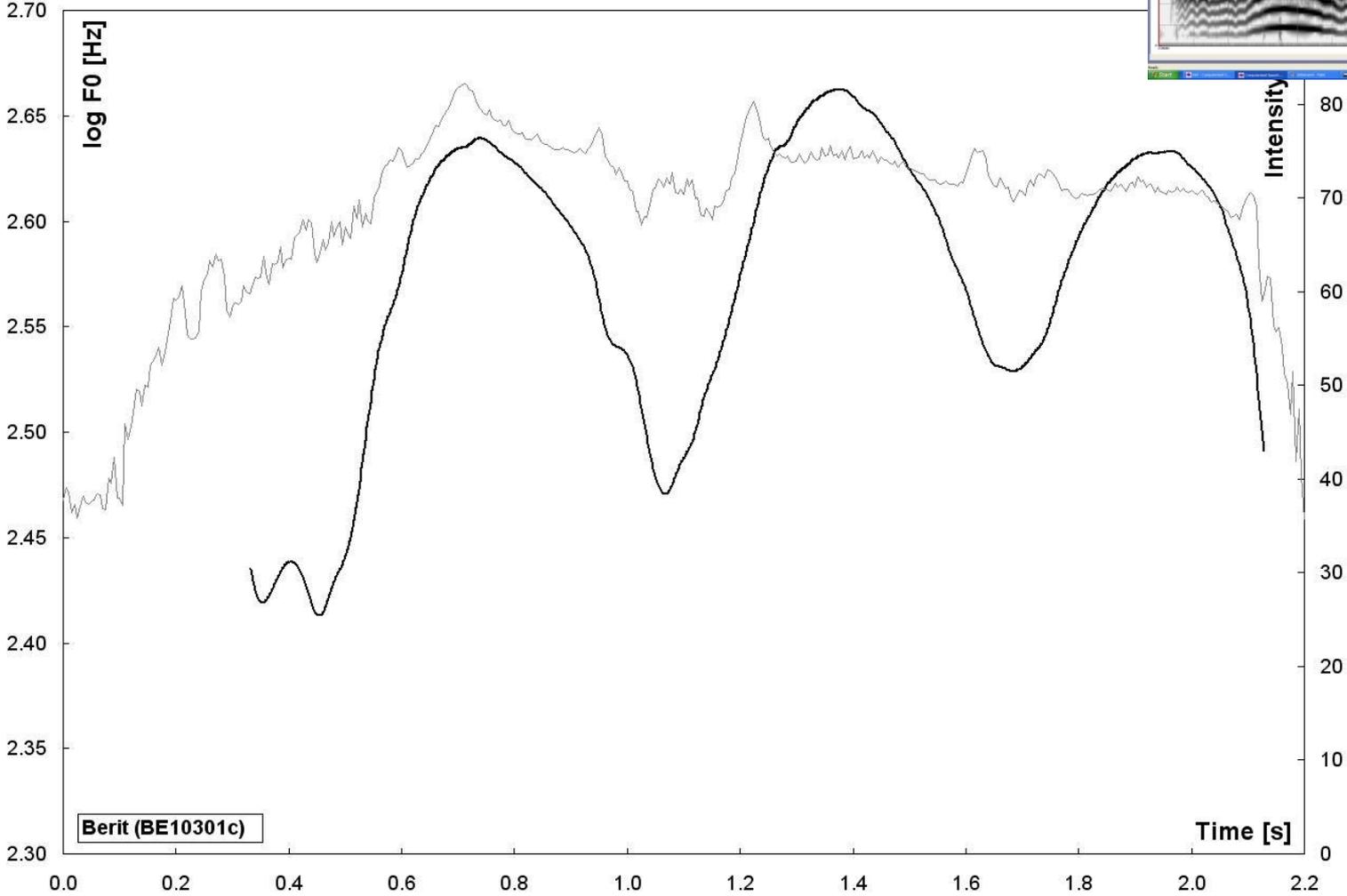
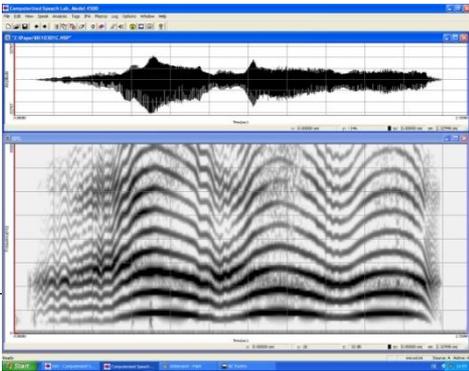
Mampe, Friederici, Christophe & Wermke (2009). Newborn's cry melody is shaped by their native language. *Current Biology*, 19, 1-4.



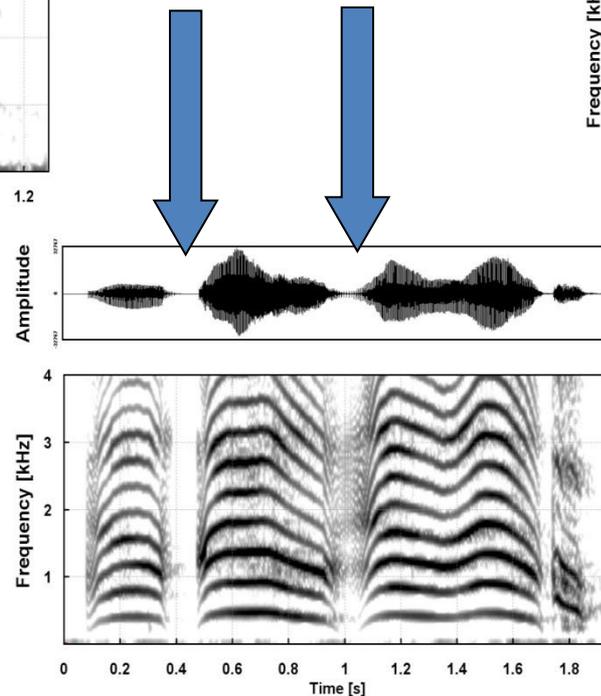
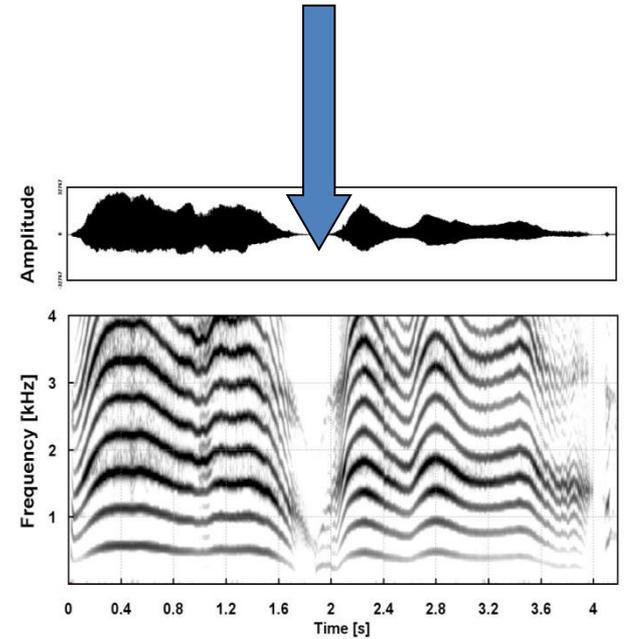
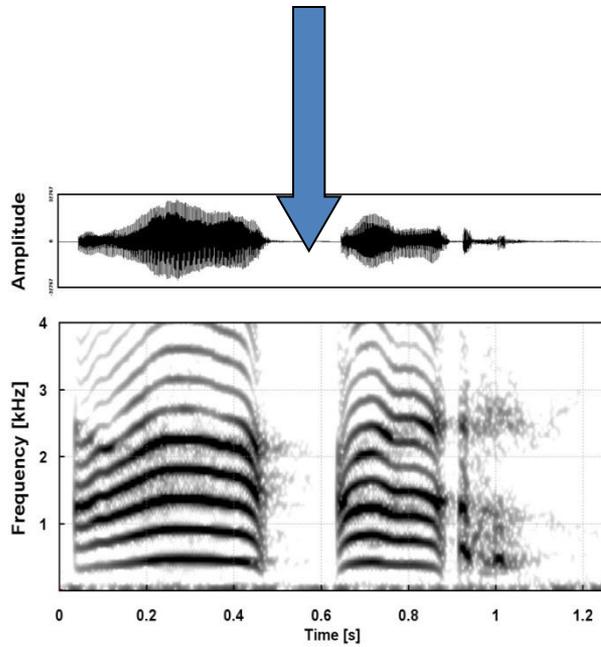
Melodietypen – Grundbausteine



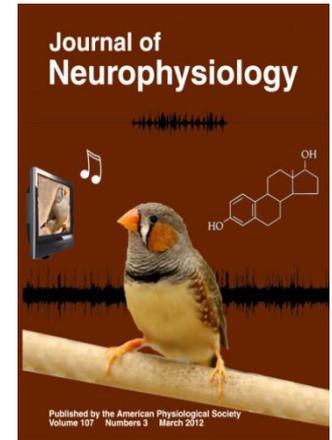
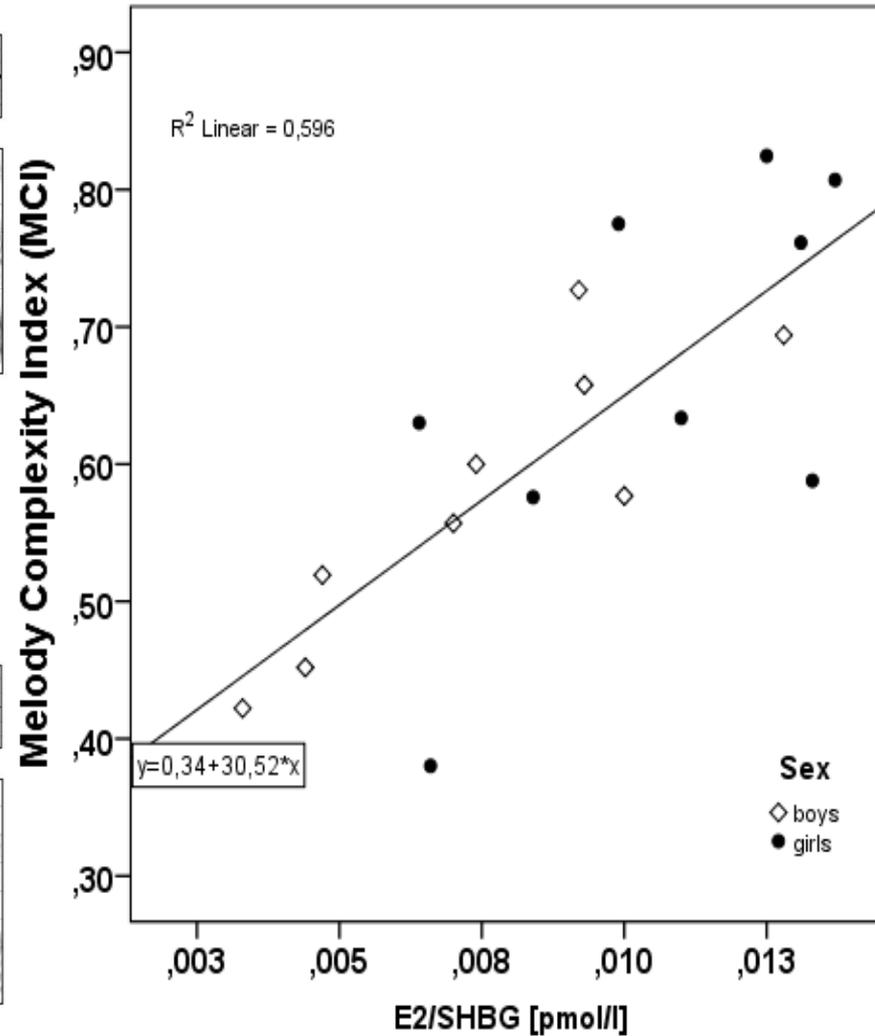
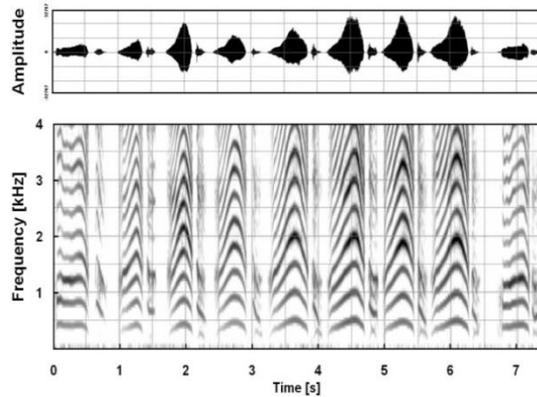
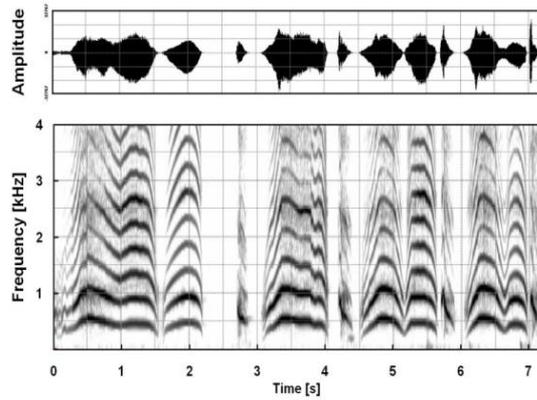
Melodiebausteine werden kombiniert (Melodie-Development-Model by Wermke & Mende)



Rhythmische Variationen von Anfang an



Sexhormon beeinflusst Schreimelodie - Brücke zu Singvögeln



Jetzt bin ich müde:

