



The Cervix

Professor Erik Odeblad

"the cervix is a precision organ as complex as the eye"

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- Mapped lateral wall of the Cervix
- Mucus Types
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Carefully mapped lateral wall of the Cervix of a 20 year old virgin

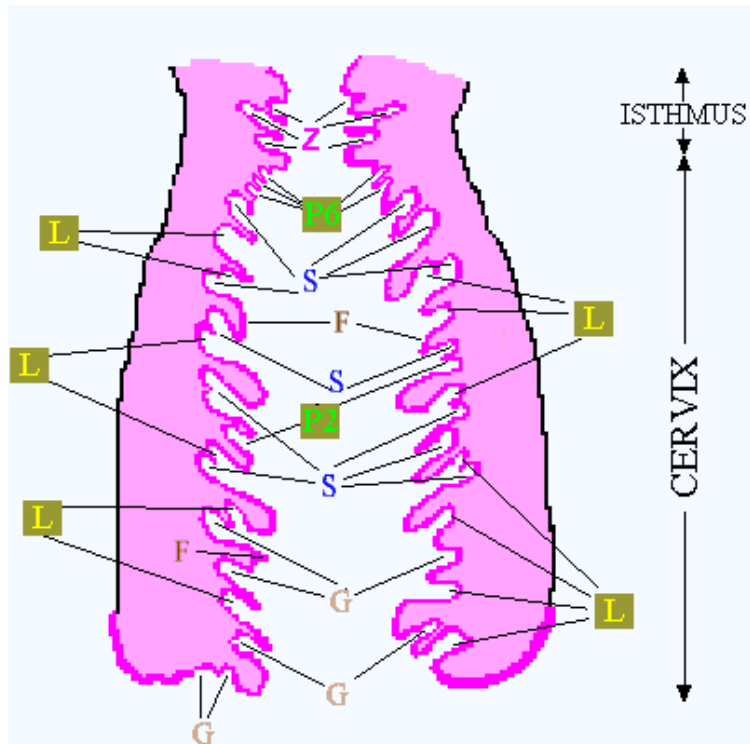
(reported by Emeritus Professor Erik Odeblad, Department of Medical Biophysics, University of Umeå, S-90187, Umeå, Sweden)

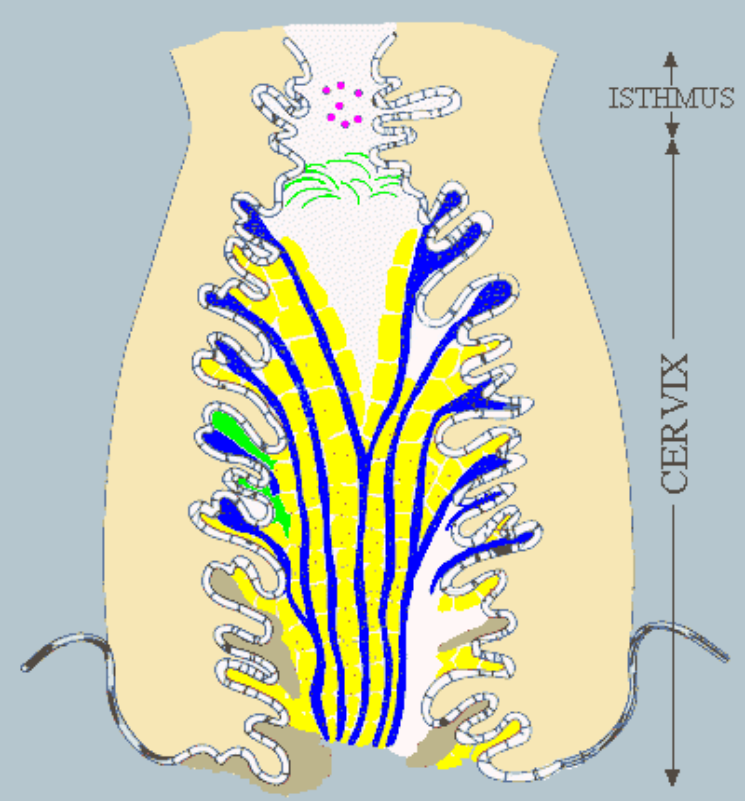
The cervix is at the bottom of the uterus and channels sperm from the vagina through to the uterus.

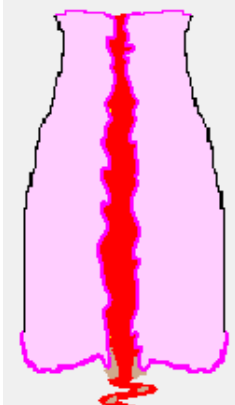
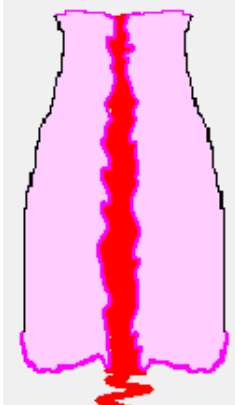
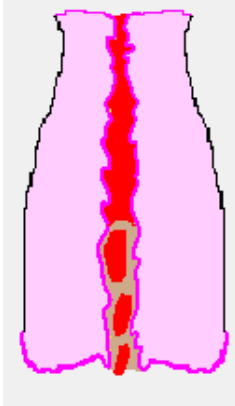
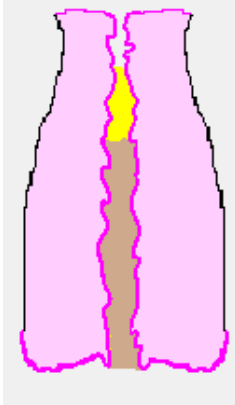
The figure shows the crypt types in the cervix wall which secrete the corresponding mucus type:

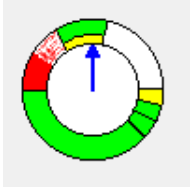
F	F mucus
G	G mucus
L	L mucus
P	P mucus
S	S mucus
Z	Z granules

These mucus produce the symptomatic pattern of fertility and infertility which underpins the Billings Ovulation Method.

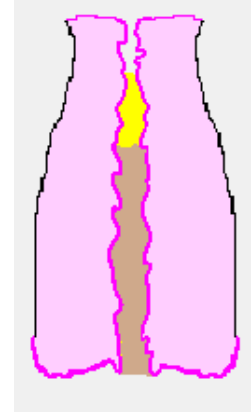


<p>Mucus Types</p>	
<p>L Mucus</p>	<p>G Mucus</p>
<p>- eliminates low-quality sperm and provides a structure to support the S and P mucus. Produces a wet, sticky sensation at the vulva.</p>	<p>- impenetrable gestagenic mucus formed in the lowest cervical crypts. Prevents sperm entry to the cervix and is part of the immune system which protects the woman's reproductive system from infection.</p>
<p>F Mucus</p> <p>- comes from the cells scattered throughout the length of the cervical canal and has no known special function.</p> <p>Z Granules</p> <p>- the enzyme in the Z granules combines with the P mucus to create a liquifying effect.</p>	<p style="text-align: center;">Artist's impression of mucus secretions (The Author gratefully acknowledges Jane Mooney for the original artwork)</p> 
<p>S Mucus</p> <p>- forms string-like channels and provides transport ("swimming lanes") for sperm cells. Produces a wet, lubricative sensation at the vulva.</p>	<p>P Mucus</p> <p>- there are a number of sub-types of this mucus, the most relevant for fertility are P2 and P6. P2 could be present as early as the beginning of the fertile phase possibly having a role in liquifying the G mucus. P6 is mostly confined to the upper part of the cervix, occurring close to the Peak of fertility, and having a role in conveying sperm. It creates a very wet and lubricative sensation at the vulva.</p>

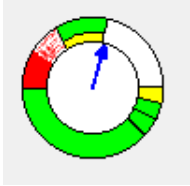
G mucus	L mucus	Colour codes used in the cervix images		Menstrual flow
		P mucus	S mucus	
Ovarian Phase	Cervix Behaviour			Isthmus & Cervix
Menstruation	The G mucus plug dislodges to allow menstrual flow.			
Menstruation	Any presence of mucus is masked by the menstrual flow when ovulation is early.			
Menstruation	Menstrual flow lightens and thick G mucus accumulates in the cervical canal. Basic Infertile Pattern may be identified even in the presence of spotting.			
Basic Infertile Pattern	After menstruation the narrow cervix is occluded by G mucus. Sperm are kept out in the vagina where their survival time is very short.			
Basic Infertile Pattern				



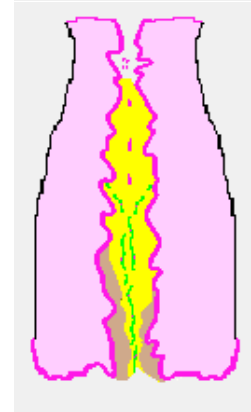
The narrow cervix is occluded by G mucus. Sperm are kept out in the vagina where their survival time is very short.



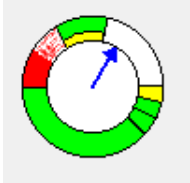
First point of Change Potential Fertility



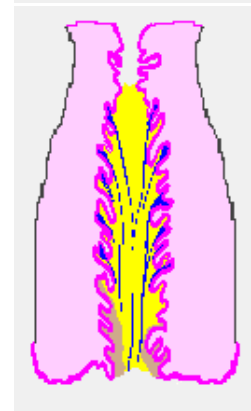
G mucus diminishes aided by the liquifying effect of P2 mucus. Sperm may now enter the cervix where sperm life is prolonged.



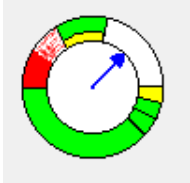
Potential Fertility



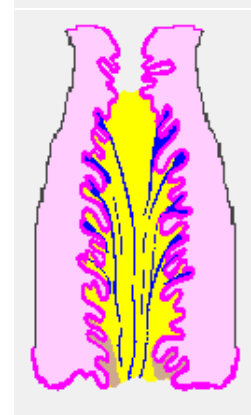
G mucus diminishes, L mucus increases, S mucus begins, providing nourishment and channels for the transport of sperm.



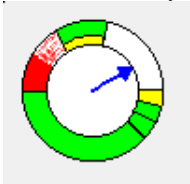
Potential Fertility



S and L mucus increase.



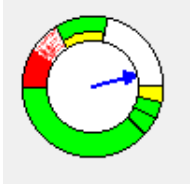
Potential Fertility



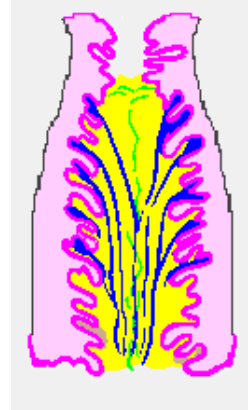
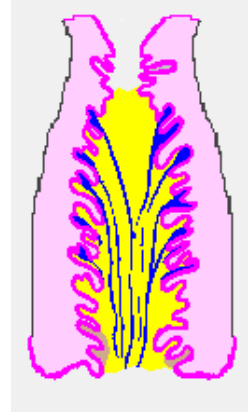
G mucus further diminishes, L mucus increases, S mucus increases. The changes in the fertile pattern are observed at the vulva and are caused by the changing proportions of the mucus types.

Strings due to the combination of L and S mucus may appear.

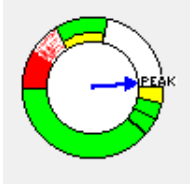
Potential Fertility



The liquifying effect of the P mucus on the S and L mucus strings is pronounced. Strings of mucus may disappear leaving only a slippery sensation at the vulva

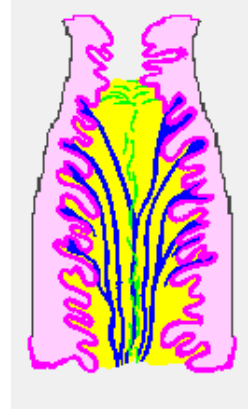


Peak of Fertility

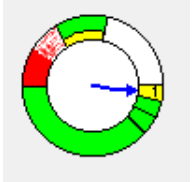


Ovulation is imminent. The ovum may survive up to 24 hours after ovulation.

The cervix has reached it peak development for conception. Conditions are most favourable for the selection and rapid transport of high quality sperm. The vulva feels slippery and swollen.

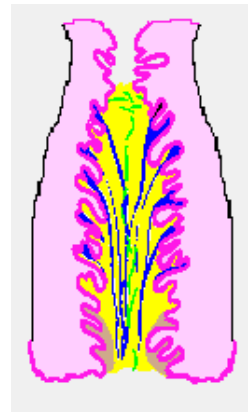


Peak+1 Potential Fertility



In most cases ovulation occurs either on the peak day or on this day. The ovum may survive up to 24 hours. Channels for sperm transport still exist.

The G mucus begins to form in the lower crypts. The vulva is no longer wet or slippery.

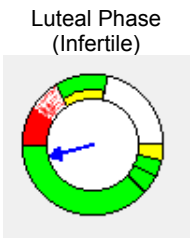
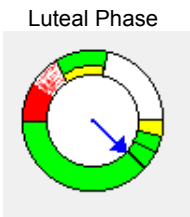
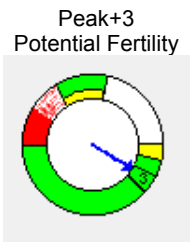
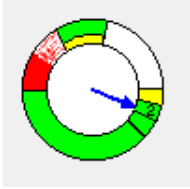


G mucus increases, S and L mucus diminish.

Ovulation may occur as late as this day. The ovum may survive up to 24 hours. Channels for sperm transport exist in diminishing numbers.

Peak+2 Potential Fertility

The vulva is no longer wet or slippery.



G mucus increases. S and L mucus still present in small amounts.

Channels for sperm transport still exist.

Conception is possible if the ovum is present.

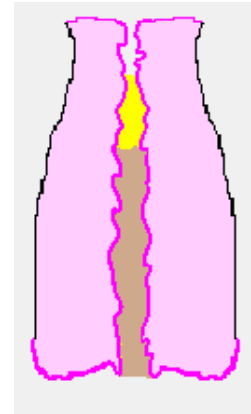
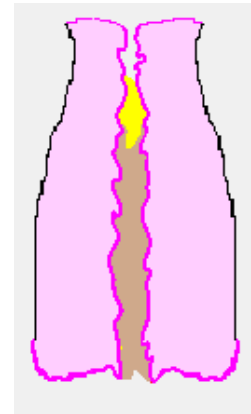
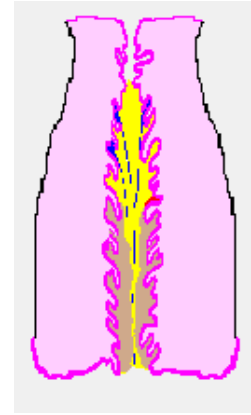
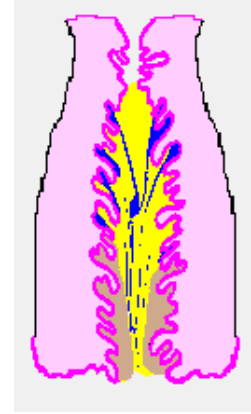
The vulva is no longer wet or slippery.

Cervix occluded by G mucus. The egg is dead. Conception is no longer possible.

The woman is infertile.

The cervix channel is narrow and it is occluded by G mucus.

The G mucus plug is removed to allow menstrual flow.



Menstruation

