

Difference Between Strep A and Strep B

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Key Difference - Strep A vs Strep B

[Streptococcus](#) is a genus of [bacteria](#) that includes gram-positive, non-motile, non-spore forming, negative catalase cocci. Most of the Streptococcus bacteria are facultative anaerobes while some are obligate anaerobes. This genus contains over 50 species that are parts of the salivary microbiome. Streptococci are responsible for several diseases. Among them, [scarlet fever](#), [rheumatic heart disease](#), [glomerulonephritis](#), and pneumococcal pneumonia are attributed to human streptococcal diseases. Many species of Streptococci are not [pathogenic](#). They are a part of the normal microbial flora that resides in skin, mouth, intestine and upper respiratory tract. When considering the [nomenclature](#) of Streptococci, it is basically for the medical use. Strep A and Strep B are two medically important two beta hemolytic species of Streptococci. **Strep A or group A refers to *Streptococcus pyogenes* while Strep B or group B refers to *Streptococcus agalactiae*.** This is the **key difference** between Strep A and Strep B.

What is Strep A?

Strep A is the Streptococcal species *Streptococcus pyogenes*. Strep A is caused by group A [infections](#). *S. pyogenes* is a beta hemolytic bacterium which is gram-positive, nonmotile coccus. Strep A is commonly caused by throat and skin infections. It is responsible for both invasive and noninvasive diseases. Common diseases of Strep A are pharyngitis or [strep throat](#), impetigo, rheumatic cellulitis fever, scarlet fever, necrotizing fasciitis and toxic shock syndrome. Pharyngitis and impetigo are noninvasive diseases. Toxic shock syndrome, pneumonia, and bacteremia are invasive diseases. These diseases are transmitted from person to person by respiratory droplets coming out during the coughs, sneezes or due to direct contact.

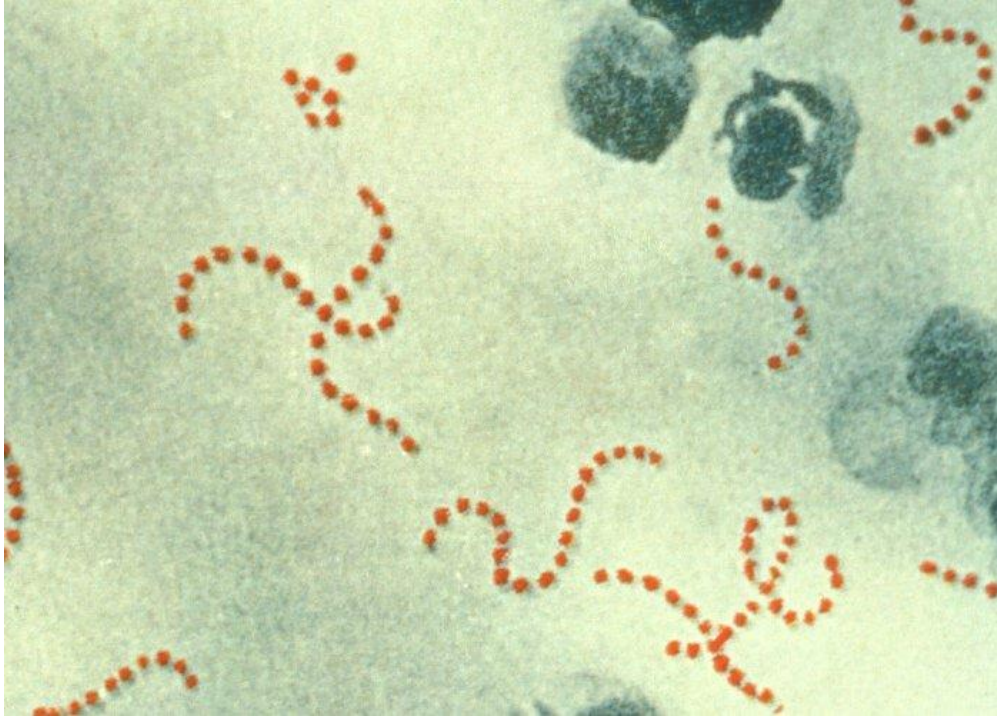


Figure 01: Strep A- Streptococcus Pyogenes

The [cell wall](#) of Strep A contains a [polymer](#) of N-acetylglucosamine and rhamnose. Pathogenesis of Strep A is caused due to several virulence factors such as M protein, [hemolysins](#), [toxins](#) and [extracellular enzymes](#). M protein serves an antiphagocytic mechanism while extracellular enzymes contribute to tissue invasion and destruction. Toxins of Strep A are caused by [rash](#) and organ failure. Human Streptococcal diseases are caused mainly due to Strep A.

What is Strep B?

Strep B or group B streptococci is referred to *Streptococcus agalactiae*. It is a beta hemolytic bacterium that is nonmotile and gram-positive. Strep B is a catalase negative facultative anaerobic bacterium that is round in shape. The cell wall of the *S. agalactiae* is composed of a rhamnose-glucosamine polymer. Pathogenicity of Strep A is associated with few virulence factors such as lipoteichoic acid that helps in adherence to human cells at the initial infection. Strep B is a common normal vaginal flora.



Figure 02: S. Agalactiae

Invasive neonatal infections are occasionally caused by this species. Newborns and babies are affected by Strep B infections. If Strep B infection occurs during the [pregnancy](#), it can lead to [miscarriage](#) and stillbirths. However, it is a rare occurrence. Strep B has several serotypes; Ia,Ib,III,II and V.

What are the Similarities Between Strep A and Strep B?

- Strep A and Strep B are two species of the bacterial genus Streptococcus.
- Both Strep A and Strep B are caused by beta hemolysis.
- Both are gram-positive
- Both are cocci in chains.
- The infections caused by Strep A and Strep B can be cured by antibiotic Penicillin and other [antibiotics](#).
- Both are beta-hemolytic.

What is the Difference Between Strep A and Strep B?

Strep A vs Strep B	
Strep A refers to group A streptococcal species pyogenes .	Strep B refers to group B

	streptococcal <u>speciesagalactiae</u> .
Oxygen Requirement	
Strep A is aerotolerant.	Strep B is facultative anaerobic.
Location	
Strep A is found on the surface of the skin and inside the throat.	Strep B usually lives harmlessly inside the digestive system and in the vagina.
Virulence Factors	
Strep A is associated with many virulence factors such as M protein, hemolysins, toxins and extracellular enzymes.	Strep B is associated with few virulence factors such as lipoteichoic acid.
Diseases Caused	
Strep A causes diseases such as pharyngitis, tonsillitis, scarlet fever, cellulitis, erysipelas, rheumatic fever, post-streptococcal glomerulonephritis, necrotizing fasciitis, myonecrosis and lymphangitis.	Strep B causes diseases such as mastitis in cattle, severe neonatal infections, urinary tract infections.

Summary - Strep A vs Strep B

Streptococcus is a genus of bacteria that are medically important. These bacteria are caused mainly by respiratory tract infections, bloodstream infections and skin infections in humans. Strep A and Strep B are two groups of streptococci. Strep A is *S. pyogenes*. Strep B refers to *S. agalactiae*. Strep throat, Rheumatic fever, Acute glomerulonephritis, Scarlet fever, bacteremia, toxic-shock syndrome and necrotizing fasciitis are caused by Strep A. Strep B is caused for sepsis (septicemia), pneumonia and sometimes neonatal [meningitis](#) in newborns. This is the difference between Strep A and Strep B.

Reference:

1. Patterson, Maria Jevitz. "Streptococcus." Medical Microbiology. 4th edition., U.S. National Library of Medicine, 1 Jan. 1996. [Available here](#)
2. "Streptococcus agalactiae." Streptococcus agalactiae - an overview | ScienceDirect Topics. [Available here](#)
3. Streptococcus pyogenes (Group A β -Hemolytic Streptococcus). [Available here](#)

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APA: Difference Between Strep A and Strep B.(2018 February 01). Retrieved (date), from <http://differencebetween.com/difference-between-strep-a-and-vs-strep-b/>

MLA: "Difference Between Strep A and Strep B" Difference Between.Com. 01 February 2018. Web.

Chicago: "Difference Between Strep A and Strep B." Difference Between.Com. <http://differencebetween.com/difference-between-strep-a-and-vs-strep-b/> accessed (accessed [date]).



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