Krebs Cycle Karaoke: User's Guide

Introduction:

<u>Krebs Cycle Karaoke?</u> Why in the world would I bother to make such a thing? And why would I expect anyone to use it?

It's all about learning – deep, substantial, permanent learning –informed by insights emerging from cognitive science (explained in the book <u>Make it Stick</u>). My hypothesis is that

- 1. If you become familiar with my original <u>Krebs Cycle Rap</u>, and
- Then try to sing it yourself following the fill-in-the-blanks lyrics on the screen of the <u>Krebs Cycle Karaoke</u> then
- 3. Your path to memorizing the material in the song will be much more efficient than just about anything else that you can do.

That's because interacting with the song in this way is *effortful*. This is not an easy task. But if you do the hard work of trying to memorize the lyrics in this guided way, you'll learn a lot about Krebs Cycle. Fill-in-the-blanks karaoke is going to help you to transfer the information to where you need it: into long term memory, where it will be available for that upcoming discussion session or test.

There are, of course, alternatives to remembering this material. Flashcards are another great way that forces you to recall what you know, and thereby encodes your learning in long-term memory. I have <u>Krebs Cycle flashcards</u> set up for you at my website.

Give it a try. It's going to be difficult. You won't get it right the first time. Keep on going back and forth between the fill-in-the-blank lyrics on the next page, and the original lyrics (with all the blanks filled in) that follow. Eventually, you'll be able to sing the Karaoke version fluently. And my hypothesis is that if you can do that, you'll have learned a lot about Krebs Cycle in a fairly permanent way.

Please leave me a comment letting me know what you think.

Krebs cycle, Karaoke Version View it at www.sciencemusicvideos.com Glenn Wolkenfeld © 2015

D
In the _____ of the _____ in all our cells
Bm
Is the _____ of reactions that won Hans _____ the Nobel
G
Prize,
This cycle takes the _____ in food
A
And makes it into other forms your can use.

Krebs Cycle makes the _____ carrier NADH Which later brings electrons to the _____ chain. And Krebs makes _____ its ____ is the same, Krebs also makes some _____ another claim to fame.

CHORUS

(we're talking) KREBS! It's the _____ cycle KREBS! _____ acid cycle Krebs-- each cycle makes _____ ATP, ____ NADH, ____ FADH₂

Right before the cycle's a _____ part Links Krebs to _____, so Krebs can start Enzymes break a _____ off a _____ Yields an _____ and _____ -CoA

Acetyl-CoA carries <u>two</u> With all the energy that derives from <u></u> It's a highly <u>molecule with energized</u> It fuels up the <u>cycle as it cycles on</u>.

Now at the start of Krebs this Acetyl _____ Has the 2 _____ it carries in _____ away Enzymes put these on _____ with carbons _____, Makes _____ carbon _____ acid who could ask for more?

Notice three _____ groups on that citric acid It's why the cycle's also named for _____ acid Or _____ cycle, if it's acronyms that you prefer Or _____ in honor of its discoverer!

CHORUS

Enzymes work on citric acid and remove a _____ and other enzymes modify and _____ it too, The _____ -carbon result is alpha-____. Krebs cycle, it's so great! Every oxidation, can power the _____, of _____ plus which gains _____ carrying function, Becoming _____, that energy sensation Which later on in _____ powers _____ creation

Another _____ follows, 'nother CO₂ removed Leaving us with a four _____ molecule Another _____ results from this _____ As Krebs does its energy _____

This four carbon molecule (<u>Succinyl</u> CoA), Still has lots of energy, _____ can take away A series of reactions yield one _____ The cell's main _____ currency.

Leavin' just 'nough energy for _____ to _____ An _____, to _____ And one last _____, will also get _____ As the final _____ carrier _____ gets produced

We've _____ what energy came in at Krebs's start, Now we have _____ at this final part Oxaloacetate is the _____ and finale Ready to meet _____ -CoA and here at the final tally

BRIDGE

Krebs goes round and round, such an ancient _____, ____ like the wheels of my bicycle. Krebs is like the _____ of ____ respiration, I breathe out its _____ with every ____!

We've walked through the cycle, so now lets review ______ is _____ Co-A with carbons ______ The carbons get _____, releasing ______ _____ sends this CO₂ out of you.

The cycle's function's transformation 3 _____, 1 ____ creation And also synthesis of ____ ATP Which cells directly utilize for ____

For every _____ cells absorb the cycle runs _____ times As long as cells get _____, Krebs is running just fine, It precedes _____ transport chain, it follows _____ It's spinning round and round in the _____ ___

CHORUS

Krebs Cycle Song View it at www.sciencemusicvideos.com Glenn Wolkenfeld © 2012

	Every oxidation, can power the reduction
In the matrix of the mitochondria in all our cells	of NAD plus which gains electron carrying function
Rm	Becoming NADH that energy sensation
Is the cycle of reactions that wen Hans Krobs the Nebel	Which later on in respiration powers ATP creation
	which later on in respiration powers ATF creation
	Another oxidation follows, 'nother CO ₂ removed
I his cycle takes the <u>energy</u> in food	Leaving us with a four <u>carbon</u> molecule
A	Another <u>NADH</u> results from this <u>oxidation</u>
And makes it into other forms your <u>cells</u> can use.	As Krebs does its energy transformations
Krebs Cycle makes the electron carrier NADH	This four carbon molecule (Succinvl CoA).
Which later brings electrons to the electron transport chain.	Still has lots of energy enzymes can take away
And Krebs makes FADH ₂ its function is the same,	A series of reactions vield one ATP
Krebs also makes some <u>ATP</u> another claim to fame.	The cell's main energy currency.
CHORUS	Leavin' just 'nough energy for <u>enzymes</u> to <u>reduce</u>
(we're talking) KREBS!	An <u>FAD</u> , to FADH ₂
It's the <u>Citric Acid</u> cycle	And one last <u>NAD⁺</u> , will also get <u>reduced</u>
KREBS!	As the final <u>electron</u> carrier <u>NADH</u> gets produced
<u>Tricarboxylic</u> acid cycle	
Krebs each cycle makes	We've harvested what energy came in at Krebs's start.
<u>One</u> ATP, <u>three</u> NADH, <u>one</u> FADH ₂	Now we have oxaloacetate at this final part
	Oxaloacetate is the commencement and finale
Right before the cycle's a transitional part	Ready to meet Acetyl-CoA and here at the final tally
Links Krebs to glycolysis, so Krebs can start	
Enzymes break a <u>CO₂</u> off a <u>pyruvate</u>	PRIDCE
Yields an NADH and acetyl-CoA	Krobe gees round and round, such an ansient evels
	Chinging like the wheels of my bioyole
Acetyl-CoA carries carbons two	Spinning like the only of couchis requiretion
	I Areds is like the axie of aerodic respiration.
With all the energy that derives from food	$\frac{1}{1}$
With all the energy that derives from <u>food</u>	I breathe out its $\underline{CO_2}$ with every <u>exhalation</u> !
With all the energy that derives from <u>food</u> It's a highly <u>reduced</u> molecule with energized <u>electrons</u>	I breathe out its $\underline{CO_2}$ with every <u>exhalation</u> !
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