

Preliminary assessment of ABC Kidney PhysioSim, an interactive digital kidney physiology educational tool

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Background

- 60% of 2022 UC SOM first-year medical students (MS1) described the renal TREK course as very or extremely difficult.
- Focus group themes centered around the need for more physiology time & practice, and request for online resources to use as pre-work.
- Focused pre-work is needed with the fast pace of the TREK curriculum.
- ABC Kidney PhysioSim is a digital, interactive kidney physiology platform with the following durable learning strategies; 1) animated physiology tutorials, 2) clinical correlations, 3) interactive simulation-like quizzes, 4) multiple choice questions and 5) easy navigability for self-directed learning (figures 1 & 2).
- Our future aim is to introduce ABC Kidney PhysioSim in the MS1 Trek renal/urinary curriculum. We sought MS1 opinion of ABC Kidney PhysioSim for platform development & improvement.**

Figure 1: Preview of animated tutorial & clinical correlation

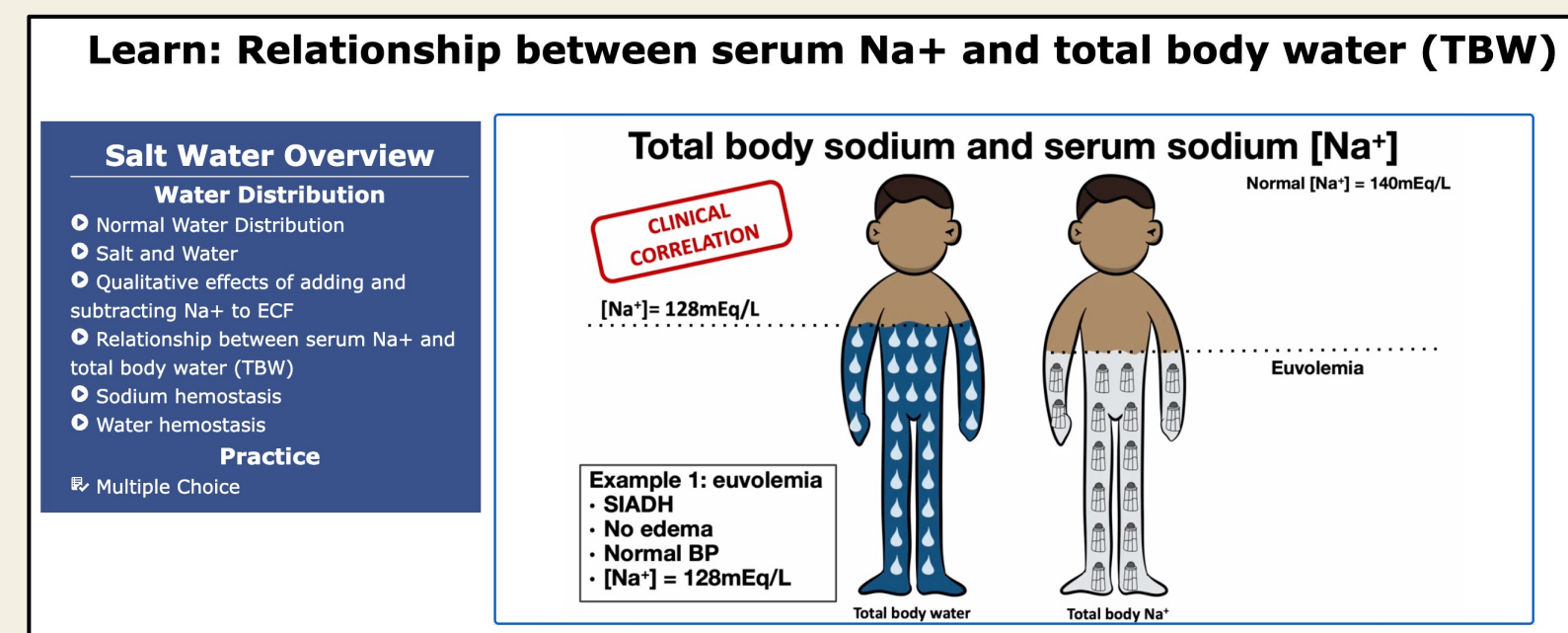
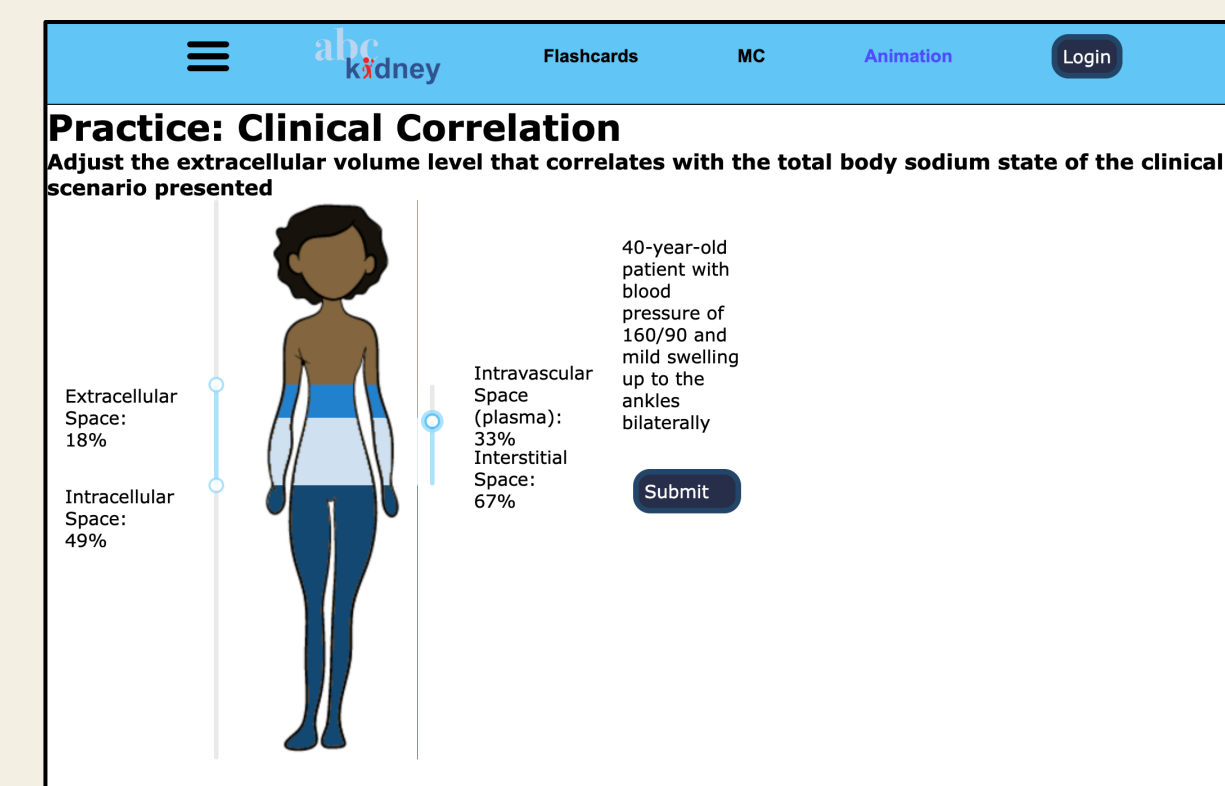


Figure 2: Preview of interactive quiz



Methods

- We conducted an electronic survey (n = 8) & focus group (n = 9) with medical students that completed the MS1 renal physiology course (TREK or Plains).
- We sought MS opinion on ABC Kidney PhysioSim educational platform on the following metrics 1) content, clarity & ease of tool use, 2) tool reliance, 3) impact on study time & habits and 4) impact on kidney physiology understanding.
- ABC Kidney PhysioSim, in its current form of development, was distributed for medical student review preceding focus group interview and survey completion.
- The provided resources included 1) www.ABCKidney.com pilot (to provide context on tool concept – best viewed on desktop), 2) Updated kidney physiology videos on general nephron microanatomy & salt/water topics and 3) video demo of updated ABC Kidney PhysioSim platform interface.

Results



100%

Students believed they would use the tool if available during the TREK renal/urinary course

Table 1: Survey results

%	Students agreed or strongly agreed ABC Kidney PhysioSim would....
87.5	✓ Strengthen the renal/urinary TREK course
75	✓ Decrease study time
75	✓ Be used during final exam study
87.5	✓ Helped to better understand topics



Tool functionality & glitches were critiqued most



Suggestions: Searchable flashcards, robust quizbank, downloadable study material, mobile compatibility & closed captioning

Table 2: Focus group themes

Platform features most helpful	No. mentions
Visualization of abstract concepts	13
Interactive simulation-like quizzes	12
Introductory, understandable video tutorials	10
Ability for repetition/review	8
Clinical correlation	8
Easy navigation	5
Multiple choice quizzes	4
Big picture review	4
Consolidated source of information	2

Conclusions



ABC Kidney PhysioSim was well-received by medical students suggesting medical students believe it would....



Enhance the renal physiology section of the TREK curriculum



Be an effective resource for self-directed learning



Shorten study time



Improve physiology concept understanding

Limitations

- Small sample size is not representative of class opinion.
- Voluntary focus group & survey self-selection biases results.
- The study assesses subjective opinion and does not investigate tool impact on higher levels of hierarchical learning.

Implications

- Positive comments from students provided positive reinforcement and suggest future tool success.
- Students provided actionable feedback for tool improvement.
- Additional tool development and assessment is needed.

Check us out!!

www.abckidney.com

Best viewed on desktop

