

Physical Activity & Disease Prevention Research: Thoughts on Where we Need to Go

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STANFORD PREVENTION
RESEARCH CENTER
the science of healthy living

OBJECTIVE

Based on what we know currently . . .

- Suggestions on where PA intervention research could get biggest “*bang for buck*” for population-wide PA promotion



Potential “Growth” Areas



#1- *Dissemination/Translation Research*

What We Have:

- Substantial evidence base across several levels of impact

Examples:

- *Individually-adapted interventions*
- *School-based programs* (SPARK, CATCH, etc.)
- *Some Environmental strategies* (e.g., point-of-decision prompts)



Dissemination/Translation Research – cont.

What We DON'T Have:

- Good understanding of how best to ***disseminate*** interventions efficiently across different population segments, delivery channels, & settings
- Reaching ***underserved populations*** in particular

Some Good Examples of this type of research available to serve as Models





For Example:

- **Group-based PA instruction** via **Cooperative Extension Centers** (Rejeski)
- **Group-based Behavioral skills training** via **Community organizations** (Dunn, Blair et al. ALED)
- **DPP weight loss & PA instruction** via **diverse settings & formats** (Katula; D. Smith; Ma, etc.)
- **School interventions** that have been translated for **diverse Settings & Underserved Populations** (Nigg, Hawaii)



Enhancing intervention ***Reach & Cost-efficiency*** should be a priority

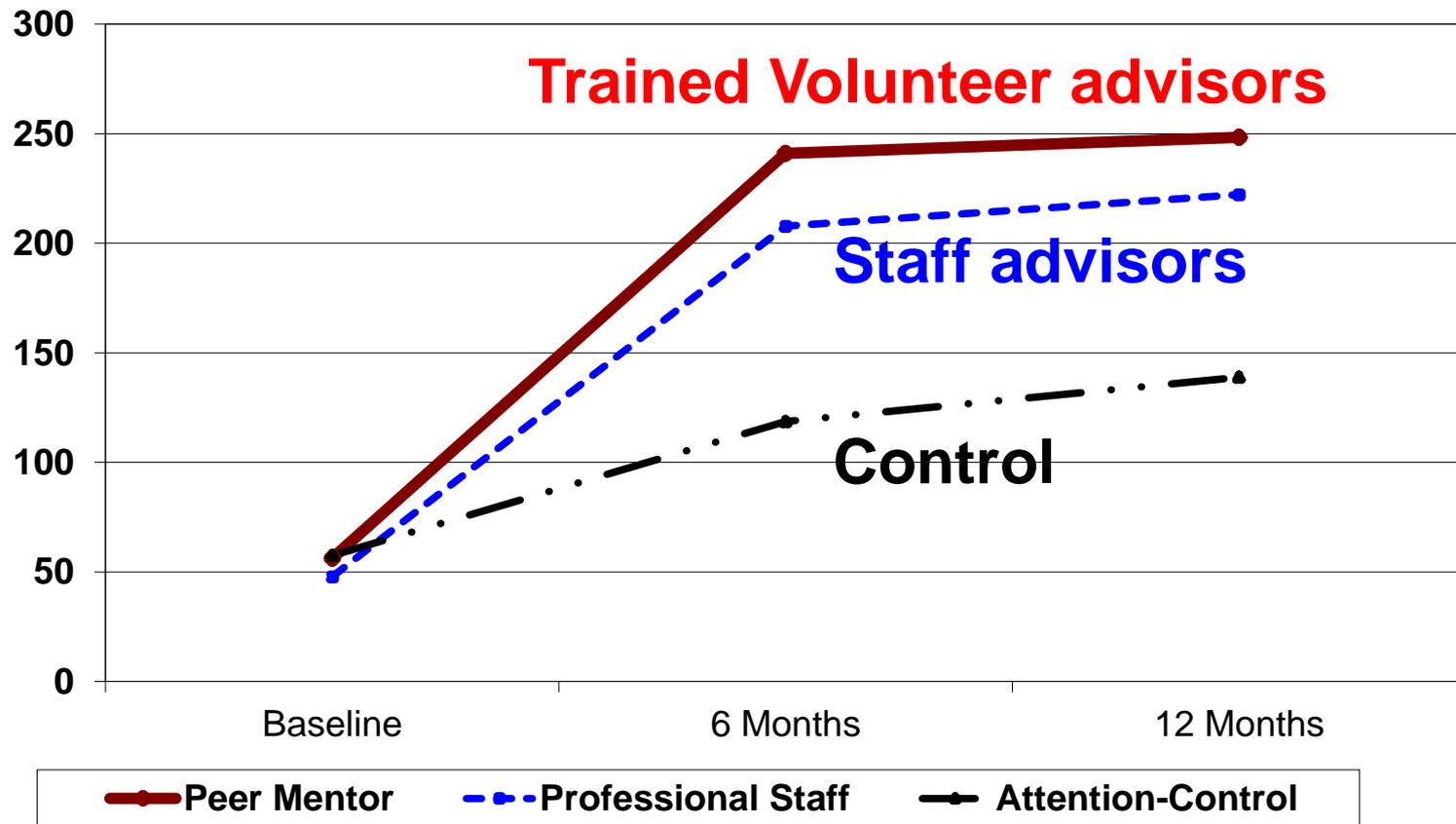
Examples:

- **Trained lay workers**
(e.g., DHHS 2011 *Promotores de Salud* Initiative)
- **Automated delivery systems**

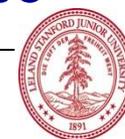


Team Trial: Moderate-Vigorous Physical Activity

(CHAMPS questionnaire; n= 180 inactive midlife & older adults)

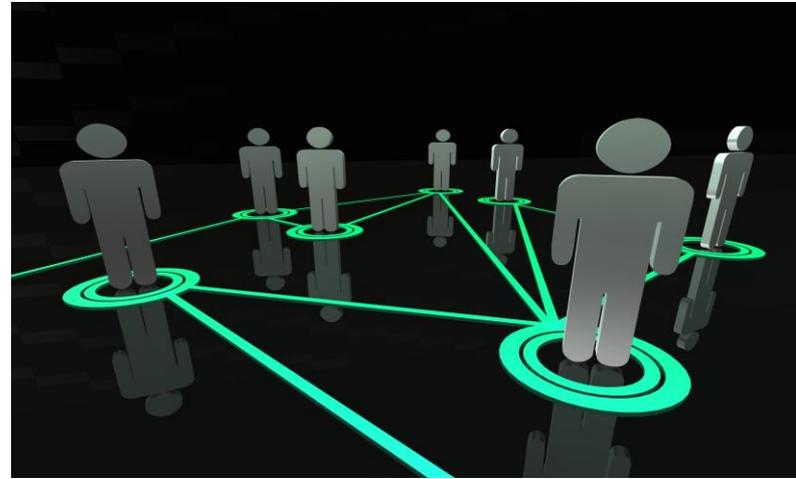


Volunteer & Professional Staff > Attention Control, $p < .05$



Information Technologies: *EXAMPLES*

- *Tele-health*
- *Expert-system Print*
- *'Virtual' Advisors*
- *Smartphone platforms*
- *Social Media*



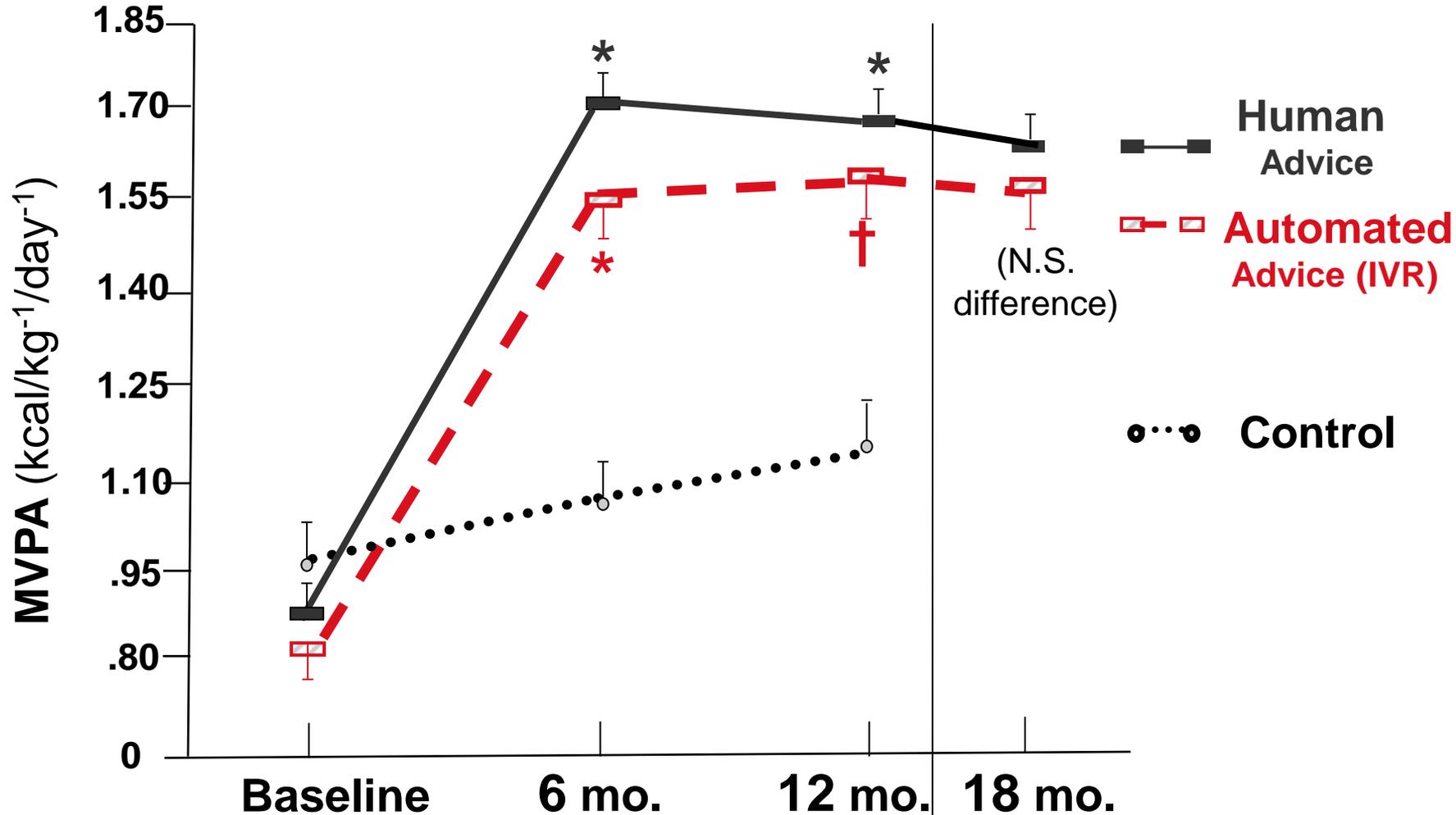
#2nd “growth” area – **Comparative Effectiveness Research**

Putting efficacious PA Interventions “head to head”:

- Use patients/participants & settings typical of day-to-day care or circumstances
- Can help in clarifying cost-effectiveness/“value added”
- ***Example: Putting efficacious automated programs ‘head-to-head’ with proven alternatives***



Estimated Energy Expenditure in MVPA (7-day PAR)



* Intervention > control, $p \leq .01$; † Intervention > control, $p = .05$



Comparative Effectiveness Research – *Other Examples*

- Compare effective PA programs “head-to-head” with ***Medical or Behavioral programs*** in specific health areas (e.g., depression, sleep, falls prevention, chronic fatigue)
- Evaluate effective PA programs as ***Adjuncts*** to clinical interventions to enhance outcomes (e.g., dementia/cognitive decline; congestive heart failure; PTSD; renal disease; periodontal disease)
- Compare different ***PA formats & delivery channels*** “head-to-head”



#3 – Develop Consensus in the Field around CONTROL arms

- Differences of opinion among researchers make for chaotic/frustrating grant & manuscript review
- ***Recommendation:*** Convene an Expert Panel to develop a recommended framework for guiding choice of most appropriate & *efficient* Controls in PA intervention research
- Consider ‘Practical Trials’ that increase external validity, diminish assessment burden on controls (& research-related attention, reactivity)

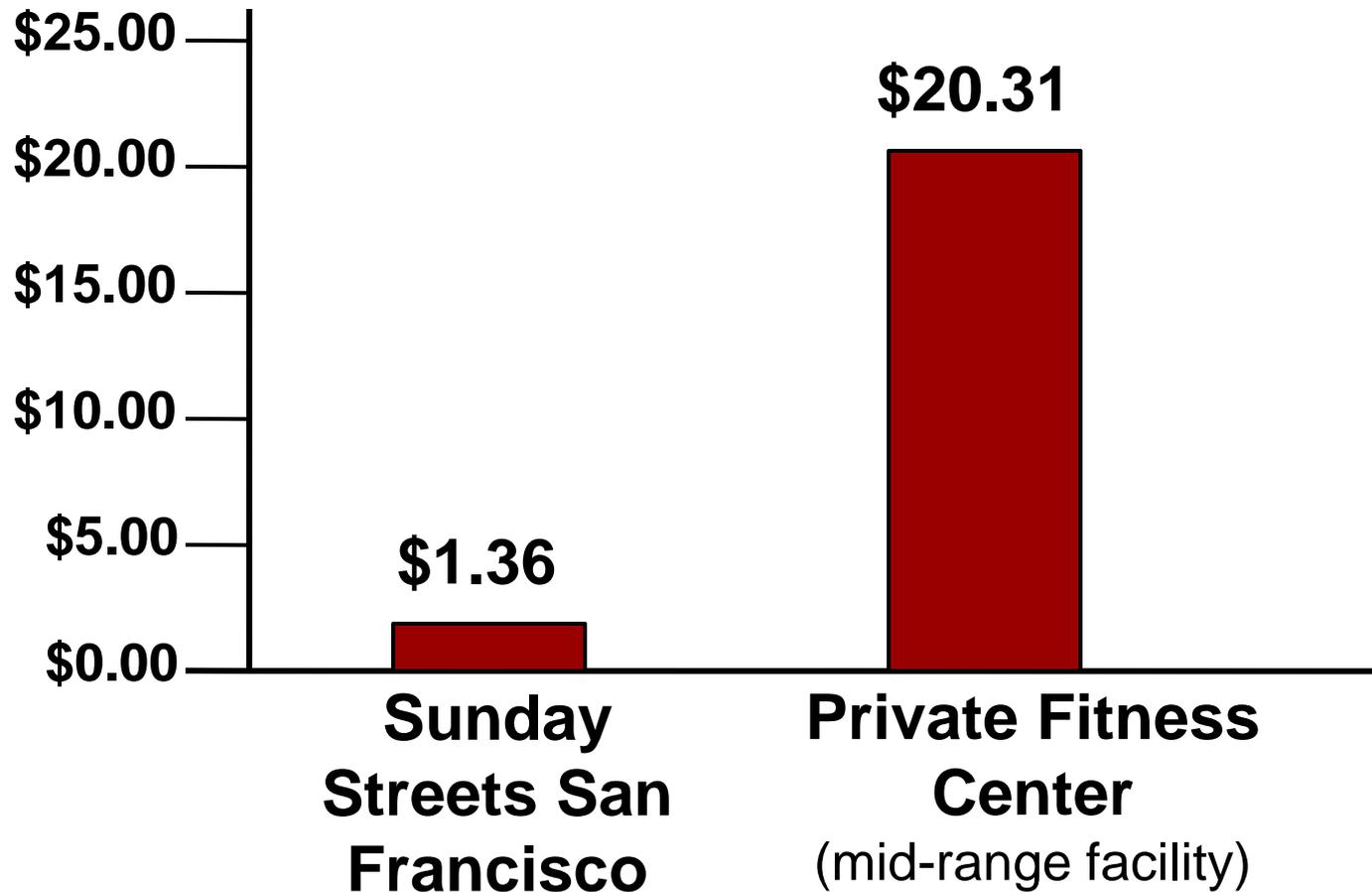


#4 – Environmental & POLICY Research

- A potential “game changer” in PA Intervention field
- Need to move beyond correlational studies here
- Some useful Examples that can serve as **Models**
e.g., research on **Ciclovías** (“car-free Sundays”) & *other naturally occurring models*: trans-generational, trans-sectoral, community-wide (across SES levels)
 - Put these approaches “head-to-head” with other tested approaches



Average Cost per User per Week of *Sunday Streets S.F.* vs. *Private Fitness Center*



Environmental & POLICY Research - continued

- A potential “game changer” in PA Intervention field
- Some useful Examples that can serve as *Models*
e.g., Recreovía research
- *Teach/incent* researchers to utilize less costly, more efficient **“natural experiments”** to evaluate environ. & policy activity (Wang et al., 2004, building of trails; Cohen et al., 2012, Park-based exercise equipment for families)



#5 – Compare Different Clinic Referral Schemes linked to PA Providers

- Evidence that provider-based advice ***combined*** with clinical or community resources & support can be effective (e.g., Pavey et al., 2011, *BMJ*)

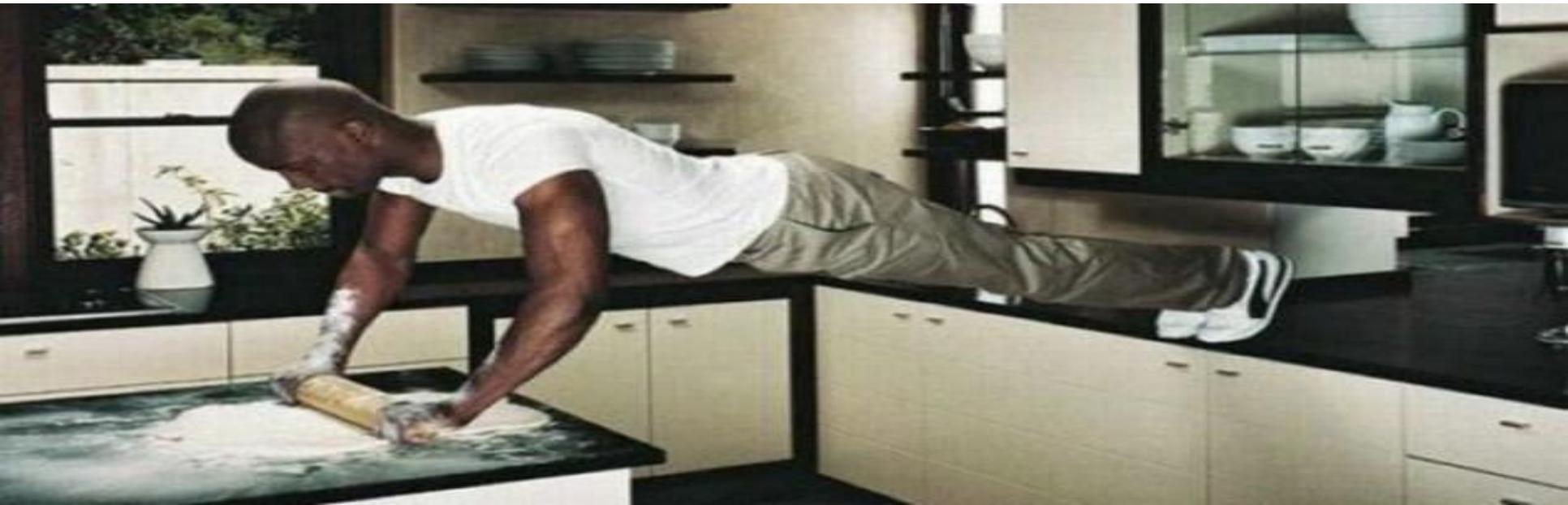
e.g., **Steve Woolf & Alex Krist's *eLinkS program*** involving an electronic linkage system for health behavior counseling in primary care (Krist et al., 2010)

- *Doc electronically linked to Counselors; Counselor contacts pt.; intervention offered by telephone, via community classes, or usual care*



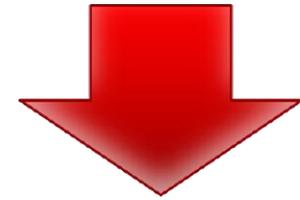
#6 – Further **Explore Synergies** between PA & other health behaviors, treatments

- A potential “activator” of **other** preventive or disease management behaviors & strategies?
 - Evaluate *conceptually-based* multiple health behavior approaches in different populations



#7 – Compare “Top-Down” vs. “Bottom-Up” PA Approaches *directly*

- “**Top-Down**” = Policy,
Environment, Institutional
- “**Bottom-Up**” = Individual,
Small groups



e.g., ***Compare individually-
adapted programs vs.
economic incentives on PA
change (e.g., worksites)***



vs. \$\$



#8 – Make Reducing *Health Disparities* a Priority in this Field

- in **all types** of research being funded
- Incent researchers to **build interventions for underserved groups *from ground up*** vs. trying to ‘tweak’ programs built for affluent, educated groups
- Harness **values** of particular importance to target group (may not be health; “stealth” interventions)
 - *IT interventions a potentially useful tool for reaching diverse populations*



#9 – Encourage Innovative Designs & Explicit Evaluation of *Subgroup (moderator) Effects*

- To determine which interventions work best **for whom over time**
- Explicitly build moderator analysis into **all** intervention studies
- Train researchers on most *cost-efficient & effective* methods for doing this
- *Adaptive intervention methods* to find best combination of intervention components, & optimize adaptation of components over time (L. Collins)



#10 - Enhance the **Quality of Systematic Reviews** in PA Intervention Field

- Can have major impact on direction or “weight” given to a scientific field
- Meta-analytic reviews often mix “apples & oranges”
- Can be incomplete, or based on ambiguous or confusing decisions re study intervention coding
- Develop standard set of search terms usable across field irrespective of journal



Finally – Fix Aspects of NIH REVIEW to “**Level the Playing field**” for this Research

- Need study sections with appropriate expertise to understand:
 - dissemination research
 - quasi-experimental designs
 - environmental & policy research methods
 - control arm considerations
 - PA behavior as a ***legitimate outcome*** in & of itself



NIH REVIEW recommendations - continued

- **Shore up Quality of Grant Reviews through:**
 - Two-tiered Review system (e.g., ARRA Discovery grants)
 - i.e., Initial Review by Senior investigators to *triage* grants for further consideration (no in-person meeting)
 - 2nd stage review via in-person study section
- Facilitate Funding of **Longer-term *Maintenance***
 - Support research with explicit maintenance strategies to test (not simply post-program follow-up)
- Consider funding ***International Networks*** aimed at accelerating science in this area





Thank You!