

THE HOME EXERCISE PROGRAM (HEP): DESIGN STRATEGIES TO OPTIMIZE COMPLIANCE AND OUTCOMES

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What you will learn...after this course you will be able to:

1. Explain the historical purpose of the HEP.
2. Identify at least three barriers to compliance.
3. Formulate a HEP utilizing best practices



Part I: HEP: Home Exercise Program

WHAT IS IT?

Extremely common in the therapy world
How consistent is the methods used?



HEP: How has it been used?

- Sporadic methods used
- Minimalist approach: 1 or 2 exercises/activities a few times per week
- New Grad approach: >5 exercises multiple times per day and compounding with new ones provided weekly
- Hybrid approach
- How often is a HEP included in our treatment plans?

Is it Important?

- Use of the HEP is one of the most fundamental and important aspects of therapy (1)
- We recognize that patient adherence leads to improved achievement of goals and therefore physical function (2)
- Also recognize that lack of adherence has been correlated to increased risk of exacerbations and less positive long term outcomes (3)

Have you done your homework?
Compliance

Non-adherence shown to be as high as 50-65% (4)
With low back pain, this has even been demonstrated as high as 70%
This data suggest that we are receiving an "F" grade in our HEP success, despite agreement on its importance
Why are we failing?
Blame does not just rest on the patient...



Research..

Some the studies cited look at factors affecting compliance
Rosemond et al. looked at the over 65 crowd..(5)
11 women and 4 men living independently
Randomly prescribed 2, 5, or 9 general strengthening home exercises
Instructed at initial session and asked to keep a log of compliance
Upon returning 7-10 days later, they were scored on an assessment tool to gauge their performance of the HEP
RESULTS: the group prescribed 2 exercises were significantly better than the other groups



Research...

In the Eckard et al study, looked at the number of exercises and compliance with military service members (10)
155 deployed service members
After initial instruction, subjects were scheduled 7 days to assess their performance
RESULTS: two factors were greatest on the results- 1. how many exercises were given and 2. if the subjects left the base at least once per week
Those prescribed 4 or more exercises had a lower rate of compliance than those prescribe 2 or less
Used the Eckert assessment tool
Were written programs given?



Research

- Evidence shows that compliance with behavior treatments (HEP) is similar to drug compliance
- As complexity increases, compliance decreases—especially with age and education levels
- Antibiotic example

How many exercises and what is the frequency?

- Did not locate a good research source for this.
- Surveyed over 50 clinicians in several health systems:
 - 85% admitted to providing HEP between 5-10 exercises
 - <5% claimed 2 or less
 - 100% stated they give HEP
 - ~75% instruct the HEP 2-3 times per day
 - ~9 % prescribe once daily
 - <2% prescribe less than daily

CHALLENGES IN THE PRACTICE ENVIRONMENT

TIME

- Reduced # of visits
- Decreased length of individual sessions
- Increased productivity demands
- This should actually mean the HEP is MORE important than ever!
- How do we optimize our HEP?!

Part II: Barriers to Compliance

- Pain
- Low levels of physical activity at baseline
- Low self-efficacy
- Anxiety or stress at baseline
- Depression
- High degree of helplessness
- Lack of social support
- Perceiving barriers to exercise
- High levels of neuroticism

Barriers --PAIN

This is a major barrier to compliance and may be the one of the most common

Especially worsening pain during a treatment session is a major barrier toward HEP compliance (2)

Any type of pain or discomfort during the HEP-- many times the patient may not be doing it correctly!

Do we instruct about pain management with the HEP?



Barriers - Previous Activity Level

What was the patient's activity level previously or at baseline?

Low level patients are less likely to incorporate a HEP into their schedule (2)

Not used to prioritizing regular fitness



Barriers: Low self-efficacy

Self esteem goes toward confidence

Psychologically this can prevent us from *believing* we can make improvements

The belief that we will fail transfers to our actions



BARRIERS: ANXIETY/STRESS

This can amount to the life distraction level

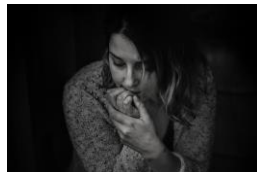
High levels at baseline are a strong predictor of poor outcomes at long term follow ups (2)

Is stress management incorporated in our plan?

Is anyone incorporating it??

Barriers: Depression

- Is depression in the PMH?
- Is it being treated?
- Lower levels of depression are correlated to greater motivation in exercising (2)
- One can deduce that higher depression levels then lead to less motivation
- Remember exercise has a positive effect on depression



BARRIER: LACK OF SOCIAL SUPPORT

Family, friends, colleagues– who is in our patient's corner?
It takes a village
We are stronger together
Absence of a strong social support network can lead to lower level of HEP adherence (5)

Barriers: High degree of helplessness

The feeling of being helpless can stem from many sources

- Lack of knowledge
- Lack of resources
- Lack of motivation

When we feel helpless, it is difficult to circumvent this without tools

- Be helped by another
- Learn to help oneself



Barrier: High levels of neuroticism

- Stemming from the term neurotic, it often refers to an automatic drastic or irrational behavior that is a reaction to a stimulus
 - This can be a mental, emotional, or physical reaction or any combination!
 - The higher these neuroticism levels, the more extreme the response. So high levels can correlate to a drastic response– i.e. minor soreness from the HEP leads one to stop doing all activities
-

Barrier: Perceived issues related to execution

- Some of these are perceived, and some may be legitimate
 - Transportation issues
 - Child care needs
 - Work schedule
 - Lack of overall time
 - Family commitments/ dependents
 - Financial constraints
 - Convenience
 - Forgetting!

Part III: Educational Methodology Basics



REMEMBER THAT MOST LEARNING IS
THE RESPONSIBILITY OF THE
LEARNER, NOT THE TEACHER

Characteristics of Good Teaching

- First and foremost is knowledge of the subject matter!
- Enjoying the opportunity to teach– this goes toward the presenter
- Understanding the PT culture/environment
- Commanding refined teaching skills/strategies



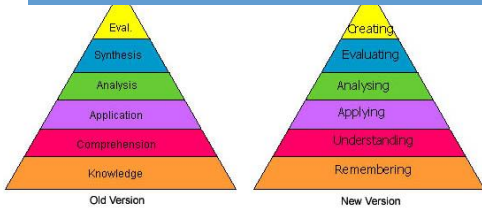
Did you know...

- CAPTE requires program directors PT/PTA to have at least 9 credit hours of graduate level coursework on educational methodology (11)
- Many rationales for this but one of the major ones cited is it helps to prevent burnout
- Gain a greater understanding to prevent frustration

Blooms Taxonomy

- Classification system used to define and distinguish different levels of human cognition
- Extremely well established in the educational world
- Terminology was revised from the older version

Old vs New Blooms



THE 3 R'S

Repeat
Respond
Reinforce

Learning Styles

- Critical to the process is identification and understanding of the proper learning styles
- No two people have the exact same style!
- We will cover more about this in the next section

Active Learning vs Passive Learning

Active learning—
immediately applying newly
received information—
using what was just taught
Passive learning— just the
act of receiving the
information without
encouraging much
interaction



Teaching Methods

There are many, many
different teaching
methods
Dynamic – new methods
continue to be developed
This is an area of a great
deal of research
Some of the more
commonly used:
Lecture
Discussion
Study assignment
method
Demonstration



Teaching Methods: Lecture

- Formal or semi-formal setting
- Instructor presents facts, principles, problems and explains relevant topics
- Typical uses:
 - Orient students
 - Introduce a subject
 - Give directions on procedures
 - Basic material explanation



Lectures

- Time saver
 - Permits flexibility
 - Less rigid space requirements
 - Adaptable
 - More control
- One way communication
 - Problematic for skill instruction
 - Encourages passiveness
 - More challenge in gauging learner's understanding
 - Requires highly skilled instructors

LECTURE EXAMPLE

Teaching Methods: Discussion

- A method in which group discussion techniques are incorporated
- May be a good method for when you want groups to learn the same information
- Uses:
 - Fosters developing imaginative solutions to problems (i.e. high cupboard and upcoming RTC surgery)
 - Stimulates active thinking
 - Supplements lecture material
 - Able to ascertain student understanding
- Example: mother to be class, lab skill, HEP for a group of future THA

Discussion Method

- Increase student interest
- Increase student acceptance and commitment to follow through
- Results in higher degree of permanent learning due to increased participation
- Requires highly skilled instructor
- Requires preparation by the student
- Limits content
- Consumes time
- Requires smaller size groups

Discussion Example

Teaching Method: Study Assignment

- Method in which the instructor assigns reading in books, periodicals, journals
- May include provide practice exercises
- Uses:
 - Orient students to a topic prior to class/ lab work
 - Helps "set the stage"
 - Provides for review of material already discussed/taught
 - An opportunity for further enrichment

Study Assignment Method

- Increase coverage of material– greater scope
- Reduce classroom time
- Permits individual attention
- Requires more meticulous planning and follow-up
- Poses evaluation problems
- Can produce non-standardized results

Study Assignment Example

Teaching Method: Demonstration

- Method where the instructor performs an operation or job, showing the learners what to do, how to do it and then explains the why, where and when during the demo time.
- Uses:
 - Teaching manipulative operations or procedures
 - Teach troubleshooting
 - Teach operation or functioning of equipment
 - Provide teamwork opportunities
 - Teach safety procedures

Demonstration method

- Saves time
 - Works for large groups
 - Builds confidence
 - Provides for learning evaluation
 - Promotes safety
 - Uses kinesthetic learning
- Requires careful preparation
 - Requires special equipment or tools
 - May require more than one instructor
 - May require class size modifications

Demonstration example

PART IV: THE NEW HEP

OPTIMIZING FOR COMPLIANCE

Remember:
A.D.D.S.

- A: Assess learning style
- D: Design your program for your audience
- D: Direct your patient
- S: Scrutinize your product!

STEP ONE: Assess learning style

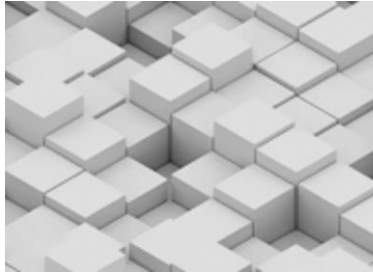
- Mentioned earlier
- This is a critical step
- Often part of a PT/OT evaluation, but may not be truly utilized
- Multiple styles identified
- Visual
- Auditory
- Kinesthetic

Learning Styles (video)



What style are you?

How do we assess our patients learning style/preference?
What is your style?



Mini- Learning Style Inventory

• Going to ask a series of questions, write down your answers and we will discuss at the end!

Question 1/10

- If you choose to read something for fun, what do you choose:
 - A. something with lots of pictures
 - B. a book with lots of words
 - C. a crossword puzzle or word search

Question 2/10

- When you are not sure how to spell a word, what do you typically choose to do?
 - A. Write it down and see how it looks
 - B. Spell it out loud
 - C. Trace the letters in the air

Question 3/10

- You are checking out at a busy department store. While you wait, which describes what you would normally do?
 - A. Look around at other clothes or items on the racks
 - B. Talk to someone in line with you
 - C. Fidget or move back and forth

Question 4/10

- When you see the word "apple", what do you do first?
 - A. Picture an apple in your mind
 - B. Say the word apple to yourself
 - C. Think about eating an apple

Question 5/10

- What is the most effective way you study, or have studied, for a test?
 - A. Read your notes, book and review pictures or charts
 - B. Have someone ask you questions out loud
 - C. Make up index cards that you can review

Question 6/10

- When you are in a new place, how do you find your way around?
 - A. Look for a map or directory
 - B. Ask someone for directions
 - C. Just start walking around until you find whatever it is you are searching for

Question 7/10

- Which of these classes are your favorite?
 - A. Art class
 - B. Music class
 - C. Gym class

Question 8/10

- What do you find most distracting when in class or a meeting?
 - A. Lights that are too bright or too dim
 - B. Noises from the hallway or outside the building
 - C. The room temperature being too hot or too cold

Question 9/10

- When you have some free time, what do you choose to do?
 - A. Read
 - B. Listen to music
 - C. Exercise

Question 10/10

- If you were with a group of friends for this free time, what would you choose?
 - A. A movie
 - B. A concert
 - C. An amusement park

Add up your score!

- Count up how many A's, B's, and C's you have
- Higher numbers of "A's" indicates you lean toward preferring visual learning
- Higher numbers of "B's" means you lean toward auditory learning
- While higher numbers of "C's" says that you prefer the kinesthetic learning style
- We often have abilities in each area and our preference can change over time
- Ties are possible!

SELF-ASSESSMENT

Understanding ourselves leads to greater understanding of how we best learn
We tend to be drawn to the type of learning we prefer even subconsciously
Don't assume that your patient knows what style they are!

How do we learn best?

Evidence shows that we learn best when we target our preferred style
However, incorporating kinesthetic learning into all styles has been shown to be most effective (8)
Typing vs writing discussion



Step Two: Design your program for your audience

- Technology
- Evidence on how many exercises/activities is optimal?
- Evidence on how often should we have them complete the HEP
- Equipment needs
- Make your selections



Technology as a tool

- We are now more interconnected than ever!
- Let's use this to our advantage
- Mobile phones, tablets, software applications
- Mobile fitness tracker (apple watch, fitbit, etc)



USE OF TELEHEALTH

Check ins and even updates to exercise plans
Many systems even allow a patient to upload a video file- they could film their exercises for review
Zoom, Skype, Facetime- HIPPA concerns

Apps

Thousands of options out there. Consider this as a tool— both for additional information, but also for videos.

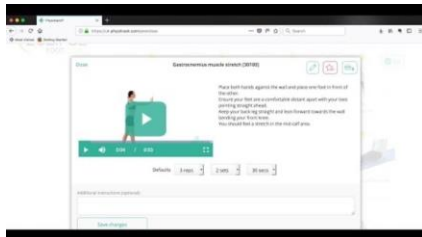
Those who utilize apps were more likely to have a positive attitude about the exercises (12). May be more effective in tech-savvy patients.



Physitrack

- An app option
- Allows for design of HEP
- Electronic delivery to the patient's mobile phone
- Tracks data and reports
- Uses video as well as audio cues
- Integrates into existing health care systems

Demo (video)

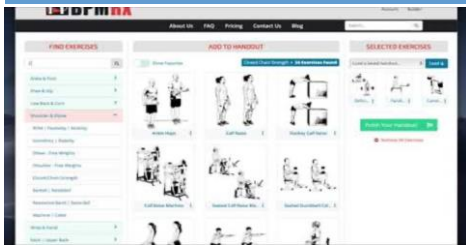


Computer software applications

- VHI, Saunders, many, many options exist
- Allows us to copy to a chart, while providing handouts for patients
- Newer options now exist as well



Technology can help! (video)



EVIDENCE REVIEW: OPTIMAL NUMBER OF EXERCISES

Earlier mentioned the Rosemond et al and Eckard et al studies, it appears that 2 is the magic number
More research looking into this even as we speak
Despite evidence to contrary, data shows over 75% of clinicians are guilty of providing higher numbers (10)

How often should we have them complete the HEP? Evidence

- Not as many studies looking into this
- We can extrapolate from the pharm industry parallels
- Less is more
- Antibiotic example
- Pill size example

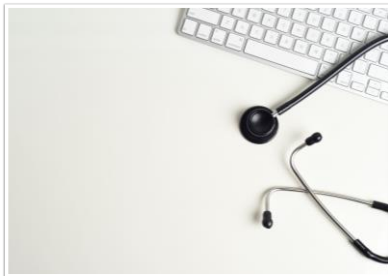
Select any equipment

Consider the home environment
What will the patient need to be successful?
Band, weights, a mat
Use of things around the house



Make your selections

Prioritize based on that magic number
Most important to help your treatment plan
Remember you can and should modify as the plan evolves



Step 3: Direct your patient

- Time to teach!
- Utilize the preferred learning style
- Provide demonstration and a way they can review when home
- Have them demonstrate
- Make your corrections
- Should be reviewed at each subsequent session

Teaching Tips–Do's

- 1. DO make eye contact
- 2. DO be organized
- 3. DO be clear
- 4. DO be concise
- 5. DO be informative– explain your rationale
- 6. DO provide at minimum a handout, but use of multimedia is better!

Teaching Tips: Do Not's

- 1. Do NOT avoid eye contact
- 2. Do NOT speak too quickly
- 3. Do NOT disallow questions
- 4. Do NOT forget to speak in terms your patient understands
- 5. Do NOT to forget to allow adequate time with this Step!

Step Four: Scrutinize

- Review the HEP
- Assess for effectiveness
- Modify as needed

Review the HEP

- Should be done at the first visit following the initial evaluation and periodically after based on need
- Asking about pain with HEP is important
- Ask patient to demonstrate the HEP– if they are completing it the required number of times and frequency per day, they should be able to do this!
- If non-compliant, this is your first and best opportunity to address it and make a course correction!

ASSESS FOR EFFECTIVENESS

- Is the HEP having the desired effect?
- As they demonstrate, do they need form corrections
- Are they investing into the need for the HEP?
- Use of telehealth
- Use of mobile tracking

MODIFY AS NEEDED

This is what we do as therapy!
Make changes and provide new handout, etc for home use
DOCUMENT the changes and more importantly, WHY the changes were made!

Ways to measure adherence

Diary/Journal
Computer programs, phone apps
Wearable tech
SIRAS
HREPS
AESOP
RAQ-M



Adherence Measurement: Diary/Journal

Easy and can be done written- log form
Poor completion rates
Inaccurate recall
Self bias



Adherence measurement: Computer programs and phone apps

- Good for tech savvy individuals
- Data may be downloaded into an electronic medical record
- Still may rely on self-reporting
- May lead to inaccuracies



Adherence measurement: wearable tech

- Fitbit
- Apple watch
- Pedometer
- Allows for automatic data acquisition
- Less or no need for self reporting
- Data can be shared with clinician and even uploaded into electronic medical record
- Higher level of patient enjoyment and buy-in

Adherence measurement: SIRAS

- Sports Injury Rehabilitation Adherence Scale (13)
- 3 item scale completed by the therapist

1. Circle the number that best indicates the intensity with which this patient completed the rehabilitation exercises during today's appointment.

Minimum effort 1 2 3 4 5 Maximum effort

2. During today's appointment, how frequently did this patient follow your instructions and advice?

Never 1 2 3 4 5 Always

3. How receptive was this patient to changes in the rehabilitation programme during today's appointment?

Very unresponsive 1 2 3 4 5 Vary receptive

The SIRAS can also be used with reference to adherence tendencies in general by using the present tense (without reference to 'today's appointment'). Originally published in Brewer BW, Van Raalte JL, Petrus AJ, Silar JH, Pohlman MH, Kraschell RJ, et al. Preliminary psychometric evaluation of a measure of adherence to clinic-based sport injury rehabilitation. *Phys Ther Sport* 2000;1:68-74.

Adherence Measurement: HREPS

- Hopkins Rehabilitation Engagement Rating Scale (14)
- 5 item questionnaire completed by the HCP for acute settings

Hopkins Rehabilitation Engagement Rating Scale – Reablement Version (HREPS-RV)

For each statement, please report your experience of working with this client over the entire course of your visits by ticking the relevant figure (0-4).

When I made my visits, the person was ready to start their reablement session.

Never Rarely Some of the time Most of the time Nearly always Always

The person's ability to take part in the reablement sessions/visits was affected by memory difficulties and/or low mood.

Never Rarely Some of the time Most of the time Nearly always Always

The person expressed a positive attitude towards the reablement activities we worked on together.

Never Rarely Some of the time Most of the time Nearly always Always

The person accepted that they needed to be reabled.

Never Rarely Some of the time Most of the time Nearly always Always

The person actively participated in my reablement sessions/visits.

Never Rarely Some of the time Most of the time Nearly always Always

Adherence measurement: AESOP

- Adherence to Exercise Scale for Older Patients (15)
- Patient completed 43 item questionnaire

ADHERENCE MEASUREMENT: RAQ-M

Modified Rehabilitation Adherence Questionnaire (16)
25 item scale to evaluate potential barriers to patient adherence

A.D.D.S.

- Assess learning style
 - Design your program for your audience
 - Direct your patient
 - Scrutinize
-

PART V: CASE STUDIES

Case Studies—Acute LBP

- Background— was lifting bags of mulch and then woke up with 8/10 LBP
- Unremarkable PMH
- Primary problems identified in evaluation: erector spinae spasms, excessive anterior pelvic tilt
- Patient identified as an Auditory dominant learner



Video demo

Revised 06/10
Manual for Practitioner, 2nd Edition, ©2010
JAF 09/2009

BACK • 56 Pelvic Tilt: Posterior = Legs Bent (Supine)



Tighten stomach and flatten back by rolling pelvis down.
Hold 30 seconds. Relax.
Repeat 4 times per set. Do 3 sets per session.
Do 3 sessions per day.

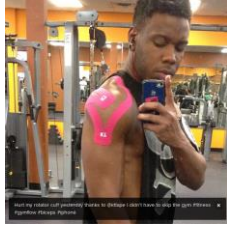
BACK • 18 Knee-to-Chest Stretch: Unilateral



With hand behind right knee, pull knee in to chest until a comfortable stretch is felt in lower back and buttocks.
Repeat with LEFT.
Keep back relaxed. Hold 30 seconds.
Repeat 2 times per set. Do 3 sets per session.
Do 3 sessions per day.

Case Studies– Rotator cuff repair

- s/p RTC repair surgery, arthroscopic
- Dominant arm
- Patient orders allow for AAROM only for first two weeks, isometric strengthening may begin at week 3
- PMH unremarkable
- Evaluation shows 50% passive ROM available
- Patient identified as a Visual dominant learner



Video demo

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SHOULDER - 26 ROM: Pendulum (Circular)

Let **right** arm move in circle clockwise, then counterclockwise, by rocking body weight in circular pattern.

Circle 30 seconds each direction per set.
Do 1 set.
Do 2 sessions per day.

SHOULDER - 7 ROM: Flexion

Keeping **right** arm on table, slide body away until stretch is felt. Hold 30 seconds.
Repeat 1 times per set. Do 1 sets per session.
Do 1 sessions per day.

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ANKLE / FOOT • 9 Ankle Alphabet



Using left ankle and foot only, trace the letters of the alphabet. Perform A to Z.

Repeat 1 times per set.
Do 2 sets per session.
Do 2 sessions per day.

ANKLE / FOOT • 10 Toe Curl: Unilateral



With left foot resting on towel, slowly bunch up towel by curling toes.
Repeat 10 times per set. Do 1 sets per session.
Do 2 sessions per day.

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THANK YOU FOR WATCHING!

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