



# IQ MINDWARE APP TRAINING

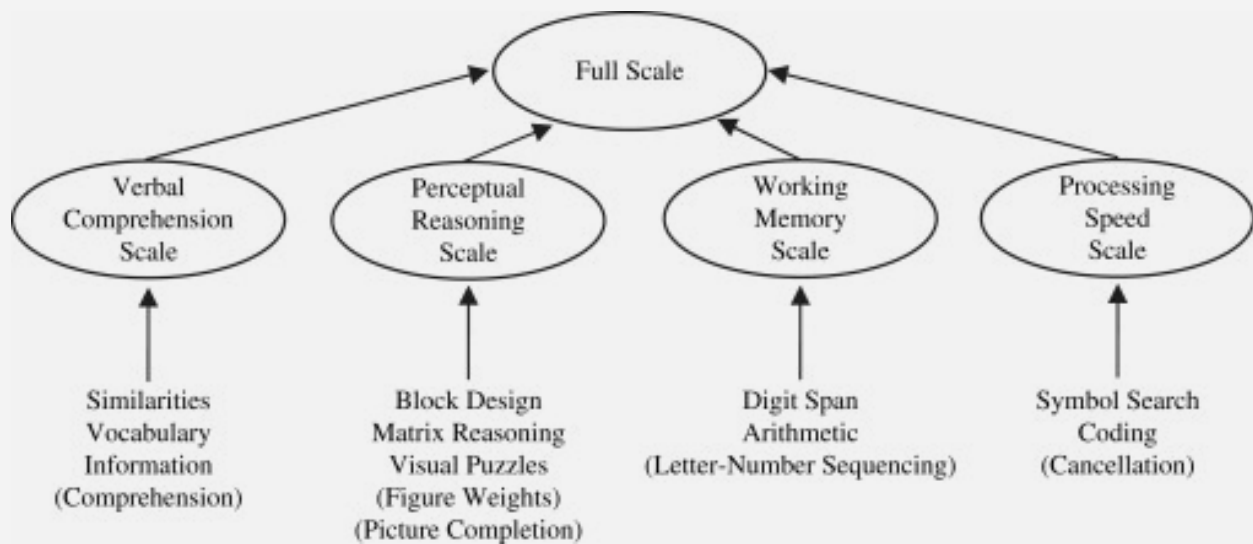
Dr. Mark Ashton Smith, 2022

Welcome to IQ Mindware's evidence-based, high end IQ training arena. We forge strong cognitive ability and accelerated learning capacity to empower you to pursue your goals effectively.

## **IQ Training**

### **IQ: What Is It?**

Your IQ is a measure of your general intelligence. The Wechsler Adult Intelligence Scale—Fourth Edition (WAIS-IV) is the latest revision of Wechsler's adult intelligence scales, the most widely used tests of intelligence for adults. This full-scale IQ test measures four capacities that underlie IQ - shown here, along with the subtests:



## I3 Mindware App Training

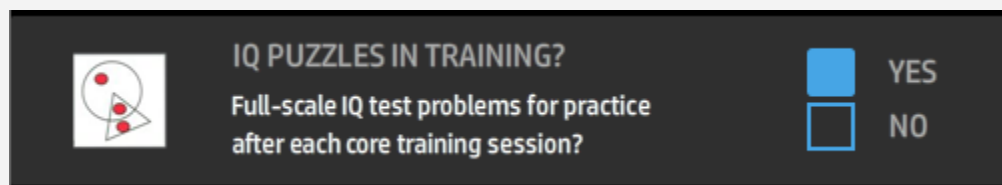
The i3 Mindware cognitive training app implements training programs that result in long-term neuroplasticity change to substantially augment your IQ.

Unlike other brain training providers, this training is based on a training method (the **n-back**) that has had in the order of 50-100 independent peer reviewed scientific studies to evaluate and prove its effectiveness in boosting two central capacity - working memory - measured by professional full-scale IQ tests such as the WAIS-IV.

## Training Commitment

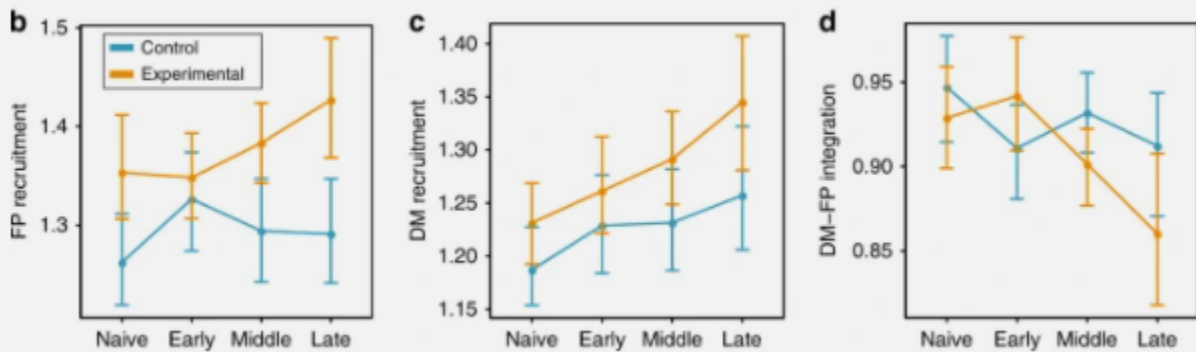
There are two key requirements for your training success:

- 1) To complete all 40 sessions of dual n-back training.
- 2) To complete the IQ puzzles which trains your problem solving ability



Long-term neuroplasticity change for increasing IQ requires between 6-9 hours of training over a one month to six week period.

These neuroplasticity effects resulting in training benefits are shown in this recent Nature fMRI study in orange for games implemented in i3 Mindware compared to a simple cognitive training task in blue. Note how the real gains only start to appear from the middle to late phases of training - that is between weeks 4 to 6 where training was one and a half hours per week - on just a single working memory training game. B shows activity in your Fronto-Parietal attention & working memory network, C shows activity in your 'default mode' cognition where your attention is focused internally on your own thought processes, and d shows how these two networks become more modular and separated from each other over training. You need that modularity and segregation for your training to be effective!



Early: 2 weeks, middle: 4 weeks; late: 6 weeks

**NOTE: Other 'brain training lite' providers do not give you training regimes that result in these real long-term gains.**

You can select either a scheduled 4, 5 or 6 week commitment in the app.



It is important that you train two i3 Mindware sessions back to back (with up to a

10 minute break between if required). Both sessions should take under half an hour.

## Training Outcomes

There are two long-term goals for your training:

- 1) To increase your **working memory capacity** measured by your **n-back level** in the i3 Mindware capacity training games. Working memory capacity is a measure of your short term memory and attention control.
- 2) To increase your **fluid reasoning ability**, as measured by culture fair online IQ tests that are available here. You can take pre-training and [post training IQ tests here](#) if you want these objective measures of fluid reasoning.

The app also comes with a psychometric testing app (G Track) for other measures of cognitive functioning that you can compare before and after training, such as resilience and mental health.

## Choice Of Training Game

i3 Mindware has a number of core training options for your 4-6 week commitment.

### **If you are new to dual n-back working memory training**

Completing 20 full sessions of dual n-back training is something that should be on everyone's bucket list in life! (i3 Mindware divides each full session into two half-sessions, which is why it has 40 sessions in total rather than 20.)

## Classic Dual N-Back

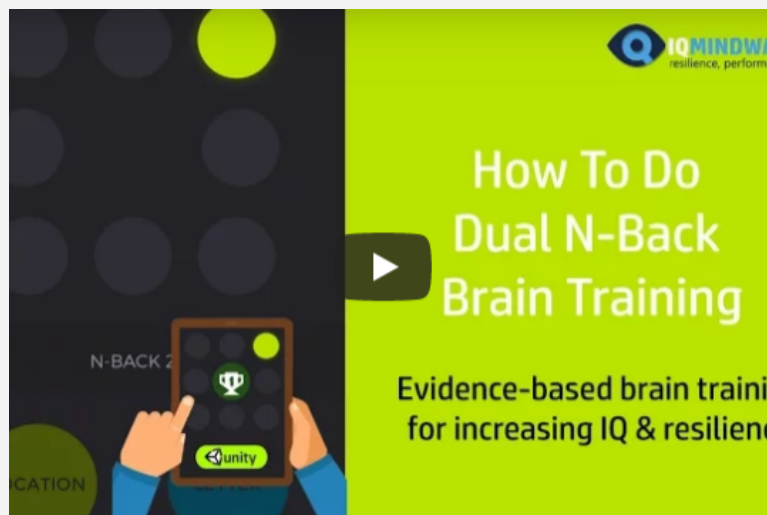
If this challenge has not been completed in your life yet, then you should choose the 'DNB Training' option for your core training.



i3 Mindware's 'DNB Training' game accurately implements the classic dual n-back working memory training game that has been extensively researched in dozens of peer reviewed studies.

## Instructions

How you play this game is explained in this video tutorial.



<https://youtu.be/uOncXapT-j4>

## Effective Training Strategies

**Rehearsal - good.** You can improve your n-back level on the dual n-back game through using a strategy called rehearsal. For the audio stimuli, you can use your inner voice ('subvocalization') to rapidly repeat the string of letters for a particular n-back level to keep them in your mental workspace. The letters may even be said aloud. With this strategy you need to update the list one item at a time as new items are presented. For the visuospatial stimuli, you 'rehearse' a location-by-location scanning of where the squares have just appeared. This may involve imagining the locations or actually subtly

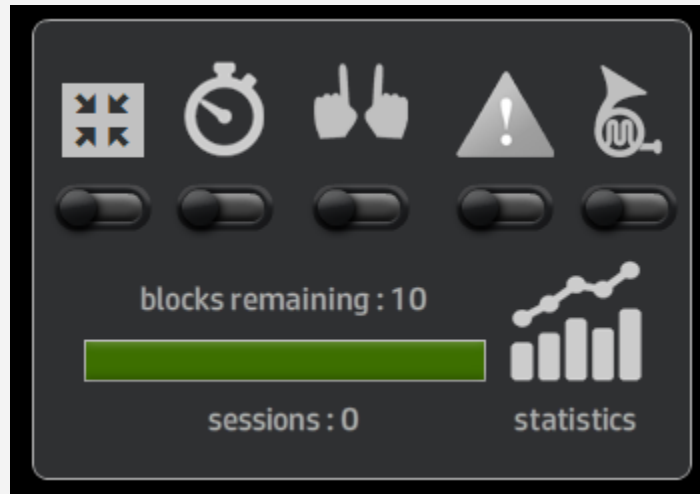
moving your eye muscles. Both the sub-vocalisation and scanning are rehearsal strategies, and they can be done simultaneously.

**Chunking - bad.** Sometimes during the dual n-back game, a letter or location may be repeated one two or even three times. When this happens it is easier to play the game because with only one 'place holder' there is less information to encode to do the task. Or at other times, there may be a meaningful string of letters that forms a word or acronym, or a sequence of locations that forms a memorable shape. When items can be grouped together like this, easing the burden on our working memory system, this is called 'chunking'. Chunking can benefit from practice and it is widely used in n-back training to increase n-back levels. While chunking is useful in everyday life to help us encode information efficiently, it is counter-productive for training to expand the capacity of working memory training.

**Meta-awareness - good.** Be meta aware in your day (outside of the training context) where you may experience a 'bottleneck' in the amount of information you can process in your mental 'workspace' to plan something, arrive at a decision, envisage a set of steps before acting, follow instructions, solve a problem, or keep track of the thread of some text or an argument. Classic dual n-back training is designed to help expand that bottleneck for you.

### **Your Last 10 Sessions Of Training**

Once you have hard-wired your brain networks after the minimum 30 sessions of i3 Mindware training - remember, back to back - you can experiment with varying the first three of the training options shown here: interference control, speed and hand-switching. Interference control training can help train **attentional discrimination** within your own short-term memory for more precision. The faster speed and hand switching options will be very challenging for you but result in additional IQ-related cognitive gains for **speed of processing** and **cognitive flexibility** respectively.

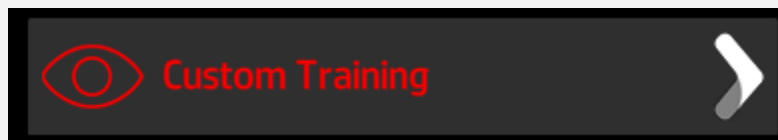


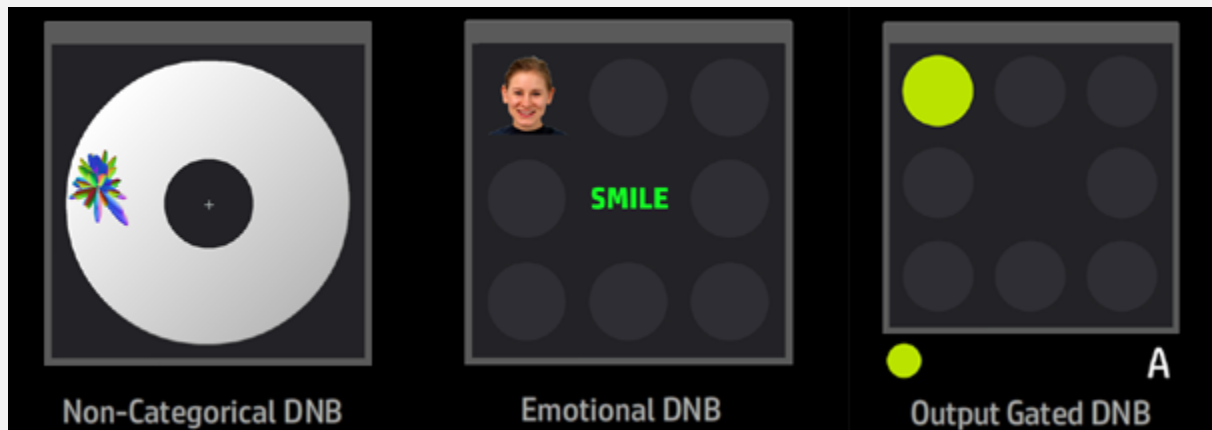
If you choose to continue without variation training, that's also fine.

**NOTE:** by clicking on the statistics graph shown above, you can access your n-back performance graph at any time.

**If you have completed 20 sessions of dual n-back working memory training - or if you want to try something more challenging**

If you have completed 20 sessions of classic DNB in the past, or you want to commit to a training game that has a focus on additional IQ-related capacities, then you have the following options in the Custom Training game options.





### Non-categorical (episodic) DNB

This DNB training game generates novel shapes which cannot be easily categorized. It imposes additional demands on your working memory and helps train sensory discrimination and integration in addition to working memory. In addition to the benefits of classic DNB training, this training may help develop **more external attentional focus** on the present moment of experience.

### Emotional DNB

This is a well-researched variant of the classic dual n-back, and is known to have additional benefits beyond classic dual n-back training for **attention focus** as well as resilience to **emotional stressors** for clarity of mind under pressure.

### Output Gated DNB

This is a much more challenging game that helps additionally with mental **flexibility**, situational **awareness** and **decision-making** abilities. It also trains **relational processing** since you need to form relations between both of the information streams. Relational processing is critical for IQ. Combining this game with 'hand switching' (see above)- either throughout the whole training program in the final 10 sessions is a powerful way to train IQ.

Any of the other game options can be explored in follow-up training.

### **Additional Check: IQ Puzzles**

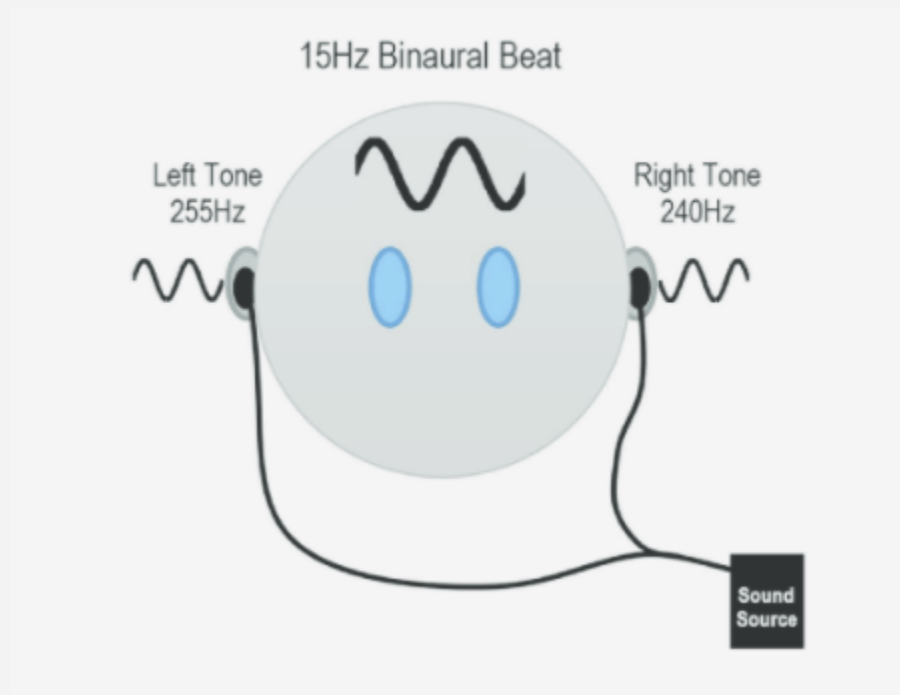
Ensure that you also train with the IQ puzzles after each dual n-back session, as stated above.



# BioQ Training

## SyncPower: Beta

Multiple independent experiments have demonstrated that you can enhance the dual n-back training effects by listening to beta power (**15 Hz**) binaural beats in stereo for 10 minutes prior to training, or 5 minutes prior and 5 minutes during training.



The effect of binaural beats for 10 minutes is widespread synchronization of beta wave oscillations among cortical neurons. It is hypothesized that beta waves function as a rule-based signal for **gating** and **updating** working memory contents.

Beta wave entrainment can also be used as a 10 minute meditation independently, and it should enhance executive control and working memory performance.

Beta power binaural beats that replicate frequencies known to be effective can be found at [IQMindware.com](http://IQMindware.com)

## SyncPower: Gamma

Multiple experiments have demonstrated that you can enhance attention discrimination and flexibility by listening to gamma power (**15 Hz**) binaural beats in stereo for 10 minutes prior.

Gamma binaural beats can be combined with both Non-Categorical and Output Gated DNB games effectively, since these games require external attention discrimination and attention flexibility respectively.

Gamma power binaural beats that replicate frequencies known to be effective can be found at [IQMindware.com](http://IQMindware.com)

## Exercise

A recent review of 80 randomized controlled trials found a significant, general benefit of exercise on cognitive performance, which increased with longer durations of exercise. The effect was more pronounced in exercise involving coordination.

There is also evidence that exercise may be particularly beneficial in promoting executive function, cognitive resilience and stress-tolerance.

There are multiple papers showing a **synergy effect** when combining aerobic exercise with cognitive training. A recent randomized control study showed that exercise prior to dual n-back training concluded: *“our findings suggest that the addition of antecedent physical exercise to brain training regimen could enable wider, more robust improvements.”*

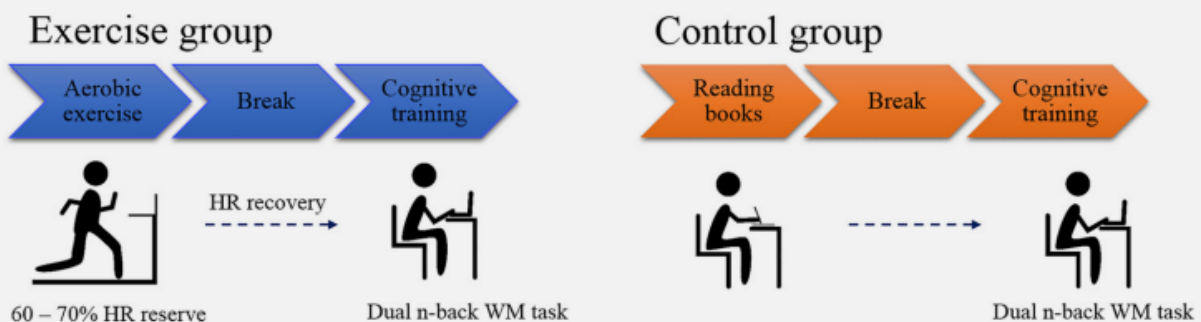


Fig. 1. Training protocol for the exercise and the control groups.

Research suggests there is an increase in complexity (entropy) of brain activity after this kind of cognitive-physical synergy training when performing new cognitively challenging tasks - an effect that is not found after n-back training alone. Higher brain complexity and entropy is associated with higher levels of fluid reasoning.

As an alternative to using binaural beats prior to training, you can consider doing a medium intensity workout prior to training.

## Additional Resources


### Your Customized Subscriber Group

Ensure you subscribe to your specialist services mailing list to receive additional, more customized materials at [IQMindware.com](https://IQMindware.com). You can do so at the IQMindware.com homepage - scrolling down to these options:

BRAIN TRAINING TO SOLVE, ADAPT AND EVOLVE


## SUBSCRIBE TO SPECIALIST SERVICES

Subscribe to content for free G-related 'mindware' based on the latest scientific evidence - eBooks, how-to guides for augmenting IQ, EQ or BioQ, educational video content, & app offers. Get a free Beta brainwave entrainment audio file - demonstrated to augment working memory capacity (a core component of IQ) & network connectivity for high information transfer (1, 2)




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### Cognitive Coaching

Mark Ashton Smith, Ph.D., offers cognitive coaching services to help you customize a personalized training program. Cognitive coaching can be [booked here](#).

Any queries can be sent to: [mark@iqmindware.com](mailto:mark@iqmindware.com)