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Training Your Brain

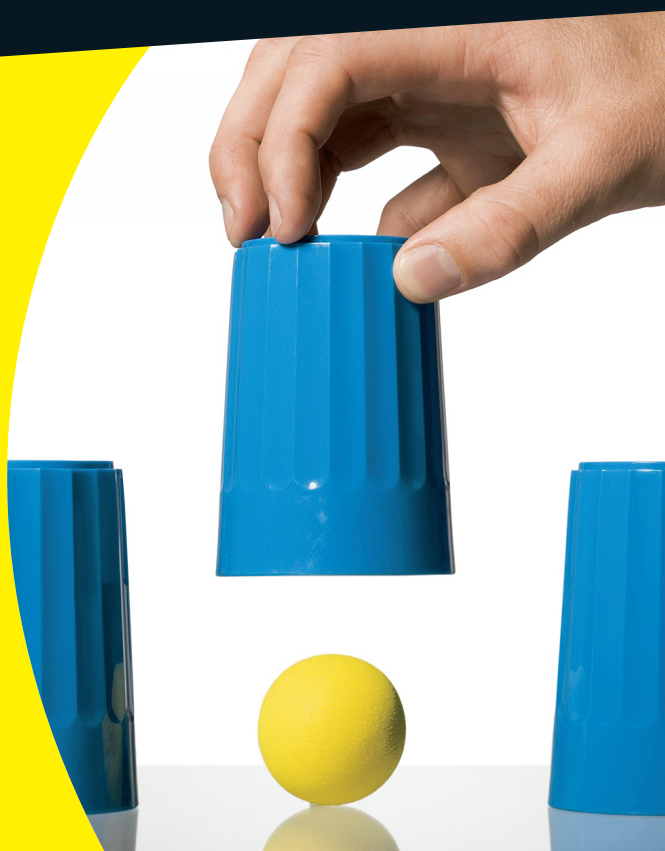
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- **Make brain-friendly diet and lifestyle choices**
- **Maximise your mental fitness with puzzles and exercises**

**Dr Tracy Packiam
Alloway, PhD**

*Director of the Centre for Memory
and Learning in the Lifespan*



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**by Dr Tracy Packiam Alloway
Puzzles by Timothy E. Parker**

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Dedication

To Marcus: For teaching me that you are never too young to train your brain.

To Baby No. 2: For keeping me company while I was writing this book.

– Tracy Packiam Alloway, PhD

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Introduction

I imagine that you've picked up this book because you're interested in finding out more about the brain. In particular, I expect you're interested in what *you* can do to help your brain work better than it does now. Knowledge about the brain and how to train your brain has snowballed in recent years and keeping up with all the scientific research that's coming out is hard.

About This Book

In this book I distil information into bite-sized chunks. I discuss a range of topics relevant to brain training, from computer games to what you should eat, even to what exercise is best for your brain, calling on cutting-edge science. In some of the topics I draw from my own research expertise, and in other topics I follow leading psychologists, scientists, and researchers in the field.

Each chapter deals with a different aspect of brain training, so by the time you get to the end of the book you have a complete picture of what you can do to boost your brain power. The strategies are simple, effective, and easy to fit into your busy lifestyle. You don't have to make major changes to make a big difference. Many of the tips and advice involve small changes that revolutionise your brain.

Conventions Used in This Book

This book follows similar conventions to those that you may have come across in the *For Dummies* series. Here are some of the conventions that you see in the chapters:

- ✔ **Italics.** Words in italics are new words or keywords I introduce that are relevant to the chapter or the section. I always provide definitions for these keywords.
- ✔ **Sidebars.** I include interesting stories that are relevant to the chapter in the grey, shaded boxes. You don't have to read the sidebars, but I think they provide a nice way to see brain training tips in action.

What You're Not to Read

If you've read a *For Dummies* book before, then you may be familiar with its characteristic relaxed style. You don't have to read this book from cover to cover to know what's going on. In fact, don't do that! Start with a section that you're interested in, and read that. Feel free to dip in and out of the chapters. As with all *For Dummies* books, the chapters are stand-alone so you can easily follow them without having to read the previous chapters.

Foolish Assumptions

In writing this book, I've assumed that you want to know the essentials about how the brain works, and that you want to know what you can do in your daily life to help your brain work more efficiently.

To help fulfil these needs, I've included some cutting-edge scientific research on the brain as well, but not so much that things get boring! Whenever I mention psychologists or studies, I'm referring to actual published research. I've also included some stories from real-life situations that I hope you enjoy as well.

How This Book Is Organised

This book has six parts. I provide you with tips, advice, strategies, and the science behind the ideas. Here's a breakdown of what you can expect.

Part 1: Brain Training Basics

This part provides you with a step-by-step guideline to how the brain works and who the key players are. I also talk about common misconceptions about the brain, as well as frequently asked questions about brain training. The brain training software industry has exploded in the last few years, and I review a range of products for all ages. Find out the science behind these different programs (such as Nintendo's Brain Age) and discover whether they'll work to train your brain.

Part II: Remember, Remember . . . Keeping Your Memory Sharp

From forgetting car keys to shopping lists, faces, and directions, everyone's experienced that feeling of 'what was it that I needed to do?'. In this part I talk about the different memory systems and what you can do to make your memory work better. Get tips to improve your verbal memory (language), visual memory (faces), and spatial memory (directions). So at the next company party, you'll be the only one who doesn't get lost on the way and remembers everyone's face and name!

Part III: Fostering a Happy, Healthy Mind

Stress, anxiety, and depression can all take a toll on how your brain works. They can start to have a negative impact on your job, your relationships, and even your plans for the future. But it doesn't have to be this way. You can do many scientifically proven things to boost your mental health. Find out how to combat stress and anxiety and make happiness a daily choice. It really does make your brain work better. Probably one of the most fun ways to train your brain is to foster healthy friendships. Even digital friendships (through social networking) make a positive difference!

Part IV: Getting Physical: Looking at Brain-Friendly Diet and Lifestyle

Brain-boosting food doesn't have to be boring – in this part you find out many delicious foods that you can eat and drink to improve your brain. I provide tips from pre-birth (pregnancy) to adulthood, so you have no excuse for not benefiting from what you're eating, no matter what your age. Also in this part is advice on what physical activities work best to enhance your brain's functioning.

Part V: Game On! Brain Training Games to Play at Home

Ready to get started? Part V includes many different games that you can play to train your brain at home. Take your pick from language games, number games, and memory games.

Part VI: The Part of Tens

The Part of Tens gives you top ten things that you can do to train your brain. In Chapter 18 you discover ten new things that you can do to make your brain more efficient. The tips are fun and enjoyable activities that everyone can (and should!) do.

Don't let the excuse of not having enough time stop you from training your brain. In Chapter 19 I give you ten things you can do to train your brain on the move.

Icons Used in This Book

Icons are commonly used throughout *For Dummies* books and this one is no exception. Here's what each icon means.



This icon provides an anecdote, a study or an interesting fact that relates to the topic.



Don't skip this section – it's jam-packed with advice and strategies that you can begin using right away.



Doing some late night reading and only want one thing to take away? Then read this icon to find out more.



This icon provides a caution – whether it's what to avoid or what to be aware of; make sure you don't miss this.



Sometimes, a little pearl of wisdom is important to remember. This icon helps you to file away information that may help you to train your brain when the opportunity arises.



This icon relates to fairly in-depth information. You may want to flick past these paragraphs or stay there and find out more. When you can apply the information to training your brain, you may find the information here encouraging you to delve a little deeper into the subject.

Where to Go from Here

Now what? Well, if you want change, it's now within your grasp. Start with a topic that you're interested in and dive in. But remember, reading this book alone won't increase your brain's efficiency. You must actually practise the strategies to see improvements. The first step to change is desire – do you want to change? By picking up this book you've already demonstrated that you do. The rest is easy.

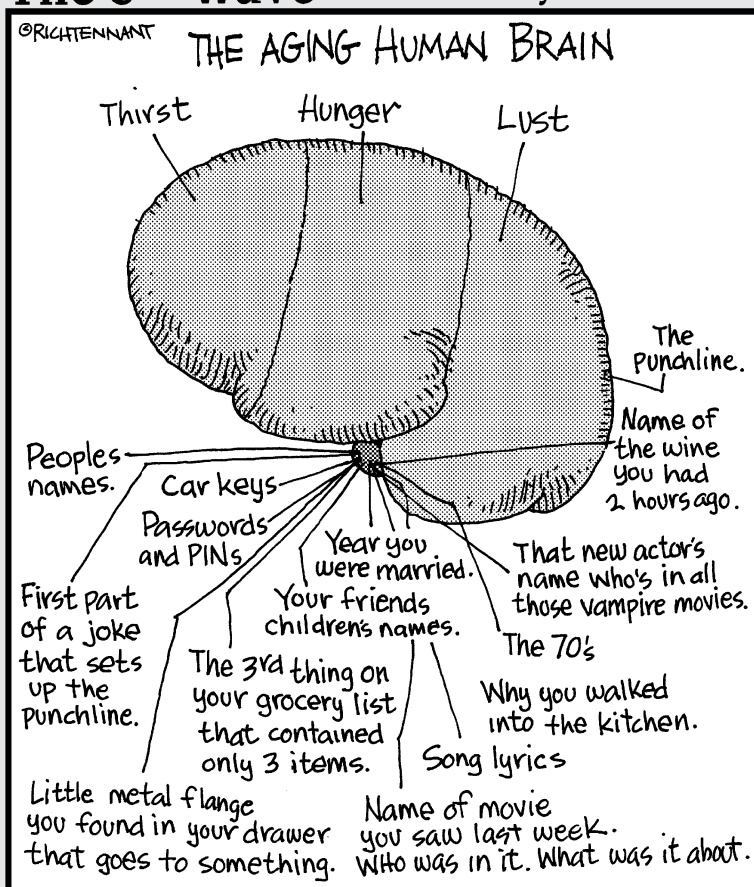
Part I

Brain Training

Basics

The 5th Wave

By Rich Tennant



In this part...

Many myths and misconceptions are floating around about how the brain works. For example, do you really use only 10 per cent of your brain? In this part you find out the truth about how the brain works and how you can easily begin training it. Brain training is one area that's really cutting-edge science. Clear evidence proves that you *can* train your brain, and I highlight what works best for different age groups.

Chapter 1

Introducing Brain Training

.....

In This Chapter

- ▶ Finding out about your brain
 - ▶ Getting to know your short- and long-term memory
 - ▶ Boosting your brain with mood and activity
-

Everyone wants their brain to work at its best – whether you want to stay sharp to keep up with your children or come up on top at work. The exciting thing is that science now provides evidence for what works and what doesn't. So training your brain no longer has to be a case of trial and error – trying one thing, finding out that it doesn't work and then trying something else.

In this chapter I talk about cutting-edge, scientific research and examine how this research can influence your life and change your brain for the better.

Yes, You Can Train Your Brain!

People who use their brain more efficiently tend to have better jobs, better relationships, and more happy and fulfilling lives. And here's the exciting thing: you can change your brain and, as a result, change your circumstances. Although you may have long been told that you're stuck with the brain you have, scientific research has now found that this isn't true!

Brain plasticity – the brain's amazing ability to adapt and change throughout your life – is an exciting and growing area. And the great thing is, you have the power to change your brain to help it function more effectively.



Brain training doesn't have to include a major overhaul of your life. Here are some straightforward tips to get you started:

- ✔ **No time?** Grab a handful of blueberries on your way out the door (Chapter 12); play a brain game while you're on the move (Chapter 19); and spend a few minutes each day in (Chapter 10).
- ✔ **No energy?** Find out the best exercise to boost your brain (your body will also thank you; Chapter 14); reap the benefits of green tea (Chapter 13); and discover the power of sleep for your brain (Chapter 14).
- ✔ **No motivation?** Friendships not only increase motivation, but they also improve your brain power! Spend just ten minutes socialising to experience the same benefits to your brain as doing a crossword puzzle (Chapter 11).

Getting to Know Your Brain

You've heard of the left brain and the right brain. Well, it's true that the brain is made up of the left and right hemispheres and that they have different functions. However, it's not entirely true that some people are only 'left-brainers' and others are 'right-brainers'. For example, language skills are located in the left hemisphere (see Chapter 2) and everyone uses this part of the brain! You don't need to hide behind the excuse that you're a right-brainer so you can't remember names. With the activities included in this book, you can get both halves of your brain working at their optimum levels.

In the world of brain training, key players exist and I talk about how to keep them alert and active in Chapter 2. The most important thing to remember is that the different parts of the brain don't work in isolation – they come together like a team. When you train one part of the brain, the rest also benefits. You can think of the brain like an orchestra or like a sports teams. The message is the same – one star player can't carry the rest of the team. They all have to work together.

The Long and Short of Memory

Your brain stores information that you come across briefly in your *short-term memory*. If you rehearse the information often, you can move it to your *long-term memory*. After the information is in your long-term memory, you usually have access to it indefinitely.



The long story

Long-term memory is made up of many different types of memories:

- ✓ **Autobiographical memories.** Childhood memories and meaningful events, for example, are known as *autobiographical memories*. These types of memories are really powerful and the loss of them can be a good early indicator of dementia and Alzheimer's disease. You can do many things to keep these memories fresh; I discuss how in Chapter 4.
- ✓ **Semantic memory.** Your knowledge of facts and random bits of information is known as *semantic memory*, which is very useful in converting new information from your short-term memory into your long-term memory. Find what strategies for doing this work best in Chapter 4.
- ✓ **Procedural memory.** *Procedural memory* is an automatic skill that you don't even have to think about – like driving a car or writing your name. You can discover how to make new things become automatic in order to help your brain work more efficiently.

The short story

Short-term memory is responsible for you remembering verbal, visual and spatial information. People don't usually remember things in their short-term memory for very long unless they make a conscious effort to 'move' them into long-term memory stores.



Here are a few different ways in which you use your short-term memory.

- ✓ **Verbal.** Do you forget what you were saying in the middle of a conversation? Find yourself standing on the top of the stairs and can't remember why you walked up there? These are common phenomena and aren't signs of serious memory loss. However, if you want to keep your brain in top shape, find out how to keep your language skills sharp. Whether you want to remember your list of errands or avoid memory loss as you get older, keeping your brain active can overcome signs of Alzheimer's disease (see Chapter 6).
- ✓ **Visual.** Why do some people look so familiar, yet you struggle to remember their names? This is an example of visual memory at work. Use tricks to boost your brain when it comes to remembering faces and other types of visual information (see Chapter 7).