

## Handouts for Clients

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### **Personal Feedback Report Form**

This form is used in Project MATCH to summarize information obtained from the pretreatment assessment battery and is discussed with and given to the client in the early sessions of MET. It is an example of the type of form that may be adapted for use in other research studies involving MET.

### **Understanding Your Personal Feedback Report**

Project MATCH clients receive a copy of this material to take home with them to read in conjunction with their PFR. It summarizes important information that helps the client understand the implications of their scores on the assessment instruments. Again, it is an example of the Project MATCH material that may be adapted for use in other research studies involving MET.

### **“Alcohol and You”**

This pamphlet was developed by Dr. William R. Miller and is suitable for duplication and distribution to clients.

# PERSONAL FEEDBACK REPORT

Location: \_\_\_\_\_

Name: \_\_\_\_\_ ID: \_\_\_\_\_

## 1. YOUR DRINKING \_\_\_\_\_

Number of standard "drinks" per week: \_\_\_\_\_ drinks

Your drinking relative to American adults (same sex): \_\_\_\_\_ percentile

## 2. LEVEL OF INTOXICATION \_\_\_\_\_

Estimated Blood Alcohol Concentration (BAC) peaks:

in a typical week: \_\_\_\_\_ mg %

on a heavier day of drinking: \_\_\_\_\_ mg %

## 3. RISK FACTORS \_\_\_\_\_

**Tolerance Level:**

\_\_\_\_\_ Low (0 - 60)    \_\_\_\_\_ Medium (61 - 120)    \_\_\_\_\_ High (121-180)    \_\_\_\_\_ Very High (181 +)

**Other Drug Risk:**

\_\_\_\_\_ Low    \_\_\_\_\_ Medium    \_\_\_\_\_ High

**Family Risk:** \_\_\_\_\_

Low: 0 - 1    Medium: 2 - 3    High: 4 - 6    Very High: 7 +

**MacAndrew Score:** \_\_\_\_\_

Normal Range: 0 - 23    Medium Risk: 24 - 29    High Risk: 30 +

**Age at onset:** \_\_\_\_\_ years

Under 25 - Higher Risk    25 - 39 Medium Risk    40 + Lower Risk

## 4. NEGATIVE CONSEQUENCES

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### Severity of Problems

	Low	Medium	High	Very High
AUDIT	0 - 7	8 - 15	16 - 25	26 - 40

Your Score: \_\_\_\_\_

DRINC: Ever happened	Low	Medium	High	Very High
	55 - 60	61 - 75	76 - 90	91 +

Your Score: \_\_\_\_\_

(Additional information on attached sheet.)

## 5. BLOOD TESTS

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SGOT (AST): \_\_\_\_\_ Normal range: 5 - 35

GGTP (GGT): \_\_\_\_\_ Normal range: 0 - 30 Low Normal 31 - 50 High Normal

51 + Elevated / Abnormal

SGPT (ALT): \_\_\_\_\_ Normal range: 7 - 56

Uric Acid: \_\_\_\_\_ Normal range: 2.6 - 5.6

Bilirubin: \_\_\_\_\_ Normal range: .2 - 1.2

## 6. NEUROPSYCHOLOGICAL TESTS

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	Well Above Average	Above Average	Average	Below Average	Well Below Average
SV	1	2	3	4	5
TMTA	1	2	3	4	5
TMTB	1	2	3	4	5
SYDM	1	2	3	4	5
SHVA	1	2	3	4	5

Therapist: \_\_\_\_\_

# Understanding Your Personal Feedback Report

The Personal Feedback Report summarizes results from your pretreatment evaluation. Your therapist has explained these to you. This information is to help you understand the written report you have received and to remember what your therapist told you.


Your report consists of two sheets. The first sheet provides information from your pretreatment interviews. Attached to this is a second sheet summarizing your answers to a questionnaire, the Alcohol Use Inventory. The following information is presented section by section to help you understand what your results mean.


## 1. Your Drinking


The first line in this section shows the number of drinks that you reported having in a typical drinking week. Because different alcohol beverages vary in their strength, we have converted your regular drinking pattern into standard "one drink" units. In this system, one drink is equal to:


10 ounces of beer	(5 percent alcohol)	or
4 ounces of table wine	(12 percent alcohol)	or
2.5 ounces of fortified wine (sherry, port, etc.)	(20 percent alcohol)	or
1.25 ounces of 80 proof liquor	(40 percent alcohol)	or
1 ounce of 100 proof liquor	(50 percent alcohol)	

**ONE STANDARD DRINK IS:**

**BEER**  10 oz

**WINE**  4 oz

**80 PROOF LIQUOR**  1 1/4 oz

**100 PROOF LIQUOR**  1.0 oz

All of these drinks contain the same amount of the same kind of alcohol: one-half ounce of pure ethyl alcohol.

This first piece of information, then, tells you how many of these standard drinks you have been consuming per week of drinking, according to what you reported in your interview. (If you have not been drinking for a period of time recently, this refers to your pattern of drinking before you stopped.)

To give you an idea of how this compares with the drinking of American adults in general, the second number in section 1 is a *percentile* figure. This tells you what percentage of U.S. men (if you

are a man) or women (if you are a woman) drink *less* than you reported drinking in a typical week of drinking. If this number were 60, for example, it would mean that your drinking is higher than 60 percent of Americans of your sex (or that 40 percent drink as much as you reported, or more).

How much is too much? It depends on many factors. Current research indicates that people who average *three* or more standard drinks per day have much higher risk of health and social problems. For some people, however, even 1–2 drinks per day would be too many. Pregnant women, for example, are best advised to abstain from alcohol altogether, because even small amounts of regular drinking have been found to increase risk for the unborn child. Certain health problems (such as liver disease) make even moderate drinking unsafe. Some people find that they are unable to drink moderately, and having even one or two drinks leads to intoxication.

Your total number of drinks per week tells only part of the story. It is *not* healthy, for example, to have 12 drinks per week by saving them all up for Saturdays. Neither is it safe to have even a few drinks and then drive. This raises the important question of level of intoxication.

## 2. Level of Intoxication

A second way of looking at your past drinking is to ask what level of intoxication you have been reaching. It is possible to estimate the amount of alcohol that would be circulating in your bloodstream, based on the pattern of drinking you reported. Blood alcohol concentration (BAC) is an important indication of the extent to which alcohol would be affecting your body and behavior. It is used by police and the courts, for example, to determine whether a driver is too impaired to operate a motor vehicle.

To understand better what BAC means, consider the list of common effects of different levels of intoxication.

### Common Effects of Different Levels of Intoxication

20–60 mg%	This is the “normal” social drinking range. NOTE: Driving, even at these levels, is unsafe.
80 mg%	Memory, judgment, and perception are impaired. Legally intoxicated in some States.
100 mg%	Reaction time and coordination of movement are affected. Legally intoxicated in all States.
150 mg%	Vomiting may occur in normal drinkers; balance is often impaired.

- 200 mg% Memory "blackout" may occur, causing loss of recall for events occurring while intoxicated.
- 300 mg% Unconsciousness in a normal person, though some remain conscious at levels in excess of 600 mg% if tolerance is very high.
- 400–500 mg% Fatal dose for a normal person, though some survive higher levels if tolerance is very high.

The two figures shown in section 2 are computer-calculated estimates of your highest (peak) BAC level during a typical week of drinking and during one of your heaviest days of drinking.

It is important to realize that there is no known "safe" level of intoxication when driving or engaging in other potentially hazardous activities (such as swimming, boating, hunting, and operating tools or machinery). Blood alcohol levels as low as 40–60 mg% can decrease crucial abilities. Adding to the danger, drinkers typically do not *realize* that they are impaired. The only safe BAC when driving is zero. If you must drive after drinking, plan to allow enough time for all of the alcohol to be eliminated from your body before driving. The tables below can be helpful in determining how long it takes to eliminate alcohol completely:

**Approximate hours from first drink to zero alcohol concentration levels for men**

		Your weight in pounds							
		120	140	160	180	200	220	240	260
<b>Number of Drinks</b>	<b>1</b>	2	2	2	1.5	1	1	1	1
	<b>2</b>	4	3.5	3	3	2.5	2	2	2
	<b>3</b>	6	5	4.5	4	3.5	3.5	3	3
	<b>4</b>	8	7	6	5.5	5	4.5	4	3.5
	<b>5</b>	10	8.5	7.5	6.5	6	5.5	5	4.5

One drink = 10 oz of beer or 4 oz of wine or 1 oz of liquor (100 proof)

**Approximate hours from first drink to zero alcohol concentration levels for women**

		Your weight in pounds							
		120	140	160	180	200	220	240	260
<b>Number of Drinks</b>	<b>1</b>	3	2.5	2	2	2	1.5	1.5	1
	<b>2</b>	6	5	4	4	3.5	3	3	2.5
	<b>3</b>	9	7.5	6.5	5.5	5	4.5	4	4
	<b>4</b>	12	9.5	8.5	7.5	6.5	6	5.5	5
	<b>5</b>	15	12	10.5	9.5	8	7.5	7	6

One drink = 10 oz of beer or 4 oz of wine or 1 oz of liquor (100 proof)

### 3. Risk Factors

It is clear that some people have a much higher risk of alcohol and other drug problems. This section provides you with some information about your own level of risk, based on your personal characteristics. "High risk" does not mean that one will definitely have serious problems with alcohol or other drugs. Neither does "low risk" mean that one will be free of such problems. High-risk people, however, have greater chances of developing serious problems.

#### Tolerance

Your peak BAC levels, given in section 2, are one reasonably good reflection of your level of *tolerance* for alcohol. If you are reaching BAC levels beyond the normal social drinking range (especially if you are not feeling some of the normal effects of lower BACs), it means that you have a higher tolerance for alcohol. This is partly hereditary and partly the result of changes in the body that occur with heavier drinking. Some people are proud of this tolerance—the ability "to hold your liquor"—and think it means they are not being harmed by alcohol. Actually, the opposite is true. Tolerance for alcohol may be a serious *risk factor* for alcohol problems. The person with a high tolerance for alcohol reaches high BAC levels, which can damage the brain and other organs of the body but has *no built-in warning* that it is happening. Tolerance is not a protection against being harmed by drinking; to the contrary, it makes damage more likely because of the false confidence that it encourages. It is a bit like a person who has no sense of pain. Pain is an important warning signal. People who feel no pain can seriously injure themselves without realizing it. It is the same with people who have a high tolerance for alcohol.

Many people believe that tolerance ("holding your liquor") means that a person gets rid of alcohol at a faster rate than others. Although people do differ in how quickly their bodies can clear alcohol, tolerance has more to do with actually *being* at a high blood alcohol level and not feeling it.

#### Other Drug Use

A person who uses other drugs besides alcohol runs several additional risks. Decreased use of one drug may simply result in the increased use of another. The effects of different drugs can multiply when they are taken together, with dangerous results. A tolerance to one drug can increase tolerance to another, and it is common for multiple drug users to become addicted to several drugs. The use of other drugs, then, increases your risk for serious problems. Based on the lifetime drug use that you reported during your interview, your risk in this regard was judged to be low, medium, or high.

#### Family Risk

People who have a family history of alcohol or other drug problems among their blood relatives clearly are at higher risk themselves. The exact reason for this higher risk is unknown, but it appears that the risk is inherited to an important extent. People may inherit a higher tolerance for alcohol or a body that is particularly sensitive to alcohol

in certain ways. In any event, a family history of alcohol problems increases personal risk.

## **Personality Pattern**

Although there is no single personality style associated with alcohol and drug problems, certain patterns are linked to higher risk. One questionnaire you completed—the MacAndrew Scale—measures this particular kind of risk. People who score higher on this scale as teenagers, for example, have been found to have higher risk for developing serious problems with alcohol in adulthood.

## **Age at Onset**

Recent research indicates that the younger a person is when drinking problems start, the greater the person's risk for developing serious consequences and dependence. Although serious problems can occur at any time of life, a younger beginning does represent a significant risk factor.

## **4. Negative Consequences**

From your pretreatment interview, two scores were calculated to reflect the current overall severity of your negative consequences from drinking.

### **AUDIT**

The AUDIT is a scale devised by the World Health Organization to evaluate a person's problematic involvement with alcohol. Higher scores reflect recent problems related to drinking.

### **DRINC**

Another way to look at risks and effects of drinking is to add up alcohol's negative effects throughout one's lifetime. Your score on this scale reflects the extent to which your drinking has had negative effects over the course of your life thus far. The higher your score, the more harm has resulted from your drinking.

## **5. Blood Tests**

Your pretreatment evaluation also included a blood sample. These particular blood tests were chosen because they have been shown in previous research to be negatively affected by heavy drinking. You should realize that normal results on these tests do not guarantee that you are in good health (for example, that your liver is functioning completely normally). An abnormal score on one or more of these tests, however, probably reflects unhealthy changes in your body resulting from excessive use of alcohol and/or other drugs.

Research indicates that modestly abnormal scores on the blood tests reported here will often show improvement and a return to normal range when harmful drinking and other drug use patterns are changed. The longer one continues drinking, however, the more difficult it is to reverse the physical damage.



These tests are directly related to how the liver is working. Your liver is extremely important to your health. It is involved in producing energy, and it filters and neutralizes impurities and poisons in your bloodstream. Alcohol damages the liver, and after a long period of heavy drinking, parts of the liver begin to die. This is the process of cirrhosis, but physical changes in the liver can be caused by drinking long before cirrhosis appears. As the liver becomes damaged, it begins to leak enzymes into the blood and is less efficient in doing its work. This can be reflected in abnormally elevated values on the tests reported in this section.

Elevated values on any of these tests should be taken seriously. They do not happen by chance and are very likely related to physical changes in the body caused by excessive drinking. Consult a physician who is knowledgeable about the effects of alcohol on the body.

## 6. Neuro- psychological Tests

Some of the earliest damaging effects of drinking may be seen in certain types of abilities that are affected by alcohol. Certain patterns of brain impairment have been shown to be especially related to heavy drinking. The brain is very vulnerable to alcohol, and over a long span of time, a substantial amount of damage can occur in a heavy drinker. (Brain impairment from the use of certain other drugs has also been shown.)

Such damage occurs gradually. In later stages, it can be seen in x rays of the brain, which show actual shrinkage and other changes in shape and density. Long before this occurs, however, harmful changes in brain functioning can be measured by psychological tests, several of which you completed. Research indicates that such negative effects can often be reversed, sometimes completely, if the individual stops or reduces drinking.

The four tests included in section 6 have been found to be related to heavy drinking. For comparison purposes, we include one test (SV) that is not usually affected by drinking to give you an idea of where your scores might normally be expected to fall. People who are heavy drinkers tend to score more poorly (higher) on the four alcohol-sensitive tests (TMTA, TMTB, SYDM, and SHVA) than on SV.

A high score on any one scale is not necessarily reason for concern. There are many reasons why a single score might be elevated. A *pattern* of elevated scores, however, resembles the kinds of problems that emerge among excessive drinkers. Studies of individuals currently in treatment for alcohol problems consistently show impairment on these measures.

Alcohol's effects on the brain have sometimes been described as "premature aging." The abnormal changes in the brain of a heavy drinker

do resemble normal changes that occur with advanced age. For this reason, your scores reflected above take into account your present age. Scores of 4 or 5 represent below-average performance relative to others in your age group.

## The Alcohol Use Inventory

You completed a longer questionnaire that asked in detail about your drinking. This questionnaire has been given to thousands of people seeking treatment for alcohol problems. Based on your answers, 24 scores were obtained, and these are shown on the Alcohol Use Inventory Profile section of your Personal Feedback Report .

Notice that each score falls into one of three ranges. The *white* range indicates a low score, the *light grey* range is for medium scores, and the *dark grey* range reflects high scores—*compared to other people in treatment for alcohol problems*. If, for example, your score for the “Quantity” scale (#13) was in the medium (light grey) range, it would mean that you drink about an average amount *for people already receiving treatment for alcohol problems*. This would be far above the average amount of drinking for Americans in general.

Here are brief reminders of what each scale means. If you want to discuss your results in more detail, contact your therapist.

### Benefits

The first four scales reflect possible *reasons* for excessive drinking. A high score on one of these scales may indicate a way in which you have come to depend on alcohol. In order to be free of alcohol problems, it would be important to find other ways of dealing with these areas of your life.

#### Social Improvement Drinking

People who score in the medium or high range on this scale tend to be social drinkers. They may use alcohol to relax and feel more comfortable around others, to be friendly, or to enjoy social events more. They might have difficulty knowing how to handle their social lives without alcohol.

#### Mental Improvement Drinking

Those who score medium or high on this scale tend to like the way alcohol changes their *thinking* or *mental* state. They indicate that when they drink they feel more creative or alert, work better, or see the world in more enjoyable ways.

### **Managing Mood With Drinking**

On this scale, medium or high scores indicate people who use alcohol to change how they feel. They drink to forget, to feel less anxious or depressed, or to escape from unpleasant moods. Without alcohol, they might experience difficulty coping with their own emotions.

### **Marital Coping by Drinking**

(If you are not married, you will have no score here.) People who score in the medium or high range on this scale report that they drink because of problems in their marriage.

## **Styles of Drinking**

The next three scales reflect different *styles* of using alcohol. Low scores on these scales describe a different style of drinking but do not mean that there are no problems.

### **Gregarious Drinking**

A medium or high score indicates a preference for drinking around other people. Those who prefer to drink alone score low on this scale.

### **Compulsive Drinking**

Medium and high scores on scale 6 indicate a close attachment to alcohol. Such people tend to think about alcohol a lot, keep a supply handy, and drink in a "compulsive," predictable style.

### **Sustained Drinking**

People who score in the medium and high range on this scale tend to be regular, steady drinkers, drinking every day or most days. Those who score lower on this scale are not such steady drinkers but have periods of drinking and nondrinking.

## **Consequences**

Scales 8–12 reflect possible negative consequences of drinking. Higher scores on these scales reflect more problems, *compared with people already in treatment for alcohol problems*. Thus, a person with a lower score may still have some problems but fewer than most people now in treatment for alcohol problems.

### **Loss of Control**

One kind of difficulty that people can have is that they lose control of themselves when drinking. They get into trouble, arguments, or fights. They may do embarrassing things or hurt themselves or other people. They may not remember things that happened while drinking (black-

outs) or may drink until they become unconscious. Medium and high scores indicate these kinds of problems.

### **Role Problems**

Drinking can also cause social difficulties, such as problems at work or school, and conflicts with the law. Medium and high scores indicate that alcohol is seriously interfering with social functioning.

### **Delirium**

If people continue to drink heavily over a period of time, they may develop a pattern of physical *dependence* on alcohol. A number of changes occur, usually gradually, that make it more difficult for a person to live without alcohol. This can include actual addiction to alcohol, so that the person becomes uncomfortable or even ill when stopping or cutting down drinking. Medium to high scores on this scale reflect some of the more serious signs of addiction to alcohol. For example, stopping drinking can result in hallucinations (seeing, hearing, or feeling things that are not really there) or fuzzy thinking.

### **Hangover**

Hangovers are actually a form of alcohol withdrawal, the body's "rebound" reaction to alcohol. Medium or high scores on scale 11 reflect some of these signs of addiction to alcohol: feeling shaky or sick to the stomach, feeling your heart racing, having a seizure, or feeling hot or cold flashes when sobering up.

### **Marital Problems**

People who score in the medium or high range of scale 12 report that they are having problems in their marriage because of their drinking. (If you are not married, this scale will be blank.)

## **Personal Concern**

How much do you recognize and acknowledge problems with drinking? This is what scales 13–17 describe.

### **Quantity of Drinking**

Scale 13 is a rough indicator of the *amount* you said you have been drinking. (Section 1 of your Personal Feedback Report is a more accurate indication.) Remember that this is in comparison to other people seeking treatment for alcohol problems.

### **Guilt/Worry**

To what extent have you felt guilty about your drinking or worried about what it is doing to you and those around you? Medium and high scores reflect more of this kind of concern.

### **Help Before**

To what extent have you sought help for your drinking before coming to this program? The more things you have tried before, the higher this score will be.

### **Receptiveness**

To what extent do you feel ready and willing to receive help for your drinking? Medium and high scores reflect greater willingness to accept help.

### **Awareness**

To what extent are you aware of problems being caused by your drinking? Medium and high scores indicate recognition of more serious problems.

## **Second Order Scales**

Scores A through F are summaries. They do not contain new information but rather combine information from scales 1–17. Nevertheless, they are useful as overall problem indicators.

### **Enhancement Drinking**

Medium and high scores on this scale reflect drinking to cope, to enhance your life, or to get what you perceive to be the benefits of drinking. To the extent that this score is high, there would be some challenges to face in changing your drinking, because you have relied on alcohol for these purposes. Scales 1–5 show you where you may have relied most on alcohol to enhance your life.

### **Obsessive Drinking**

Medium and high scores on this scale indicate what are often thought of as classic “alcoholic” drinking patterns. The drinking of high scorers on this scale tends to be steady and “driven,” occupying much of the person’s time and energy. High scorers think about drinking quite a bit and will go to considerable lengths to make sure they can drink. It has become a central part of their lives.

### **Disruption**

Both of these two scales report the extent to which life has been disrupted by drinking. Medium and high scores indicate serious symptoms and problems resulting from drinking.

### **Anxious Concern**

Medium and high scores on this scale indicate worry, anxiety, or concern about drinking, as well as alcohol's negative effects on the person's emotional life.

### **Recognition and Awareness**

Medium and high scores here indicate a recognition of a need for change in drinking and/or willingness to get help with drinking.

## **General**

Finally, the Alcohol Involvement Scale is one general indicator of the overall severity of alcohol problems. The higher this score, the more serious and severe the alcohol problems. Remember that scores are low, medium, or high in relation to people already in treatment for alcohol problems.

## **Summary**

Your Personal Feedback Report summarizes a large amount of information that you provided during your pretreatment interviews. Sometimes this information can seem surprising or even discouraging. The best use of feedback like this is to consider it as you decide what, if anything, you will do about your drinking. Many of the kinds of problems covered in your Personal Feedback Report do improve when heavy drinking is stopped. What you do with this information is up to you. Your report is designed to give you a clear picture of where you are at present so that you can make good decisions about where you want to go from here.

# Alcohol And You

William R. Miller, Ph.D.

## **Have you ever wondered:**

*Whether you drink too much?  
Whether alcohol is harming you or putting you at risk?  
How heavy drinking affects your health?  
How much is too much?*

## **Drinking**

Drinking alcohol is certainly common in our society. About two-thirds of American adults have a drink at least occasionally, while the other one-third don't drink at all. Of those who do drink, the vast majority use alcohol very moderately, and will never have serious problems with it. For them, alcohol beverages are simply that: beverages to be enjoyed now and then as part of a meal or a social occasion.

Yet it is important to remember that alcohol is also a *drug*, and a potentially dangerous one. People who use it beyond moderate levels have a much greater risk for a wide variety of illnesses and problems. Overdrinking results in up to 200,000 deaths each year in the United States alone — about 550 every day — and many more people than that are ill or injured because of their drinking.

Drinking is such a serious health problem in our country, in part, because many people who drink too much don't think of themselves as problem drinkers, or even heavy drinkers. They see themselves as normal, moderate drinkers. Although they may realize that their drinking has negative consequences now and then, they also enjoy drinking, and aren't sure they need to make a change. Heavy drinking can seem quite normal if one has friends who drink just as much, or even more.

This booklet explains some of the risks associated with heavy drinking, based on current scientific knowledge. Of course no one person will experience all, or even most of the risks and problems discussed here. Some are relatively rare, while others happen to many people who drink too much.

The point is that it is important to *know* about alcohol, just as a doctor or pharmacist informs you about the effects of drugs that are prescribed. When you know the facts, you can make better choices. What you decide to do with this information, of course, is up to you.

## **Heavy Drinking**

How much is too much? It is difficult to say exactly. Studies suggest that people who have no more than 1 or 2 drinks per day have no higher risk in general than non-drinkers. ("One drink" here means a 10-ounce glass of beer, or a 4-ounce glass of wine, or one ounce of 100 proof spirits.) Only 8% of American adults (and only 4% of women) average 3 drinks or more per day, and those who do so suffer many more diseases, injuries, and problems than do light drinkers or nondrinkers.

Surprisingly few Americans are aware of the risks of heavier drinking. Most know that drunk driving is dangerous, and that alcoholics may get liver disease. Yet

few really understand how many areas of life and health can be harmed by alcohol, and how quickly and easily this can happen. Over time, heavy drinking can damage one's relationships, job, intelligence, and emotional and physical health. Often the damage is gradual, occurring slowly over a period of years, so that one may not even notice that it is happening. Other kinds of alcohol-related damage and problems happen suddenly.

What kinds of problems can happen because of overdrinking? Health risks will be considered first; then social and psychological risks will be discussed.

## **Health Risks**

### **Heart and Fitness**

Is alcohol good for the heart? Although light drinkers (no more than 1-2 drinks per day) seem to be at least as healthy as abstainers, heavier drinkers can do serious damage to their health and fitness. Alcohol weakens heart muscle, decreasing cardiovascular fitness, and heavy drinkers have much higher risk of heart disease. Heavy drinking also increases blood pressure, and can contribute to hypertension. The electrical control patterns of the heart can be disrupted by an episode of heavy drinking, which can cause the heart to race or skip beats, even in young people with no previous history of heart disease.

### **The Brain and Nervous System**

The human brain is sometimes the first organ to be damaged by heavy drinking. Alcohol kills nerve cells, and many heavy drinkers show evidence of brain damage. If this process continues for a period of years, the brain literally shrinks in size, due to the destruction of so many brain cells. Such shrinkage can be observed (by special X-rays known as a "CAT scan") in about half of people in treatment for alcohol problems.

It is not surprising, then, that heavy drinkers also show significant decreases in their mental abilities. Alcohol damages the ability to learn and remember new material, to think abstractly, and to adjust flexibly to changes. One recent study found a strong relationship between amount of drinking and grades in college students: the more they drank, the lower their grade point average. After years of heavy drinking, a disease known as Wernicke-Korsakoff syndrome can occur, permanently damaging the person's ability to remember things from one day to the next. The damaging effects of alcohol have been likened to a premature aging of the brain. The mental abilities of a 30-year-old heavy drinker may resemble those of an 80-year-old nondrinker.

Nerve cells outside the brain are also damaged by heavy drinking. Usually the first effects are experienced in the legs and feet, or arms and hands. The signs include muscle weakness, pain, tingling, or numbness. These result from "peripheral neuropathy," the dying off of nerve channels that serve the legs and arms.

The good news is that the nervous system, including the brain, can repair itself to some extent if a heavy drinker stops drinking. Although once dead, brain cells are not replaced, the brain has a remarkable ability to make new connections, and former drinkers often show significant improvement in their mental abilities during their first year or so without alcohol.

### **The Digestive System**

Alcohol can irritate and damage the sensitive tissue of the digestive system. Perhaps the most direct experience of this is to take a drink of straight liquor. It burns — all the way down. It irritates the lining of the lips, mouth, throat and stomach. Alcohol also releases digestive acid in the stomach, which adds to the irritating effect of the alcohol itself. Heavy drinkers experience higher rates of gastritis, ulcers, and bleeding of the digestive system. Pancreatitis, an extremely painful and sometimes fatal inflammation of the pancreas, also occurs at higher rates in heavy drinkers.

Cancers of the digestive system are much more common in heavy drinkers — some occurring at more than 40 times the normal rate. Heavy drinkers account for a majority of head and neck cancers: those in the mouth, tongue, throat, and esophagus.

Because alcohol contains a high level of empty calories — those with no nutritional value — heavy drinkers also tend not to eat properly. They may drink up to half of their daily calories. This can result in both weight gain and nutritional deficits. To make matters worse, alcohol prevents the body from fully absorbing and using even those vitamins and other nutrients that are available.

### **The Liver**

The liver is the body's main defense against poisons and impurities in the blood. It is also important in manufacturing energy for the whole body, including the brain, muscles, and heart. Because alcohol is a toxic chemical, it is the liver's job to remove it from the bloodstream. When alcohol is present, the liver gives priority to getting rid of it, and in the process does not perform some of its normal work, such as getting rid of fats and body waste products.

As a result, heavy drinkers tend to pile up fat in the liver and bloodstream. The liver itself becomes fatty and enlarges, contributing to the "beer belly" appearance.



This condition is reversible, but if the heavy drinking continues a different kind of damage occurs. Liver cells begin to die off, and are replaced by scar tissue. The beginnings of this irreversible process can be seen long before it reaches the disease stage known as cirrhosis. As living liver tissue is replaced by scars, the liver is less and less able to produce energy and filter impurities (including alcohol) from the bloodstream.

### The Immune System

Alcohol decreases the body's ability to fight off diseases and infections. The immune system — the body's defense — works less efficiently whenever a person drinks, and over a period of heavy drinking the body's defenses can be greatly weakened. As a result, the person becomes more vulnerable to infections, cancers, and other illnesses. The risk of cancers in general among heavy drinkers is twice that of other people. Sores and injuries tend to heal more slowly, and it becomes harder to shake off sickness.

### The Reproductive System

Alcohol has clear negative effects on the reproductive system. In men, drinking decreases the body level of testosterone, the primary male hormone. If a man drinks heavily for a period of time, this loss of testosterone can result in a "feminization" of his body — the loss of body hair, enlargement of fatty tissue in the breasts, and a shrinking of the testicles. Heavy drinking can also contribute to sexual problems such as impotence.

In women, heavy drinking has been linked to increased rates of sexual, menstrual and other gynecological problems. Alcohol also changes sex hormone balances in women, and can promote a loss of feminine body characteristics. Heavy drinking during pregnancy has been clearly linked to increased rates of miscarriage and stillbirth, and to birth defects, behavior problems, and mental retardation of children exposed to alcohol in the womb. Alcohol consumed by a pregnant woman directly affects the fetus, and there is no known safe level of drinking during pregnancy.

### Summary

In short, once alcohol is consumed, it is rapidly distributed throughout the body, where it affects virtually every organ system. There are no proven beneficial health effects of drinking, but there are many proven harmful effects of heavy drinking. Many of these damaging effects can be reversed, at least partly, when a heavy drinker stops drinking. In general, the longer the period of heavy drinking, the less reversible the damage, but quitting usually results in improved health and fitness, even after many years of excess.

## Social and Psychological Problems

The damaging physical effects of heavy drinking are only part of the picture. Heavy drinkers are also at risk for many other kinds of problems.

### Risk-Taking and Accidents

Alcohol-related accidents and violence are the leading cause of death among Americans under the age of 35. How can this be?

There are several reasons. First, as many people know, drinking makes a person less in control. Alcohol, even at levels well under the "legal limit" can cause dangerous changes in a person's ability to react, to control muscles, and to perceive the world accurately.

These changes are made all the more dangerous by something else that happens when a person drinks. Among the first things to be changed by alcohol is a person's *judgment*. Experienced race drivers, for example, become much poorer drivers after even a few drinks, but may actually perceive themselves to be *better* drivers under the influence of alcohol. In short, a person cannot tell how much he or she is being affected. You can't judge when your judgment is affected!

These judgment changes, in turn, often make a person overconfident, and more likely to take foolish risks. After a few drinks, people are less able to make good decisions, and are more likely to do things they would never do while sober. Sometimes the result is only embarrassment, but other times it is much more serious. A majority of people in prison, for example, committed their crimes while under the influence of alcohol. When drinking, people are more likely to misjudge others as threatening or challenging them, and to react impulsively, aggressively, even violently. Other misjudgments can be disastrous as well. Tens of thousands of deaths and hundreds of thousands of injuries happen each year because people drink before driving vehicles, using power tools or firearms, or engaging in fun but hazardous sports such as swimming, boating, or skiing — activities where even a small misjudgment can be very dangerous.

### Mood

Drinking also affects mood. After one or two drinks, some people feel happier, more relaxed, less tense and anxious. Interestingly, these same changes happen when people *believe* they are drinking alcohol, even if they are not. Alcohol itself is a *depressant* drug, and its effects, in heavier doses at least, are to turn good feelings bad, and to make bad feelings worse. After several drinks, mood tends to take a turn for the worse. It is around this same point, however, that alcohol also affects memory, so people tend not to remember the

depressing effects of drinking — only the seemingly positive effects of the first drink or two.

Among heavy drinkers, depression is common. There are many possible reasons for this. Yet when heavy drinkers get treatment and quit, usually their depression goes away after a few weeks. Alcohol is not a stimulant or an upper. It is a downer.

### **Relationships**

Heavy drinking can damage close relationships. “You always hurt the one you love” seems to be especially true for people who drink too much. Heavy drinkers have, on average, more problems in their marriages and other relationships, and higher rates of separation and divorce. One’s ability to be a good parent can also be harmed by overdrinking, resulting in family problems. Child abuse and neglect are more common among heavy drinking parents.

### **Problems and Coping**

One reason why heavy drinkers’ relationships may get into trouble is that the person begins to drink alcohol as a *solution* to problems, as a way of trying to cope. Drinking takes the place of talking and working out difficulties in other ways. It can be a tempting trap. Alcohol dulls memory, and makes the problems seem to go away — at least for the time being.

Yet while people are drinking to ease cares and worries, the troubles aren’t really going away. In fact, they often get worse, because the drinker makes little or no attempt to find better ways to handle things. It’s just easier to let things go, to take a break, to forget. So things begin to fall apart — sometimes a little at a time, sometimes in bigger shocks — and it happens in different ways for different people:

- Friends pull back or drift away
- Problems start showing up on the job or at school: coming in late, missing days, not working up to your abilities, making more mistakes, missing opportunities, having accidents, putting off responsibilities
- Tension builds up in the family: more complaints, problems, and arguments, less fun and closeness
- Health and fitness begin to be affected
- Money problems increase: too much is spent on alcohol, and on paying for problems or poor decisions related to drinking

Because alcohol can make it hard to see what is really happening, heavy drinkers often feel misunderstood, unfairly treated, harassed, or just unlucky. And as things get worse, the temptation is — to drink.

## **Personal Risk**

Many people drink alcohol moderately without ever experiencing significant problems. Why is it that some people have trouble with alcohol while others do not?

Part of the answer, of course, lies in *how much* a person drinks. The more one drinks, the greater the risk of suffering the negative health, psychological and social consequences. Yet that is not the whole picture. Certain people have a greater risk than others. Here are a few factors that have been shown to increase a person’s danger for overdrinking and running into significant problems with alcohol:

- Having a family history of relatives with alcohol or other drug problems
- Drinking to get drunk
- Being able to “hold your liquor” — seeming to be less affected by alcohol than most people
- Having one or more memory “blackouts” due to drinking
- Drinking to relieve bad feelings or to escape from problems
- Having friends who are heavy drinkers
- Thinking of alcohol as a positive life influence, which helps people be more friendly, happy, relaxed, successful, etc.
- Using other drugs which, when combined with alcohol, increase the effects and dangers of drinking

People with these characteristics seem to have higher risk for the kinds of problems described earlier. A person doesn’t have to have any of these in order to be harmed by alcohol, of course. It’s just that these are risk factors, which increase one’s chances for harm from overdrinking.

## **Alcohol and You**

Probably most of the things mentioned earlier have not happened to you. Even heavier drinkers can sometimes go for many years without piling up too many of these problems. Yet maybe you do see yourself in some of these descriptions, or perhaps you see what might happen to you if your drinking continues as it is.

Is it time for you to make a change? That is your choice. In fact, no one else can decide about your drinking, or change your drinking for you, not even if they want to. To be sure, other people may be able to help quite a bit if you let them, but still in the end it’s your decision.

If you want to change your drinking, there are many ways to do it. Some people just decide, and go ahead. Others find that it's easier with some help from friends, professionals, or other people who have been through it. There's no one approach that is best for all. The truth is that there are many different ways, and you keep trying until you find what works for you. If one approach isn't working, try something else. There are books, self-help groups, skilled counselors and psychologists and physicians, spiritual approaches, medications, clinics, and hospitals. There's no one magic answer for everybody, but there are many helpful people and approaches to try.

And in the long run, the chances for change are very good. If you do try to change your drinking and you're like most people, you may not succeed the very first time. It is common to have some setbacks, and it can be tough to make an important change in your life. One try may not do it. Or two, or five. Yet each try brings you closer to getting free, to succeeding in change. Studies show that most people who have problems with alcohol do get better in the long run. For those who decide to do something about their drinking, there is hope.